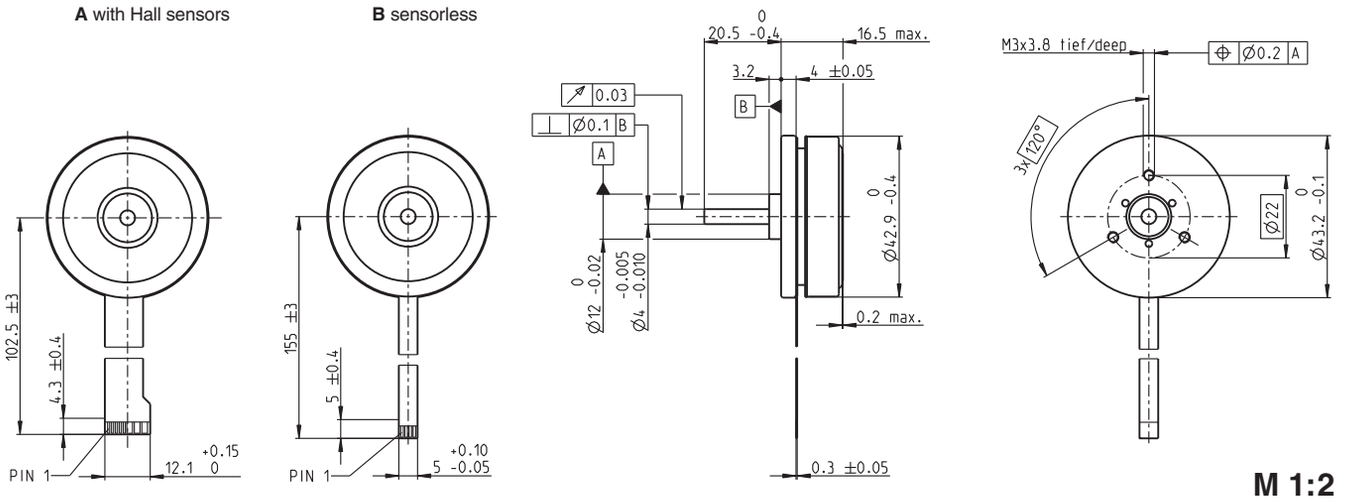
EC 45 flat ∅42.9 mm, brushless, 30 Watt



Stock program
Standard program
Special program (on request)

		Part Numbers							
	A with Hall sensors	200142		339281		339282			
	B sensorless		200189		339283		339284		
Motor Data									
	Values at nominal voltage								
1	Nominal voltage	V	12	12	24	24	36	36	
2	No load speed	rpm	4370	4350	4360	4380	4750	4760	
3	No load current	mA	163	163	81.4	73	61.6	55.3	
4	Nominal speed	rpm	2940	2800	2940	2900	3290	3270	
5	Nominal torque (max. continuous torque)	mNm	55	54.7	54.8	55.2	66	66.6	
6	Nominal current (max. continuous current)	A	2.02	2.02	1.01	1.01	0.847	0.849	
7	Stall torque	mNm	255	219	253	243	380	369	
8	Stall current	A	10	8.58	4.97	4.77	5.38	5.22	
9	Max. efficiency	%	76	75	76	77	80	81	
	Characteristics								
10	Terminal resistance phase to phase	Ω	1.2	1.4	4.83	5.03	6.69	6.89	
11	Terminal inductance phase to phase	mH	0.56	0.56	2.24	2.24	4.29	4.29	
12	Torque constant	mNm/A	25.5	25.5	51	51	70.6	70.6	
13	Speed constant	rpm/V	374	374	187	187	135	135	
14	Speed/torque gradient	rpm/mNm	17.6	20.5	17.7	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	gcm²	92.5	92.5	92.5	92.5	92.5	92.5	

Specifications

	Thermal data		
17	Thermal resistance housing-ambient		6.69 K/W
18	Thermal resistance winding-housing		3.92 K/W
19	Thermal time constant winding		11.4 s
20	Thermal time constant motor		295 s
21	Ambient temperature		-40…+100°C
22	Max. winding temperature		+125°C
	Mechanical data (preloaded ball bearings)		
23	Max. 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)		53 N
	(static, shaft supported)		1000 N
28	Max. radial load, 5 mm from flange		18 N
	Other specifications		
29	Number of pole pairs		8
30	Number of phases		3
31	Weight of motor		75 g

Values listed in the table are nominal.

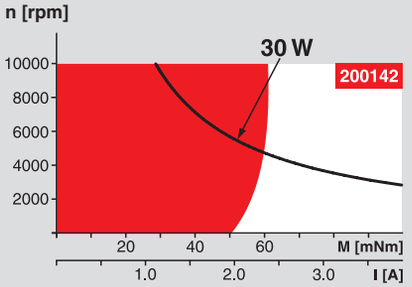
Connection	**with Hall sensors**	**sensorless**
Pin 1	V_{Hall} 4.5…18 VDC	Motor winding 1
Pin 2	Hall sensor 3*	Motor winding 2
Pin 3	Hall sensor 1*	Motor winding 3
Pin 4	Hall sensor 2*	⅄ neutral point
Pin 5	GND	
Pin 6	Motor winding 3	
Pin 7	Motor winding 2	
Pin 8	Motor winding 1	

*Internal pull-up (7…13 kΩ) on pin 1
Wiring diagram for Hall sensors see p. 35

Adapter	**Part number**	**Part number**
see p. 398	220300	220310
Connector	**Part number**	**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

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 20–25

Planetary Gearhead
∅42 mm
3 - 15 Nm
Page 316

Spur Gearhead
∅45 mm
0.5 - 2.0 Nm
Page 317

Encoder MILE
256 - 2048 CPT,
2 channels
Page 342

Recommended Electronics:

Notes	Page **24**
ESCON Module 24/2	378
ESCON 36/3 EC	379
ESCON Mod. 50/4 EC-S	379
ESCON Module 50/5	379
ESCON 50/5	380
DEC Module 24/2	382
DEC Module 50/5	382
EPOS2 24/2, Module 36/2	386
EPOS2 24/5, 50/5	387
EPOS2 P 24/5	390
EPOS3 70/10 EtherCAT	393
MAXPOS 50/5	396

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