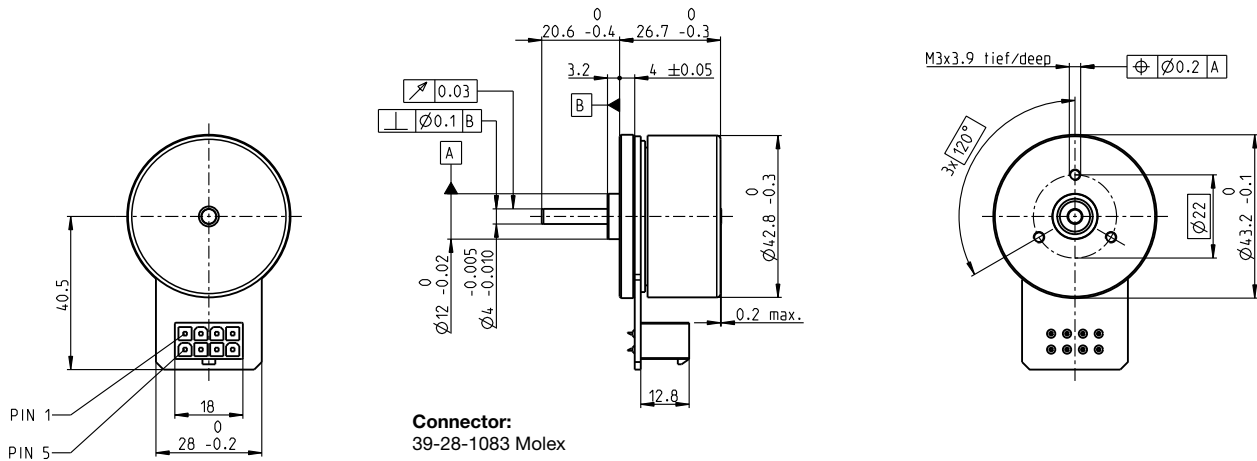


# EC 45 flat $\varnothing 42.8$ mm, brushless, 70 Watt



**Connector:**  
39-28-1083 Molex

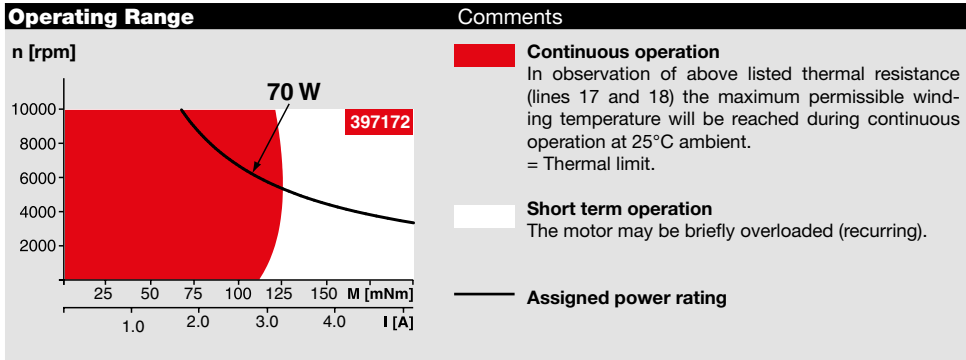
**M 1:2**

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

Part Numbers				
with Hall sensors	397172	402685	402686	402687

Motor Data (provisional)		with Hall sensors			
Values at nominal voltage		397172	402685	402686	402687
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 Stall current	A	39.5	25.8	20.7	6.97
9 Max. efficiency	%	85	84	83	84
Characteristics					
10 Terminal resistance phase to phase	$\Omega$	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	
Thermal data	
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
Mechanical data (preloaded ball bearings)	
23 Max. speed	10000 rpm
24 Axial play at axial load < 4.0 N	0 mm
	> 4.0 N
25 Radial play	0.14 mm preloaded
26 Max. axial load (dynamic)	3.8 N
27 Max. force for press fits (static) (static, shaft supported)	50 N
28 Max. radial load, 5 mm from flange	1000 N
	21 N



Other specifications	
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 k $\Omega$ ) on pin 3  
Wiring diagram for Hall sensors see p. 43

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

maxon Modular System		Overview on page 28–36																						
<p><b>Planetary Gearhead</b> <math>\varnothing 42</math> mm 3 - 15 Nm Page 347</p>		<p><b>Encoder MILE</b> 256 - 2048 CPT, 2 channels Page 388</p>																						
<p><b>Spur Gearhead</b> <math>\varnothing 45</math> mm 0.5 - 2.0 Nm Page 349</p>																								
<p><b>Recommended Electronics:</b></p> <table border="1"> <thead> <tr> <th>Notes</th> <th>Page 32</th> </tr> </thead> <tbody> <tr> <td>ESCON 36/3 EC</td> <td>427</td> </tr> <tr> <td>ESCON Mod. 50/4 EC-S</td> <td>427</td> </tr> <tr> <td>ESCON Module 50/5</td> <td>427</td> </tr> <tr> <td>ESCON 50/5</td> <td>428</td> </tr> <tr> <td>DEC Module 50/5</td> <td>430</td> </tr> <tr> <td>EPOS2 Module 36/2</td> <td>434</td> </tr> <tr> <td>EPOS2 24/5, 50/5</td> <td>435</td> </tr> <tr> <td>EPOS2 P 24/5</td> <td>438</td> </tr> <tr> <td>EPOS4 Module/CB 50/5</td> <td>442</td> </tr> <tr> <td>MAXPOS 50/5</td> <td>447</td> </tr> </tbody> </table>		Notes	Page 32	ESCON 36/3 EC	427	ESCON Mod. 50/4 EC-S	427	ESCON Module 50/5	427	ESCON 50/5	428	DEC Module 50/5	430	EPOS2 Module 36/2	434	EPOS2 24/5, 50/5	435	EPOS2 P 24/5	438	EPOS4 Module/CB 50/5	442	MAXPOS 50/5	447	
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MAXPOS 50/5	447																							

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