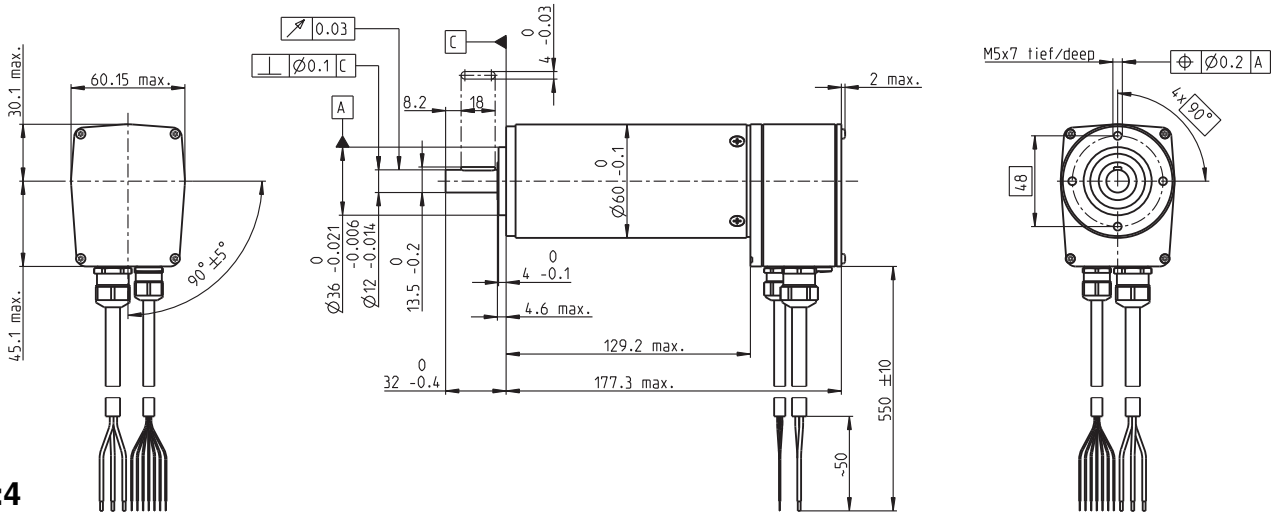


# EC 60 Ø60 mm, brushless, 400 Watt, C€ approved

M 1:4



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

## Article 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	733	304
4 Nominal speed	rpm	4960	2680
5 Nominal torque (max. continuous torque)	mNm	747	830
6 Nominal current (max. continuous current)	A	9.38	5.85
7 Stall torque	mNm	11800	6820
8 Starting current	A	139	46.4
9 Max. efficiency	%	86	85
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

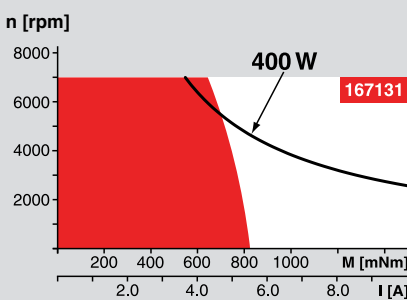
## Specifications

- 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. permissible winding temperature +125°C
- Mechanical data (preloaded ball bearings)**
  - 23 Max. permissible speed 7000 rpm
  - 24 Axial play at axial load < 30 N 0 mm
  - 25 Radial play > 30 N max. 0.14 mm
  - 26 Max. axial load (dynamic) 24 N
  - 27 Max. force for press fits (static) 392 N
  - 28 Max. radial loading, 5 mm from flange 6000 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.
- Connection motor (Cable AWG 16)**
  - Cable 1 Motor winding 1
  - Cable 2 Motor winding 2
  - Cable 3 Motor winding 3
- Connection sensors (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. 27

## Operating Range



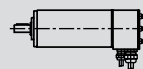
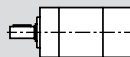
## Comments

- 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

### Planetary Gearhead

Ø81 mm  
20 - 120 Nm  
Page 248



### Recommended Electronics:

- ESCON 50/5 Page 292
- DECS 50/5 297
- DEC Module 50/5 299
- DEC 70/10 305
- DES 50/5, 70/10 306
- EPOS2 70/10 313
- EPOS3 70/10 EtherCAT 319
- Notes 20

### Encoder HEDL 9140

500 CPT,  
3 channels  
Page 281  
**Resolver Res**  
Ø26 mm  
10 V  
Page 287  
**Brake AB 41**  
24 VDC  
2.0 Nm  
Page 333

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