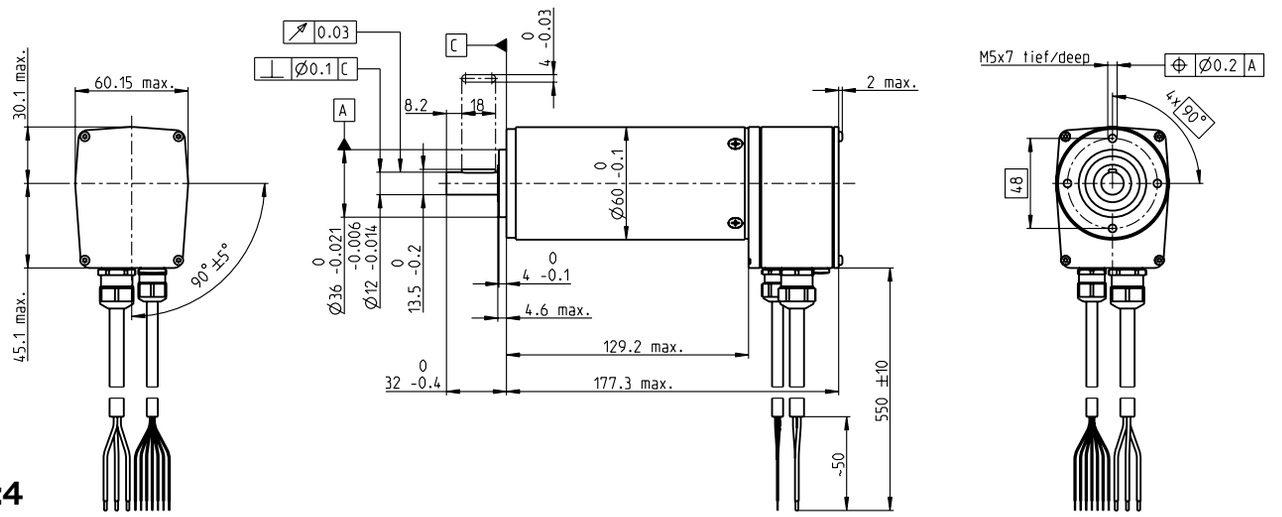
EC 60 ∅60 mm, brushless, 400 Watt



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 gcm²	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)		392 N
	(static, shaft supported)		6000 N
28	Max. radial load, 5 mm from flange		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.

Connection motor (Cable AWG 16)

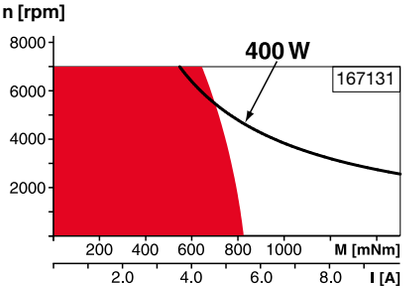
Cable 1	Motor winding 1
Cable 2	Motor winding 2
Cable 3	Motor winding 3

Connection sensors (Cable AWG 24)[1)]

white	Hall sensor 3
brown	Hall sensor 2
green	Hall sensor 1
yellow	GND
grey	V_{Hall} 4.5 ... 24 VDC
blue	Temperature sensor (PTC)
pink	Temperature sensor (PTC)

[1)] Not lead through in combination with resolver.
Temperature monitoring, PTC resistance Micropille 110°C, R 25°C < 0.7 kΩ, R 115°C ≥ 2.66 kΩ, R 125°C ≥ 8.0 kΩ
Wiring diagram for Hall sensors see p. 47

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.

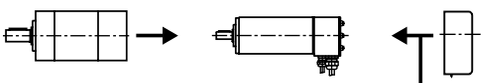
Short term operation
The motor may be briefly overloaded (recurring).

Assigned power rating

maxon Modular System

Details on catalog page 36

Planetary Gearhead
∅81 mm
20 - 120 Nm
Page 404



Recommended Electronics:

Notes	Page **36**
ESCON Mod. 50/4 EC-S	487
ESCON Mod. 50/8 (HE)	488
ESCON 70/10	489
DEC Module 50/5	491
EPOS4 Module 50/15	497
EPOS4 Module 50/8	497
EPOS4 Comp. 50/8 CAN	499
EPOS4 Comp. 50/15 CAN	500
EPOS4 70/15	501

Encoder HEDL 9140
500 CPT,
3 channels
Page 478

Resolver Res
∅26 mm
10 V
Page 481

Brake AB 41
24 VDC
2.0 Nm
Page 523

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