

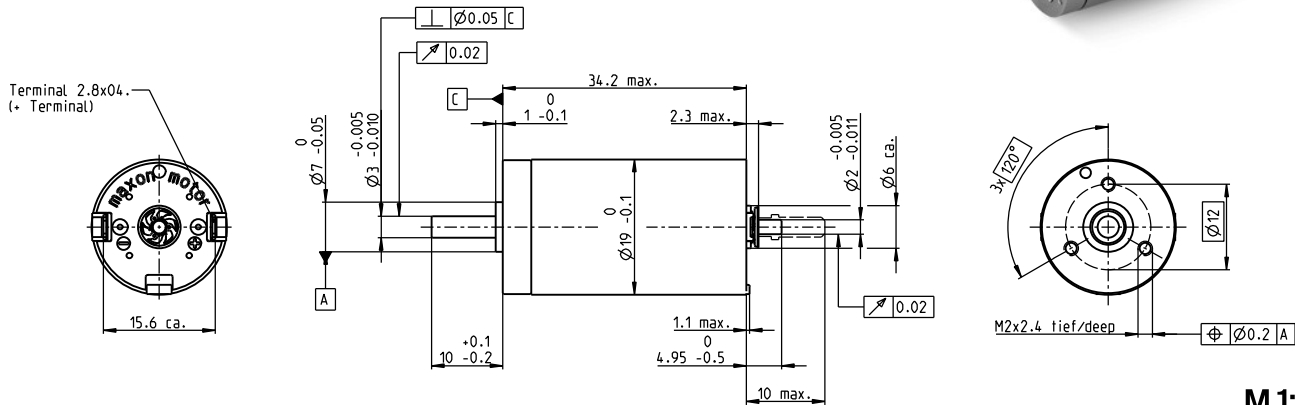
# DCX 19 S Precious Metal Brushes

## DC motor Ø19 mm

Key Data: 5/8 W, 11.0 mNm, 7500 rpm



DCX



M 1:1

### Motor Data

|     |   | V                | 4.5   | 6     | 9     | 12    | 18    | 24    |
|-----|---|------------------|-------|-------|-------|-------|-------|-------|
| 1_  | Nominal voltage                           | V                | 4.5   | 6     | 9     | 12    | 18    | 24    |
| 2_  | No load speed                             | rpm              | 6440  | 6350  | 6260  | 6360  | 6360  | 6350  |
| 3_  | No load current                           | mA               | 72    | 53    | 34.6  | 26.5  | 17.7  | 13.2  |
| 4_  | Nominal speed                             | rpm              | 5080  | 4540  | 4350  | 4490  | 4490  | 4480  |
| 5_  | Nominal torque (max. continuous torque)   | mNm              | 7.46  | 10.3  | 10.8  | 11.0  | 11.0  | 10.9  |
| 6_  | Nominal current (max. continuous current) | A                | 1.20  | 1.20  | 0.829 | 0.643 | 0.428 | 0.319 |
| 7_  | Stall torque                              | mNm              | 35.7  | 36.3  | 35.8  | 38.0  | 37.8  | 37.5  |
| 8_  | Stall current                             | A                | 5.42  | 4.07  | 2.64  | 2.13  | 1.41  | 1.05  |
| 9_  | Max. efficiency                           | %                | 78    | 79    | 79    | 79    | 79    | 79    |
| 10_ | Terminal resistance                       | Ω                | 0.831 | 1.47  | 3.40  | 5.63  | 12.7  | 22.8  |
| 11_ | Terminal inductance                       | mH               | 0.045 | 0.082 | 0.191 | 0.329 | 0.740 | 1.320 |
| 12_ | Torque constant                           | mNm/A            | 6.58  | 8.90  | 13.5  | 17.8  | 26.7  | 35.6  |
| 13_ | Speed constant                            | rpm/V            | 1450  | 1070  | 705   | 536   | 358   | 268   |
| 14_ | Speed/torque gradient                     | rpm/mNm          | 183   | 177   | 177   | 170   | 170   | 172   |
| 15_ | Mechanical time constant                  | ms               | 5.12  | 4.99  | 4.92  | 4.89  | 4.89  | 4.90  |
| 16_ | Rotor inertia                             | gcm <sup>2</sup> | 2.67  | 2.68  | 2.65  | 2.75  | 2.74  | 2.72  |

### Thermal data

|     |                                    | K/W | 17.6 | 6.5 | 11.6 | 312 | -40...+85 | -30...+85 | 100 |
|-----|------------------------------------|-----|------|-----|------|-----|-----------|-----------|-----|
| 17_ | Thermal resistance housing-ambient | K/W | 17.6 | 6.5 | 11.6 | 312 | -40...+85 | -30...+85 | 100 |
| 18_ | Thermal resistance winding-housing | K/W | 17.6 | 6.5 | 11.6 | 312 | -40...+85 | -30...+85 | 100 |
| 19_ | Thermal time constant winding      | s   | 17.6 | 6.5 | 11.6 | 312 | -40...+85 | -30...+85 | 100 |
| 20_ | Thermal time constant motor        | s   | 17.6 | 6.5 | 11.6 | 312 | -40...+85 | -30...+85 | 100 |
| 21_ | Ambient temperature ball bearings  | °C  | 17.6 | 6.5 | 11.6 | 312 | -40...+85 | -30...+85 | 100 |
| 22_ | Max. winding temperature           | °C  | 17.6 | 6.5 | 11.6 | 312 | -40...+85 | -30...+85 | 100 |

### Mechanical data ball bearings

|     |                                    | rpm | 7500 | 0...0.1 | 2.5 | 0.02 | 2.5 | 30 | 440 | 16 [5] |
|-----|------------------------------------|-----|------|---------|-----|------|-----|----|-----|--------|
| 23_ | Max. speed                         | rpm | 7500 | 0...0.1 | 2.5 | 0.02 | 2.5 | 30 | 440 | 16 [5] |
| 24_ | Axial play                         | mm  | 7500 | 0...0.1 | 2.5 | 0.02 | 2.5 | 30 | 440 | 16 [5] |
| 25_ | Radial play                        | mm  | 7500 | 0...0.1 | 2.5 | 0.02 | 2.5 | 30 | 440 | 16 [5] |
| 26_ | Max. axial load (dynamic)          | N   | 7500 | 0...0.1 | 2.5 | 0.02 | 2.5 | 30 | 440 | 16 [5] |
| 27_ | Max. force for press fits (static) | N   | 7500 | 0...0.1 | 2.5 | 0.02 | 2.5 | 30 | 440 | 16 [5] |
| 28_ | Max. radial load [mm from flange]  | N   | 7500 | 0...0.1 | 2.5 | 0.02 | 2.5 | 30 | 440 | 16 [5] |

### Mechanical data sleeve bearings

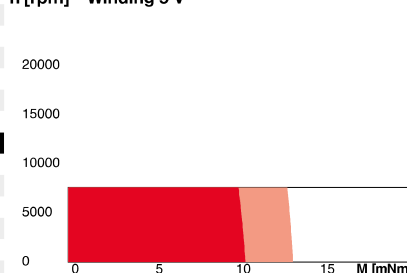
|     |                                    | rpm | 7500 | 0...0.2 | 0 | 0.02 | 0.1 | 80 | 440 | 3 [5] |
|-----|------------------------------------|-----|------|---------|---|------|-----|----|-----|-------|
| 23_ | Max. speed                         | rpm | 7500 | 0...0.2 | 0 | 0.02 | 0.1 | 80 | 440 | 3 [5] |
| 24_ | Axial play                         | mm  | 7500 | 0...0.2 | 0 | 0.02 | 0.1 | 80 | 440 | 3 [5] |
| 25_ | Radial play                        | mm  | 7500 | 0...0.2 | 0 | 0.02 | 0.1 | 80 | 440 | 3 [5] |
| 26_ | Max. axial load (dynamic)          | N   | 7500 | 0...0.2 | 0 | 0.02 | 0.1 | 80 | 440 | 3 [5] |
| 27_ | Max. force for press fits (static) | N   | 7500 | 0...0.2 | 0 | 0.02 | 0.1 | 80 | 440 | 3 [5] |
| 28_ | Max. radial load [mm from flange]  | N   | 7500 | 0...0.2 | 0 | 0.02 | 0.1 | 80 | 440 | 3 [5] |

### Other specifications

|     |                               | g   | 50 | 48 |
|-----|-------------------------------|-----|----|----|
| 29_ | Number of pole pairs          | g   | 50 | 48 |
| 30_ | Number of commutator segments | g   | 50 | 48 |
| 31_ | Weight of motor               | g   | 50 | 48 |
| 32_ | Typical noise level           | dBA | 50 | 48 |

### Operating Range

n [rpm] Winding 9 V



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

### maxon Modular System

Details on catalog page 32

| maxon gear       | Stages [opt.] | maxon sensor            | maxon motor control         |
|------------------|---------------|-------------------------|-----------------------------|
| 335_GPX 19 A/C   | 1-2 [3-4]     | 433_ENX 10 EASY         | 486_ESCON Module 24/2       |
| 336_GPX 19 LN/LZ | 1-2 [3-4]     | 433_ENX 10 QUAD         | 486_ESCON 36/2 DC           |
| 337_GPX 19 HP    | 2-3 [4]       | 434_ENX 10 EASY XT      | 496_EPOS4 Mod./Comp. 24/1.5 |
| 339_GPX 22 A/C   | 3-4           | 436_ENX 16 EASY         | 504_EPOS2 P 24/5            |
| 340_GPX 22 LN/LZ | 3-4           | 437_ENX 16 EASY XT      |                             |
| 341_GPX 22 HP    | 4             | 438_ENX 16 EASY Abs.    |                             |
|                  |               | 439_ENX 16 EASY Abs. XT |                             |
|                  |               | 443_ENX 16 RIO          |                             |

### Configuration

Bearing: Ball bearings preloaded/sleeve bearings  
Commutation: Precious metal brushes with CLL/graphite brushes  
Flange front/back: Standard flange/configurable flange/no flange  
Shaft front/back: Length/diameter/flat face  
Electric connection: Terminals or cable/alignment of connection/cable length/connector type

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