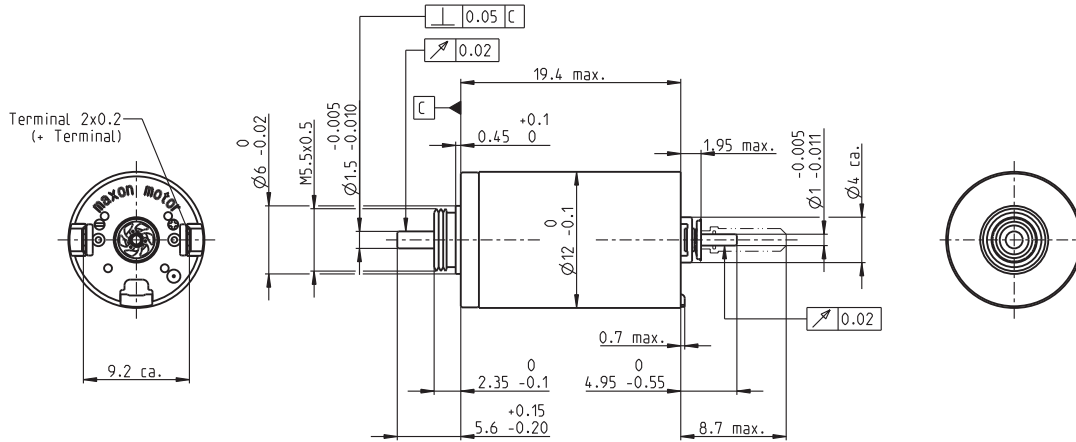


# DCX 12 S Precious Metal Brushes

## DC motor Ø12 mm



1.6/2 W 2.0 mNm 14300 rpm



M 3:2

### Motor Data

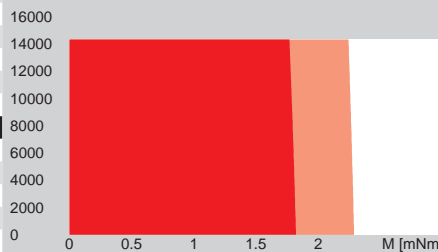
1_	Nominal voltage	V	3	4.5	6	9	12
2_	No load speed	rpm	9110	9020	9120	9030	9040
3_	No load current	mA	30	19.8	15	9.89	7.43
4_	Nominal speed	rpm	3830	3670	3910	3740	3650
5_	Nominal torque (max. continuous torque)	mNm	1.94	1.92	1.97	1.94	1.9
6_	Nominal current (max. continuous current)	A	0.66	0.43	0.334	0.217	0.16
7_	Stall torque	mNm	3.42	3.29	3.5	3.37	3.25
8_	Stall current	A	1.12	0.711	0.573	0.364	0.263
9_	Max. efficiency	%	71	70	71	70	70
10_	Terminal resistance	Ω	2.69	6.33	10.5	24.7	45.6
11_	Terminal inductance	mH	0.072	0.166	0.29	0.664	1.17
12_	Torque constant	mNm/A	3.06	4.63	6.12	9.26	12.3
13_	Speed constant	rpm/V	3120	2060	1560	1030	775
14_	Speed/torque gradient	rpm/mNm	2740	2820	2670	2750	2860
15_	Mechanical time constant	ms	8.2	8.2	8.2	8.24	8.25
16_	Rotor inertia	gcm <sup>2</sup>	0.286	0.278	0.293	0.286	0.275

### Thermal data

17_	Thermal resistance housing-ambient	K/W	35
18_	Thermal resistance winding-housing	K/W	14.4
19_	Thermal time constant winding	s	7.18
20_	Thermal time constant motor	s	146
21_	Ambient temperature ball bearings	°C	-40...+85
21_	Ambient temperature sleeve bearings	°C	-30...+85
22_	Max. winding temperature	°C	100

### Operating Range

n [rpm] Winding 4.5 V



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

### Mechanical data ball bearings

23_	Max. speed	rpm	13000
24_	Axial play	mm	0...0.1
	Preload	N	0.5
25_	Radial play	mm	0.015
26_	Max. axial load (dynamic)	N	0.5
27_	Max. force for press fits (static)	N	8.8
	(static, shaft supported)	N	120
28_	Max. radial load [mm from flange]	N	1.5 [5]

### Mechanical data sleeve bearings

23_	Max. speed	rpm	13000
24_	Axial play	mm	0...0.15
	Preload	N	0
25_	Radial play	mm	0.015
26_	Max. axial load (dynamic)	N	0.1
27_	Max. force for press fits (static)	N	30
	(static, shaft supported)	N	120
28_	Max. radial load [mm from flange]	N	0.8 [5]

### maxon Modular System

<b>maxon gear</b>	Stages	<b>maxon sensor</b>	<b>maxon motor control</b>
116_GPX 12 A/C	1-4	146_ENX 10 EASY	416_ESCON Module 24/2
117_GPX 12 LN/LZ	1-4	146_ENX 10 QUAD	416_ESCON 36/2 DC
118_GPX 12 HP	2-4		424_EPOS2 24/2 (DC/EC)
119_GPX 14 A/C	3-4		424_EPOS2 Module 36/2
120_GPX 14 LN/LZ	3-4		
121_GPX 14 HP	4		

### Other specifications

29_	Number of pole pairs		1
30_	Number of commutator segments		7
31_	Weight of motor	g	11
32_	Typical noise level	dBA	40

### Configuration

Bearing: Sleeve bearings/ball bearings preloaded  
 Commutation: Precious metal brushes with or without CLL  
 Flange front/back: Standard flange/Flange with thread holes/no flange  
 Shaft front/back: Length  
 Electric connection: Terminals or cable/cable length/connector type