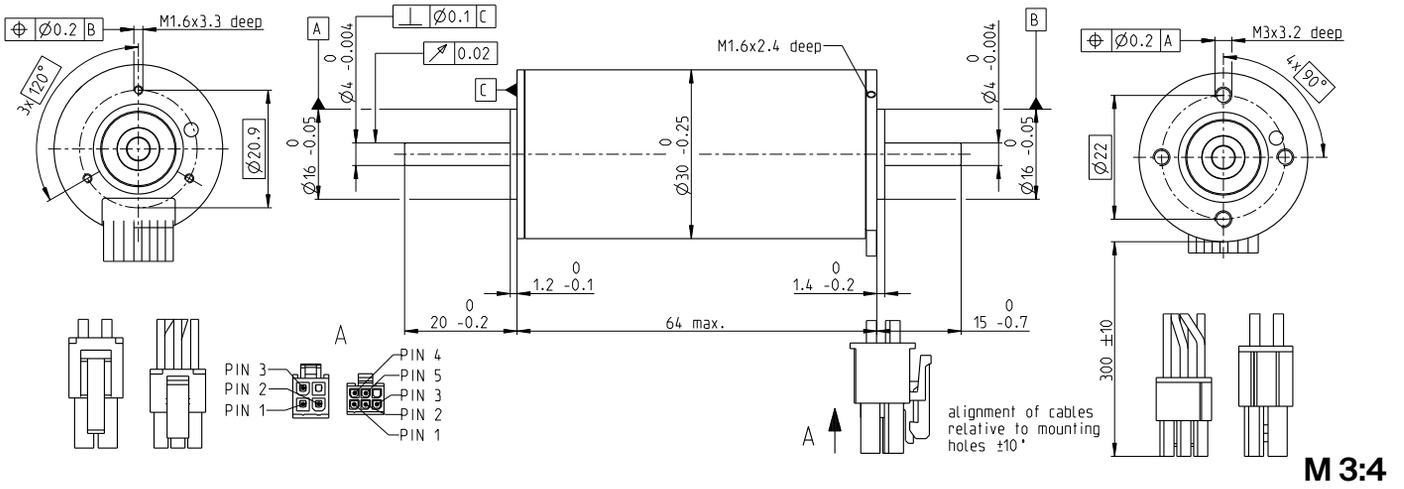
EC-i 30 ∅30 mm, brushless, 75 watt

High Torque



M 3:4

Stock program
Standard program
Special program (on request)

Part Numbers

with Hall sensors	539485	539486	539487	539488	539489
Motor Data (provisional)					
Values at nominal voltage					
1 Nominal voltage V	12	18	24	36	48
2 No load speed rpm	7940	7950	7950	7950	8210
3 No load current mA	447	298	223	149	117
4 Nominal speed rpm	6760	6840	6870	6890	7150
5 Nominal torque (max. continuous torque) mNm	108	110	107	110	104
6 Nominal current (max. continuous current) A	7.32	4.97	3.64	2.48	1.83
7 Stall torque[1] mNm	1460	1770	1800	1970	1910
8 Stall current A	102	82.5	63.1	46	34.6
9 Max. efficiency %	87.3	88.5	88.6	89	88.8
Characteristics					
10 Terminal resistance phase to phase Ω	0.118	0.218	0.38	0.782	1.39
11 Terminal inductance phase to phase mH	0.0975	0.219	0.39	0.877	1.46
12 Torque constant mNm/A	14.3	21.4	28.6	42.9	55.4
13 Speed constant rpm/V	668	446	334	223	173
14 Speed/torque gradient rpm/mNm	5.5	4.54	4.45	4.07	4.33
15 Mechanical time constant ms	0.893	0.736	0.722	0.66	0.702
16 Rotor inertia gcm²	15.5	15.5	15.5	15.5	15.5

Specifications

Thermal data

17	Thermal resistance housing-ambient	9.01 K/W
18	Thermal resistance winding-housing	2.46 K/W
19	Thermal time constant winding	32.7 s
20	Thermal time constant motor	1090 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	0.14 mm
25	Radial play		preloaded
26	Max. axial load (dynamic)		5 N
27	Max. force for press fits (static)		98 N
	(static, shaft supported)		1300 N
28	Max. radial load, 5 mm from flange		25 N

Other specifications

29	Number of pole pairs	4
30	Number of phases	3
31	Weight of motor	242 g

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

Connection sensors (Cable AWG 26)

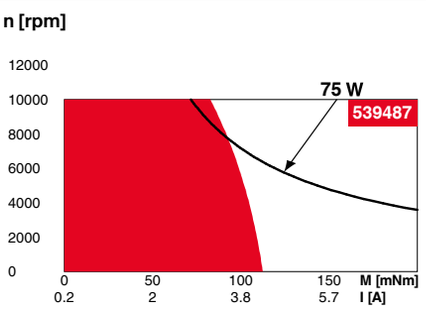
yellow	Hall sensor 1	Pin 1
brown	Hall sensor 2	Pin 2
grey	Hall sensor 3	Pin 3
blue	GND	Pin 4
green	V_{Hall} 4.5...24 VDC	Pin 5
	N.C.	Pin 6

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

Wiring diagram for Hall sensors see p. 59

[1]Calculation does not include saturation effect (p. 71/178)

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).

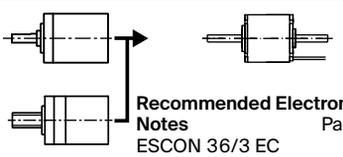
Assigned power rating

maxon Modular System

Details on catalog page 42

Planetary Gearhead
∅32 mm
1.0 - 6.0 Nm
Page 269

Screw Drive
∅32 mm
Page 426–434



Recommended Electronics:

Notes	Page **42**
ESCON 36/3 EC	501
ESCON Mod. 50/4 EC-S	501
ESCON Mod. 50/5	501
ESCON Mod. 50/8 (HE)	502
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 Mod./Comp. 50/8	511
EPOS4 50/5	515
EPOS4 70/15	515
EPOS2 P 24/5	520

Encoder 16 EASY/XT
128 - 1024 CPT, 3 channels
Page 465/467

Encoder 16 EASY Absolute/XT
4096 steps
Page 469/471

Encoder 16 RIO
1024 - 32768 CPT, 3 channels
Page 482

Encoder AEDL 5810
1024 - 5000 CPT, 3 channels
Page 485

Encoder HEDL 5540
500 CPT, 3 channels
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