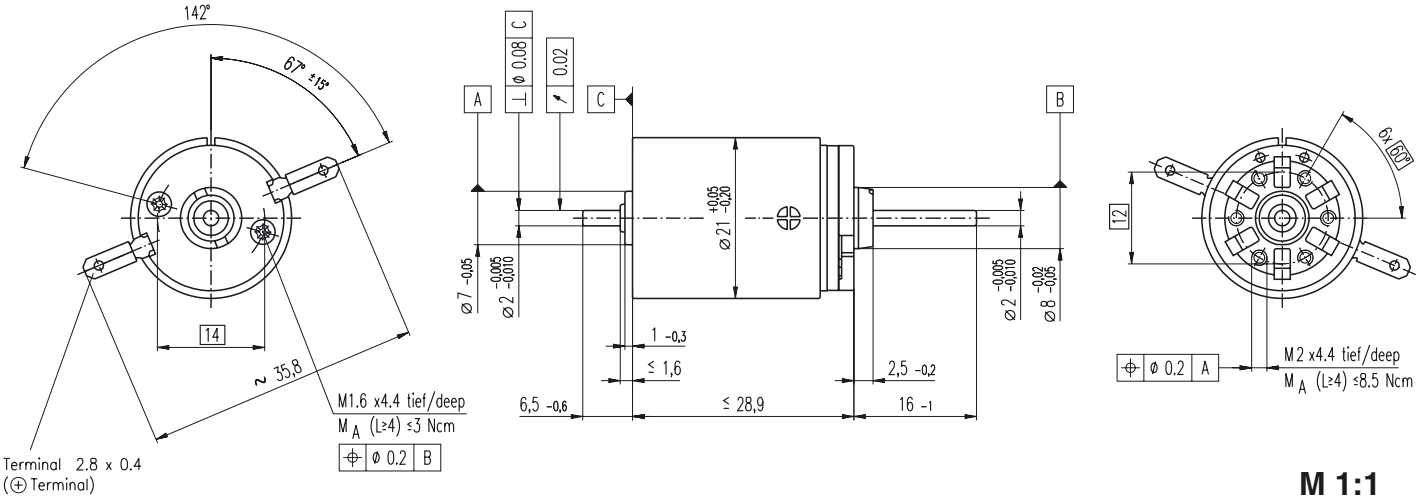
RE-max 21 ∅21 mm, Precious Metal Brushes CLL, 3.5 Watt



M 1:1

Stock program
Standard program
Special program (on request!)

Order Number

	221020	221023	221024	221025	221026	221028	221030	221031	221032
Motor Data									
1 Assigned power rating W	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
2 Nominal voltage Volt	2.0	3.6	5.0	8.4	10.0	12.0	15.0	21.0	30.0
3 No load speed rpm	5870	5940	5740	6000	5620	5660	5660	5960	6090
4 Stall torque mNm	19.8	17.9	18.7	19.3	18.4	17.7	17.7	18.3	17.9
5 Speed / torque gradient rpm / mNm	299	335	310	314	309	323	323	329	345
6 No load current mA	54	31	21	13	10	9	7	5	4
7 Starting current mA	6160	3130	2270	1460	1090	884	705	550	384
8 Terminal resistance Ohm	0.325	1.15	2.20	5.77	9.17	13.6	21.3	38.2	78.2
9 Max. permissible speed rpm	6800	6800	6800	6800	6800	6800	6800	6800	6800
10 Max. continuous current mA	839	839	779	481	382	314	251	187	131
11 Max. continuous torque mNm	2.48	4.47	5.99	5.95	6.00	5.87	5.87	5.82	5.68
12 Max. power output at nominal voltage mW	3040	2780	2800	3010	2690	2610	2610	2850	2830
13 Max. efficiency %	82	82	82	82	82	82	82	82	81
14 Torque constant mNm / A	3.22	5.73	8.23	13.2	16.8	20.0	25.1	33.3	46.5
15 Speed constant rpm / V	2960	1670	1160	721	567	476	381	287	205
16 Mechanical time constant ms	8	7	7	7	7	7	7	7	7
17 Rotor inertia gcm²	2.45	1.99	2.09	2.04	2.06	1.98	1.97	1.94	1.86
18 Terminal inductance mH	0.01	0.04	0.08	0.22	0.35	0.50	0.78	1.38	2.70
19 Thermal resistance housing-ambient K / W	28	28	28	28	28	28	28	28	28
20 Thermal resistance rotor-housing K / W	8	8	8	8	8	8	8	8	8
21 Thermal time constant winding s	10	8	8	8	8	8	8	8	7

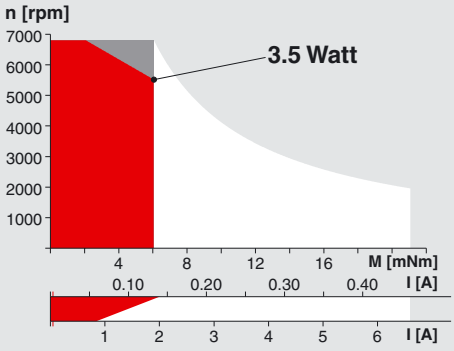
Specifications

- Axial play 0.05 - 0.15 mm
- Max. **sleeve bearing** loads
  axial (dynamic) 1.0 N
  radial (5 mm from flange) 2.7 N
  Force for press fits (static) 80 N
  (static, shaft supported) 480 N
- Max. **ball bearing** loads
  axial (dynamic) 3.3 N
  radial (5 mm from flange) 11.9 N
  Force for press fits (static) 45 N
  (static, shaft supported) 480 N
- Radial play **sleeve bearing** 0.012 mm
- Radial play **ball bearing** 0.025 mm
- Ambient temperature range -30 ... +85°C
- Max. rotor temperature +85°C
- Number of commutator segments 9
- Weight of motor 43 g
- 2 pole permanent magnet
- Values listed in the table are nominal.
  For applicable tolerances see page 43.
  For additional details please use the maxon selection program on the enclosed CD-ROM.
- CLL = Capacitor Long Life

- Options: Ball bearings in place of sleeve bearings, pigtails in place of terminals, without CLL.

Operating Range

Comments Details on page 49



Recommended operating range

Continuous operation
In observation of above listed thermal resistances (lines 19 and 20) the maximum permissible rotor temperature will be reached during continuous operation at 25°C ambient.
= Thermal limit.

Short term operation
The motor may be briefly overloaded (recurring).

221032 Motor with high resistance winding
221020 Motor with low resistance winding

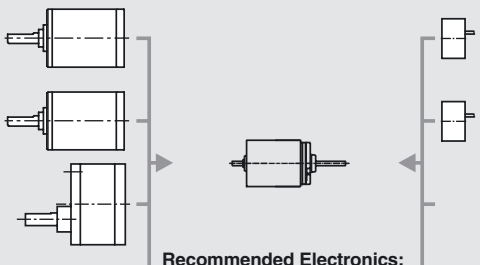
maxon Modular System

Overview on page 17 - 21

Planetary Gearhead
∅22 mm
0.5 - 1.0 Nm
Details page 211

Planetary Gearhead
∅22 mm
0.5 - 2.0 Nm
Details page 212

Spur Gearhead
∅38 mm
0.1 - 0.6 Nm
Details page 223



Encoder MR
32 CPT,
2 / 3 channels
Details page 235

Encoder MR
128 / 256 / 512 CPT,
2 / 3 channels
Details page 236

Recommended Electronics:

LSC 30/2	page 257
EPOS 24/1	271
MIP 10	273
Notes	**17**

April 2005 edition / subject to change