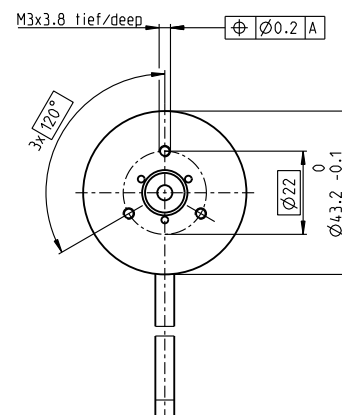
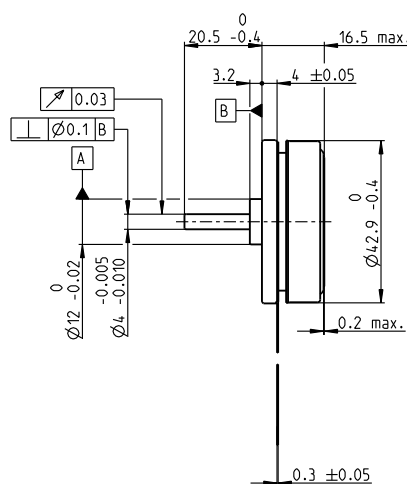
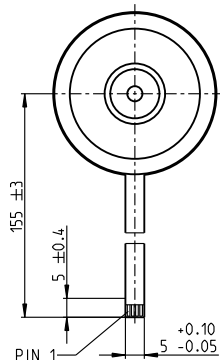
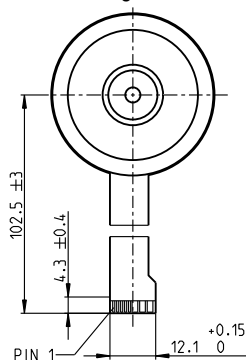


EC 45 flat Ø42.9 mm, brushless, 30 Watt

EC flat

A with Hall sensors
Option with cable and connector:
(Dimension drawings opt.)
Motor length +1.3 mm,
Ambient temperature -20...+100°C
Cable length 500 mm ± 10 mm

B sensorless



M 1:2

Stock program
Standard program
Special program (on request)

Part Numbers

A with Hall sensors
Option with Cable and Connector
B sensorless

200142	339281	339282
668555	668556	668557
200189	339283	339284

Motor Data

Values at nominal voltage

	V	12	12	24	24	36	36
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 ¹	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

	Ω	1.2	1.4	4.83	5.03	6.69	6.89
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	gcm ²	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
	typ. 0.14 mm
	preloaded
25 Radial play	4.8 N
26 Max. axial load (dynamic)	53 N
27 Max. force for press fits (static)	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 V_{Hall}

Wiring diagram for Hall sensors see p. 49

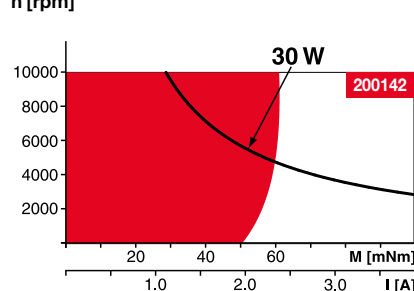
Adapter	Part number	Part number
see p. 514	220300	220310
Connector	Part number	Part number
TE	1-84953-1	84953-4
Molex	52207-1133	52207-0433

Pin for design with Hall sensors:
FPC, 11-pol, Pitch 1.0 mm, top contact style

¹Calculation does not include saturation effect
(p. 61/168)

Operating Range

n [rpm]



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

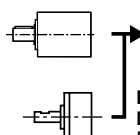
maxon Modular System

Planetary Gearhead

Ø42 mm
3 - 15 Nm
Page 398

Spur Gearhead

Ø45 mm
0.5 - 2.0 Nm
Page 400



Recommended Electronics:

Notes Page 38

ESCON Module 24/2	486
ESCON 36/3 EC	487
ESCON Mod. 50/4 EC-S	487
ESCON Module 50/5	487
ESCON 50/5	489
DEC Module 24/2	491
DEC Module 50/5	491
EPOS4 Micro 24/5	495
EPOS4 Mod./Comp. 24/1.5	496
EPOS4 Mod./Comp. 50/5	496
EPOS4 Comp. 24/5 3-axes	497
EPOS4 50/5	501
EPOS2 P 24/5	504

Details on catalog page 38

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