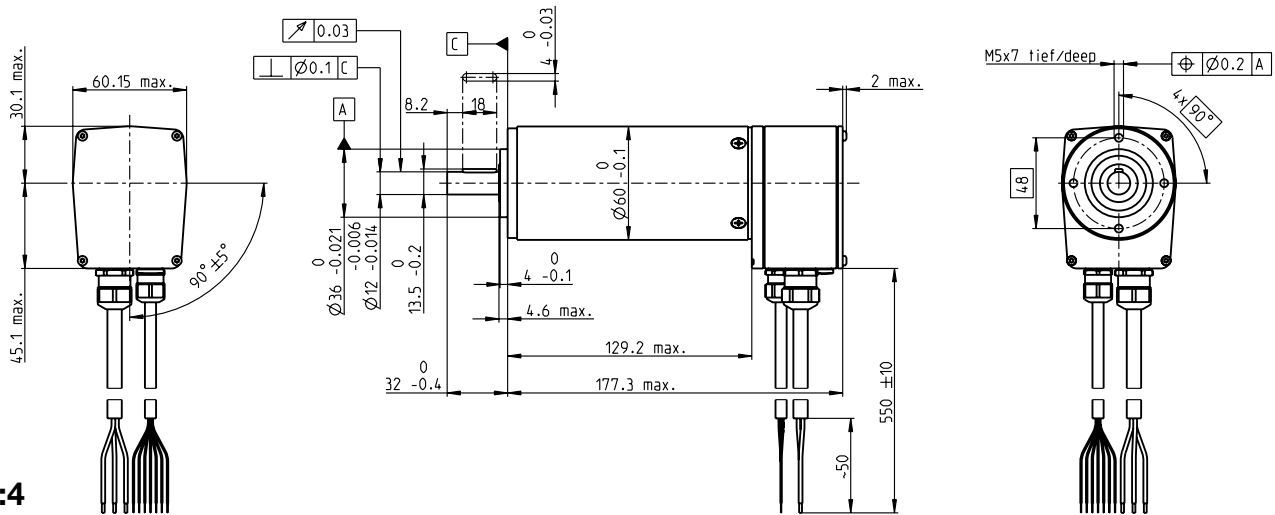


# EC 60 Ø60 mm, brushless, 400 Watt



M 1:4

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

## Part Numbers

167132 167131

## Motor Data

Values at nominal voltage			
1 Nominal voltage	V	48	48
2 No load speed	rpm	5370	3100
3 No load current	mA	670	268
4 Nominal speed	rpm	4960	2680
5 Nominal torque (max. continuous torque)	mNm	768	843
6 Nominal current (max. continuous current)	A	9.56	5.9
7 Stall torque	mNm	11800	6820
8 Stall current	A	139	46.4
9 Max. efficiency	%	87	86
Characteristics			
10 Terminal resistance phase to phase	Ω	0.345	1.03
11 Terminal inductance phase to phase	mH	0.273	0.82
12 Torque constant	mNm/A	84.9	147
13 Speed constant	rpm/V	113	65
14 Speed/torque gradient	rpm/mNm	0.457	0.457
15 Mechanical time constant	ms	3.98	3.98
16 Rotor inertia	gcm <sup>2</sup>	831	831

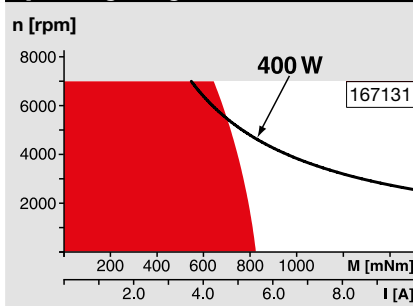
## Specifications

Thermal data	
17 Thermal resistance housing-ambient	1.3 K/W
18 Thermal resistance winding-housing	0.5 K/W
19 Thermal time constant winding	33.9 s
20 Thermal time constant motor	1200 s
21 Ambient temperature	-20...+100°C
22 Max. winding temperature	+125°C
Mechanical data (preloaded ball bearings)	
23 Max. speed	7000 rpm
24 Axial play at axial load < 30 N	0 mm
> 30 N	max. 0.14 mm
25 Radial play	preloaded
26 Max. axial load (dynamic)	24 N
27 Max. force for press fits (static) (static, shaft supported)	392 N
28 Max. radial load, 5 mm from flange	6000 N
240 N	

## Other specifications

29 Number of pole pairs	1
30 Number of phases	3
31 Weight of motor	2450 g
Protection to	IP54*
Values listed in the table are nominal.	
<b>Connection motor</b> (Cable AWG 16)	
Cable 1	Motor winding 1
Cable 2	Motor winding 2
Cable 3	Motor winding 3
<b>Connection sensors</b> (Cable AWG 24) <sup>1)</sup>	
white	Hall sensor 3
brown	Hall sensor 2
green	Hall sensor 1
yellow	GND
grey	V <sub>Hall</sub> 4.5 ... 24 VDC
blue	Temperature sensor (PTC)
pink	Temperature sensor (PTC)
<sup>1)</sup> Not lead through in combination with resolver.	
Temperature monitoring, PTC resistance Micropille	
110°C, R 25°C < 0.5 kΩ, R 105°C = 1.2...1.5 kΩ,	
R 115°C = 7...13 kΩ, R 120°C = 18...35 kΩ	
Wiring diagram for Hall sensors see p. 41	

## 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 28–36

### Planetary Gearhead

Ø81 mm  
20 - 120 Nm  
Page 353



### Recommended Electronics:

Notes	Page 32
ESCON Mod. 50/5	427
ESCON Mod. 50/4 EC-S	427
ESCON 50/5	428
ESCON 70/10	428
DEC Module 50/5	430
EPOS2 50/5, 70/10	435
EPOS4 Module 50/8	443
EPOS4 Comp. 50/8 CAN	443
EPOS4 Module 50/15	444
EPOS4 Comp. 50/15 CAN	444
MAXPOS 50/5	447

### Encoder HEDL 9140

500 CPT,  
3 channels  
Page 419

### Resolver Res

Ø26 mm  
10 V  
Page 422  
**Brake AB 41**  
24 VDC  
2.0 Nm  
Page 461

\*Protection level only when installed with flange-side seal.