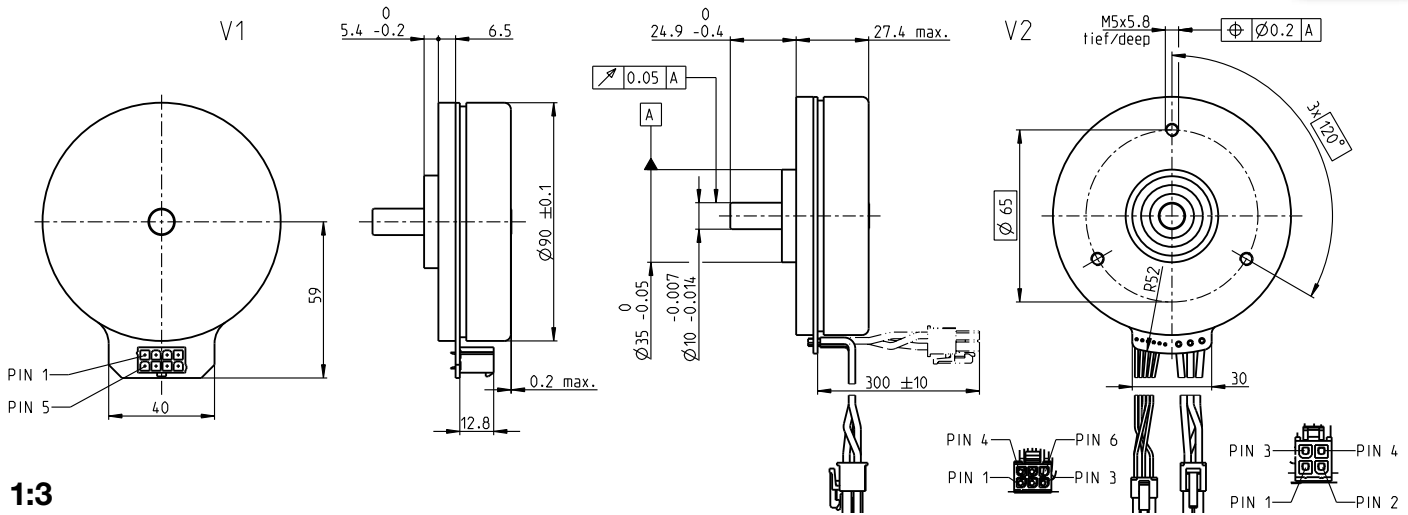


EC 90 flat Ø90 mm, brushless, 160 Watt

NEW

maxon flat motor



M 1:3

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

Part Numbers

V1 with Hall sensors	586655	515458	505592	580047
V2 with Hall sensors and cables	607321	607322	607323	607324

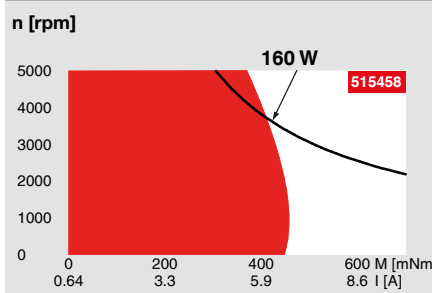
Motor Data

Values at nominal voltage		12	24	36	60
1 Nominal voltage	V	12	24	36	60
2 No load speed	rpm	3170	3170	3070	2600
3 No load current	mA	1320	658	420	197
4 Nominal speed	rpm	2710	2720	2640	2200
5 Nominal torque (max. continuous torque)	mNm	458	457	453	460
6 Nominal current (max. continuous current)	A	12.8	6.39	4.09	2.1
7 Stall torque ¹	mNm	7400	7910	7580	6410
8 Stall current	A	208	111	68.9	29.6
9 Max. efficiency	%	85	85	85	84
Characteristics					
10 Terminal resistance phase to phase	Ω	0.0577	0.216	0.523	2.03
11 Terminal inductance phase to phase	mH	0.058	0.232	0.554	2.15
12 Torque constant	mNm/A	35.6	71.2	110	217
13 Speed constant	rpm/V	268	134	86.8	44.1
14 Speed/torque gradient	rpm/mNm	0.435	0.407	0.412	0.412
15 Mechanical time constant	ms	14.4	13.5	13.7	13.7
16 Rotor inertia	gcm ²	3170	3170	3170	3170

Specifications

- Thermal data**
- 17 Thermal resistance housing-ambient: 1.75 K/W
 - 18 Thermal resistance winding-housing: 3.71 K/W
 - 19 Thermal time constant winding: 69.8 s
 - 20 Thermal time constant motor: 260 s
 - 21 Ambient temperature: -40...+100°C
 - 22 Max. winding temperature: +125°C
- Mechanical data (preloaded ball bearings)**
- 23 Max. speed: 5000 rpm
 - 24 Axial play at axial load: 0.14 mm
 - 25 Radial play: preloaded
 - 26 Max. axial load (dynamic): 34 N
 - 27 Max. force for press fits (static) (static, shaft supported): 440 N
 - 28 Max. radial load, 10 mm from flange: 100 N
- Other specifications**
- 29 Number of pole pairs: 11
 - 30 Number of phases: 3
 - 31 Weight of motor: 630 g

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



Encoder MILE
512 - 6400 CPT,
2 channels
Page 404

Recommended Electronics:

Notes	Page 32
ESCON Mod. 50/4 EC-S	445
ESCON Mod. 50/5	445
ESCON Mod. 50/8 (HE)	446
ESCON 50/5	447
ESCON 70/10	447
DEC Module 50/5	449
EPOS4 50/5	453
EPOS4 Mod./Comp. 50/5	453
EPOS4 Mod./Comp. 50/8	454
EPOS4 Mod./Comp. 50/15	455
EPOS4 70/15	456
MAXPOS 50/5	468

Connection V1
Pin 1 Hall sensor 1
Pin 2 Hall sensor 2
Pin 3 V_{Hall} 4.5...24 VDC
Pin 4 Motor winding 3
Pin 5 Hall sensor 3
Pin 6 GND
Pin 7 Motor winding 1
Pin 8 Motor winding 2

Connection V2 (sensors, AWG 24)
Pin 1 Hall sensor 1
Pin 2 Hall sensor 2
Pin 3 Hall sensor 3
Pin 4 GND
Pin 5 V_{Hall} 4.5...24 VDC
Pin 6 N.C.

Connection V2 (motor, AWG 16)
Pin 1 Motor winding 1
Pin 2 Motor winding 2
Pin 3 Motor winding 3
Pin 4 N.C.

Wiring diagram for Hall sensors see p. 43

Connector
Molex 46015-0806
Molex 39-01-2040

Part number
43025-0600
39-01-2040

Connection cable for V1
Connection cable Universal, L = 500 mm **339380**
Connection cable to EPOS4, L = 500 mm **354045**

¹Calculation does not include saturation effect (p. 53/164)