

ECX SPEED 22 L brushless

BLDC motor Ø22 mm

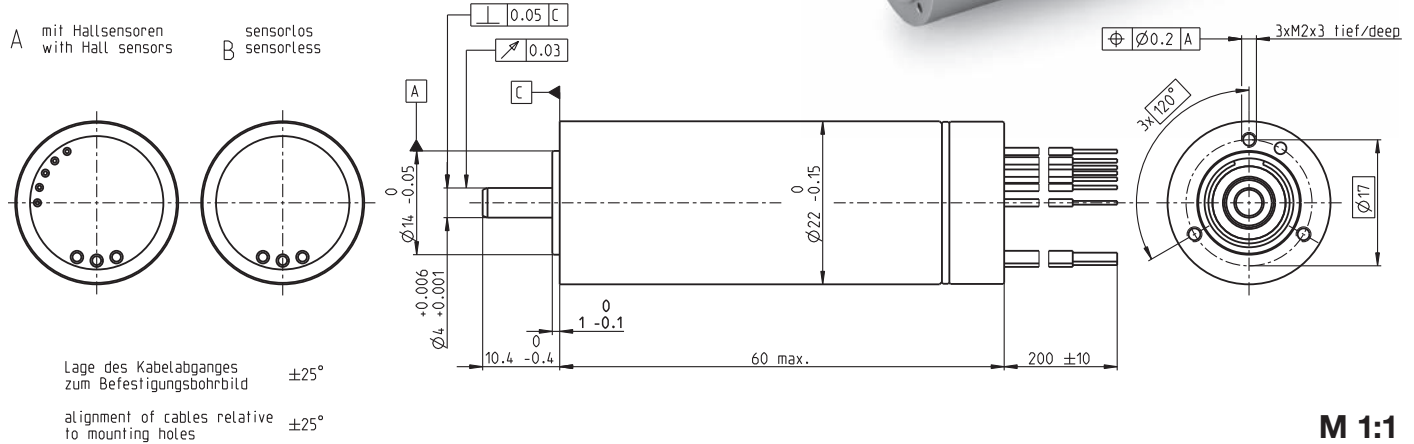
Sterilizable, Ceramic Bearings

120/233 W 33 mNm 85000 rpm

NEW



maxon X drives



| Motor Data | | | | | |
|------------|---|------------------|--------|--------|--------|
| 1_ | Nominal voltage | V | 24 | 36 | 48 |
| 2_ | No load speed | rpm | 54100 | 56200 | 57300 |
| 3_ | No load current | mA | 425 | 303 | 235 |
| 4_ | Nominal speed | rpm | 51800 | 54000 | 55200 |
| 5_ | Nominal torque (max. continuous torque) | mNm | 32.6 | 33.5 | 31.6 |
| 6_ | Nominal current (max. continuous current) | A | 8.05 | 5.32 | 4.14 |
| 7_ | Stall torque | mNm | 965 | 1160 | 1120 |
| 8_ | Stall current | A | 228 | 190 | 140 |
| 9_ | Max. efficiency | % | 92 | 92 | 92 |
| 10_ | Terminal resistance | Ω | 0.105 | 0.189 | 0.343 |
| 11_ | Terminal inductance | mH | 0.0114 | 0.0237 | 0.0406 |
| 12_ | Torque constant | mNm/A | 4.23 | 6.11 | 7.99 |
| 13_ | Speed constant | rpm/V | 2260 | 1560 | 1200 |
| 14_ | Speed/torque gradient | rpm/mNm | 56.1 | 48.4 | 51.3 |
| 15_ | Mechanical time constant | ms | 1.39 | 1.2 | 1.27 |
| 16_ | Rotor inertia | gcm ² | 2.36 | 2.36 | 2.36 |

| Thermal data | | Operating Range | |
|--------------|------------------------------------|-----------------|------------|
| 17_ | Thermal resistance housing-ambient | K/W | 10 |
| 18_ | Thermal resistance winding-housing | K/W | 0.823 |
| 19_ | Thermal time constant winding | s | 2.9 |
| 20_ | Thermal time constant motor | s | 507 |
| 21_ | Ambient temperature | °C | -40...+135 |
| 22_ | Max. winding temperature | °C | 155 |

n [rpm] winding 36 V

135°C SSS

Sensorless: typical 2000 sterilization cycles
Hall sensors: typical 1000 sterilization cycles
Sterilization with steam
Temperature +134°C ±4°C
Compression pressure up to 2.3 bar
Rel. humidity 100%
Cycle length 18 min.

| Mechanical data ball bearings | | maxon Modular System | | | |
|-------------------------------|------------------------------------|----------------------|-----------|--|--|
| 23_ | Max. speed | rpm | 85000 | | |
| 24_ | Axial play | mm | 0...0.24 | | |
| | Preload | N | 4 | | |
| | Direction of force | | pull | | |
| 25_ | Radial play | | preloaded | | |
| 26_ | Max. axial load (dynamic) | N | 4 | | |
| 27_ | Max. force for press fits (static) | N | 110 | | |
| | (static, shaft supported) | N | 6000 | | |
| 28_ | Max. radial load [mm from flange] | N | 16 [5] | | |

| Other specifications | | maxon gear | Stages | maxon sensor | maxon motor control |
|----------------------|---------------------------|------------|------------|--------------|----------------------------|
| 29_ | Number of pole pairs | 1 | | | 417_ESCON Module 50/4 EC-S |
| 30_ | Number of phases | 3 | | | 417_ESCON Module 50/5 |
| 31_ | Weight of motor | g | 148 | | 418_ESCON 50/5 |
| 32_ | Typical noise level [rpm] | dBA | 55 [50000] | | 418_ESCON 70/10 |
| | | | | | 420_DEC Module 50/5 |

Connection A and B, motor (Cable AWG 18)
red Motor winding 1
black Motor winding 2
white Motor winding 3

Connection A, sensors (Cable AWG 26)
orange V_{Hall} 3...24 VDC
blue GND
yellow Hall sensor 1
brown Hall sensor 2
grey Hall sensor 3

Wiring diagram for Hall sensors see page 35

Connection NTC (Cable AWG 26)
purple NTC
purple NTC
Resistance 25°C: 10 kOhm ±1%, beta (25-85°C): 3490 K

Configuration
Flange front: thread in flange/center thread
Flange back: plastic ring/center thread
Shaft front: length
Electric connection: cable length/pin connection
Temperature Sensor: NTC-Thermistor