

maxon DC-max

| | |
|--------------------------------|---------|
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| RE Program | 107-143 |
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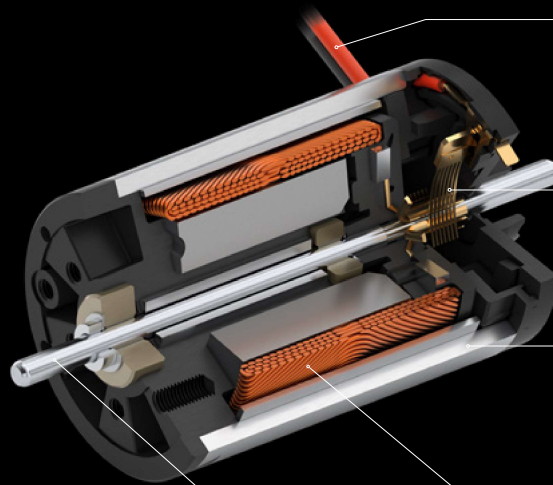


maxon DC-max

Strong neodymium magnet, state-of-the-art winding technology, cost-optimized design, economical manufacturing: The brushed maxon DC-max motors feature maximum performance at minimum volume and an unrivaled price-performance ratio. Choose between graphite and precious metal brushes, sintered and ball bearings, and many other components.

Key data

| | |
|------------------------|------------------|
| Motor Ø | 16 ... 26 mm |
| Motor length | 25,4 ... 44,7 mm |
| Power | 2 ... 22 W |
| Nominal torque | up to 32.7 mNm |
| Max. permissible speed | up to 11000 rpm |



Electrical connection with terminals, cables and connectors, depending on the size.

Commutation with precious metal brushes for fine rotary motion or graphite brushes for heavy-duty use.

In a hybrid process, a stator is formed by assembling the motor housing and magnet in one step using injection molding of PPA plastic. Sintered bearings or ball bearings.

Highly efficient ironless winding, system maxon – different nominal voltages available.

Stainless steel shaft with high stiffness; various modification options available.

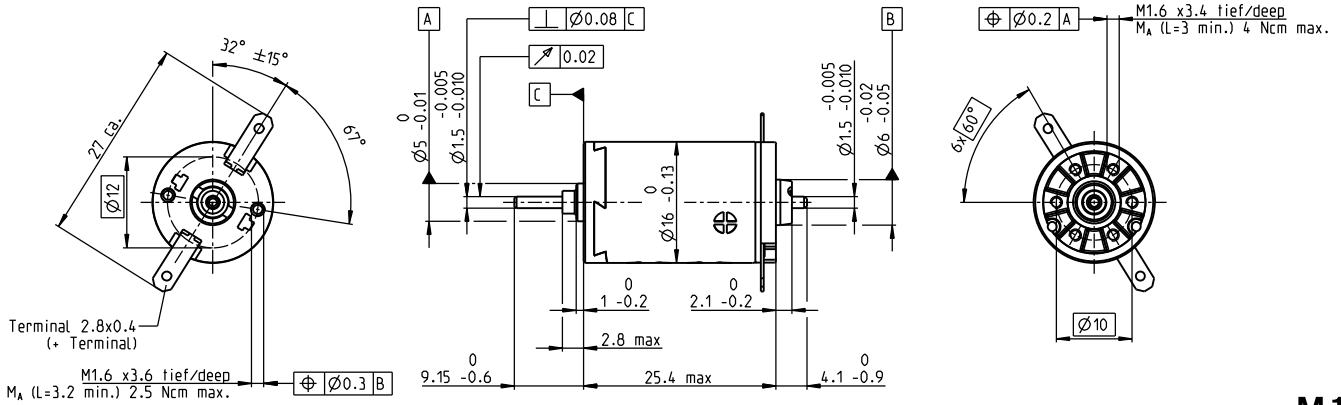
- The cost-effective alternative to the DCX program
- High performance at a low cost
- Combines the rational manufacturing and design of A-max motors with the higher power density offered by NdFeB magnets
- Automated manufacturing process
- Easily configured online

DC-max 16 S Precious Metal Brushes

DC motor $\varnothing 16$ mm



Key Data: 2/4,3 W, 4,1 mNm, 11000 rpm



M 1:1

Motor Data

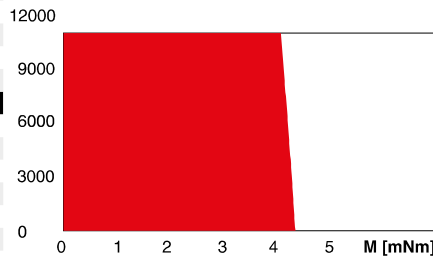
| | | | | |
|--|------------------|-------|-------|-------|
| 1_ Nominal voltage | V | 6 | 12 | 24 |
| 2_ No load speed | rpm | 7890 | 7560 | 7470 |
| 3_ No load current | mA | 14.7 | 6.90 | 3.40 |
| 4_ Nominal speed | rpm | 4830 | 4390 | 4210 |
| 5_ Nominal torque (max. continuous torque) | mNm | 4.06 | 3.92 | 3.80 |
| 6_ Nominal current (max. continuous current) | A | 0.577 | 0.267 | 0.128 |
| 7_ Stall torque | mNm | 10.5 | 9.44 | 8.75 |
| 8_ Stall current | A | 1.46 | 0.629 | 0.289 |
| 9_ Max. efficiency | % | 81 | 80 | 80 |
| 10_ Terminal resistance | Ω | 4.10 | 19.1 | 83.2 |
| 11_ Terminal inductance | mH | 0.140 | 0.610 | 2.49 |
| 12_ Torque constant | mNm/A | 7.19 | 15.0 | 30.3 |
| 13_ Speed constant | rpm/V | 1330 | 637 | 315 |
| 14_ Speed/torque gradient | rpm/mNm | 758 | 809 | 864 |
| 15_ Mechanical time constant | ms | 8.87 | 8.92 | 9.00 |
| 16_ Rotor inertia | gcm ² | 1.12 | 1.05 | 0.994 |

Thermal data

| | | |
|--|--------------------|-----------|
| 17_ Thermal resistance housing-ambient | K/W | 29.8 |
| 18_ Thermal resistance winding-housing | K/W | 5.5 |
| 19_ Thermal time constant winding | s | 5.35 |
| 20_ Thermal time constant motor | s | 288 |
| 21_ Ambient temperature | $^{\circ}\text{C}$ | -30...+65 |
| 22_ Max. winding temperature | $^{\circ}\text{C}$ | 85 |

Operating Range

n [rpm] Winding 12 V



- Continuous operation
- Continuous operation with reduced thermal resistance R_{th2} 50%
- Intermittent operation

Mechanical data ball bearings

| | | |
|--|-----|-------------|
| 23_ Max. speed | rpm | 11000 |
| 24_ Axial play | mm | 0,05...0,15 |
| Preload | N | 0 |
| 25_ Radial play | mm | 0,025 |
| 26_ Max. axial load (dynamic) | N | 2,2 |
| 27_ Max. force for press fits (static) (static, shaft supported) | N | 30 200 |
| 28_ Max. radial load [mm from flange] | N | 7,8 [5] |

Mechanical data sleeve bearings

| | | |
|--|-----|-------------|
| 23_ Max. speed | rpm | 11000 |
| 24_ Axial play | mm | 0,05...0,15 |
| Preload | N | 0 |
| 25_ Radial play | mm | 0,012 |
| 26_ Max. axial load (dynamic) | N | 0,8 |
| 27_ Max. force for press fits (static) (static, shaft supported) | N | 35 200 |
| 28_ Max. radial load [mm from flange] | N | 1,4 [5] |

Other specifications

| | | |
|-----------------------------------|---|------|
| 29_ Number of pole pairs | | 1 |
| 30_ Number of commutator segments | | 7 |
| 31_ Weight of motor | g | 23,3 |

maxon Modular System

| | | |
|-------------------|---------------|---------------------|
| maxon gear | Stages [opt.] | maxon sensor |
| 331_GPX 16 A/C | 1-2 [3-4] | 433_ENX 10 QUAD |
| 332_GPX 16 LN/LZ | 1-2 [3-4] | 433_ENX 10 EASY |
| 335_GPX 19 A/C | 3-4 | |
| 336_GPX 19 LN/LZ | 3-4 | |

Details on catalog page 32

| |
|-----------------------------|
| maxon motor control |
| 486_ESCON Module 24/2 |
| 486_ESCON 36/2 DC |
| 496_EPOS4 Mod./Comp. 24/1.5 |

Configuration

Bearing: Sleeve bearings/ball bearings
 Commutation: Precious metal brushes with CLL/Graphite Brushes
 Shaft front/back: Length
 Electric connection: Terminals/cable

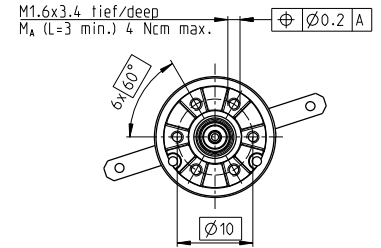
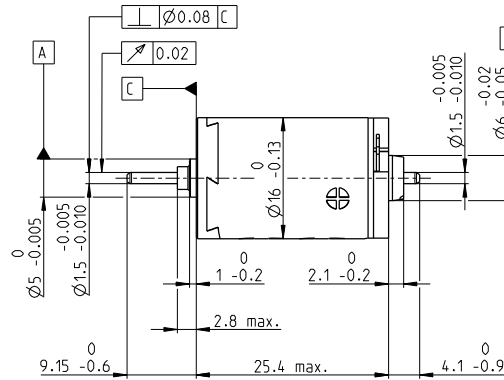
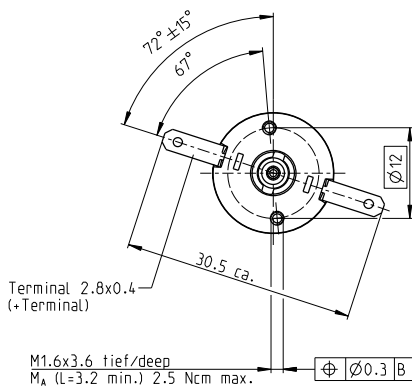
DC-max 16 S Graphite Brushes

DC motor $\varnothing 16$ mm



DC-max

Key Data: 3/4.7 W, 4.8 mNm, 11000 rpm



M 1:1

Motor Data

| | | | | |
|--|------------------|-------|-------|-------|
| 1_ Nominal voltage | V | 6 | 12 | 24 |
| 2_ No load speed | rpm | 9870 | 9860 | 9920 |
| 3_ No load current | mA | 67.3 | 33.6 | 16.8 |
| 4_ Nominal speed | rpm | 6770 | 6200 | 6580 |
| 5_ Nominal torque (max. continuous torque) | mNm | 3.71 | 4.31 | 4.76 |
| 6_ Nominal current (max. continuous current) | A | 0.720 | 0.413 | 0.227 |
| 7_ Stall torque | mNm | 12.1 | 11.9 | 14.4 |
| 8_ Stall current | A | 2.15 | 1.05 | 0.64 |
| 9_ Max. efficiency | % | 68 | 68 | 71 |
| 10_ Terminal resistance | Ω | 2.79 | 11.4 | 37.5 |
| 11_ Terminal inductance | mH | 0.086 | 0.343 | 1.37 |
| 12_ Torque constant | mNm/A | 5.62 | 11.2 | 22.5 |
| 13_ Speed constant | rpm/V | 1700 | 849 | 424 |
| 14_ Speed/torque gradient | rpm/mNm | 843 | 858 | 707 |
| 15_ Mechanical time constant | ms | 8.85 | 8.92 | 8.57 |
| 16_ Rotor inertia | gcm ² | 1.00 | 0.993 | 1.16 |

Thermal data

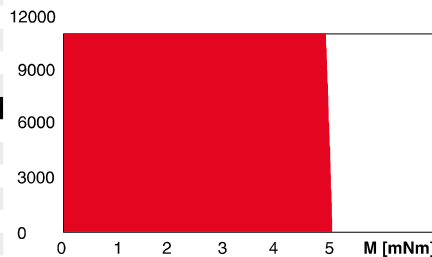
| | | |
|--|-----|-----------|
| 17_ Thermal resistance housing-ambient | K/W | 29.8 |
| 18_ Thermal resistance winding-housing | K/W | 5.5 |
| 19_ Thermal time constant winding | s | 5.35 |
| 20_ Thermal time constant motor | s | 288 |
| 21_ Ambient temperature | °C | -30...+85 |
| 22_ Max. winding temperature | °C | 125 |

Mechanical data ball bearings

| | | |
|--|-----|-------------|
| 23_ Max. speed | rpm | 11000 |
| 24_ Axial play | mm | 0.05...0.15 |
| Preload | N | 0 |
| 25_ Radial play | mm | 0.025 |
| 26_ Max. axial load (dynamic) | N | 2.2 |
| 27_ Max. force for press fits (static) (static, shaft supported) | N | 30 |
| 28_ Max. radial load [mm from flange] | N | 200 |
| | N | 7.8 [5] |

Operating Range

n [rpm] Winding 24 V



- Continuous operation
- Continuous operation with reduced thermal resistance R_{th2} 50%
- Intermittent operation

Mechanical data sleeve bearings

| | | |
|--|-----|-------------|
| 23_ Max. speed | rpm | 11000 |
| 24_ Axial play | mm | 0.05...0.15 |
| Preload | N | 0 |
| 25_ Radial play | mm | 0.012 |
| 26_ Max. axial load (dynamic) | N | 0.8 |
| 27_ Max. force for press fits (static) (static, shaft supported) | N | 35 |
| 28_ Max. radial load [mm from flange] | N | 200 |
| | N | 1.4 [5] |

Other specifications

| | | |
|-----------------------------------|---|------|
| 29_ Number of pole pairs | | 1 |
| 30_ Number of commutator segments | | 7 |
| 31_ Weight of motor | g | 23.1 |

maxon Modular System

| | | |
|-------------------|---------------|---------------------|
| maxon gear | Stages [opt.] | maxon sensor |
| 331_GPX 16 A/C | 1-2 [3-4] | 433_ENX 10 QUAD |
| 332_GPX 16 LN/LZ | 1-2 [3-4] | 433_ENX 10 EASY |
| 335_GPX 19 A/C | 3-4 | |
| 336_GPX 19 LN/LZ | 3-4 | |

Details on catalog page 32

| |
|-----------------------------|
| maxon motor control |
| 486_ESCON Module 24/2 |
| 486_ESCON 36/2 DC |
| 496_EPOS4 Mod./Comp. 24/1.5 |

Configuration

Bearing: Sleeve bearings/ball bearings
 Commutation: Precious metal brushes with CLL/Graphite Brushes
 Shaft front/back: Length
 Electric connection: Terminals/cable

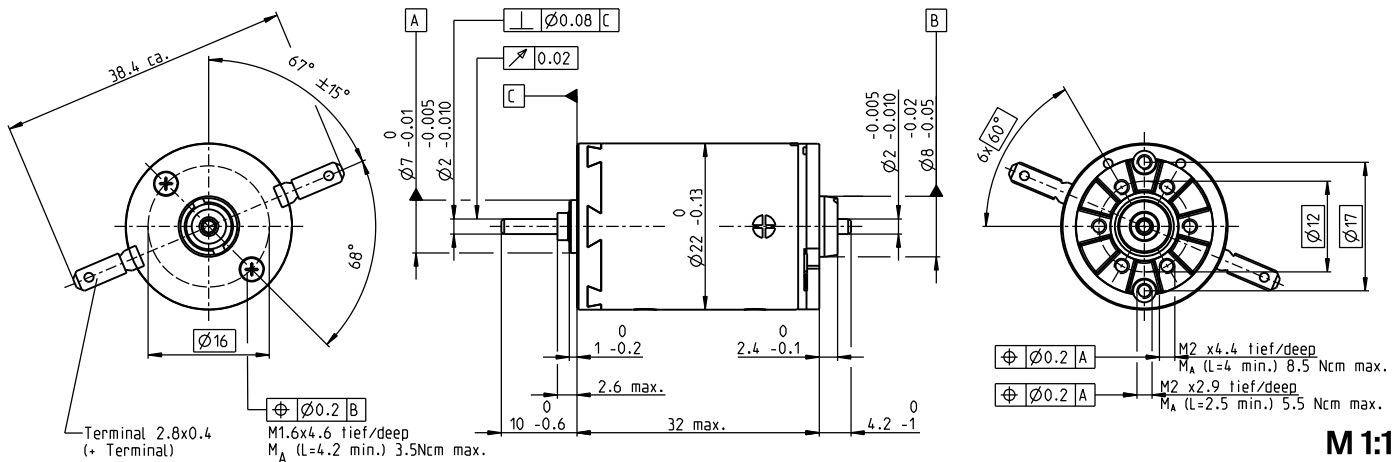
DC-max 22 S Precious Metal Brushes

DC motor $\varnothing 22$ mm



DC-max

Key Data: 5/9.6 W, 10.4 mNm, 9000 rpm



M 1:1

Motor Data

| | V | 6 | 12 | 24 |
|--|------------------|-------|-------|-------|
| 1_ Nominal voltage | V | 6 | 12 | 24 |
| 2_ No load speed | rpm | 5480 | 5890 | 5090 |
| 3_ No load current | mA | 20.8 | 11.7 | 4.62 |
| 4_ Nominal speed | rpm | 4280 | 4240 | 3440 |
| 5_ Nominal torque (max. continuous torque) | mNm | 8.54 | 10.3 | 10.4 |
| 6_ Nominal current (max. continuous current) | A | 0.840 | 0.543 | 0.236 |
| 7_ Stall torque | mNm | 39.0 | 36.9 | 33.3 |
| 8_ Stall current | A | 3.75 | 1.91 | 0.721 |
| 9_ Max. efficiency | % | 85.7 | 85.2 | 84.9 |
| 10_ Terminal resistance | Ω | 1.60 | 6.28 | 33.3 |
| 11_ Terminal inductance | mH | 0.119 | 0.413 | 2.21 |
| 12_ Torque constant | mNm/A | 10.4 | 19.3 | 44.8 |
| 13_ Speed constant | rpm/V | 919 | 494 | 213 |
| 14_ Speed/torque gradient | rpm/mNm | 141 | 160 | 159 |
| 15_ Mechanical time constant | ms | 8.44 | 8.36 | 8.39 |
| 16_ Rotor inertia | gcm ² | 5.70 | 4.98 | 5.05 |

Thermal data

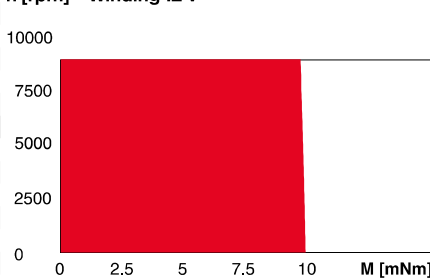
| | K/W | s | °C |
|--|-----|----------|----|
| 17_ Thermal resistance housing-ambient | K/W | 20 | |
| 18_ Thermal resistance winding-housing | K/W | 6 | |
| 19_ Thermal time constant winding | s | 16.8 | |
| 20_ Thermal time constant motor | s | 538 | |
| 21_ Ambient temperature | °C | -30...65 | |
| 22_ Max. winding temperature | °C | 85 | |

Mechanical data ball bearings

| | | |
|--|-----|-------------|
| 23_ Max. speed | rpm | 9000 |
| 24_ Axial play | mm | 0.05...0.15 |
| Preload | N | 0 |
| 25_ Radial play | mm | 0.025 |
| 26_ Max. axial load (dynamic) | N | 3.3 |
| 27_ Max. force for press fits (static) (static, shaft supported) | N | 45 420 |
| 28_ Max. radial load [mm from flange] | N | 12.3 [5] |

Operating Range

n [rpm] Winding 12 V



- Continuous operation
- Continuous operation with reduced thermal resistance R_{th2} 50%
- Intermittent operation

Mechanical data sleeve bearings

| | | |
|--|-----|-------------|
| 23_ Max. speed | rpm | 9000 |
| 24_ Axial play | mm | 0.05...0.15 |
| Preload | N | 0 |
| 25_ Radial play | mm | 0.012 |
| 26_ Max. axial load (dynamic) | N | 1 |
| 27_ Max. force for press fits (static) (static, shaft supported) | N | 80 420 |
| 28_ Max. radial load [mm from flange] | N | 2.8 [5] |

Other specifications

| | | |
|-----------------------------------|---|------|
| 29_ Number of pole pairs | | 1 |
| 30_ Number of commutator segments | | 9 |
| 31_ Weight of motor | g | 53.8 |

maxon Modular System

| maxon gear | Stages [opt.] | maxon sensor |
|------------------|---------------|-----------------|
| 339_GPX 22 A/C | 1-2 [3-4] | 433_ENX 10 QUAD |
| 340_GPX 22 LN/LZ | 1-2 [3-4] | 433_ENX 10 EASY |
| 344_GPX 26 A/C | 3 | |
| 345_GPX 26 LN/LZ | 3 | |

Details on catalog page 32

| maxon motor control |
|-----------------------------|
| 486_ESCON Module 24/2 |
| 486_ESCON 36/2 DC |
| 496_EPOS4 Mod./Comp. 24/1.5 |

Configuration

Bearing: Sleeve bearings/ball bearings
 Commutation: Precious metal brushes with CLL/Graphite Brushes
 Shaft front/back: Length
 Electric connection: Terminals/cable

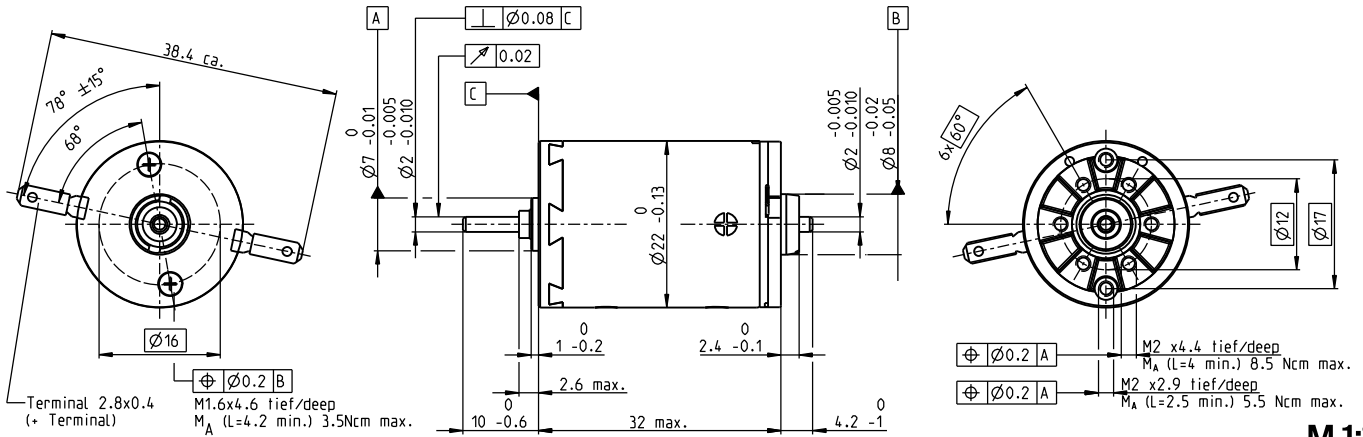
DC-max 22 S Graphite Brushes

DC motor $\varnothing 22$ mm



DC-max

Key Data: 8/10 W, 12.5 mNm, 9000 rpm



M 1:1

Motor Data

| | | | | |
|--|------------------|-------|-------|-------|
| 1_ Nominal voltage | V | 6 | 12 | 24 |
| 2_ No load speed | rpm | 7030 | 7140 | 7330 |
| 3_ No load current | mA | 58,8 | 29,5 | 15,1 |
| 4_ Nominal speed | rpm | 4950 | 5240 | 5350 |
| 5_ Nominal torque (max. continuous torque) | mNm | 11,5 | 12,6 | 11,8 |
| 6_ Nominal current (max. continuous current) | A | 1,52 | 0,825 | 0,398 |
| 7_ Stall torque | mNm | 42,4 | 49,4 | 44,6 |
| 8_ Stall current | A | 5,39 | 3,14 | 1,45 |
| 9_ Max. efficiency | % | 76 | 80 | 80 |
| 10_ Terminal resistance | Ω | 1,11 | 3,83 | 16,6 |
| 11_ Terminal inductance | mH | 0,069 | 0,274 | 1,05 |
| 12_ Torque constant | mNm/A | 7,88 | 15,8 | 30,8 |
| 13_ Speed constant | rpm/V | 1210 | 606 | 310 |
| 14_ Speed/torque gradient | rpm/mNm | 171 | 147 | 167 |
| 15_ Mechanical time constant | ms | 9,09 | 8,57 | 8,20 |
| 16_ Rotor inertia | gcm ² | 5,07 | 5,57 | 4,69 |

Thermal data

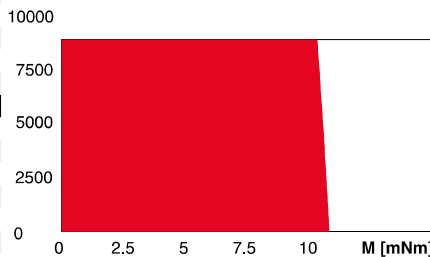
| | | |
|--|--------------|----------|
| 17_ Thermal resistance housing-ambient | K/W | 20 |
| 18_ Thermal resistance winding-housing | K/W | 6 |
| 19_ Thermal time constant winding | s | 16,8 |
| 20_ Thermal time constant motor | s | 538 |
| 21_ Ambient temperature | $^{\circ}$ C | -30...85 |
| 22_ Max. winding temperature | $^{\circ}$ C | 125 |

Mechanical data ball bearings

| | | |
|--|-----|-------------|
| 23_ Max. speed | rpm | 9000 |
| 24_ Axial play | mm | 0,05...0,15 |
| Preload | N | 0 |
| 25_ Radial play | mm | 0,025 |
| 26_ Max. axial load (dynamic) | N | 3,3 |
| 27_ Max. force for press fits (static) | N | 45 |
| (static, shaft supported) | N | 420 |
| 28_ Max. radial load [mm from flange] | N | 12,3 [5] |

Operating Range

n [rpm] Winding 12 V



- Continuous operation
- Continuous operation with reduced thermal resistance R_{th2} 50%
- Intermittent operation

Mechanical data sleeve bearings

| | | |
|--|-----|-------------|
| 23_ Max. speed | rpm | 9000 |
| 24_ Axial play | mm | 0,05...0,15 |
| Preload | N | 0 |
| 25_ Radial play | mm | 0,012 |
| 26_ Max. axial load (dynamic) | N | 1 |
| 27_ Max. force for press fits (static) | N | 80 |
| (static, shaft supported) | N | 420 |
| 28_ Max. radial load [mm from flange] | N | 2,8 [5] |

Other specifications

| | | |
|-----------------------------------|---|------|
| 29_ Number of pole pairs | | 1 |
| 30_ Number of commutator segments | | 9 |
| 31_ Weight of motor | g | 53,8 |

maxon Modular System

| | | |
|------------------|---------------|-----------------|
| maxon gear | Stages [opt.] | maxon sensor |
| 339_GPX 22 A/C | 1-2 [3-4] | 433_ENX 10 QUAD |
| 340_GPX 22 LN/LZ | 1-2 [3-4] | 433_ENX 10 EASY |
| 344_GPX 26 A/C | 3 | |
| 345_GPX 26 LN/LZ | 3 | |

Details on catalog page 32

| |
|-----------------------------|
| maxon motor control |
| 486_ESCON Module 24/2 |
| 486_ESCON 36/2 DC |
| 496_EPOS4 Mod./Comp, 24/1,5 |

Configuration

Bearing: Sleeve bearings/ball bearings
 Commutation: Precious metal brushes with CLL/Graphite Brushes
 Shaft front/back: Length
 Electric connection: Terminals/cable

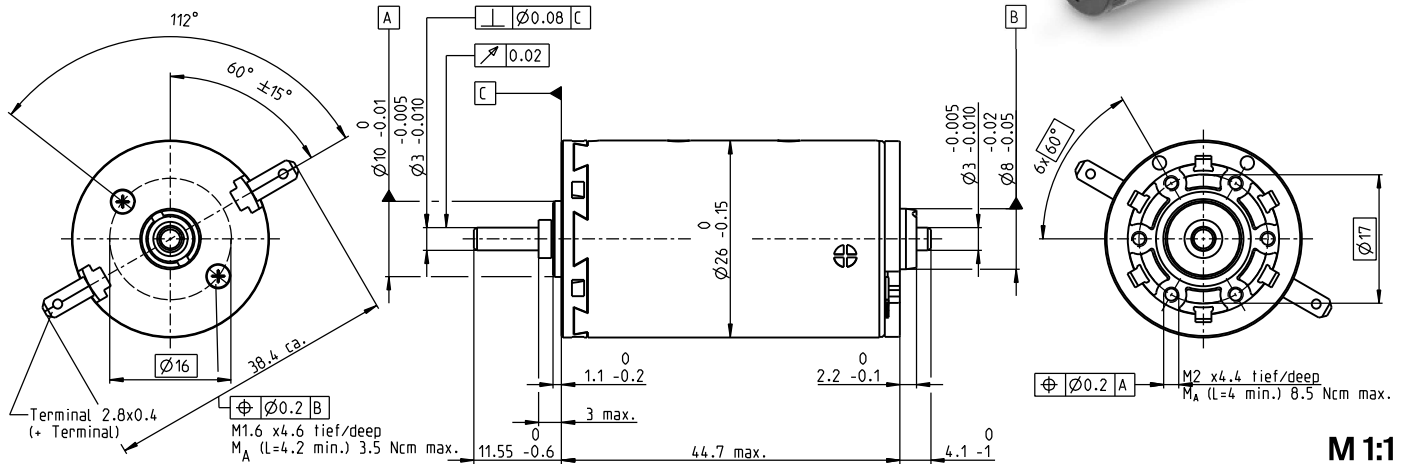
DC-max 26 S Precious Metal Brushes

DC motor $\varnothing 26$ mm

Key Data: 9/12 W, 28.8 mNm, 6700 rpm



DC-max



M 1:1

Motor Data

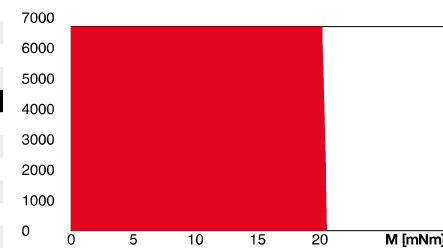
| | | | |
|--|------------------|-------|-------|
| 1_ Nominal voltage | V | 12 | 24 |
| 2_ No load speed | rpm | 4460 | 4370 |
| 3_ No load current | mA | 271 | 13.2 |
| 4_ Nominal speed | rpm | 3790 | 3450 |
| 5_ Nominal torque (max. continuous torque) | mNm | 20.8 | 28.8 |
| 6_ Nominal current (max. continuous current) | A | 0.84 | 0.564 |
| 7_ Stall torque | mNm | 140 | 138 |
| 8_ Stall current | A | 5.49 | 2.64 |
| 9_ Max. efficiency | % | 87 | 87 |
| 10_ Terminal resistance | Ω | 2.19 | 9.08 |
| 11_ Terminal inductance | mH | 0.278 | 1.16 |
| 12_ Torque constant | mNm/A | 25.6 | 52.2 |
| 13_ Speed constant | rpm/V | 373 | 183 |
| 14_ Speed/torque gradient | rpm/mNm | 31.9 | 31.8 |
| 15_ Mechanical time constant | ms | 4.99 | 5.06 |
| 16_ Rotor inertia | gcm ² | 14.9 | 15.2 |

Thermal data

| | | |
|--|--------------------|----------|
| 17_ Thermal resistance housing-ambient | K/W | 13.2 |
| 18_ Thermal resistance winding-housing | K/W | 3.2 |
| 19_ Thermal time constant winding | s | 17.8 |
| 20_ Thermal time constant motor | s | 350 |
| 21_ Ambient temperature | $^{\circ}\text{C}$ | -30...65 |
| 22_ Max. winding temperature | $^{\circ}\text{C}$ | 85 |

Operating Range

n [rpm] Winding 12 V



- Continuous operation
- Continuous operation with reduced thermal resistance R_{th2} 50%
- Intermittent operation

Mechanical data ball bearings

| | | |
|--|-----|-----------|
| 23_ Max. speed | rpm | 6700 |
| 24_ Axial play | mm | 0.1...0.2 |
| Preload | N | 0 |
| 25_ Radial play | mm | 0.025 |
| 26_ Max. axial load (dynamic) | N | 5 |
| 27_ Max. force for press fits (static) (static, shaft supported) | N | 75 |
| 28_ Max. radial load [mm from flange] | N | 1200 |
| | N | 20 [5] |

Mechanical data sleeve bearings

| | | |
|--|-----|-----------|
| 23_ Max. speed | rpm | 6700 |
| 24_ Axial play | mm | 0.1...0.2 |
| Preload | N | 0 |
| 25_ Radial play | mm | 0.012 |
| 26_ Max. axial load (dynamic) | N | 1.7 |
| 27_ Max. force for press fits (static) (static, shaft supported) | N | 80 |
| 28_ Max. radial load [mm from flange] | N | 1200 |
| | N | 5.5 [5] |

Other specifications

| | | |
|-----------------------------------|---|-----|
| 29_ Number of pole pairs | | 1 |
| 30_ Number of commutator segments | | 13 |
| 31_ Weight of motor | g | 120 |

maxon Modular System

| | |
|-------------------|---------------|
| maxon gear | Stages [opt.] |
| 344_GPX 26 A/C | 1-2 [3] |
| 345_GPX 26 LN/LZ | 1-2 [3] |
| 347_GPX 32 A/C | 3 |
| 348_GPX 32 LN/LZ | 3 |

| |
|----------------------|
| maxon sensor |
| 433_ENX 10 QUAD |
| 436_ENX 16 EASY |
| 438_ENX 16 EASY Abs. |

Details on catalog page 32

| |
|-----------------------------|
| maxon motor control |
| 486_ESCON Module 24/2 |
| 486_ESCON 36/2 DC |
| 489_ESCON 50/5 |
| 487_ESCON Module 50/5 |
| 496_EPOS4 Mod./Comp. 24/1.5 |
| 496_EPOS4 Mod./Comp. 50/5 |
| 501_EPOS4 50/5 |
| 504_EPOS2 P 24/5 |

Configuration

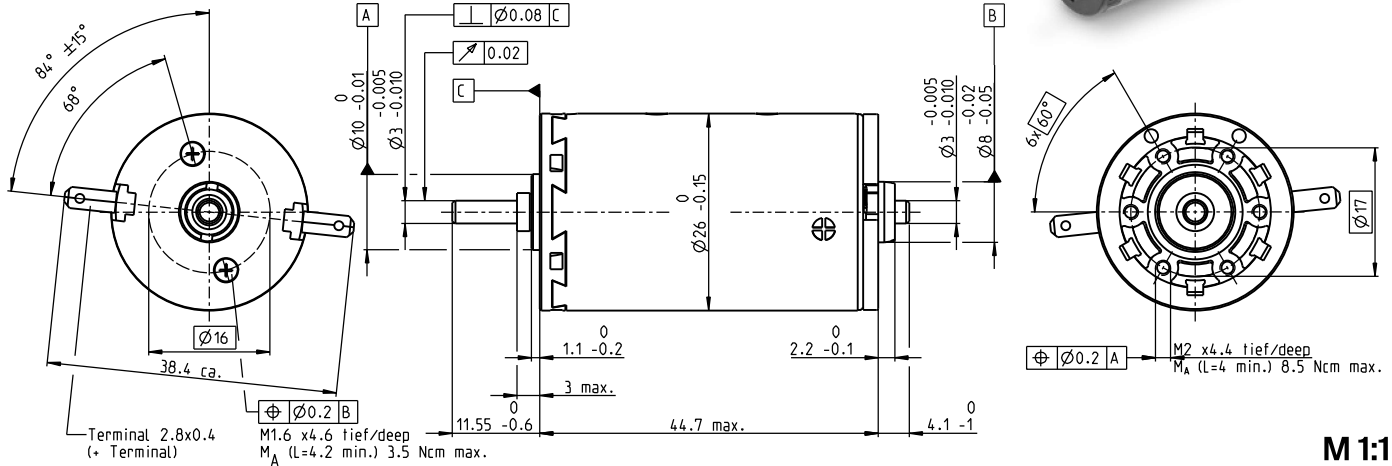
Bearing: Sleeve bearings/ball bearings
 Commutation: Precious metal brushes with CLL/Graphite Brushes
 Shaft front/back: Length
 Electric connection: Terminals/cable

DC-max 26 S Graphite Brushes

DC motor $\varnothing 26$ mm

DC-max

Key Data: 22/29 W, 32.7 mNm, 11000 rpm



M 1:1

Motor Data

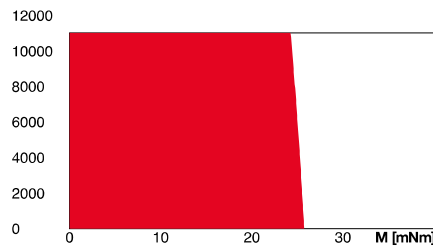
| | | | | |
|-----|---|------------------|-------|-------|
| 1_ | Nominal voltage | V | 24 | 48 |
| 2_ | No load speed | rpm | 8920 | 8730 |
| 3_ | No load current | mA | 53 | 25.7 |
| 4_ | Nominal speed | rpm | 8100 | 7840 |
| 5_ | Nominal torque (max. continuous torque) | mNm | 26.3 | 28.3 |
| 6_ | Nominal current (max. continuous current) | A | 1.08 | 0.567 |
| 7_ | Stall torque | mNm | 287 | 277 |
| 8_ | Stall current | A | 11.2 | 5.31 |
| 9_ | Max. efficiency | % | 87 | 87 |
| 10_ | Terminal resistance | Ω | 2.14 | 9.04 |
| 11_ | Terminal inductance | mH | 0.278 | 1.16 |
| 12_ | Torque constant | mNm/A | 25.6 | 52.2 |
| 13_ | Speed constant | rpm/V | 373 | 183 |
| 14_ | Speed/torque gradient | rpm/mNm | 31.2 | 31.6 |
| 15_ | Mechanical time constant | ms | 4.89 | 5.04 |
| 16_ | Rotor inertia | gcm ² | 14.9 | 15.2 |

Thermal data

| | | | |
|-----|------------------------------------|--------------------|----------|
| 17_ | Thermal resistance housing-ambient | K/W | 13.2 |
| 18_ | Thermal resistance winding-housing | K/W | 3.2 |
| 19_ | Thermal time constant winding | s | 17.8 |
| 20_ | Thermal time constant motor | s | 350 |
| 21_ | Ambient temperature | $^{\circ}\text{C}$ | -30...85 |
| 22_ | Max. winding temperature | $^{\circ}\text{C}$ | 100 |

Operating Range

n [rpm] Winding 24 V



- Continuous operation
- Continuous operation with reduced thermal resistance R_{th2} 50%
- Intermittent operation

Mechanical data ball bearings

| | | | |
|-----|------------------------------------|-----|-----------|
| 23_ | Max. speed | rpm | 11000 |
| 24_ | Axial play | mm | 0.1...0.2 |
| | Preload | N | 0 |
| 25_ | Radial play | mm | 0.025 |
| 26_ | Max. axial load (dynamic) | N | 5 |
| 27_ | Max. force for press fits (static) | N | 75 |
| | (static, shaft supported) | N | 1200 |
| 28_ | Max. radial load [mm from flange] | N | 20 [5] |

Mechanical data sleeve bearings

| | | | |
|-----|------------------------------------|-----|-----------|
| 23_ | Max. speed | rpm | 11000 |
| 24_ | Axial play | mm | 0.1...0.2 |
| | Preload | N | 0 |
| 25_ | Radial play | mm | 0.012 |
| 26_ | Max. axial load (dynamic) | N | 1.7 |
| 27_ | Max. force for press fits (static) | N | 80 |
| | (static, shaft supported) | N | 1200 |
| 28_ | Max. radial load [mm from flange] | N | 5.5 [5] |

Other specifications

| | | | |
|-----|-------------------------------|---|-----|
| 29_ | Number of pole pairs | | 1 |
| 30_ | Number of commutator segments | | 13 |
| 31_ | Weight of motor | g | 120 |

maxon Modular System

| | |
|-------------------|---------------|
| maxon gear | Stages [opt.] |
| 344_GPX 26 A/C | 1-2 [3] |
| 345_GPX 26 LN/LZ | 1-2 [3] |
| 347_GPX 32 A/C | 3 |
| 348_GPX 32 LN/LZ | 3 |

| |
|----------------------|
| maxon sensor |
| 433_ENX 10 QUAD |
| 436_ENX 16 EASY |
| 438_ENX 16 EASY Abs. |

Details on catalog page 32

| |
|-----------------------------|
| maxon motor control |
| 486_ESCON Module 24/2 |
| 486_ESCON 36/2 DC |
| 489_ESCON 50/5 |
| 487_ESCON Module 50/5 |
| 489_ESCON 50/5 |
| 496_EPOS4 Mod./Comp. 24/1.5 |
| 496_EPOS4 Mod./Comp. 50/5 |
| 501_EPOS4 50/5 |
| 504_EPOS2 P 24/5 |

Configuration

Bearing: Sleeve bearings/ball bearings
 Commutation: Precious metal brushes with CLL/Graphite Brushes
 Shaft front/back: Length
 Electric connection: Terminals/cable