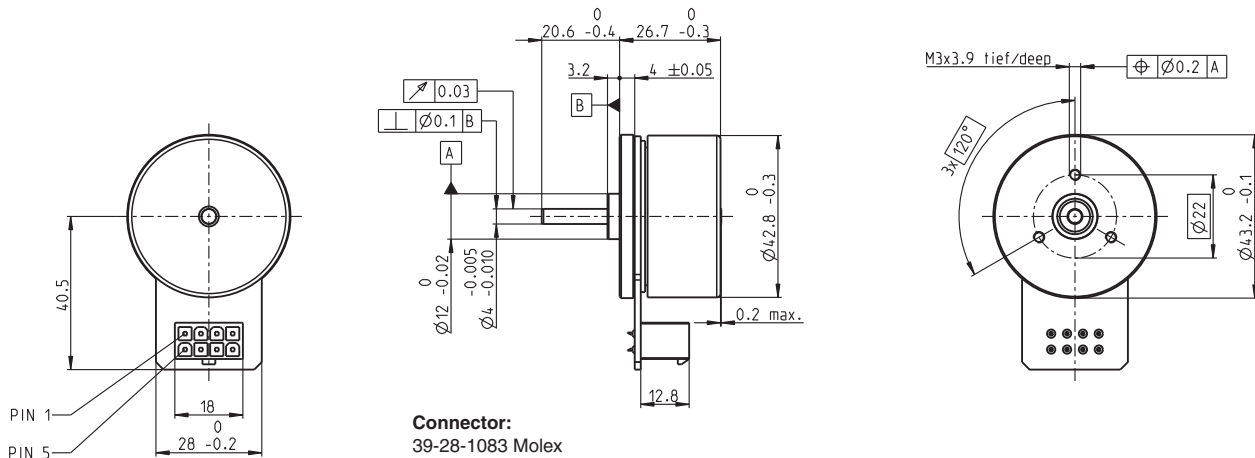


# EC 45 flat Ø42.8 mm, brushless, 70 Watt



Connector:  
39-28-1083 Molex

M 1:2

- Stock program
- Standard program
- Special program (on request)

## Part Numbers

	with Hall sensors	397172	402685	402686	402687
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## Motor Data (provisional)

Values at nominal voltage					
1 Nominal voltage	V	24	30	36	48
2 No load speed	rpm	6110	6230	6330	3440
3 No load current	mA	234	194	166	48.1
4 Nominal speed	rpm	4860	4990	5080	2540
5 Nominal torque (max. continuous torque)	mNm	128	112	108	134
6 Nominal current (max. continuous current)	A	3.21	2.36	1.93	0.936
7 Stall torque	mNm	1460	1170	1100	915
8 Starting current	A	39.5	25.8	20.7	6.97
9 Max. efficiency	%	85	84	83	84
Characteristics					
10 Terminal resistance phase to phase	Ω	0.608	1.16	1.74	6.89
11 Terminal inductance phase to phase	mH	0.463	0.691	0.966	5.85
12 Torque constant	mNm / A	36.9	45.1	53.3	131
13 Speed constant	rpm / V	259	212	179	72.7
14 Speed / torque gradient	rpm / mNm	4.26	5.44	5.85	3.82
15 Mechanical time constant	ms	8.07	10.3	11.1	7.24
16 Rotor inertia	gcm <sup>2</sup>	181	181	181	181

## Specifications

17 Thermal resistance housing-ambient	3.56 K/W
18 Thermal resistance winding-housing	4.1 K/W
19 Thermal time constant winding	29.6 s
20 Thermal time constant motor	178 s
21 Ambient temperature	-40 ... +100°C
22 Max. winding temperature	+125°C

<b>Mechanical data (preloaded ball bearings)</b>	
23 Max. permissible 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)	50 N
(static, shaft supported)	1000 N
28 Max. radial load, 8 mm from flange	21 N

<b>Other specifications</b>	
29 Number of pole pairs	8
30 Number of phases	3
31 Weight of motor	141 g

Values listed in the table are nominal.

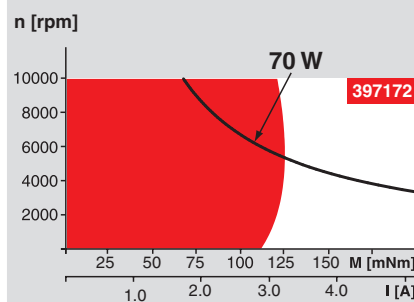
## Connection

Pin 1	Hall sensor 1*
Pin 2	Hall sensor 2*
Pin 3	V <sub>Hall</sub> 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

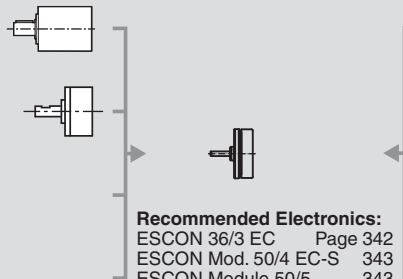
Overview on page 20–25

### Planetary Gearhead

Ø42 mm  
3 - 15 Nm  
Page 285

### Spur Gearhead

Ø45 mm  
0.5 - 2.0 Nm  
Page 286



## Recommended Electronics:

ESCON 36/3 EC	Page 342
ESCON Mod. 50/4 EC-S	343
ESCON Module 50/5	343
ESCON 50/5	344
DEC Module 50/5	346
EPOS2 Module 36/2	350
EPOS2 24/5, 50/5	351
EPOS2 P 24/5	354
EPOS3 70/10 EtherCAT	357
MAXPOS 50/5	360
Notes	24

## Option

With Cable and Connector  
(Ambient temperature -20 ... +100°C)

Encoder MILE  
256 - 2048 CPT,  
2 channels  
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