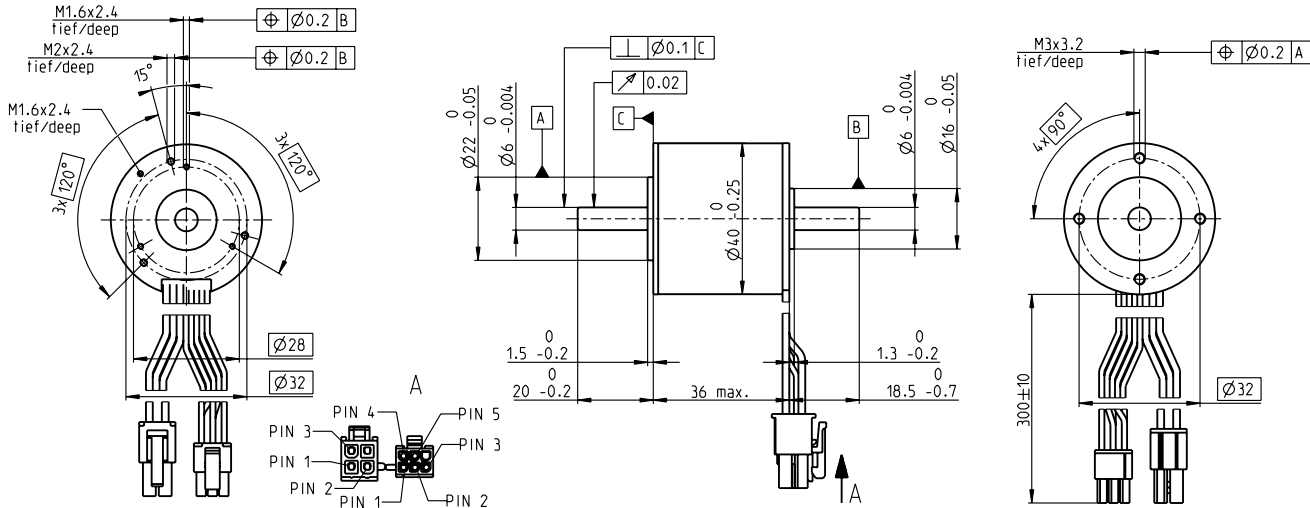


# EC-i 40 Ø40 mm, brushless, 70 watt

High Torque



EC-i

M 1:2

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

Part Numbers				
with Hall sensors	<table border="1"> <tr> <td>496654</td> <td>496655</td> <td>496656</td> </tr> </table>	496654	496655	496656
496654	496655	496656		

Motor Data				
<b>Values at nominal voltage</b>				
1 Nominal voltage	V	18	36	48
2 No load speed	rpm	7840	7390	4930
3 No load current	mA	448	205	86.4
4 Nominal speed	rpm	6890	6450	4100
5 Nominal torque (max. continuous torque)	mNm	105	129	151
6 Nominal current (max. continuous current)	A	4.87	2.73	1.55
7 Stall torque <sup>1</sup>	mNm	1960	2800	1940
8 Stall current	A	90.4	60.9	21.1
9 Max. efficiency	%	86	89	87
<b>Characteristics</b>				
10 Terminal resistance phase to phase	Ω	0.199	0.591	2.28
11 Terminal inductance phase to phase	mH	0.113	0.512	2.05
12 Torque constant	mNm/A	21.7	46.1	92.1
13 Speed constant	rpm/V	441	207	104
14 Speed/torque gradient	rpm/mNm	4.05	2.66	2.56
15 Mechanical time constant	ms	0.975	0.641	0.617
16 Rotor inertia	gcm <sup>2</sup>	23	23	23

Specifications		Operating Range		Comments	
<b>Thermal data</b>		<b>n [rpm]</b>		<b>Continuous operation</b>	
17 Thermal resistance housing-ambient	8.17 K/W			<p>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.</p>	
18 Thermal resistance winding-housing	2.27 K/W				
19 Thermal time constant winding	24.5 s				
20 Thermal time constant motor	1020 s				
21 Ambient temperature	-40...+100°C				
22 Max. winding temperature	+155°C				
<b>Mechanical data (preloaded ball bearings)</b>					
23 Max. speed	10 000 rpm				
24 Axial play at axial load < 9.0 N	0 mm				
> 9.0 N	0.15 mm preloaded				
25 Radial play	7 N				
26 Max. axial load (dynamic)	87 N				
27 Max. force for press fits (static) (static, shaft supported)	5000 N				
28 Max. radial load, 5 mm from flange	26 N				

- Other specifications**
- 29 Number of pole pairs: 7
  - 30 Number of phases: 3
  - 31 Weight of motor: 250 g

**maxon Modular System** Details on catalog page 42

**Planetary Gearhead**  
 Ø42 mm  
 3-15 Nm  
 Page 407



**Recommended Electronics:**

Notes	Page 42
ESCON 36/3 EC	501
ESCON Mod. 50/4 EC-S	501
ESCON Module 50/5	501
ESCON 50/5	503
DEC Module 50/5	505
EPOS4 Micro 24/5	509
EPOS4 Mod./Comp. 50/5	510
EPOS4 Comp. 24/5 3-axes	511
EPOS4 50/5	515
EPOS2 P 24/5	520

<b>Encoder 16 EASY/XT</b>	128 - 1024 CPT, 3 channels
	Page 465/467
<b>Encoder 16 EASY Absolute/XT</b>	4096 steps
	Page 469/471
<b>Encoder 16 RIO</b>	1024 - 32 768 CPT, 3 channels
	Page 482
<b>Encoder AEDL 5810</b>	1024 - 5000 CPT, 3 channels
	Page 485
<b>Encoder HEDL 5540</b>	500 CPT, 3 channels
	Page 492

Values listed in the table are nominal.

**Connection motor (Cable AWG 20)**

red	Motor winding 1	Pin 1
black	Motor winding 2	Pin 2
white	Motor winding 3	Pin 3
	N.C.	Pin 4

**Connector Article number**

Molex	39-01-2040
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**Connection sensor (Cable AWG 26)**

yellow	Hall sensor 1	Pin 1
brown	Hall sensor 2	Pin 2
grey	Hall sensor 3	Pin 3
blue	GND	Pin 4
green	V <sub>Hall</sub> 4.5...24 VDC	Pin 5
	N.C.	Pin 6

**Connector Article number**

Molex	430-25-0600
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Wiring diagram for Hall sensors see p. 59  
<sup>1</sup>Calculation does not include saturation effect (p. 71/178)