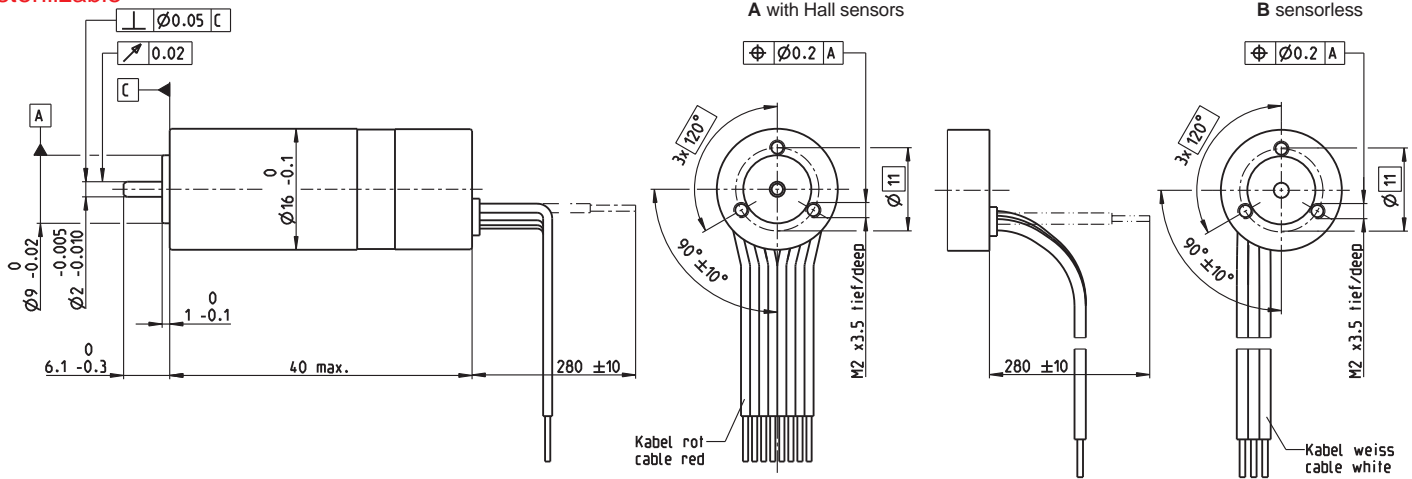


# EC 16 Ø16 mm, brushless, 30 Watt

sterilizable



M 1:1

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

## Part Numbers

A with Hall sensors	405146	405147
B sensorless	405149	405150

## Motor Data

Values at nominal voltage		12	24
1 Nominal voltage	V	12	24
2 No load speed	rpm	47800	45900
3 No load current	mA	323	153
4 Nominal speed	rpm	42100	40800
5 Nominal torque (max. continuous torque)	mNm	7.66	7.85
6 Nominal current (max. continuous current)	A	3.51	1.72
7 Stall torque	mNm	70.6	77.3
8 Stall current	A	29.8	15.6
9 Max. efficiency	%	81	81
Characteristics			
10 Terminal resistance phase to phase	Ω	0.403	1.53
11 Terminal inductance phase to phase	mH	0.0168	0.0729
12 Torque constant	mNm/A	2.37	4.94
13 Speed constant	rpm/V	4030	1930
14 Speed/torque gradient	rpm/mNm	685	601
15 Mechanical time constant	ms	5.2	4.56
16 Rotor inertia	gcm <sup>2</sup>	0.725	0.725

## Specifications

Thermal data	
17 Thermal resistance housing-ambient	16.3 K/W
18 Thermal resistance winding-housing	1.68 K/W
19 Thermal time constant winding	1.97 s
20 Thermal time constant motor	240 s
21 Ambient temperature	-40...+135°C
22 Max. winding temperature	155°C
Mechanical data (preloaded ball bearings)	
23 Max. speed	70 000 rpm
24 Axial play at axial load < 3.5 N	0 mm
> 3.5 N	max. 0.14 mm
25 Radial play	preloaded 3 N
26 Max. axial load (dynamic)	43 N
27 Max. force for press fits (static) (static, shaft supported)	250 N
28 Max. radial load, 5 mm from flange	10 N
Other specifications	
29 Number of pole pairs	1
30 Number of phases	3
31 Weight of motor	34 g

Values listed in the table are nominal.

### Connection A and B, motor (Cable AWG 22)

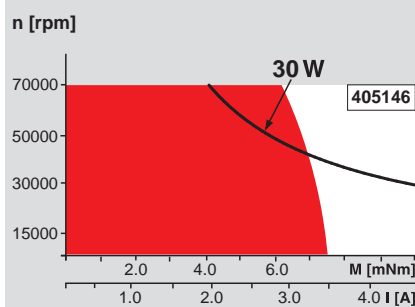
red	Motor winding 1
black	Motor winding 2
white	Motor winding 3

### Connection A, sensors (Cable AWG 26)

green	V <sub>Hall</sub> 3...24 VDC
blue	GND
red/grey	Hall sensor 1
black/grey	Hall sensor 2
white/grey	Hall sensor 3

Wiring diagram for Hall sensors see p. 33

## 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**

## Application



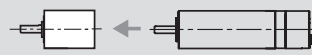
- Orthopedic Drills & Saws
- Surgical Reamers
- Arthroscopic Shavers
- Surgical Staplers
- Dental Tools

## Sterilization information

Sensorless: typically 1000 autoclave cycles	
Hall sensor: typically 500 autoclave cycles	
Sterilization with steam	
Temperature	+134°C ± 4°C
Compression pressure up to	2.3 bar
Rel. humidity	100 %
Cycle length	18 minutes

## maxon modular system

**Planetary Gearhead**  
sterilizable  
Ø16 mm  
0.1 - 0.3 Nm  
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## Overview on page 20–25

Recommended Electronics:	
<GT>Notes	Page 24
ESCON Module 24/2	378
ESCON 36/3 EC	379
ESCON Mod. 50/4 EC-S	379
ESCON Module 50/5	379
ESCON 50/5	380
DEC Module 24/2	382
DEC Module 50/5	382