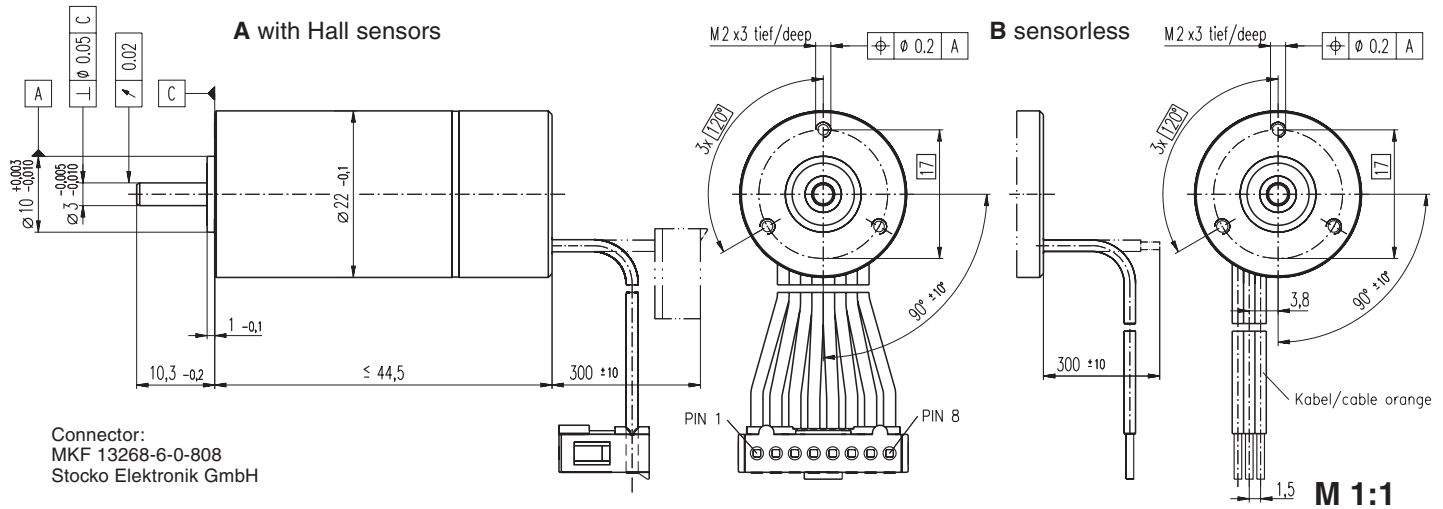


EC 22 Ø22 mm, brushless, 20 Watt, CE approved



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

Order Number

A with Hall sensors
B sensorless

| | | | |
|--------|--------|--------|--------|
| 169007 | 169008 | 200685 | 200118 |
| 200859 | 200857 | 200860 | 200858 |

Motor Data

| Values at nominal voltage | | | | | |
|---------------------------|---|------------------|-------|-------|-------|
| 1 | Nominal voltage | V | 24.0 | 24.0 | 24.0 |
| 2 | No load speed | rpm | 35500 | 20500 | 16700 |
| 3 | No load current | mA | 168 | 74.1 | 55.6 |
| 4 | Nominal speed | rpm | 30900 | 16500 | 12700 |
| 5 | Nominal torque (max. continuous torque) | mNm | 15.8 | 16.9 | 15.9 |
| 6 | Nominal current (max. continuous current) | A | 2.48 | 1.51 | 1.16 |
| 7 | Stall torque | mNm | 195 | 117 | 82.7 |
| 8 | Starting current | A | 30.4 | 10.5 | 6.08 |
| 9 | Max. efficiency | % | 86 | 84 | 82 |
| Characteristics | | | | | |
| 10 | Terminal resistance phase to phase | Ω | 0.789 | 2.28 | 3.95 |
| 11 | Terminal inductance phase to phase | mH | 0.071 | 0.214 | 0.322 |
| 12 | Torque constant | mNm / A | 6.40 | 11.1 | 13.6 |
| 13 | Speed constant | rpm / V | 1490 | 861 | 702 |
| 14 | Speed / torque gradient | rpm / mNm | 184 | 177 | 204 |
| 15 | Mechanical time constant | ms | 5.78 | 5.56 | 6.40 |
| 16 | Rotor inertia | gcm ² | 3.00 | 3.00 | 3.00 |

Specifications

| | |
|--|---|
| Thermal data | |
| 17 | Thermal resistance housing-ambient 10 K / W |
| 18 | Thermal resistance winding-housing 2.0 K / W |
| 19 | Thermal time constant winding 4.93 s |
| 20 | Thermal time constant motor 300 s |
| 21 | Ambient temperature -20 ... +100°C |
| 22 | Max. permissible winding temperature +125°C |
| Mechanical data (preloaded ball bearings) | |
| 23 | Max. permissible speed ¹⁾ 50000 rpm |
| 24 | Axial play at axial load < 5 N 0 mm |
| | > 5 N max. 0.14 mm |
| 25 | Radial play preloaded |
| 26 | Max. axial load (dynamic) 4 N |
| 27 | Max. force for press fits (static) (static, shaft supported) 60 N |
| 28 | Max. radial loading, 5 mm from flange 250 N |
| | 16 N |
| 1) in combination with encoder MR n _{max} = 37500 rpm | |
| 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 | V _{Hall} 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 |

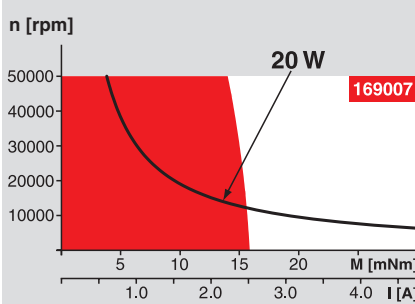
*Internal pull-up (7 ... 13 kΩ) on pin 4

Connection B (Cable AWG 24)

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

Wiring diagram for Hall sensors see page 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 223

Overview on page 16 - 21

for type A:
Encoder MR
128 / 256 / 512 CPT,
Page 249

for type B:
Resolver Res 26
on request

Recommended Electronics:

| | |
|--------------------|----------|
| AECS 35/3 | Page 276 |
| DEC 24/1 | 276 |
| DEC 50/5, DEC 24/3 | 277 |
| DECV 50/5 | 278 |
| DES 50/5 | 279 |
| EPOS 24/1 | 286 |
| EPOS 24/5 | 286 |
| EPOS P 24/5 | 287 |
| Notes | 20 |