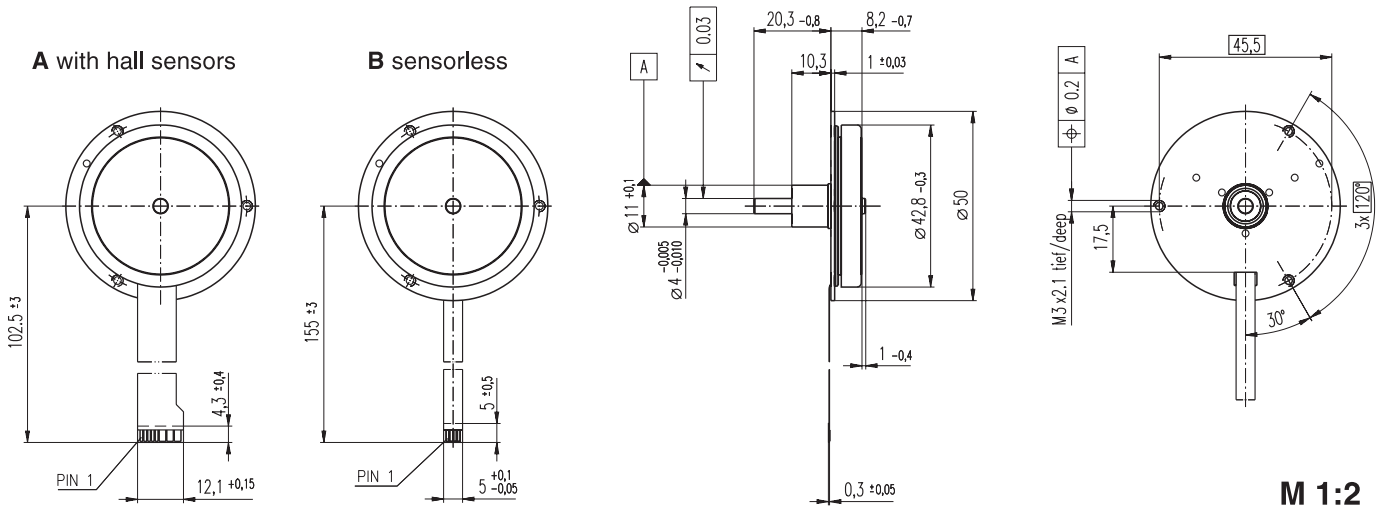


# EC 45 flat $\varnothing 45$ mm, brushless, 12 Watt



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

### Order Number

A with hall sensors  
B sensorless

200188	339275	339276
200141	339277	339278

### Motor Data

Values at nominal voltage		9.0	9.0	12.0	12.0	24.0	24.0
1	Nominal voltage	V	9.0	9.0	12.0	12.0	24.0
2	No load speed	rpm	8030	8010	8190	8180	7320
3	No load current	mA	128	128	99.0	99.0	42.2
4	Nominal speed	rpm	4840	4350	4840	4790	4380
5	Nominal torque (max. continuous torque)	mNm	22.8	23.9	19.1	18.3	25.8
6	Nominal current (max. continuous current)	A	1.96	2.07	1.31	1.27	0.739
7	Stall torque	mNm	89.1	74.9	66.3	61.3	106
8	Starting current	A	8.57	7.20	4.90	4.53	3.46
9	Max. efficiency	%	77	76	74	73	79
<b>Characteristics</b>							
10	Terminal resistance phase to phase	$\Omega$	1.05	1.25	2.45	2.65	6.93
11	Terminal inductance phase to phase	mH	0.320	0.320	0.541	0.541	2.75
12	Torque constant	mNm / A	10.4	10.4	13.5	13.5	30.5
13	Speed constant	rpm / V	918	918	706	706	313
14	Speed / torque gradient	rpm / mNm	92.7	110	128	138	71.1
15	Mechanical time constant	ms	50.8	60.4	70.1	75.8	38.9
16	Rotor inertia	gcm <sup>2</sup>	52.3	52.3	52.3	52.3	52.3

### Specifications

<b>Thermal data</b>		
17	Thermal resistance housing-ambient	5.17 K / W
18	Thermal resistance winding-housing	5.05 K / W
19	Thermal time constant winding	8.24 s
20	Thermal time constant motor	147 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. 0.6 mm preloaded
25	Radial play	
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	1000 N
		5.5 N
<b>Other specifications</b>		
29	Number of pole pairs	8
30	Number of phases	3
31	Weight of motor	57 g

Values listed in the table are nominal.

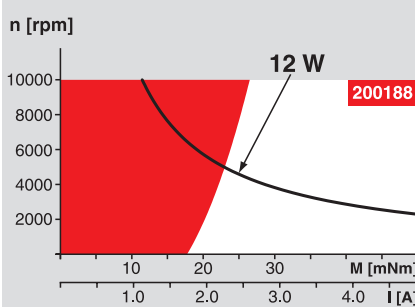
Connection	with hall sensors	sensorless
Pin 1	4.5 ... 18 VDC	Motor winding 1
Pin 2	Hall sensor 3*	Motor winding 2
Pin 3	Hall sensor 1*	Motor winding 3
Pin 4	Hall sensor 2*	neutral point
Pin 5	GND	
Pin 6	Motor winding 3	
Pin 7	Motor winding 2	
Pin 8	Motor winding 1	

\*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**

### Recommended Electronics:

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