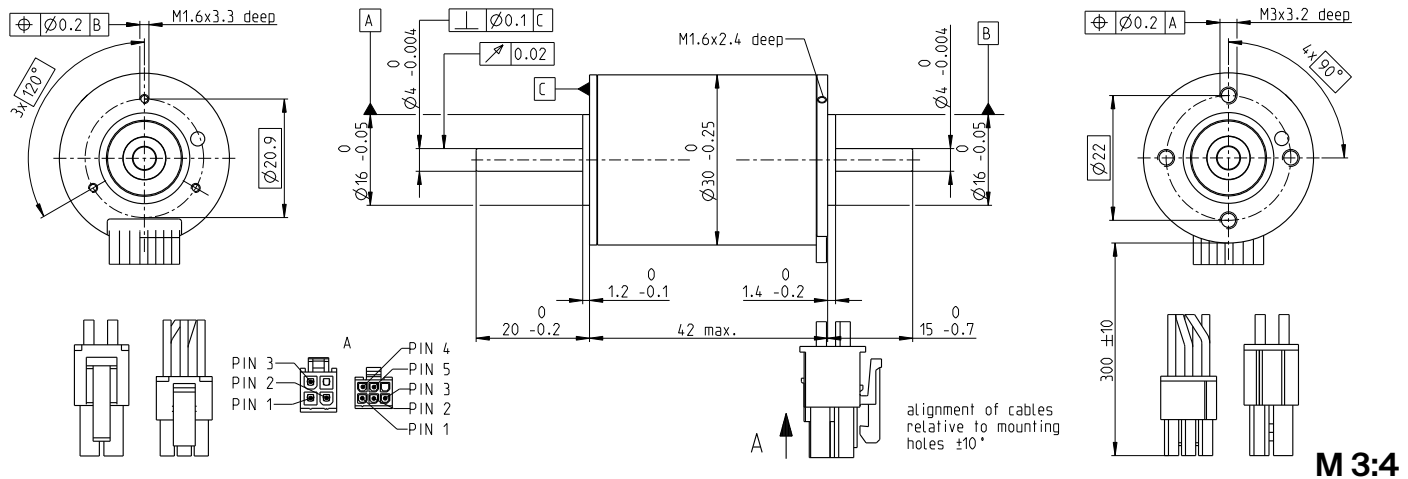


# EC-i 30 Ø30 mm, brushless, 45 watt

High Torque



EC-i

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

## Part numbers

	539480	539481	539482	539483	539484
with Hall sensors					

## Motor data (provisional)

Values at nominal voltage		539480	539481	539482	539483	539484
1 Nominal voltage	V	12	18	24	36	48
2 No load speed	rpm	8240	8250	8510	8250	8510
3 No load current	mA	285	190	149	95.2	74.5
4 Nominal speed	rpm	6730	6780	7050	6810	7070
5 Nominal torque	mNm	64.9	67.1	63.3	67.1	63.2
6 Nominal current (max. continuous current)	A	4.49	3.08	2.27	1.54	1.13
7 Stall torque	mNm	469	497	491	507	496
8 Stall current	A	54	41.4	31	21.8	15.9
9 Max. efficiency	%	85.7	86.6	86.4	87	86.5
<b>Characteristics</b>						
10 Terminal resistance phase to phase	Ω	0.222	0.435	0.775	1.65	3.01
11 Terminal inductance phase to phase	mH	0.199	0.449	0.749	1.8	3
12 Torque constant	mNm/A	13.7	20.6	26.6	41.2	53.2
13 Speed constant	rpm/V	696	464	359	232	180
14 Speed/torque gradient	rpm/mNm	11.4	9.94	10.6	9.43	10.3
15 Mechanical time constant	ms	0.956	0.83	0.888	0.787	0.862
16 Rotor inertia	gcm <sup>2</sup>	8.1	8.1	8.1	8.1	8.1

## Specifications

- Thermal data**
- 17 Thermal resistance housing-ambient: 11.1 K/W
  - 18 Thermal resistance winding-housing: 3.75 K/W
  - 19 Thermal time constant winding: 27.8 s
  - 20 Thermal time constant motor: 866 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: 0.14 mm preloaded
  - 26 Max. axial load (dynamic): 5 N
  - 27 Max. force for press fits (static) (static, shaft supported): 98 N
  - 28 Max. radial load, 5 mm from flange: 2000 N

## Other specifications

- 29 Number of pole pairs: 4
  - 30 Number of phases: 3
  - 31 Weight of motor: 156 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<sub>Hall</sub> 4.5...24 VDC Pin 5
- N.C. Pin 6

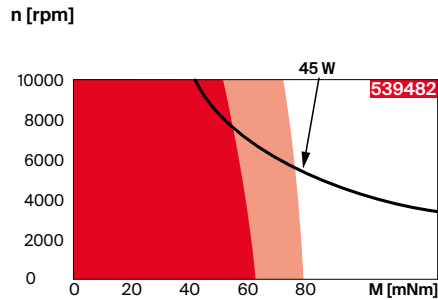
## Connector Article number

Molex 430-25-0600

Wiring diagram for Hall sensors see p. 69

## Operating range

Operating range: n [rpm] vs M [mNm]. The graph shows a red region for continuous operation, an orange region for continuous operation with reduced thermal resistance (R<sub>th2</sub> 50%), and a white region for intermittent operation. A black curve represents the assigned power rating, which is 45 W for the 539482 model.



- Continuous operation
- Continuous operation with reduced thermal resistance R<sub>th2</sub> 50%
- Intermittent operation
- Assigned power rating

## Modular system

- 4 Gear
- 3 430\_GP 32 C
- 156 g 474-482\_GP 32 S

- Sensor**
- 509\_ENX 16 EASY
  - 510\_ENX 16 EASY XT
  - 511\_ENX 16 EASY Absolute
  - 512\_ENX 16 EASY Absolute XT
  - 518\_ENX 22 EMT
  - 519\_ENX 16 RIO

## Details on catalog page 52

- Motor Control**
- 547\_DEC Module 50/5
  - 551\_ESCON 36/3 EC
  - 551\_ESCON Module 50/4 EC-S
  - 551\_ESCON Module 50/5
  - 553\_ESCON 50/5
  - 557\_ESCON2 Micro 60/5
  - 563\_EPOS4 Micro 24/5
  - 564\_EPOS4 Module 50/5
  - 565\_EPOS4 Compact 24/5 3-axes
  - 567\_EPOS4 Compact 50/5
  - 569\_EPOS4 50/5
  - 570\_EPOS4 Disk 60/8
  - 571\_EPOS4 Disk 60/12