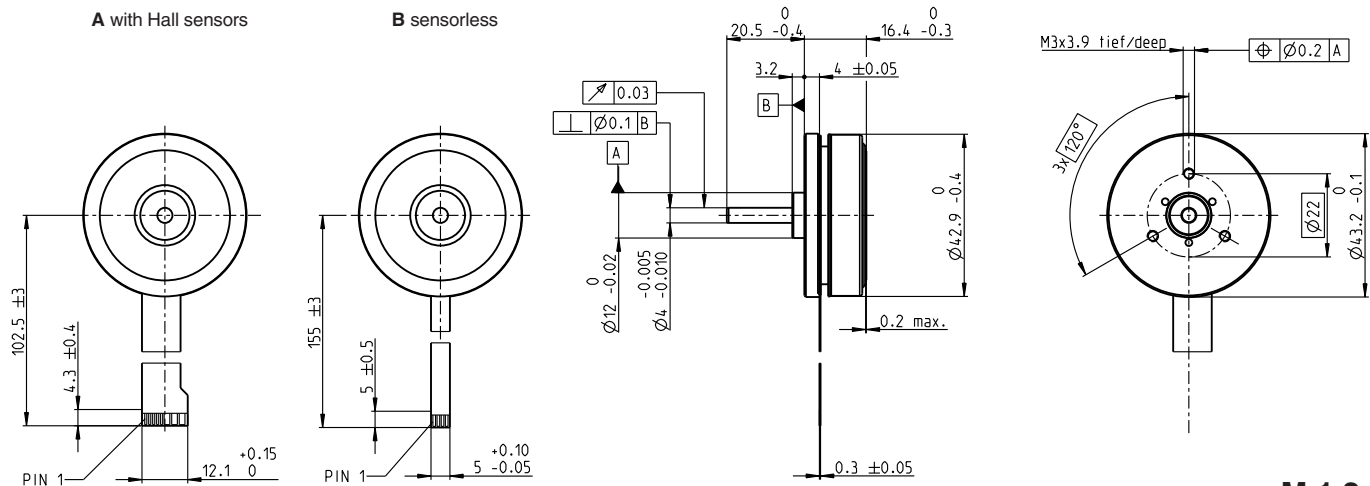


# EC 45 flat Ø45 mm, brushless, 30 Watt



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							
1 Nominal voltage	V	12.0	12.0	24.0	24.0	36.0	36.0
2 No load speed	rpm	4370	4360	4370	4370	4760	4760
3 No load current	mA	151	150	75.3	75.2	56.9	56.9
4 Nominal speed	rpm	2860	2820	2850	2840	3210	3210
5 Nominal torque (max. continuous torque)	mNm	59.0	54.3	58.8	57.5	70.6	69.5
6 Nominal current (max. continuous current)	A	2.14	2.00	1.07	1.05	0.893	0.882
7 Stall torque	mNm	255	219	253	243	380	369
8 Starting current	A	10.0	8.57	4.96	4.77	5.38	5.22
9 Max. efficiency	%	77	76	77	77	81	81
Characteristics							
10 Terminal resistance phase to phase	Ω	1.20	1.40	4.84	5.04	6.70	6.9
11 Terminal inductance phase to phase	mH	0.560	0.560	2.24	2.24	4.29	4.29
12 Torque constant	mNm / A	25.5	25.5	51.0	51.0	70.6	70.6
13 Speed constant	rpm / V	374	374	187	187	135	135
14 Speed / torque gradient	rpm / mNm	17.6	20.6	17.8	18.5	12.8	13.2
15 Mechanical time constant	ms	17.1	19.9	17.2	17.9	12.4	12.8
16 Rotor inertia	gcm <sup>2</sup>	92.5	92.5	92.5	92.5	92.5	92.5

## Specifications

Thermal data		
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	
Mechanical data (preloaded ball bearings)		
23 Max. permissible speed	10000 rpm	
24 Axial play at axial load < 5.0 N	0 mm	
	> 5.0 N	typ. 0.14 mm
25 Radial play	preloaded	
26 Max. axial load (dynamic)	4.8 N	
27 Max. force for press fits (static)	50 N	
(static, shaft supported)	1000 N	
28 Max. radial loading, 7.5 mm from flange	21 N	

## Other specifications

- 29 Number of pole pairs
  - 30 Number of phases
  - 31 Weight of motor
- Values listed in the table are nominal.

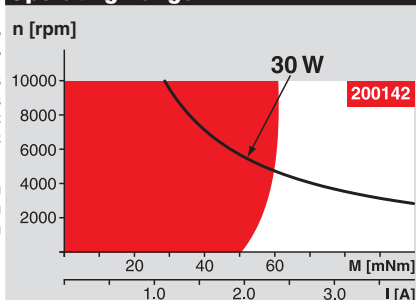
Connection	with Hall sensors	sensorless
Pin 1	4.5 ... 18 VDC	Motor winding 1
Pin 2	Hall sensor 3*	Motor winding 2
Pin 3	Hall sensor 1*	Motor winding 3
Pin 4	Hall sensor 2*	neutral point
Pin 5	GND	
Pin 6	Motor winding 3	
Pin 7	Motor winding 2	
Pin 8	Motor winding 1	

\*Internal pull-up (7 ... 13 kΩ) on pin 1  
Wiring diagram for Hall sensors see p. 29

Adapter	Order number	Order number
see p. 310	220300	220310
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

## 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

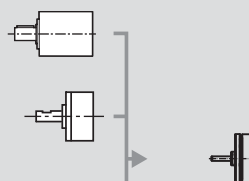
Overview on page 16 - 21

### Planetary Gearhead

Ø42 mm  
3 - 15 Nm  
Page 237

### Spur Gearhead

Ø45 mm  
0.5 - 2.0 Nm  
Page 239



## Recommended Electronics:

DECS 50/5	Page 289
DEC 24/3	290
DEC Module 24/2	290
DEC 50/5	291
DEC Module 50/5	291
DECV 50/5	297
EPOS2 Module 36/2	304
EPOS2 24/2	304
EPOS2 24/5	305
EPOS2 P 24/5	308
Notes	20

## Option

With Cable and Connector  
(Motor length +1.3 mm,  
Ambient temperature -20 ... +100°C)