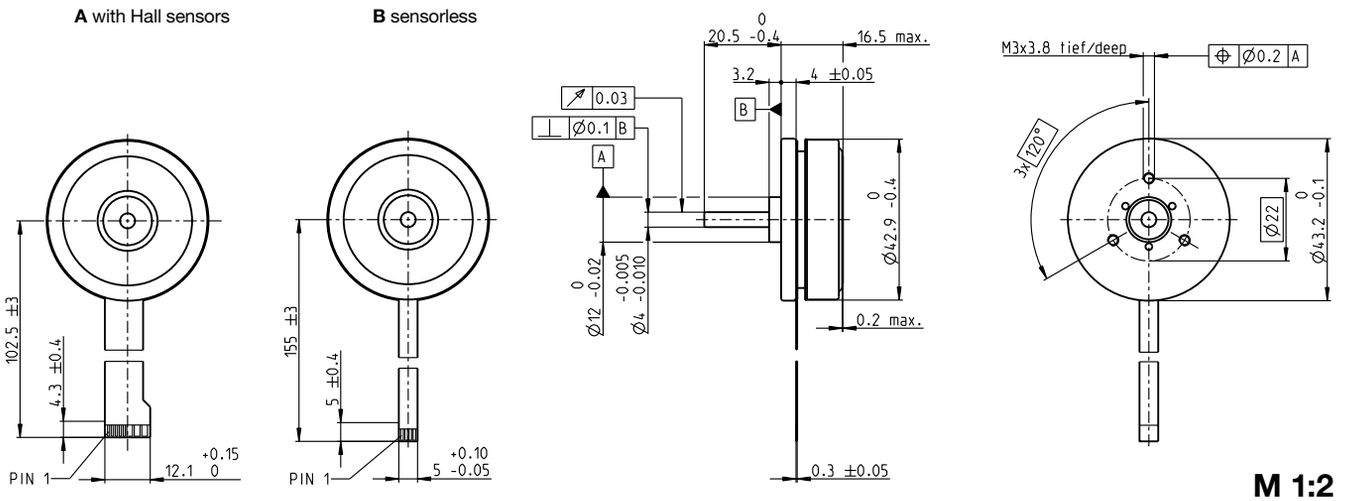
EC 45 flat ∅42.9 mm, brushless, 30 Watt



M 1:2

Stock program
Standard program
Special program (on request)

	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.

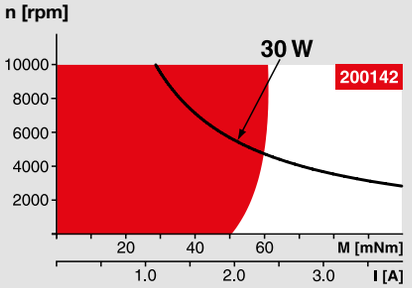
Connection	with Hall sensors	sensorless
Pin 1	V_{Hall} 4.5…18 VDC	Motor winding 1
Pin 2	Hall sensor 3*	Motor winding 2
Pin 3	Hall sensor 1*	Motor winding 3
Pin 4	Hall sensor 2*	⅄ neutral point
Pin 5	GND	
Pin 6	Motor winding 3	
Pin 7	Motor winding 2	
Pin 8	Motor winding 1	

*Internal pull-up (7…13 kΩ) on pin 1
Wiring diagram for Hall sensors see p. 43

Adapter	Part number	Part number
see p. 450	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 28–36

Planetary Gearhead
∅42 mm
3 - 15 Nm
Page 347

Spur Gearhead
∅45 mm
0.5 - 2.0 Nm
Page 349

Recommended Electronics:

Notes	Page 32
ESCON Module 24/2	426
ESCON 36/3 EC	427
ESCON Mod. 50/4 EC-S	427
ESCON Module 50/5	427
ESCON 50/5	428
DEC Module 24/2	430
DEC Module 50/5	430
EPOS2 24/2, Module 36/2	434
EPOS2 24/5, 50/5	435
EPOS2 P 24/5	438
EPOS4 Mod./CB 24/1.5	441
EPOS4 Module/CB 50/5	442
MAXPOS 50/5	447

for motor type A:
Encoder MILE
256 - 2048 CPT,
2 channels
Page 388

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