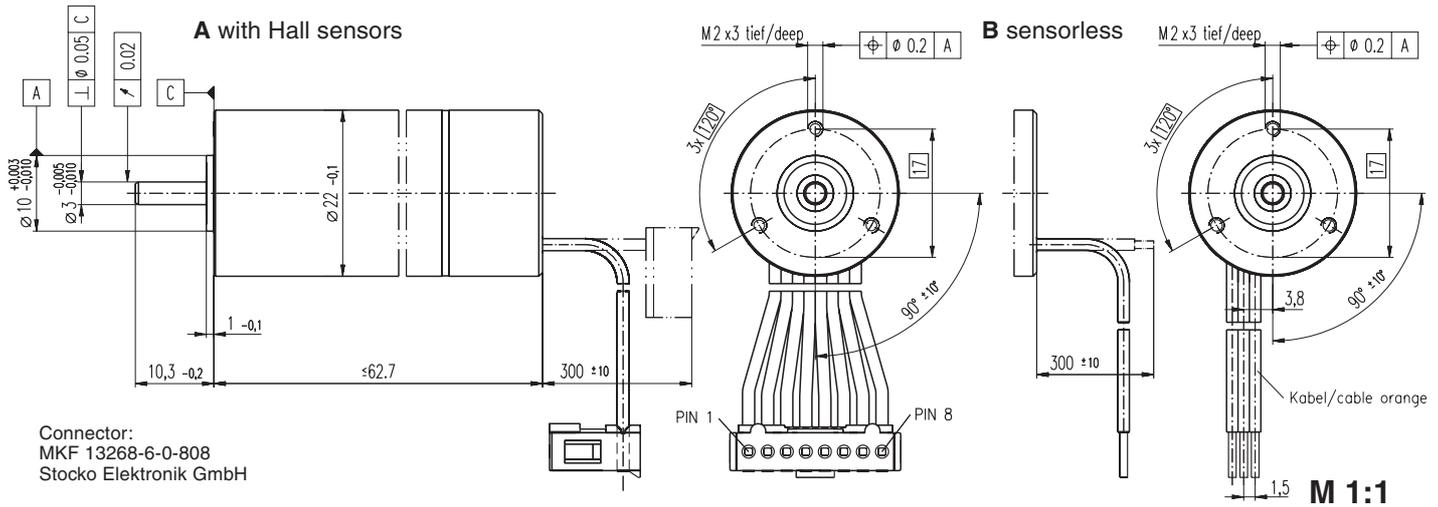


# EC 22 Ø22 mm, brushless, 50 Watt, CE approved



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

## Order Number

A with Hall sensors  
B sensorless

|        |        |        |        |
|--------|--------|--------|--------|
| 167130 | 167129 | 201049 | 201048 |
|--------|--------|--------|--------|

## Motor Data

| Values at nominal voltage |   |                  |        |       |        |
|---------------------------|---|------------------|--------|-------|--------|
| 1                         | Nominal voltage                           | V                | 32.0   | 32.0  | 32.0   |
| 2                         | No load speed                             | rpm              | 38700  | 22400 | 38700  |
| 3                         | No load current                           | mA               | 327    | 128   | 327    |
| 4                         | Nominal speed                             | rpm              | 36600  | 20200 | 36600  |
| 5                         | Nominal torque (max. continuous torque)   | mNm              | 30.6   | 37.2  | 30.6   |
| 6                         | Nominal current (max. continuous current) | A                | 4.16   | 2.82  | 4.16   |
| 7                         | Stall torque                              | mNm              | 692    | 437   | 692    |
| 8                         | Starting current                          | A                | 88.2   | 32.1  | 88.2   |
| 9                         | Max. efficiency                           | %                | 88     | 88    | 88     |
| Characteristics           |   |                  |        |       |        |
| 10                        | Terminal resistance phase to phase        | Ω                | 0.363  | 0.997 | 0.363  |
| 11                        | Terminal inductance phase to phase        | mH               | 0.0490 | 0.147 | 0.0490 |
| 12                        | Torque constant                           | mNm / A          | 7.85   | 13.6  | 7.85   |
| 13                        | Speed constant                            | rpm / V          | 1220   | 702   | 1220   |
| 14                        | Speed / torque gradient                   | rpm / mNm        | 56.2   | 51.4  | 56.2   |
| 15                        | Mechanical time constant                  | ms               | 2.47   | 2.26  | 2.47   |
| 16                        | Rotor inertia                             | gcm <sup>2</sup> | 4.20   | 4.20  | 4.20   |

## Specifications

| Thermal data   |  |
|--|--|
| 17   | Thermal resistance housing-ambient                           |
| 18   | Thermal resistance winding-housing                           |
| 19   | Thermal time constant winding                                |
| 20   | Thermal time constant motor                                  |
| 21   | Ambient temperature  |
| 22   | Max. permissible winding temperature                         |
| Mechanical data (preloaded ball bearings)                      |  |
| 23   | Max. permissible speed <sup>1)</sup>                         |
| 24   | Axial play at axial load < 5 N                               |
|  | > 5 N  |
| 25   | Radial play  |
| 26   | Max. axial load (dynamic)                                    |
| 27   | Max. force for press fits (static) (static, shaft supported) |
| 28   | Max. radial loading, 5 mm from flange                        |
| 1) in combination with encoder MR n <sub>max</sub> = 37500 rpm |  |
| Other specifications   |  |
| 29   | Number of pole pairs   |
| 30   | Number of phases   |
| 31   | Weight of motor  |

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 | V <sub>Hall</sub> 4.5 ... 18 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 |

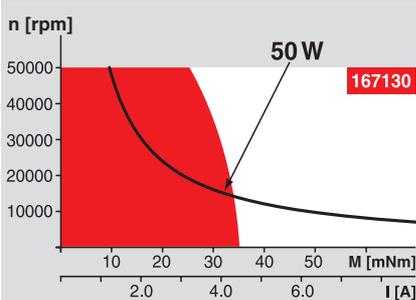
\*Internal pull-up (7 ... 13 kΩ) on pin 4

### Connection B (Cable AWG 24)

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

Wiring diagram for Hall sensors see p. 26

## Operating Range



## Comments

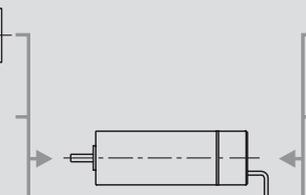
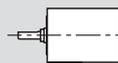
**Continuous operation**  
In observation of above listed thermal resistance (lines 17 and 18) the maximum permissible winding temperature will be reached during continuous operation at 25°C ambient.  
= Thermal limit.

**Short term operation**  
The motor may be briefly overloaded (recurring).

— Assigned power rating

## maxon Modular System

**Planetary Gearhead**  
Ø22 mm  
0.5 - 2.0 Nm  
Page 221



## Overview on page 17 - 21

for type A:  
**Encoder MR**  
128 / 256 / 512 CPT  
Page 245

for type B:  
**Resolver Res 26**  
on request

## Recommended Electronics:

|             |          |
|-------------|----------|
| A ECS 35/3  | Page 270 |
| DEC 50/5    | 271      |
| DECV 50/5   | 271      |
| DES 50/5    | 272      |
| EPOS 24/1   | 278      |
| EPOS 24/5   | 278      |
| EPOS P 24/5 | 279      |
| Notes       | 17       |