

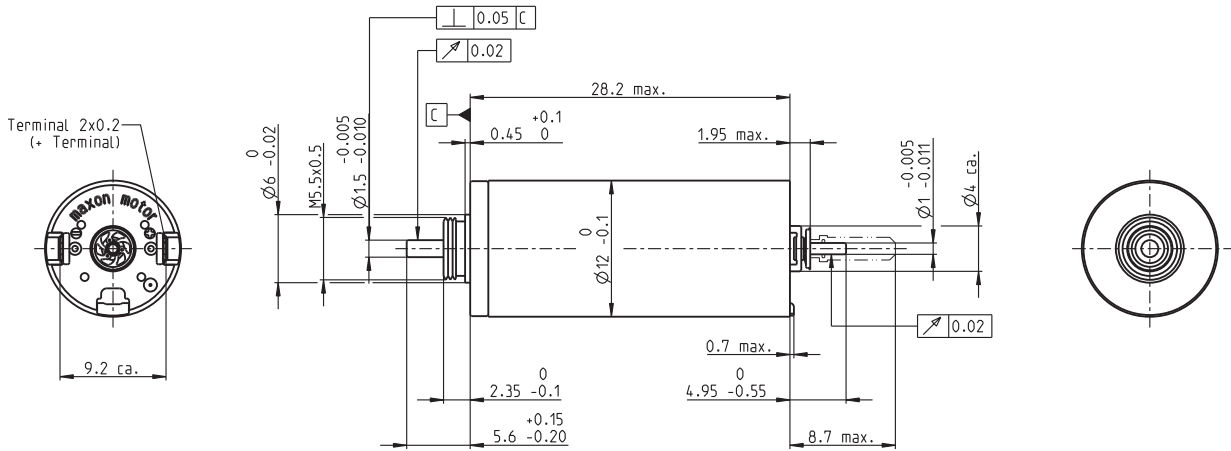
# DCX 12 L Precious Metal Brushes

## DC motor Ø12 mm

2.5/4.8 W 4.2 mNm 12000 rpm



maxon X drives



M 3:2

### Motor Data

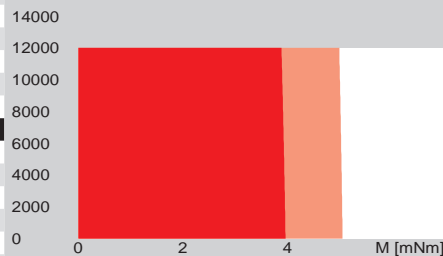
		3	4.5	6	9	12	18	
1_	Nominal voltage	V	3	4.5	6	9	12	18
2_	No load speed	rpm	8800	8810	8810	8820	8810	8800
3_	No load current	mA	34.5	23	17.2	11.5	8.62	5.75
4_	Nominal speed	rpm	6360	5710	5600	5800	5600	5590
5_	Nominal torque (max. continuous torque)	mNm	2.88	4.07	3.92	4.16	3.92	3.89
6_	Nominal current (max. continuous current)	A	0.924	0.861	0.622	0.441	0.311	0.206
7_	Stall torque	mNm	10.4	11.6	10.8	12.2	10.8	10.7
8_	Stall current	A	3.24	2.4	1.68	1.26	0.842	0.554
9_	Max. efficiency	%	81	82	81	82	81	81
10_	Terminal resistance	Ω	0.927	1.87	3.58	7.12	14.3	32.5
11_	Terminal inductance	mH	0.031	0.071	0.125	0.282	0.502	1.13
12_	Torque constant	mNm/A	3.22	4.83	6.44	9.66	12.9	19.3
13_	Speed constant	rpm/V	2970	1980	1480	989	741	494
14_	Speed/torque gradient	rpm/mNm	854	766	823	729	821	831
15_	Mechanical time constant	ms	4.32	4.27	4.28	4.27	4.28	4.3
16_	Rotor inertia	gcm <sup>2</sup>	0.484	0.533	0.496	0.559	0.498	0.495

### Thermal data

17_	Thermal resistance housing-ambient	K/W	31
18_	Thermal resistance winding-housing	K/W	10.3
19_	Thermal time constant winding	s	10.1
20_	Thermal time constant motor	s	194
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	12000
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	12000
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

maxon gear	Stages	maxon sensor	maxon motor control
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	16
32_	Typical noise level	dBA	44

### 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

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