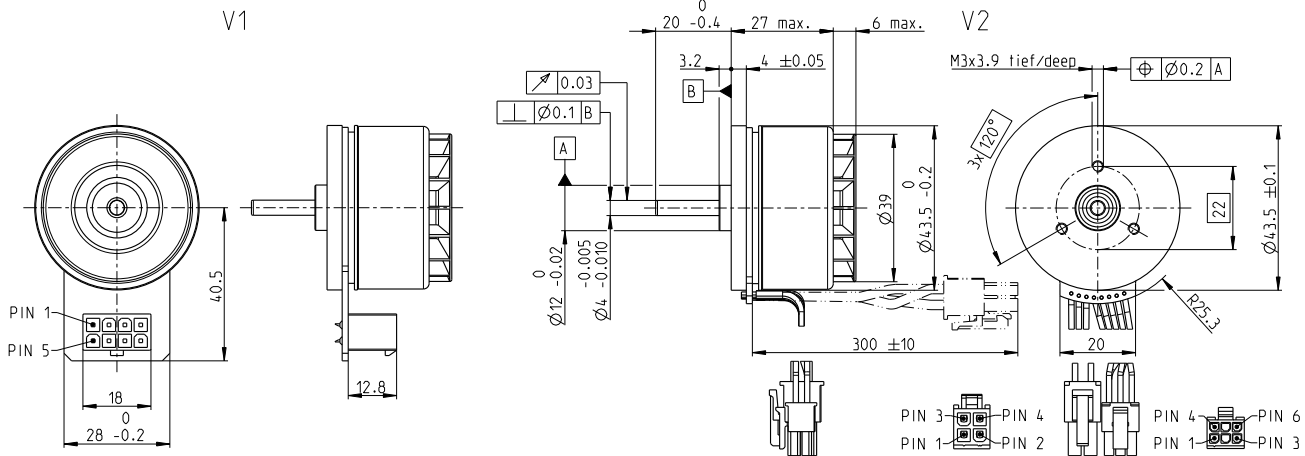


# EC 45 flat $\varnothing 43.5$ mm, brushless, 120 watt

Ventilated

EC flat



M 1:2

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

## Part Numbers

V1 with Hall sensors	608148	608149	608150	608151
V2 with Hall sensors and cables	608152	608153	608154	608155

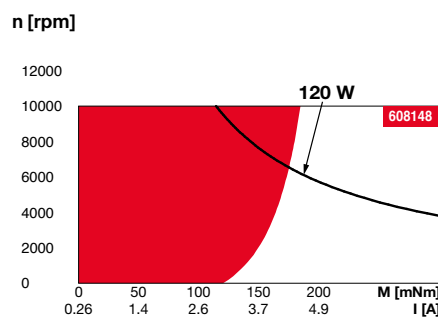
## Motor Data (provisional)

Values at nominal voltage		24	36	48	60
1 Nominal voltage	V	24	36	48	60
2 No load speed	rpm	5600	5930	5580	3720
3 No load current	mA	277	204	138	58.2
4 Nominal speed	rpm	4520	4820	4510	2900
5 Nominal torque (max. continuous torque)	mNm	174	147	146	169
6 Nominal current (max. continuous current)	A	4.13	2.53	1.78	1.06
7 Stall torque <sup>1</sup>	mNm	1690	1320	1260	1240
8 Stall current	A	42	23	16	8
9 Max. efficiency	%	84.7	82.5	82.4	84.1
Characteristics					
10 Terminal resistance phase to phase	$\Omega$	0.573	1.560	3.070	7.370
11 Terminal inductance phase to phase	mH	0.301	0.601	1.210	4.270
12 Torque constant	mNm / A	40.4	57	80.8	152
13 Speed constant	rpm / V	236	167	118	62.8
14 Speed / torque gradient	rpm / mNm	3.350	4.580	4.490	3.040
15 Mechanical time constant	ms	6.350	8.680	8.510	5.770
16 Rotor inertia	gcm <sup>2</sup>	181	181	181	181

## Specifications

- Thermal data**
- 17 Thermal resistance housing-ambient 1.94 K/W
  - 18 Thermal resistance winding-housing 3.86 K/W
  - 19 Thermal time constant winding 25.1 s
  - 20 Thermal time constant motor 97 s
  - 21 Ambient temperature -40...+100°C
  - 22 Max. winding temperature +125°C
- Mechanical data (preloaded ball bearings)**
- 23 Max. speed 10000 rpm
  - 24 Axial play at axial load < 8.0 N 0 mm
  - > 8.0 N 0.14 mm
  - 25 Radial play preloaded
  - 26 Max. axial load (dynamic) 7.2 N
  - 27 Max. force for press fits (static) 53 N
  - (static, shaft supported) 1000 N
  - 28 Max. radial load, 5 mm from flange 15.1 N
- Other specifications**
- 29 Number of pole pairs 8
  - 30 Number of phases 3
  - 31 Weight of motor 149.1 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

Details on catalog page 46

- Values listed in the table are nominal.
- Connection V1**
- Pin 1 Hall sensor 1\*
  - Pin 2 Hall sensor 2\*
  - Pin 3 V<sub>Hall</sub> 3.5...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<sub>Hall</sub> 3.5...24 VDC
  - Pin 6 N.C.
  - Pin 7 Motor winding 1
  - Pin 8 Motor winding 2
  - Pin 9 Motor winding 3
  - Pin 10 N.C.
- Connection V2** (motor, AWG 22)
- Pin 1 Motor winding 1
  - Pin 2 Motor winding 2
  - Pin 3 Motor winding 3
  - Pin 4 N.C.
- \*Internal pull-up (7...13 k $\Omega$ ) on V<sub>Hall</sub>
- Wiring diagram for Hall sensors see p. 59
- Connector**
- | Part number      | Part number |
|------------------|-------------|
| Molex 39-28-1083 | 43025-0600  |
| Molex            | 39-01-2040  |
- Connection cable for V1**
- |                       |        |
|-----------------------|--------|
| Universal, L = 500 mm | 339380 |
| to EPOS, L = 500 mm   | 354045 |

## Planetary Gearhead

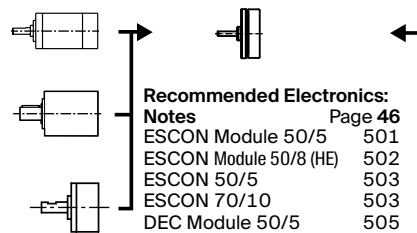
$\varnothing 32$  mm  
0.75 - 6.0 Nm  
Page 394/398

## Planetary Gearhead

$\varnothing 42$  mm  
3.0 - 15.0 Nm  
Page 407

## Spur Gearhead

$\varnothing 45$  mm  
0.5 - 2.0 Nm  
Page 409



**Encoder MILE**  
256 - 2048 CPT,  
2 channels  
Page 461

- 21 V2 Ambient temperature -20 ... +100°C
- <sup>1</sup>Calculation does not include saturation effect (p. 7.1/17.8)