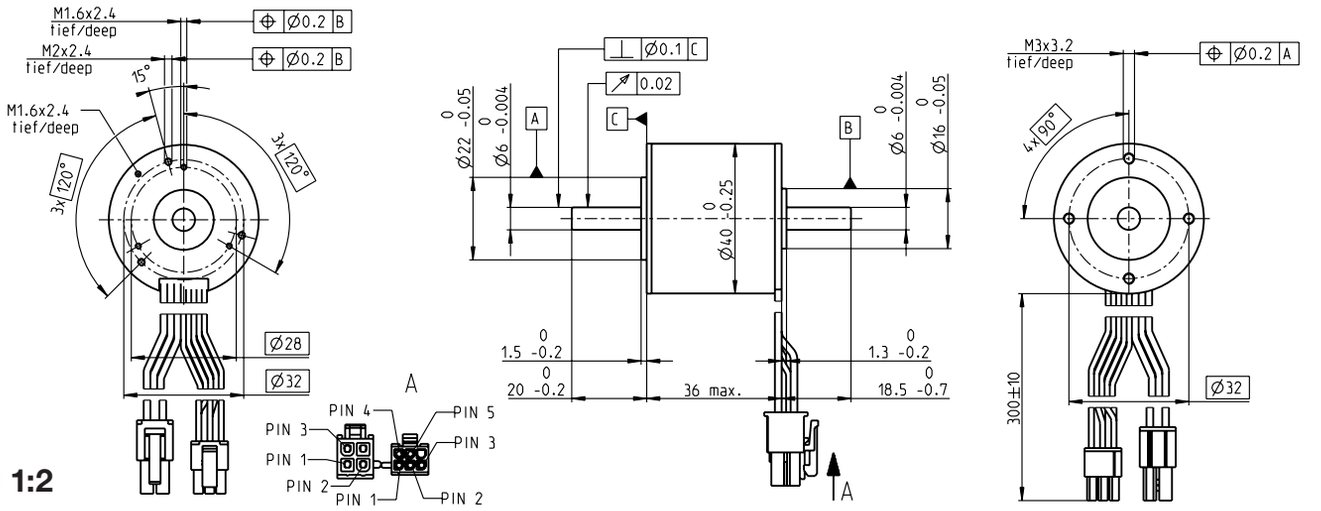
EC-i 40 ∅40 mm, brushless, 70 Watt

High Torque



M 1:2

Stock program
Standard program
Special program (on request)

Part Numbers

with Hall sensors	496654	496655	496656
Motor Data			
Values at nominal voltage			
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 mNm	1960	2800	1940
8 Stall current A	90.4	60.9	21.1
9 Max. efficiency %	86	89	87
Characteristics			
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 gcm²	23	23	23

Specifications

Thermal data

17	Thermal resistance housing-ambient	8.17 K/W
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

Mechanical data (preloaded ball bearings)

23	Max. speed		10000 rpm
24	Axial play at axial load	< 9.0 N	0 mm
		> 9.0 N	0.15 mm
25	Radial play		preloaded
26	Max. axial load (dynamic)		7 N
27	Max. force for press fits (static)		87 N
	(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

Values listed in the table are nominal.

Connection (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

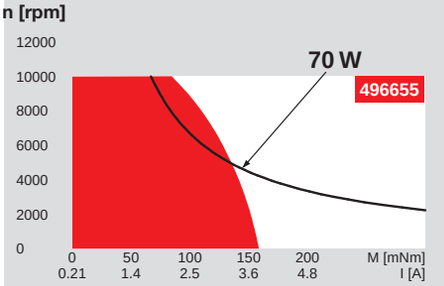
Connection (Cable AWG 26)

yellow	Hall sensor 1	Pin 1
brown	Hall sensor 2	Pin 2
grey	Hall sensor 3	Pin 3
blue	GND	Pin 4
green	V_{Hall} 4.5…24 VDC	Pin 5
	N.C.	Pin 6

Connector	**Article number**
Molex	430-25-0600

Wiring diagram for Hall sensors see p. 37

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

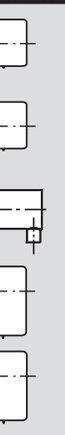
maxon Modular System

Overview on page 20–27

Planetary Gearhead
∅42 mm
3 - 15 Nm
Page 350

Recommended Electronics:

Notes	Page 26
ESCON 36/3 EC	417
ESCON Mod. 50/4 EC-S	417
ESCON Module 50/5	417
ESCON 50/5	418
ESCON 70/10	418
DEC Module 50/5	420
EPOS2 24/5	425
EPOS2 50/5	425
EPOS2 70/10	425
EPOS4 Module 50/8	431
EPOS4 Comp. 50/8 CAN	431
MAXPOS 50/5	435



Encoder 16 EASY
128 - 1024 CPT,
3 channels
Page 382

Encoder 16 EASY Absolute
4096 steps
Page 383

Encoder 2RMHF
3000 - 5000 CTP,
3 channels
Page 397

Encoder HEDL 5540
500 CPT,
3 channels
Page 404

Encoder AEDL 5810
1024 - 5000 CPT,
3 channels
Page 407