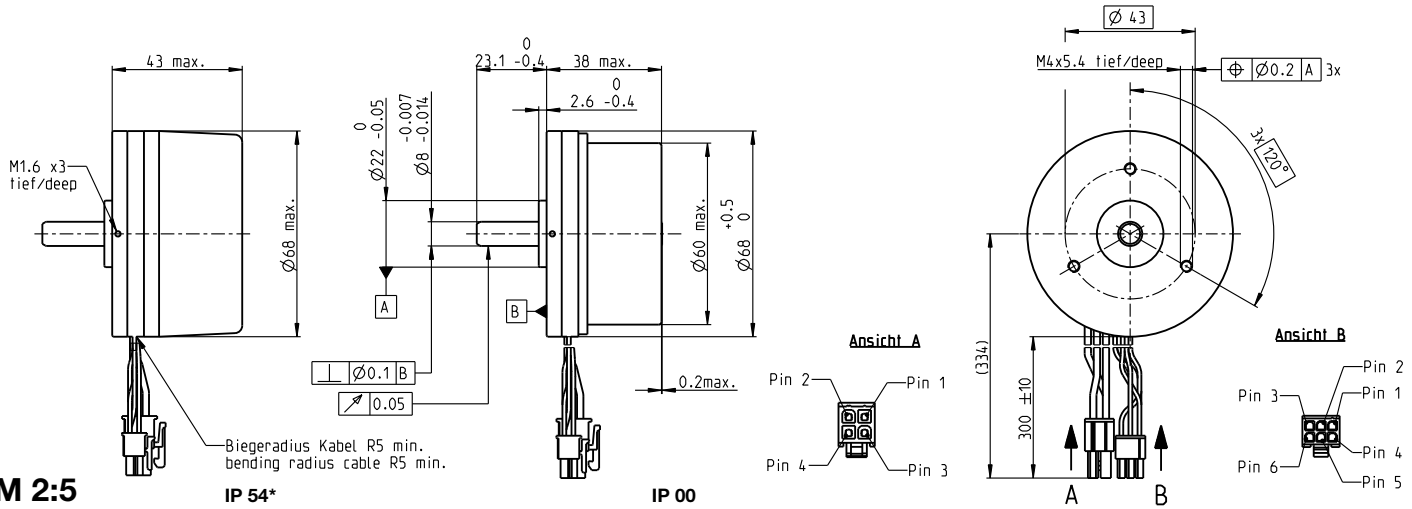


# EC 60 flat $\varnothing 68$ mm, brushless, 100 Watt



**M 2:5**

**IP 54\***

**IP 00**

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

**Part Numbers**

**IP 54\* (with cover)**  
**IP 00 (without cover)**

412819	412823	408057	411678	412821	412825
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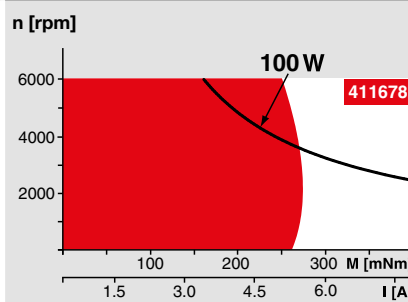
**Motor Data**

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 <sup>1</sup>	mNm	2850	2850	4180	4180	5010	5010
8 Stall current	A	93.5	93.5	78.2	78.2	43.8	43.8
9 Max. efficiency	%	84	84	86	86	88	88
Characteristics		0.128	0.128	0.307	0.307	1.1	1.1
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. winding temperature +125°C
- Mechanical data (preloaded ball bearings)**
- 23 Max. 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
  - 8000 N
  - 28 Max. radial load, 5 mm from flange 112 N

**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**

**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. 43  
\* Protection class only when installed with flange-side seal.

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

**maxon Modular System**

Overview on page 28–36

**Planetary Gearhead**

$\varnothing 52$  mm  
4 - 30 Nm  
Page 360



**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 Module 50/8	454
EPOS4 Comp. 50/8 CAN	454
EPOS4 70/15	456
EPOS2 P 24/5	464
MAXPOS 50/5	468

**Encoder MILE**

512 - 4096 CPT,  
2 channels  
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