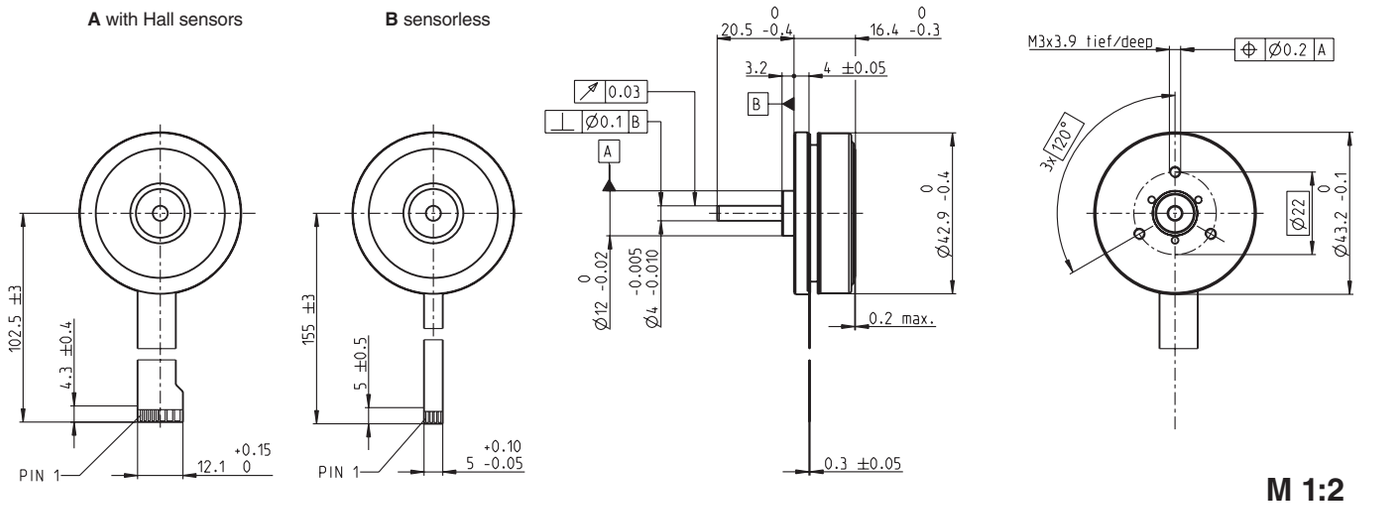
EC 45 flat ∅42.9 mm, brushless, 30 Watt



M 1:2

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	4380	4370	4380	4380	4760	4760	
3	No load current	mA	146	146	73	73	55.4	55.3	
4	Nominal speed	rpm	2940	2850	2940	2910	3290	3270	
5	Nominal torque (max. continuous torque)	mNm	55.5	53.2	55.3	54.7	66.6	66.1	
6	Nominal current (max. continuous current)	A	2.03	1.96	1.01	1	0.849	0.844	
7	Stall torque	mNm	241	206	239	230	337	330	
8	Starting current	A	10	8.58	4.97	4.77	5.38	5.22	
9	Max. efficiency	%	78	76	78	77	81	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	5.7 K/W
18	Thermal resistance winding-housing	3.96 K/W
19	Thermal time constant winding	11.5 s
20	Thermal time constant motor	251 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)		53 N
	(static, shaft supported)		1000 N
28	Max. radial loading, 7.5 mm from flange		21 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.

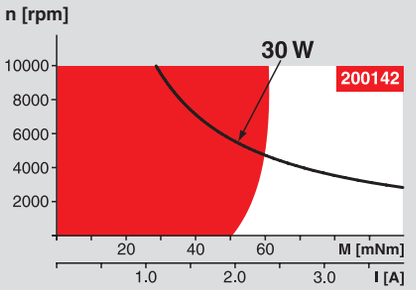
Connection	**with Hall sensors**	**sensorless**
Pin 1	V_{Hall} 4.5…18 VDC	Motor winding 1
Pin 2	Hall sensor 3*	Motor winding 2
Pin 3	Hall sensor 1*	Motor winding 3
Pin 4	Hall sensor 2*	⅄ neutral point
Pin 5	GND	
Pin 6	Motor winding 3	
Pin 7	Motor winding 2	
Pin 8	Motor winding 1	

*Internal pull-up (7…13 kΩ) on pin 1
Wiring diagram for Hall sensors see p. 31

Adapter	**Part number**	**Part number**
see p. 339	220300	220310
Connector	**Part number**	**Part 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 20 - 25

Planetary Gearhead
∅42 mm
3 - 15 Nm
Page 271

Spur Gearhead
∅45 mm
0.5 - 2.0 Nm
Page 272

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

Recommended Electronics:

ESCON 36/3 EC	Page 320
ESCON Module 50/5	321
ESCON 50/5	321
DECS 50/5	324
DEC Module 24/2	325
DEC Module 50/5	325
EPOS2 24/2, Module 36/2	330
EPOS2 24/5	331
EPOS2 P 24/5	334
EPOS3 70/10 EtherCAT	337
Notes	**24**