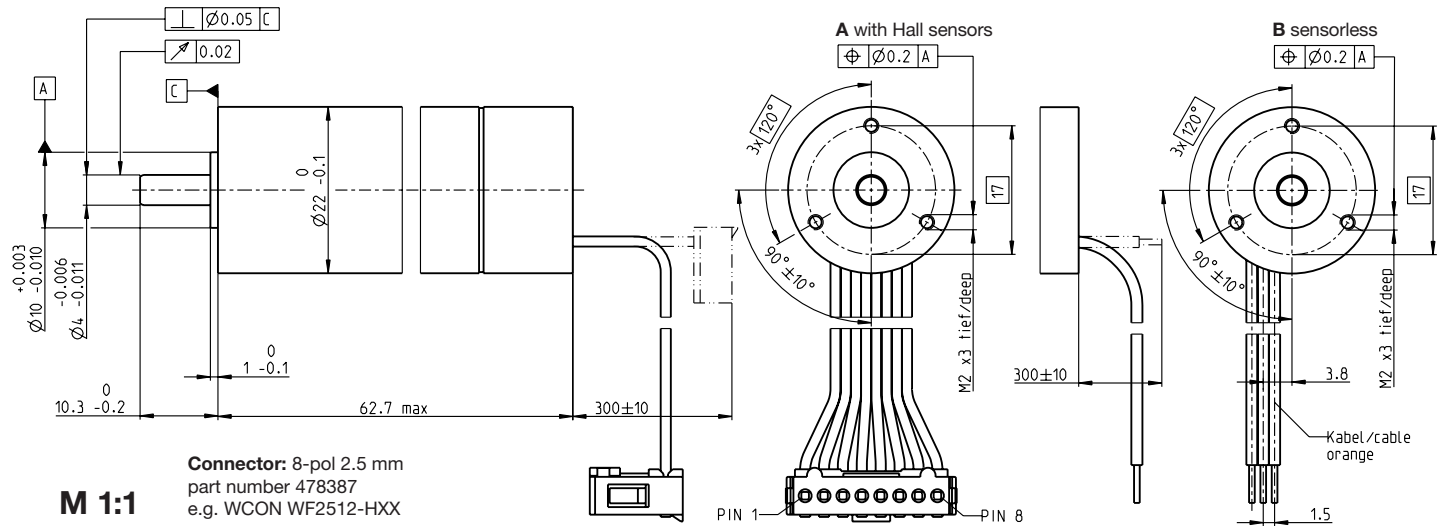


# EC 22 Ø22 mm, brushless, 100 Watt

maxon EC motor



**M 1:1**

**Connector:** 8-pol 2.5 mm  
part number 478387  
e.g. WCON WF2512-HXX

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

### Part Numbers

	386673	386674	386675
A with Hall sensors			
B sensorless	386676	386677	386678

### Motor Data

Values at nominal voltage		18 V	24 V	48 V
1 Nominal voltage	V	18	24	48
2 No load speed	rpm	31000	29500	32100
3 No load current	mA	373	257	149
4 Nominal speed	rpm	28200	27000	30000
5 Nominal torque (max. continuous torque)	mNm	49.3	48.5	47.6
6 Nominal current (max. continuous current)	A	9.15	6.42	3.45
7 Stall torque	mNm	644	691	857
8 Stall current	A	116	89.1	60.2
9 Max. efficiency	%	89	90	90
<b>Characteristics</b>				
10 Terminal resistance phase to phase	Ω	0.155	0.269	0.797
11 Terminal inductance phase to phase	mH	0.0178	0.035	0.118
12 Torque constant	mNm/A	5.53	7.75	14.2
13 Speed constant	rpm/V	1730	1230	672
14 Speed/torque gradient	rpm/mNm	48.3	42.8	37.6
15 Mechanical time constant	ms	2.07	1.83	1.61
16 Rotor inertia	gcm <sup>2</sup>	4.09	4.09	4.09

### Specifications

Thermal data	
17 Thermal resistance housing-ambient	7 K/W
18 Thermal resistance winding-housing	1 K/W
19 Thermal time constant winding	4.92 s
20 Thermal time constant motor	355 s
21 Ambient temperature	-20...+100°C
22 Max. winding temperature	155°C
<b>Mechanical data (preloaded ball bearings)</b>	
23 Max. speed	60000 rpm
24 Axial play at axial load < 4 N	0 mm
> 4 N	max. 0.14 mm
25 Radial play	preloaded
26 Max. axial load (dynamic)	3.5 N
27 Max. force for press fits (static)	40 N
(static, shaft supported)	250 N
28 Max. radial load, 5 mm from flange	16 N

### Other specifications

29 Number of pole pairs	1
30 Number of phases	3
31 Weight of motor	128 g

Values listed in the table are nominal.

### Connection A

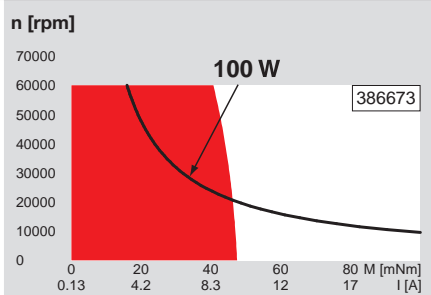
brown	Motor winding 1	Pin 1
red	Motor winding 2	Pin 2
orange	Motor winding 3	Pin 3
yellow	VHall 3...24 VDC	Pin 4
green	GND	Pin 5
blue	Hall sensor 1	Pin 6
violet	Hall sensor 2	Pin 7
gray	Hall sensor 3	Pin 8

Wiring diagram for Hall sensors see p. 25

### Connection B (Cable AWG 24)

brown	Motor winding 1
red	Motor winding 2
orange	Motor winding 3

### Operating Range



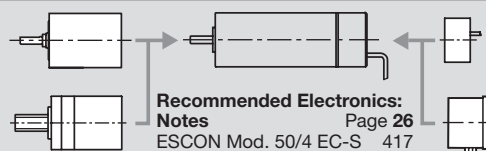
### Comments

- 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**  
Ø22 mm  
0.5 - 3.4 Nm  
Page 332/333

**Spindle Drive**  
Ø22 mm  
Page 368/369



### Overview on page 20-27

**for type A:**  
**Encoder MR**  
128/256/512 CPT,  
Page 391

**for type B:**  
**Resolver**  
on request

### Recommended Electronics:

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ESCON Mod. 50/4 EC-S	417
ESCON Module 50/5	417
ESCON 50/5, 70/10	418
DEC Module 50/5	420
EPOS2 24/5, 50/5, 70/10	425
EPOS2 P 24/5	428
EPOS4 Module 50/8	431
EPOS4 Comp. 50/8 CAN	431
EPOS4 Module 50/15	432
EPOS4 Comp. 50/15 CAN	432
MAXPOS 50/5	435