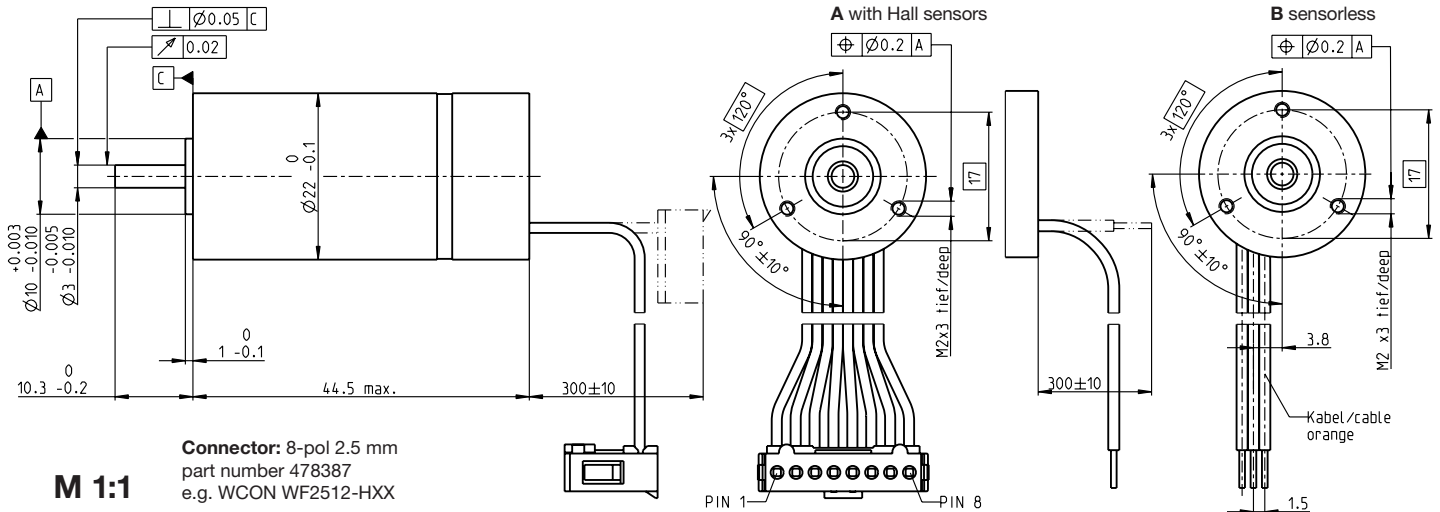


# EC 22 Ø22 mm, brushless, 40 Watt



**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

<b>A with Hall sensors</b>	386657	386658	386659	386660
<b>B sensorless</b>	386661	386662	386663	386664

## Motor Data

Values at nominal voltage		12	24	36	48
1 Nominal voltage	V	12	24	36	48
2 No load speed	rpm	30400	35200	31600	34200
3 No load current	mA	238	144	83.3	69.3
4 Nominal speed	rpm	26600	31800	28300	30900
5 Nominal torque (max. continuous torque)	mNm	20.9	20.7	20.4	20.1
6 Nominal current (max. continuous current)	A	5.75	3.29	1.95	1.56
7 Stall torque	mNm	184	243	221	237
8 Stall current	A	49.1	37.4	20.4	17.7
9 Max. efficiency	%	87	88	88	88
Characteristics		12	24	36	48
10 Terminal resistance phase to phase	Ω	0.244	0.641	1.76	2.71
11 Terminal inductance phase to phase	mH	0.0182	0.0546	0.152	0.231
12 Torque constant	mNm/A	3.75	6.49	10.8	13.3
13 Speed constant	rpm/V	2550	1470	882	716
14 Speed/torque gradient	rpm/mNm	166	145	144	145
15 Mechanical time constant	ms	4.16	3.64	3.6	3.64
16 Rotor inertia	gcm <sup>2</sup>	2.39	2.39	2.39	2.39

## Specifications

Thermal data	
17 Thermal resistance housing-ambient	10 K/W
18 Thermal resistance winding-housing	2 K/W
19 Thermal time constant winding	4.85 s
20 Thermal time constant motor	278 s
21 Ambient temperature	-20...+100°C
22 Max. winding temperature	+155°C
Mechanical data (preloaded ball bearings)	
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) (static, shaft supported)	45 N
28 Max. radial load, 5 mm from flange	250 N
	16 N

## Other specifications

29 Number of pole pairs	1
30 Number of phases	3
31 Weight of motor	85 g

Values listed in the table are nominal.

## Connection A

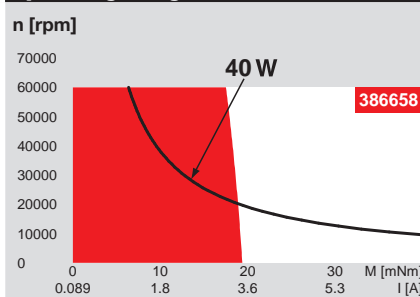
brown	Motor winding 1	Pin 1
red	Motor winding 2	Pin 2
orange	Motor winding 3	Pin 3
yellow	VHall 3...24 VDC	Pin 4
green	GND	Pin 5
blue	Hall sensor 1	Pin 6
violet	Hall sensor 2	Pin 7
grey	Hall sensor 3	Pin 8

Wiring diagram for Hall sensors see p. 35

## Connection B (Cable AWG 24)

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

## Operating Range

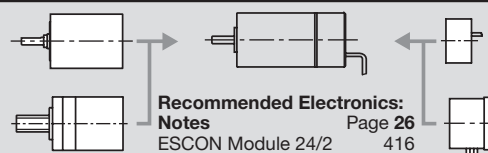


## Comments

- 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



## Recommended Electronics:

Notes	Page 26
ESCON Module 24/2	416
ESCON 36/3 EC	417
ESCON Mod. 50/4 EC-S	417
ESCON Module 50/5	417
ESCON 50/5, 70/10	418
DEC Module 24/2, 50/5	420
EPOS2 24/2, Module 36/2	424
EPOS2 24/5, 50/5, 70/10	425
EPOS2 P 24/5	428
EPOS4 Module 50/8	431
EPOS4 Comp. 50/8 CAN	431
MAXPOS 50/5	435

## Overview on page 20-27

- for type A:**  
**Encoder MR**  
128/256/512 CPT,  
Page 391
- for type B:**  
**Resolver**  
on request