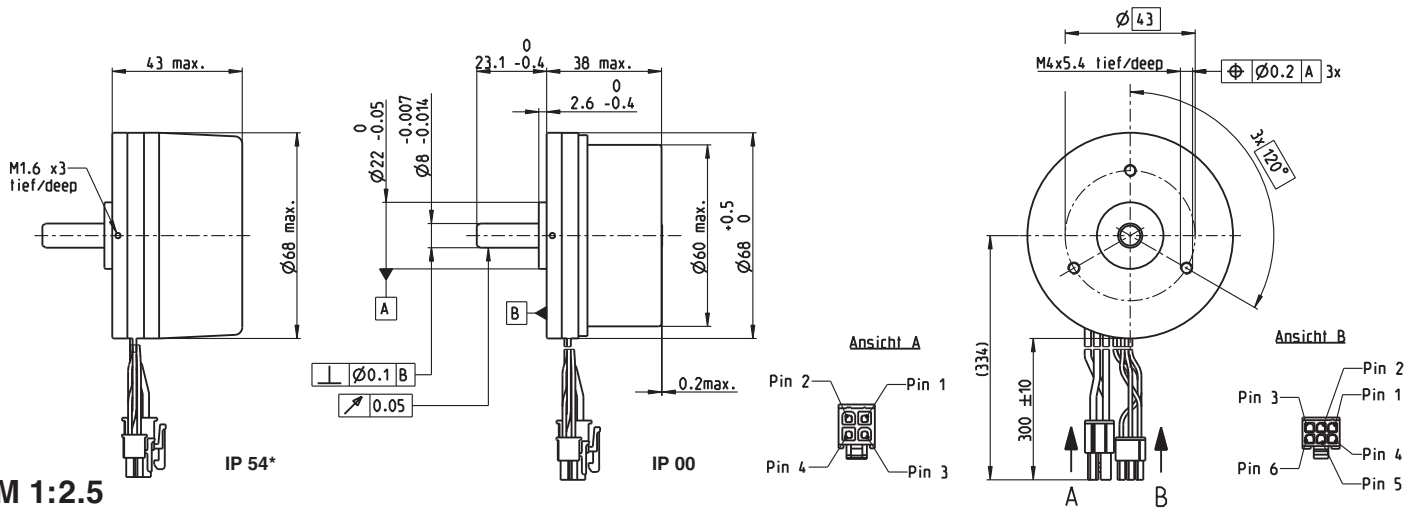


# EC 60 flat $\varnothing 68$ mm, brushless, 100 Watt



M 1:2.5

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

### Part Numbers

IP 54* (with cover)	412819	408057	412821
IP 00 (without cover)	412823	411678	412825

### Motor Data

Values at nominal voltage		12	12	24	24	48	48
1 Nominal voltage	V	12	12	24	24	48	48
2 No load speed	rpm	3710	3710	4250	4250	3970	3970
3 No load current	mA	671	671	419	419	187	187
4 Nominal speed	rpm	3260	3170	3840	3740	3580	3490
5 Nominal torque (max. continuous torque)	mNm	231	279	227	289	257	319
6 Nominal current (max. continuous current)	A	7.81	9.25	4.43	5.47	2.3	2.78
7 Stall torque	mNm	2850	2850	4180	4180	5010	5010
8 Starting current	A	93.5	93.5	78.2	78.2	43.8	43.8
9 Max. efficiency	%	84	84	86	86	88	88
Characteristics							
10 Terminal resistance phase to phase	$\Omega$	0.128	0.128	0.307	0.307	1.1	1.1
11 Terminal inductance phase to phase	mH	0.0615	0.0615	0.188	0.188	0.864	0.864
12 Torque constant	mNm/A	30.5	30.5	53.4	53.4	114	114
13 Speed constant	rpm/V	313	313	179	179	83.4	83.4
14 Speed/torque gradient	rpm/mNm	1.32	1.32	1.03	1.03	0.798	0.798
15 Mechanical time constant	ms	16.7	16.7	13	13	10.1	10.1
16 Rotor inertia	gcm <sup>2</sup>	1210	1210	1210	1210	1210	1210

### Specifications

- Thermal data**
- 17 Thermal resistance housing-ambient 4.34 (2.5) K/W
  - 18 Thermal resistance winding-housing 3.5 K/W
  - 19 Thermal time constant winding 40 s
  - 20 Thermal time constant motor 155 (86.9) s
  - 21 Ambient temperature -40...+100°C
  - 22 Max. permissible winding temperature +125°C

- Mechanical data (preloaded ball bearings)**
- 23 Max. permissible speed 6000 rpm
  - 24 Axial play at axial load < 12.0 N 0 mm
  - > 12.0 N 0.14 mm
  - 25 Radial play preloaded
  - 26 Max. axial load (dynamic) 12 N
  - 27 Max. force for press fits (static) (static, shaft supported) 170 N
  - 28 Max. radial load, 7.5 mm from flange 8000 N
  - 100 N

- Other specifications**
- 29 Number of pole pairs 7
  - 30 Number of phases 3
  - 31 Weight of motor 470 g

Values listed in the table are nominal.

- Connection motor (Cable AWG 18)**
- red Motor winding 1 Pin 1
  - black Motor winding 2 Pin 2
  - white Motor winding 3 Pin 3
  - N.C. N.C. Pin 4

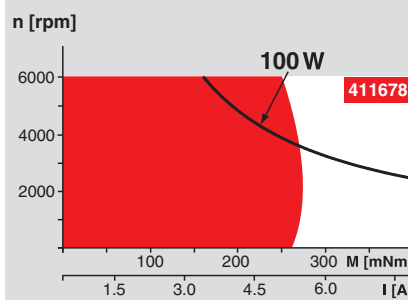
- Connector Part number**
- Molex 39-01-2040

- Connection sensors (Cable AWG 28)**
- grey Hall sensor 1 Pin 1
  - grey Hall sensor 2 Pin 2
  - grey Hall sensor 3 Pin 3
  - grey GND Pin 4
  - blue V<sub>Hall</sub> 4.5...18 VDC Pin 5
  - N.C. N.C. Pin 6

- Connector Part number**
- Molex 430-25-0600

\* Wiring diagram for Hall sensors see p. 35  
 \* Protection class only when installed with flange-side seal.

### Operating Range

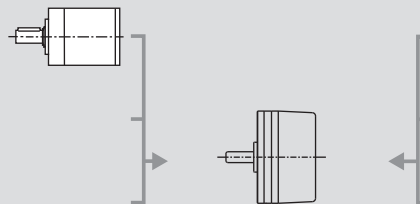


### Comments

- 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**
- $\varnothing 52$  mm
  - 4 - 30 Nm
  - Page 288



Overview on page 20–25

- Encoder MILE**
- 512 - 4096 CPT,
  - 2 channels
  - Page 309

### Recommended Electronics:

- ESCON Mod. 50/5 Page 343
- ESCON 50/5 344
- ESCON 70/10 344
- DEC Module 50/5 346
- EPOS2 24/5 351
- EPOS2 50/5 351
- EPOS2 70/10 351
- EPOS2 P 24/5 354
- EPOS3 70/10 EtherCAT 357
- MAXPOS 50/5 360
- Notes 24