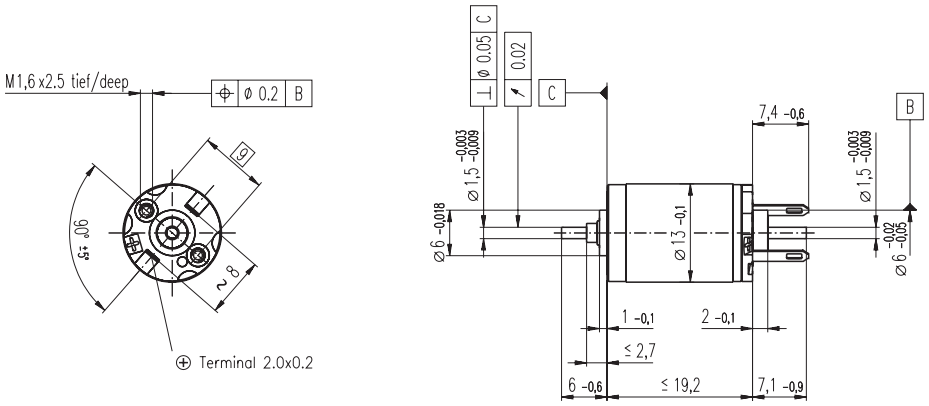
RE 13 ∅13 mm, Precious Metal Brushes, 0.75 Watt, CE approved



M 1:1

Stock program
Standard program
Special program (on request!)

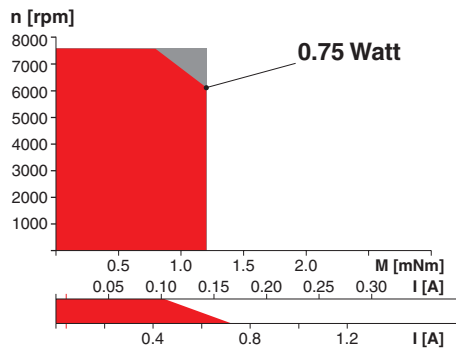
Order Number

			118431	118432	118433	118434	118435	118436	118437	118438	118439	118440	118441	118442	118443	118444	118445
Motor Data																	
1	Assigned power rating	W	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
2	Nominal voltage	Volt	0.6	0.7	0.9	1.2	1.5	1.8	1.8	2.4	3.0	3.6	4.8	6.0	6.0	7.2	10.0
3	No load speed	rpm	6850	6670	6570	7230	6980	6840	5950	6490	6690	6480	6950	7000	6530	6650	7030
4	Stall torque	mNm	1.71	1.44	1.51	1.63	1.59	1.66	1.54	1.66	1.66	1.61	1.70	1.68	1.54	1.59	1.65
5	Speed / torque gradient	rpm / mNm	4170	4880	4560	4640	4600	4310	4040	4090	4220	4190	4250	4350	4440	4380	4450
6	No load current	mA	88	72	56	47	36	29	25	21	17	14	11	9	8	7	5
7	Starting current	mA	2140	1470	1210	1080	812	690	557	489	404	318	269	214	184	161	127
8	Terminal resistance	Ohm	0.281	0.491	0.742	1.11	1.85	2.61	3.23	4.90	7.42	11.3	17.8	28.0	32.6	44.9	78.8
9	Max. permissible speed	rpm	7600	7600	7600	7600	7600	7600	7600	7600	7600	7600	7600	7600	7600	7600	7600
10	Max. continuous current	mA	720	720	720	720	662	557	501	406	33	267	213	170	158	134	101
11	Max. continuous torque	mNm	0.492	0.615	0.801	0.987	1.22	1.26	1.30	1.29	1.27	1.27	1.26	1.25	1.24	1.24	1.24
12	Max. power output at nominal voltage	mW	298	242	251	299	281	288	232	272	281	265	300	298	254	267	294
13	Max. efficiency	%	64	61	62	63	63	63	63	64	64	63	64	64	62	63	63
14	Torque constant	mNm / A	0.802	0.980	1.25	1.51	1.96	2.41	2.76	3.39	4.10	5.08	6.33	7.84	8.37	9.89	13.0
15	Speed constant	rpm / V	11900	9740	7660	6310	4870	3970	3460	2820	2330	1880	1510	1220	1140	966	734
16	Mechanical time constant	ms	15	14	14	13	13	13	13	13	13	13	13	13	13	13	13
17	Rotor inertia	gcm²	0.343	0.278	0.286	0.276	0.274	0.287	0.302	0.298	0.289	0.290	0.286	0.280	0.276	0.279	0.275
18	Terminal inductance	mH	0.01	0.01	0.01	0.02	0.04	0.05	0.07	0.11	0.16	0.24	0.38	0.58	0.66	0.92	1.60
19	Thermal resistance housing-ambient	K / W	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
20	Thermal resistance rotor-housing	K / W	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
21	Thermal time constant winding	s	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Specifications

- Axial play 0.05 - 0.15 mm
- Max. **sleeve bearing** loads
  axial (dynamic) 0.8 N
  radial (5 mm from flange) 1.4 N
  Force for press fits (static) 15 N
  (static, shaft supported) 170 N
- Radial play **sleeve bearing** 0.014 mm
- Ambient temperature range -20 ... +65°C
- Max. rotor temperature +85°C
- Number of commutator segments 7
- Weight of motor 12 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.

Operating Range



Comments

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.

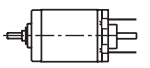
Short term operation
The motor may be briefly overloaded (recurring).

118445 Motor with high resistance winding
118431 Motor with low resistance winding

Details on page 49

maxon Modular System

Overview on page 17 - 21



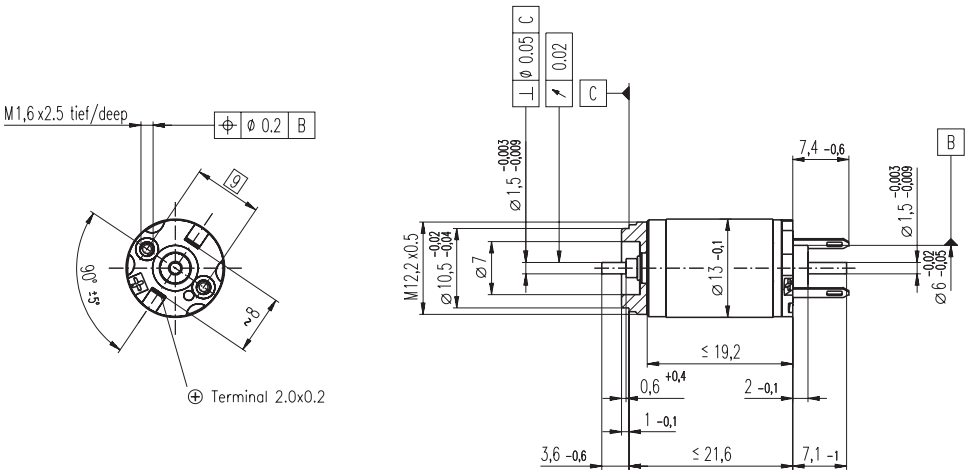
Recommended Electronics:
LSC 30/2 page 251
EPOS 24/1 263
MIP 10 265
Notes 17

Digital MR Encoder
16 CPT,
2 channels
Details page 226

Digital MR Encoder
64 / 128 / 256 CPT,
2 channels
Details page 227 / 228

Digital Magnetic Encoder ∅13 mm
16 CPT, 2 channels
Details page 245

RE 13 ∅13 mm, Precious Metal Brushes, 0.75 Watt, CE approved



M 1:1

Stock program
Standard program
Special program (on request!)

			Order Number														
			118446	118447	118448	118449	118450	118451	118452	118453	118454	118455	118456	118457	118458	118459	118460
Motor Data																	
1	Assigned power rating	W	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
2	Nominal voltage	Volt	0.6	0.7	0.9	1.2	1.5	1.8	1.8	2.4	3.0	3.6	4.8	6.0	6.0	7.2	10.0
3	No load speed	rpm	6850	6670	6570	7230	6980	6840	5950	6490	6690	6480	6950	7000	6530	6650	7030
4	Stall torque	mNm	1.71	1.44	1.51	1.63	1.59	1.66	1.54	1.66	1.66	1.61	1.70	1.68	1.54	1.59	1.65
5	Speed / torque gradient	rpm / mNm	4170	4880	4560	4640	4600	4310	4040	4090	4220	4190	4250	4350	4440	4380	4450
6	No load current	mA	88	72	56	47	36	29	25	21	17	14	11	9	8	7	5
7	Starting current	mA	2140	1470	1210	1080	812	690	557	489	404	318	269	214	184	161	127
8	Terminal resistance	Ohm	0.281	0.491	0.742	1.11	1.85	2.61	3.23	4.90	7.42	11.3	17.8	28.0	32.6	44.9	78.8
9	Max. permissible speed	rpm	7600	7600	7600	7600	7600	7600	7600	7600	7600	7600	7600	7600	7600	7600	7600
10	Max. continuous current	mA	720	720	720	720	662	557	501	406	33	267	213	170	158	134	101
11	Max. continuous torque	mNm	0.492	0.615	0.801	0.987	1.22	1.26	1.30	1.29	1.27	1.27	1.26	1.25	1.24	1.24	1.24
12	Max. power output at nominal voltage	mW	298	242	251	299	281	288	232	272	281	265	300	298	254	267	294
13	Max. efficiency	%	64	61	62	63	63	63	63	64	64	63	64	64	62	63	63
14	Torque constant	mNm / A	0.802	0.980	1.25	1.51	1.96	2.41	2.76	3.39	4.10	5.08	6.33	7.84	8.37	9.89	13.0
15	Speed constant	rpm / V	11900	9740	7660	6310	4870	3970	3460	2820	2330	1880	1510	1220	1140	966	734
16	Mechanical time constant	ms	15	14	14	13	13	13	13	13	13	13	13	13	13	13	13
17	Rotor inertia	gcm²	0.343	0.278	0.286	0.276	0.274	0.287	0.302	0.298	0.289	0.290	0.286	0.280	0.276	0.279	0.275
18	Terminal inductance	mH	0.01	0.01	0.01	0.02	0.04	0.05	0.07	0.11	0.16	0.24	0.38	0.58	0.66	0.92	1.60
19	Thermal resistance housing-ambient	K / W	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
20	Thermal resistance rotor-housing	K / W	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
21	Thermal time constant winding	s	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5

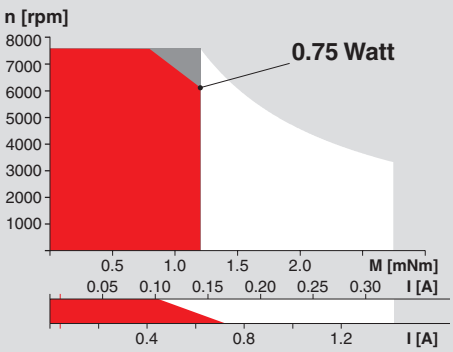
Specifications

- Axial play 0.05 - 0.15 mm
- Max. **sleeve bearing** loads
  axial (dynamic) 0.8 N
  radial (5 mm from flange) 1.4 N
  Force for press fits (static) 15 N
  (static, shaft supported) 170 N
- Radial play **sleeve bearing** 0.014 mm
- Ambient temperature range -20 ... +65°C
- Max. rotor temperature +85°C
- Number of commutator segments 7
- Weight of motor 15 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.

Operating Range

Comments

Details on page 49



Recommended operating range

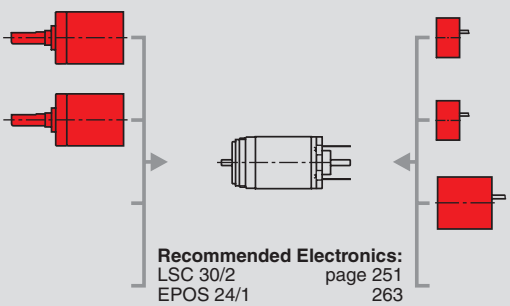
Continuous operation
In observation of above listed thermal resistances (lines 19 and 20) the maximum permissible rotor temperature will be reached during continuous operation at 25°C ambient.
= Thermal limit.

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

118460 Motor with high resistance winding
118446 Motor with low resistance winding

maxon Modular System

Overview on page 17 - 21



Planetary Gearhead
∅13 mm
0.2 - 0.35 Nm
Details page 194

Planetary Gearhead
∅13 mm
0.05 - 0.15 Nm
Details page 195

Digital MR Encoder
16 CPT,
2 channels
Details page 226

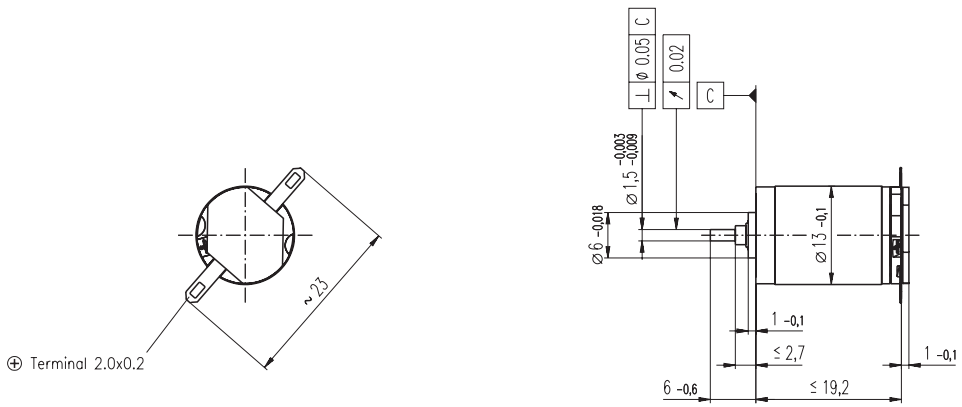
Digital MR Encoder
64 / 128 / 256 CPT,
2 channels
Details page 227 / 228

Digital Magnetic Encoder ∅13 mm
16 CPT, 2 channels
Details page 245

Recommended Electronics:

LSC 30/2	page 251
EPOS 24/1	263
MIP 10	265

RE 13 ∅13 mm, Precious Metal Brushes, 1.2 Watt, CE approved



M 1:1

Stock program
Standard program
Special program (on request!)

Order Number

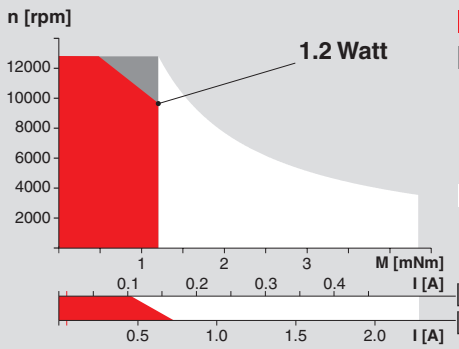
	Motor Data		118401	118402	118403	118404	118405	118406	118407	118408	118409	118410	118411	118412	118413	118414	118415
1	Assigned power rating	W	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
2	Nominal voltage	Volt	1.0	1.2	1.5	1.8	2.4	3.0	3.6	4.2	5.0	6.0	8.0	9.0	10.0	12.0	15.0
3	No load speed	rpm	11600	11300	11100	11000	11300	11600	12100	11500	11300	10900	11700	10600	11000	11200	10700
4	Stall torque	mNm	2.86	2.40	2.52	2.45	2.54	2.77	3.08	2.90	2.76	2.69	2.84	2.52	2.57	2.65	2.48
5	Speed / torque gradient	rpm / mNm	4170	4880	4560	4640	4600	4310	4040	4090	4220	4190	4250	4350	4440	4380	4450
6	No load current	mA	104	84	66	54	42	35	31	25	20	16	13	10	10	8	6
7	Starting current	mA	3560	2450	2020	1620	1300	1150	1110	857	674	530	449	321	307	268	190
8	Terminal resistance	Ohm	0.281	0.491	0.742	1.11	1.85	2.61	3.23	4.90	7.42	11.3	17.8	28.0	32.6	44.9	78.8
9	Max. permissible speed	rpm	12700	12700	12700	12700	12700	12700	12700	12700	12700	12700	12700	12700	12700	12700	12700
10	Max. continuous current	mA	720	720	720	720	662	557	501	406	330	267	213	170	158	134	101
11	Max. continuous torque	mNm	0.492	0.615	0.801	0.987	1.22	1.26	1.30	1.29	1.27	1.27	1.26	1.25	1.24	1.24	1.24
12	Max. power output at nominal voltage	mW	849	693	718	688	738	820	959	858	802	756	855	685	727	762	676
13	Max. efficiency	%	69	67	68	67	68	69	70	70	69	69	69	68	68	68	68
14	Torque constant	mNm / A	0.802	0.980	1.25	1.51	1.96	2.41	2.76	3.39	4.10	5.08	6.33	7.84	8.37	9.89	13.0
15	Speed constant	rpm / V	11900	9740	7660	6310	4870	3970	3460	2820	2330	1880	1510	1220	1140	966	734
16	Mechanical time constant	ms	15	14	14	13	13	13	13	13	13	13	13	13	13	13	13
17	Rotor inertia	gcm²	0.343	0.278	0.286	0.276	0.274	0.287	0.302	0.298	0.289	0.290	0.286	0.280	0.276	0.279	0.275
18	Terminal inductance	mH	0.01	0.01	0.01	0.02	0.04	0.05	0.07	0.11	0.16	0.24	0.38	0.58	0.66	0.92	1.60
19	Thermal resistance housing-ambient	K / W	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
20	Thermal resistance rotor-housing	K / W	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
21	Thermal time constant winding	s	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Specifications

- Axial play 0.05 - 0.15 mm
- Max. **sleeve bearing** loads
  axial (dynamic) 0.8 N
  radial (5 mm from flange) 1.4 N
  Force for press fits (static) 15 N
- Radial play **sleeve bearing** 0.014 mm
- Ambient temperature range -20 ... +65°C
- Max. rotor temperature +85°C
- Number of commutator segments 7
- Weight of motor 12 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.

Operating Range

Comments Details on page 49



Recommended operating range

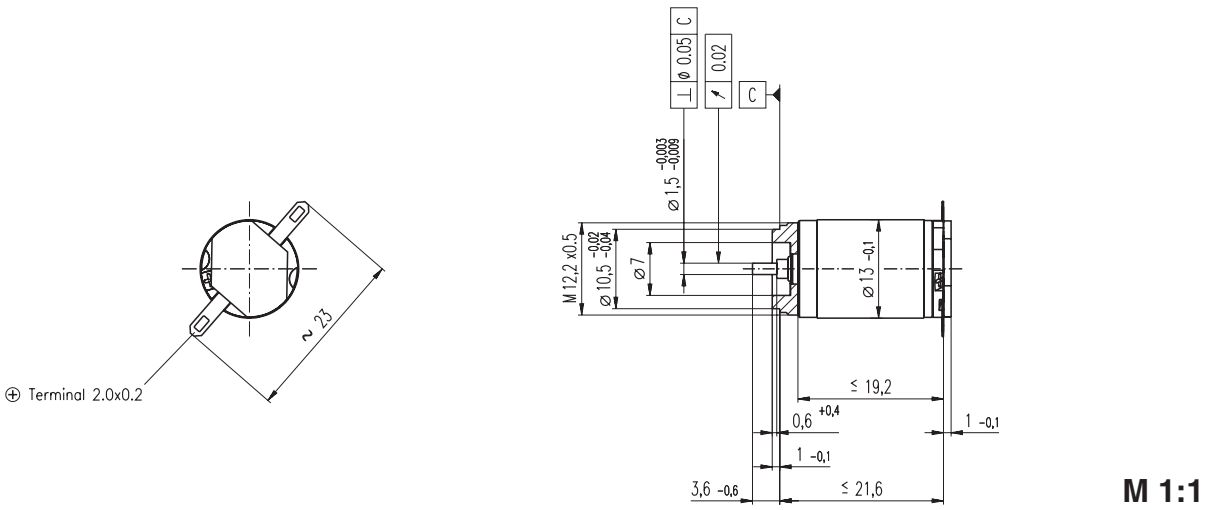
Continuous operation
In observation of above listed thermal resistances (lines 19 and 20) the maximum permissible rotor temperature will be reached during continuous operation at 25°C ambient.
= Thermal limit.

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

118415 Motor with high resistance winding
118401 Motor with low resistance winding

Recommended Electronics:
LSC 30/2 page 251

RE 13 ∅13 mm, Precious Metal Brushes, 1.2 Watt, CE approved



M 1:1

Stock program
Standard program
Special program (on request!)

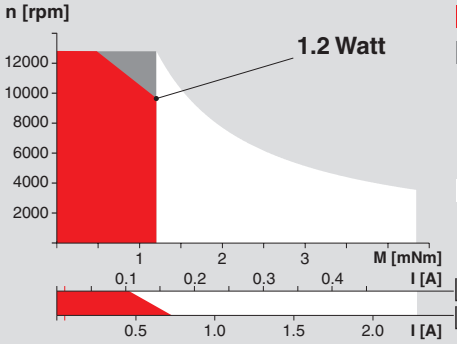
			Order Number														
			118416	118417	118418	118419	118420	118421	118422	118423	118424	118425	118426	118427	118428	118429	118430
Motor Data																	
1	Assigned power rating	W	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
2	Nominal voltage	Volt	1.0	1.2	1.5	1.8	2.4	3.0	3.6	4.2	5.0	6.0	8.0	9.0	10.0	12.0	15.0
3	No load speed	rpm	11600	11300	11100	11000	11300	11600	12100	11500	11300	10900	11700	10600	11000	11200	10700
4	Stall torque	mNm	2.86	2.40	2.52	2.45	2.54	2.77	3.08	2.90	2.76	2.69	2.84	2.52	2.57	2.65	2.48
5	Speed / torque gradient	rpm / mNm	4170	4880	4560	4640	4600	4310	4040	4090	4220	4190	4250	4350	4440	4380	4450
6	No load current	mA	104	84	66	54	42	35	31	25	20	16	13	10	10	8	6
7	Starting current	mA	3560	2450	2020	1620	1300	1150	1110	857	674	530	449	321	307	268	190
8	Terminal resistance	Ohm	0.281	0.491	0.742	1.11	1.85	2.61	3.23	4.90	7.42	11.3	17.8	28.0	32.6	44.9	78.8
9	Max. permissible speed	rpm	12700	12700	12700	12700	12700	12700	12700	12700	12700	12700	12700	12700	12700	12700	12700
10	Max. continuous current	mA	720	720	720	720	662	557	501	406	330	267	213	170	158	134	101
11	Max. continuous torque	mNm	0.492	0.615	0.801	0.987	1.22	1.26	1.30	1.29	1.27	1.27	1.26	1.25	1.24	1.24	1.24
12	Max. power output at nominal voltage	mW	849	693	718	688	738	820	959	858	802	756	855	685	727	762	676
13	Max. efficiency	%	69	67	68	67	68	69	70	70	69	69	69	68	68	68	68
14	Torque constant	mNm / A	0.802	0.980	1.25	1.51	1.96	2.41	2.76	3.39	4.10	5.08	6.33	7.84	8.37	9.89	13.0
15	Speed constant	rpm / V	11900	9740	7660	6310	4870	3970	3460	2820	2330	1880	1510	1220	1140	966	734
16	Mechanical time constant	ms	15	14	14	13	13	13	13	13	13	13	13	13	13	13	13
17	Rotor inertia	gcm²	0.343	0.278	0.286	0.276	0.274	0.287	0.302	0.298	0.289	0.290	0.286	0.280	0.276	0.279	0.275
18	Terminal inductance	mH	0.01	0.01	0.01	0.02	0.04	0.05	0.07	0.11	0.16	0.24	0.38	0.58	0.66	0.92	1.60
19	Thermal resistance housing-ambient	K / W	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
20	Thermal resistance rotor-housing	K / W	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
21	Thermal time constant winding	s	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Specifications

- Axial play 0.05 - 0.15 mm
- Max. **sleeve bearing** loads
  axial (dynamic) 0.8 N
  radial (5 mm from flange) 1.4 N
  Force for press fits (static) 15 N
- Radial play **sleeve bearing** 0.014 mm
- Ambient temperature range -20 ... +65°C
- Max. rotor temperature +85°C
- Number of commutator segments 7
- Weight of motor 15 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.

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).

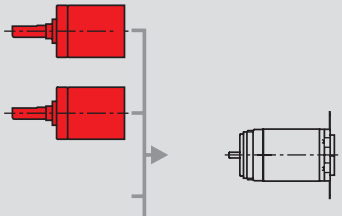
118430 Motor with high resistance winding
118416 Motor with low resistance winding

maxon Modular System

Overview on page 17 - 21

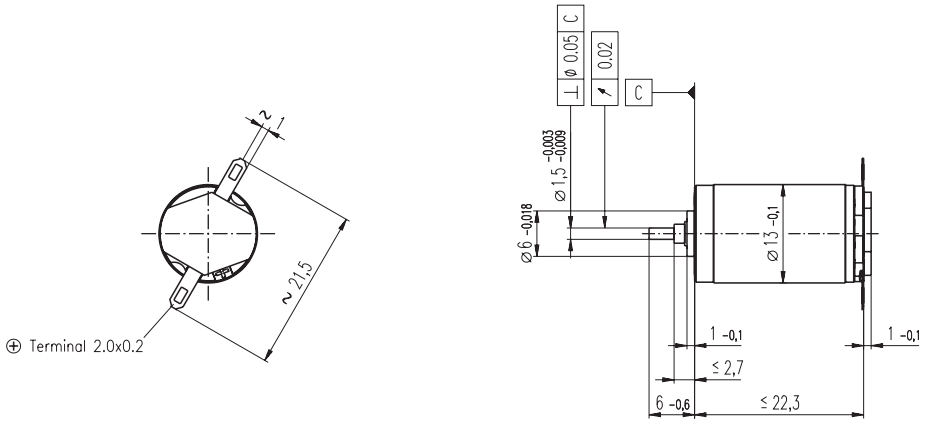
Planetary Gearhead
∅13 mm
0.2 - 0.35 Nm
Details page 194

Planetary Gearhead
∅13 mm
0.05 - 0.15 Nm
Details page 195



Recommended Electronics:
LSC 30/2 page 251

RE 13 ∅13 mm, Graphite Brushes, 1.5 Watt



M 1:1

Stock program
Standard program
Special program (on request!)

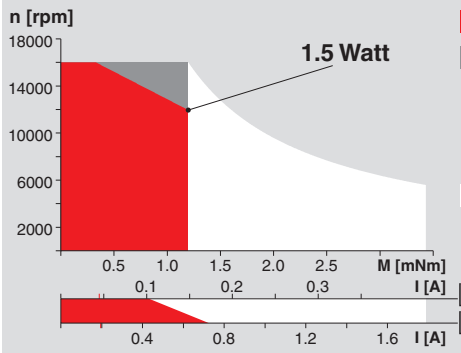
			Order Number														
			118521	118522	118523	118524	118525	118526	118527	118528	118529	118530	118531	118532	118533	118534	118535
Motor Data																	
1	Assigned power rating	W	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
2	Nominal voltage	Volt	1.2	1.5	2.4	3.0	3.6	4.2	4.8	6.0	7.2	9.0	12.0	12.0	15.0	18.0	20.0
3	No load speed	rpm	12800	12900	13600	13100	12900	13300	12300	12700	12300	12300	13300	12300	13100	14000	13300
4	Stall torque	mNm	3.03	2.75	3.09	3.04	3.18	3.46	3.20	3.21	3.13	3.11	3.27	3.00	3.22	3.51	3.22
5	Speed / torque gradient	rpm / mNm	4840	5460	5030	4930	4600	4300	4340	4470	4430	4490	4590	4680	4620	4480	4680
6	No load current	mA	473	389	257	196	159	140	110	92	74	59	49	45	39	35	30
7	Starting current	mA	3880	2880	2090	1590	1360	1290	971	804	633	504	428	367	334	320	254
8	Terminal resistance	Ohm	0.309	0.522	1.15	1.88	2.65	3.27	4.94	7.46	11.4	17.9	28.1	32.7	44.9	56.2	78.9
9	Max. permissible speed	rpm	16000	16000	16000	16000	16000	16000	16000	16000	16000	16000	16000	16000	16000	16000	16000
10	Max. continuous current	mA	720	720	720	657	554	499	405	330	267	213	170	157	134	120	101
11	Max. continuous torque	mNm	0.563	0.688	1.06	1.26	1.30	1.34	1.34	1.32	1.32	1.31	1.30	1.29	1.29	1.31	1.29
12	Max. power output at nominal voltage	mW	930	848	1020	968	1000	1120	960	993	936	929	1060	896	1030	1200	1040
13	Max. efficiency	%	44	42	44	44	46	47	46	46	46	45	46	45	46	47	46
14	Torque constant	mNm / A	0.782	0.955	1.48	1.91	2.34	2.69	3.30	3.99	4.95	6.17	7.64	8.16	9.64	10.9	12.7
15	Speed constant	rpm / V	12200	10000	6470	5000	4070	3550	2890	2390	1930	1550	1250	1170	991	873	753
16	Mechanical time constant	ms	17	16	15	14	14	14	14	14	13	13	13	14	13	13	13
17	Rotor inertia	gcm²	0.343	0.278	0.276	0.274	0.287	0.302	0.298	0.289	0.290	0.286	0.280	0.276	0.279	0.286	0.275
18	Terminal inductance	mH	0.01	0.01	0.02	0.04	0.05	0.07	0.11	0.16	0.24	0.38	0.58	0.66	0.92	1.19	1.60
19	Thermal resistance housing-ambient	K / W	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
20	Thermal resistance rotor-housing	K / W	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
21	Thermal time constant winding	s	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Specifications

- Axial play 0.05 - 0.15 mm
- Max. **sleeve bearing** loads
  axial (dynamic) 0.8 N
  radial (5 mm from flange) 1.4 N
  Force for press fits (static) 15 N
- Radial play **sleeve bearing** 0.014 mm
- Ambient temperature range -20 ... +65°C
- Max. rotor temperature +85°C
- Number of commutator segments 7
- Weight of motor 14 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.

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).

118535 Motor with high resistance winding
118521 Motor with low resistance winding

Recommended Electronics:
LSC 30/2 page 251