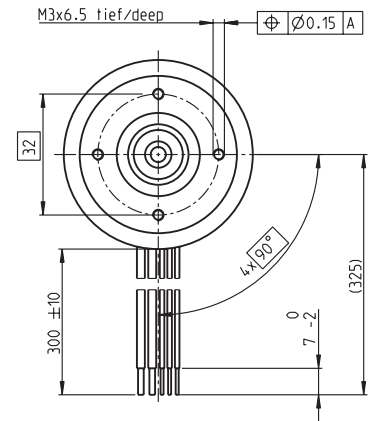
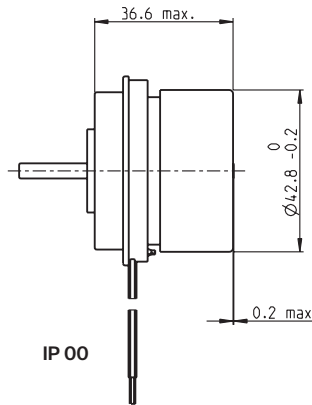
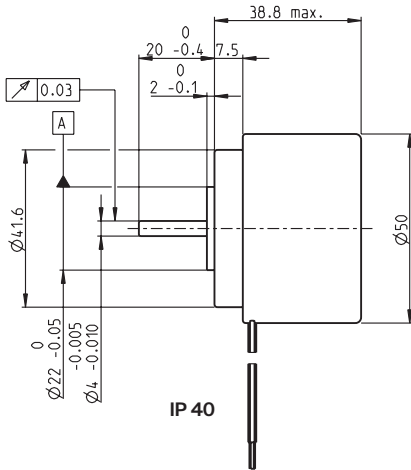


# EC 45 flat brushless, 50 watt, with integrated electronics

## 4-Q-Speed Controller

EC flat



### M 1:2

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

### Part Numbers

| 5 wire version        |        |           |        |
|-----------------------|--------|-----------|--------|
| Enable                |        | Direction |        |
| IP 40 (with cover)    | 688723 | 688724    | 688728 |
| IP 00 (without cover) | 688727 | 688724    | 688728 |

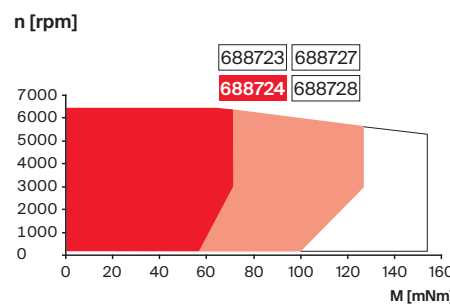
### Motor Data (provisional)

| Values at nominal voltage                   |       |             |             |             |             |
|---|-------|-------------|-------------|-------------|-------------|
| 1 Nominal voltage                           | V     | 24          | 24          | 24          | 24          |
| 2 No load speed                             | rpm   | 4500        | 4500        | 4500        | 4500        |
| 3 No load current                           | mA    | 192         | 192         | 192         | 192         |
| 4 Nominal speed                             | rpm   | 4500        | 4500        | 4500        | 4500        |
| 5 Nominal torque (max. continuous torque)   | mNm   | 82.8        | 131         | 82.8        | 131         |
| 6 Nominal current (max. continuous current) | A     | 2.15        | 3.45        | 2.15        | 3.45        |
| 33 Max. torque                              | mNm   | 149         | 149         | 149         | 149         |
| 34 Max. current                             | A     | 3.86        | 3.86        | 3.86        | 3.86        |
| 9 Max. efficiency                           | %     | 76          | 76          | 76          | 76          |
| Characteristics                             |       |             |             |             |             |
| 35 Type of control                          |       | Speed       | Speed       | Speed       | Speed       |
| 36 Supply voltage +V <sub>cc</sub>          | V     | 10...28     | 10...28     | 10...28     | 10...28     |
| 37 Speed set value input                    | V     | 0.33...10.8 | 0.33...10.8 | 0.33...10.8 | 0.33...10.8 |
| 38 Scale speed set value input              | rpm/V | 600         | 600         | 600         | 600         |
| 39 Speed range                              | rpm   | 200...6480  | 200...6480  | 200...6480  | 200...6480  |
| 40 Max. acceleration                        | rpm/s | 6000        | 6000        | 6000        | 6000        |

### Specifications

| Thermal data                              |                      |
|---|----------------------|
| 17 Thermal resistance housing-ambient     | 5.1 (2.5) K/W        |
| 18 Thermal resistance winding-housing     | 6.7 (3.3) K/W        |
| 19 Thermal time constant winding          | 45.1 (22.1) s        |
| 20 Thermal time constant motor            | 256 (124) s          |
| 21 Ambient temperature                    | -40...+85°C          |
| 22 Max. winding temperature               | +125°C               |
| 41 Max. temperature of electronics        | +105°C               |
| Mechanical data (preloaded ball bearings) |                      |
| 16 Rotor inertia                          | 181 gcm <sup>2</sup> |
| 24 Axial play at axial load < 7.0 N       | 0 mm                 |
|   | > 7.0 N              |
|   | 0.14 mm              |
| 25 Radial play                            | preloaded            |
| 26 Max. axial load (dynamic)              | 6.8 N                |
| 27 Max. force for press fits (static)     | 95 N                 |
| (static, shaft supported)                 | 1000 N               |
| 28 Max. radial load, 5 mm from flange     | 63 N                 |

### Operating Range



### Comments

- Continuous operation**  
The drive can be operated with a speed controller and, taking account of the given thermal resistance (fig. 17 and 18) at an ambient temperature of 25°C, does not exceed the maximum permissible operating temperatures.
- Overload range**  
The drive reaches these operating points. Speed may vary from the set value. The overload protection shuts down the drive in the event of sustained overload.

### Other specifications

|                          |                |
|--------------------------|----------------|
| 31 Weight of motor       | 260 g          |
| 32 Direction of rotation | Clockwise (CW) |

Values listed in the table are nominal.

### Protective functions

Overload protection, blockage protection, inverse-polarity protection, thermal overload protection, low/high voltage cut-off

### Connection 5 wire version (Cable AWG 18/24)

|       |  |
|-------|--|
| red   | +V <sub>cc</sub> 10...28 VDC                                 |
| black | GND  |
| white | Speed set value input  |
| green | Monitor n (6 pulses per revolution)                          |
| grey  | Disable (Type Enable) or sense of direction (Type Direction) |

### maxon Modular System

Details on catalog page 46

#### Planetary Gearhead

Ø32 mm  
0.75 - 6.0 Nm  
Page 394/398

#### Planetary Gearhead

Ø42 mm  
3.0 - 15.0 Nm  
Page 407

#### Spur Gearhead

Ø45 mm  
0.5 - 2.0 Nm  
Page 409

