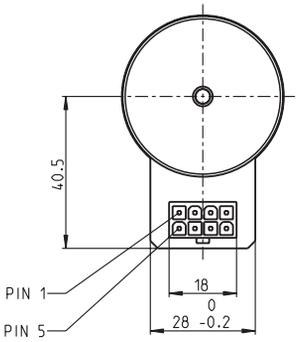
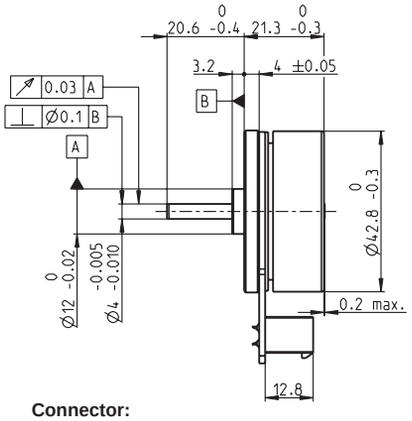
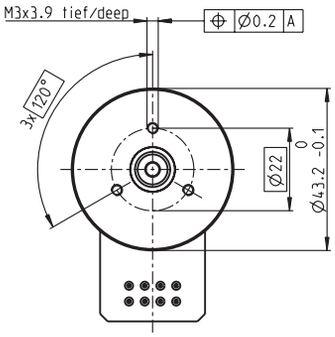
EC 45 flat ∅42.8 mm, brushless, 50 Watt







Connector:
39-28-1083 Molex

M 1:2

Stock program
Standard program
Special program (on request)

Part Numbers

with Hall sensors	339285	251601	339286	339287
Motor Data				
Values at nominal voltage				
1 Nominal voltage V	18	24	24	36
2 No load speed rpm	6720	6710	4730	3360
3 No load current mA	247	185	106	42.3
4 Nominal speed rpm	5190	5240	3480	2360
5 Nominal torque (max. continuous torque) mNm	97.1	83.4	69.6	90.5
6 Nominal current (max. continuous current) A	3.52	2.33	1.41	0.828
7 Stall torque mNm	975	780	402	484
8 Stall current A	38.8	23.3	8.47	4.81
9 Max. efficiency %	85	83	79	82
Characteristics				
10 Terminal resistance phase to phase Ω	0.464	1.03	2.83	7.48
11 Terminal inductance phase to phase mH	0.322	0.572	1.15	5.15
12 Torque constant mNm/A	25.1	33.5	47.5	101
13 Speed constant rpm/V	380	285	201	95
14 Speed/torque gradient rpm/mNm	7.02	8.77	12	7.07
15 Mechanical time constant ms	9.92	12.4	17	10
16 Rotor inertia gcm²	135	135	135	135

Specifications

Thermal data

17	Thermal resistance housing-ambient	4.53 K/W
18	Thermal resistance winding-housing	4.75 K/W
19	Thermal time constant winding	17.7 s
20	Thermal time constant motor	227 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	< 4.0 N	0 mm
		> 4.0 N	0.14 mm
25	Radial play		preloaded
26	Max. axial load (dynamic)		3.8 N
27	Max. force for press fits (static)		53 N
	(static, shaft supported)		1000 N
28	Max. radial load, 5 mm from flange		20 N

Other specifications

29	Number of pole pairs	8
30	Number of phases	3
31	Weight of motor	110 g

Values listed in the table are nominal.

Connection

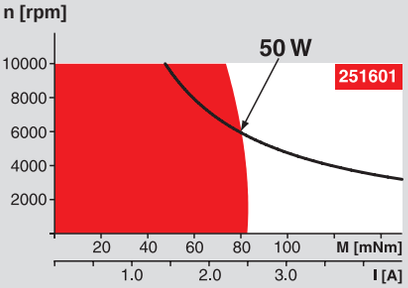
Pin 1	Hall sensor 1*
Pin 2	Hall sensor 2*
Pin 3	V_{Hall} 4.5…18 VDC
Pin 4	Motor winding 3
Pin 5	Hall sensor 3*
Pin 6	GND
Pin 7	Motor winding 1
Pin 8	Motor winding 2

*Internal pull-up (7…13 kΩ) on pin 3
Wiring diagram for Hall sensors see p. 35

Cable

Connection cable Universal, L = 500 mm	**339380**
Connection cable to EPOS, L = 500 mm	**354045**

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	386
EPOS2 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
(Ambient temperature -20…+100°C)