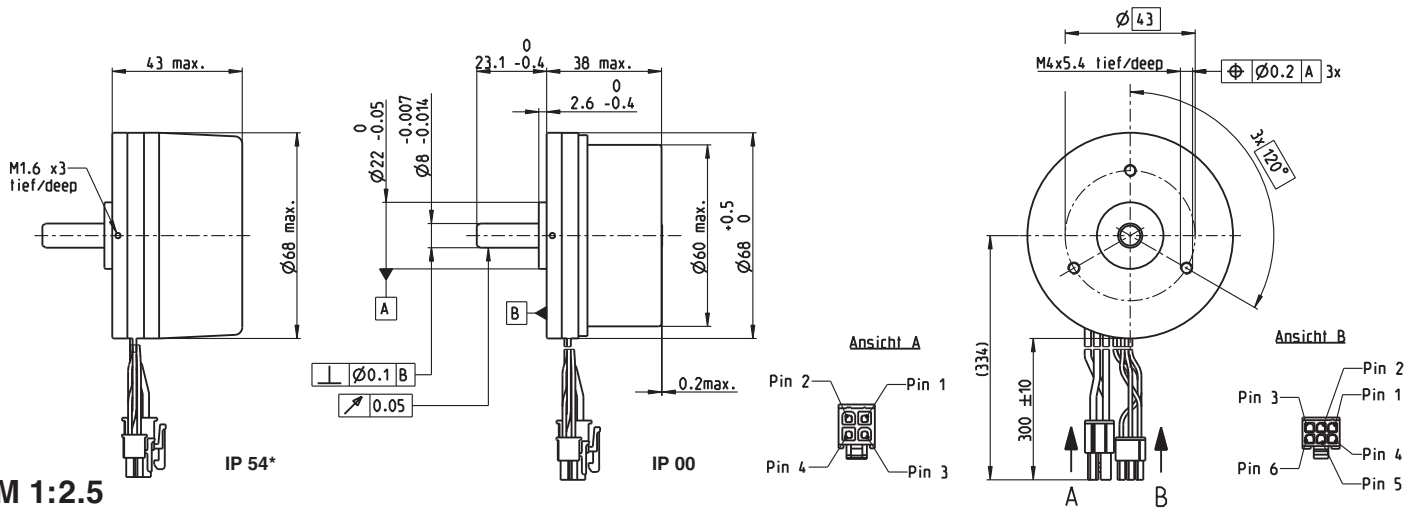


EC 60 flat $\varnothing 68$ mm, brushless, 100 Watt



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	Ω	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 ²	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

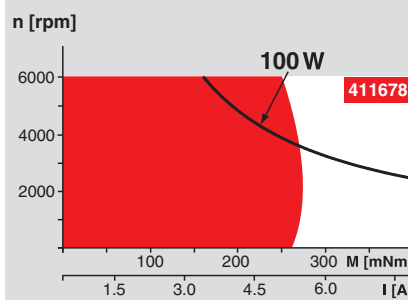
- Connector Part number**
- Molex 39-01-2040

- 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_{Hall} 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

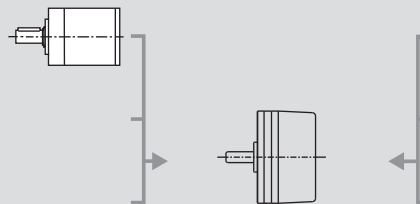
Continuous operation
 In observation of above listed thermal resistance (lines 17 and 18) the maximum permissible winding temperature will be reached during continuous operation at 25°C ambient.
 = Thermal limit.

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