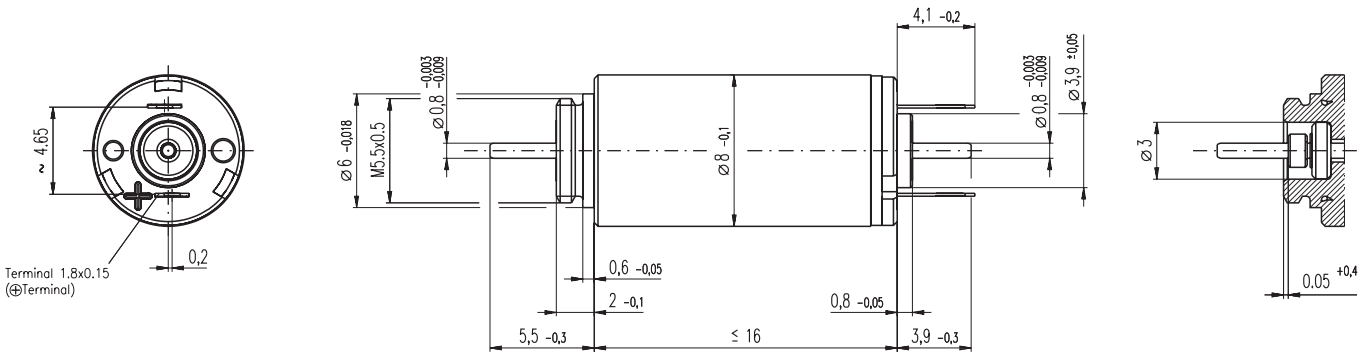
RE 8 ∅8 mm, Precious Metal Brushes, 0.5 Watt



M 2.5:1

Stock program
Standard program
Special program (on request!)

Order Number

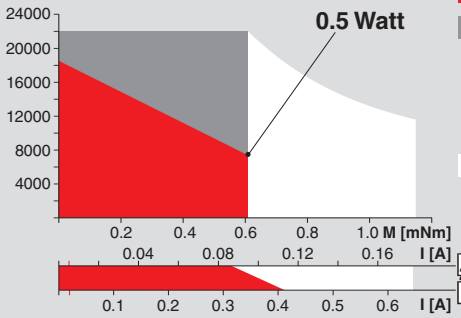
			261492	261508	261509	261513	261510	261512
Motor Data (provisional)								
1	Assigned power rating	W	0.5	0.5	0.5	0.5	0.5	0.5
2	Nominal voltage	Volt	2.4	4.2	6.0	7.2	9.0	12.0
3	No load speed	rpm	14500	14700	13900	14900	15000	16200
4	Stall torque	mNm	0.889	0.896	0.824	0.832	0.920	0.889
5	Speed / torque gradient	rpm / mNm	16800	17000	17500	18600	16800	18900
6	No load current	mA	20	11	7	7	5	5
7	Starting current	mA	581	340	207	187	166	130
8	Terminal resistance	Ohm	4.13	12.3	29.0	38.5	54.3	92.2
9	Max. permissible speed	rpm	22000	22000	22000	22000	22000	22000
10	Max. continuous current	mA	411	237	155	134	113	86.8
11	Max. continuous torque	mNm	0.628	0.625	0.616	0.598	0.628	0.593
12	Max. power output at nominal voltage	mW	331	339	293	319	355	370
13	Max. efficiency	%	68	68	67	67	68	67
14	Torque constant	mNm / A	1.53	2.63	3.98	4.45	5.55	6.83
15	Speed constant	rpm / V	6240	3630	2400	2150	1720	1400
16	Mechanical time constant	ms	6	6	6	6	6	6
17	Rotor inertia	gcm²	0.037	0.036	0.035	0.033	0.036	0.033
18	Terminal inductance	mH	0.04	0.13	0.29	0.36	0.56	0.85
19	Thermal resistance housing-ambient	K / W	48	48	48	48	48	48
20	Thermal resistance rotor-housing	K / W	22	22	22	22	22	22
21	Thermal time constant winding	s	3	3	3	3	3	2

Specifications

- Axial play 0.05 - 0.15 mm
- Max. **sleeve bearing** loads
  axial (dynamic) 0.15 N
  radial (4 mm from flange) 0.6 N
  Force for press fits (static) 10 N
- Radial play **sleeve bearing** 0.012 mm
- Ambient temperature range -20 ... +65°C
- Max. rotor temperature +85°C
- Number of commutator segments 5
- Weight of motor 4.1 g
- 2 pole permanent magnet
- Ceramic shaft
- 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.

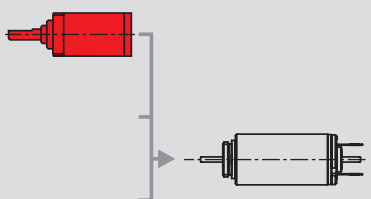
Short term operation
The motor may be briefly overloaded (recurring).

261512 Motor with high resistance winding
261492 Motor with low resistance winding

maxon Modular System

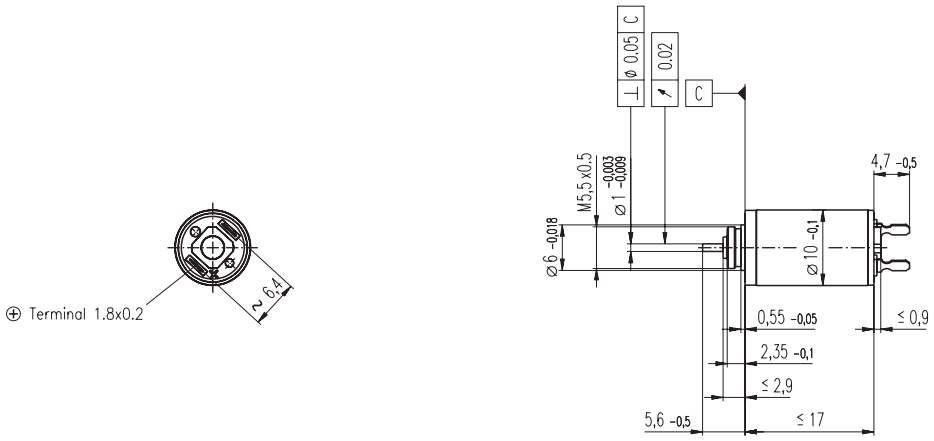
Overview on page 17 - 21

Planetary Gearhead
∅8 mm
0.005 - 0.06 Nm
Details page 190



Recommended Electronics:
LSC 30/2 page 251

RE 10 ∅10 mm, Precious Metal Brushes, 0.75 Watt, CE approved



M 1:1

Stock program
Standard program
Special program (on request!)

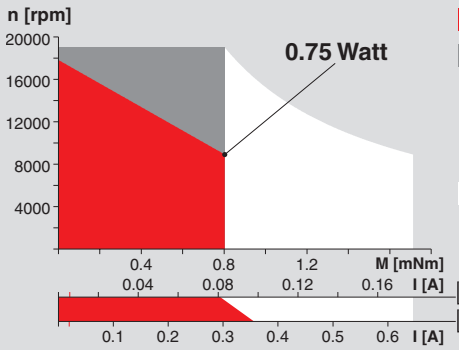
			Order Number									
			118382	118383	118384	118385	118386	118387	118388	118389	118390	118391
Motor Data												
1	Assigned power rating	W	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
2	Nominal voltage	Volt	2.4	3.0	3.6	4.5	6.0	6.0	7.2	7.2	9.0	12.0
3	No load speed	rpm	10300	10400	9930	11300	13000	11400	11700	10600	10700	11600
4	Stall torque	mNm	0.924	1.00	0.949	1.09	1.25	1.13	1.12	0.944	0.957	1.01
5	Speed / torque gradient	rpm / mNm	11600	10700	10800	10700	10700	10400	10800	11600	11600	11900
6	No load current	mA	16	13	10	10	9	7	6	5	4	4
7	Starting current	mA	432	375	284	297	292	232	198	150	123	106
8	Terminal resistance	Ohm	5.55	8.00	12.7	15.2	20.6	25.8	36.4	47.9	72.9	114
9	Max. permissible speed	rpm	19000	19000	19000	19000	19000	19000	19000	19000	19000	19000
10	Max. continuous current	mA	366	305	242	221	190	169	143	124	101	80.8
11	Max. continuous torque	mNm	0.716	0.747	0.742	0.745	0.745	0.759	0.743	0.716	0.716	0.707
12	Max. power output at nominal voltage	mW	243	265	240	315	416	330	337	254	261	298
13	Max. efficiency	%	66	67	66	68	69	68	68	66	66	67
14	Torque constant	mNm / A	2.14	2.67	3.34	3.67	4.27	4.88	5.68	6.28	7.75	9.55
15	Speed constant	rpm / V	4470	3570	2860	2600	2230	1960	1680	1520	1230	1000
16	Mechanical time constant	ms	8	7	7	7	7	7	7	7	7	7
17	Rotor inertia	gcm²	0.062	0.067	0.066	0.066	0.066	0.068	0.066	0.062	0.062	0.060
18	Terminal inductance	mH	0.05	0.07	0.11	0.14	0.18	0.24	0.33	0.40	0.61	0.92
19	Thermal resistance housing-ambient	K / W	46	46	46	46	46	46	46	46	46	46
20	Thermal resistance rotor-housing	K / W	20	20	20	20	20	20	20	20	20	20
21	Thermal time constant winding	s	3	3	3	3	3	3	3	3	3	3

Specifications

- Axial play 0.05 - 0.15 mm
- Max. **sleeve bearing** loads
  axial (dynamic) 0.15 N
  radial (4 mm from flange) 0.4 N
  Force for press fits (static) 15 N
- Radial play **sleeve bearing** 0.012 mm
- Ambient temperature range -20 ... +65°C
- Max. rotor temperature +85°C
- Number of commutator segments 7
- Weight of motor 7 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).

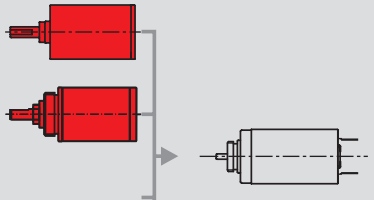
118391 Motor with high resistance winding
118382 Motor with low resistance winding

maxon Modular System

Overview on page 17 - 21

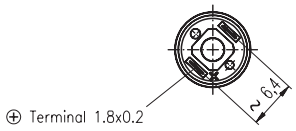
Planetary Gearhead
∅10 mm
0.005 - 0.1 Nm
Details page 191

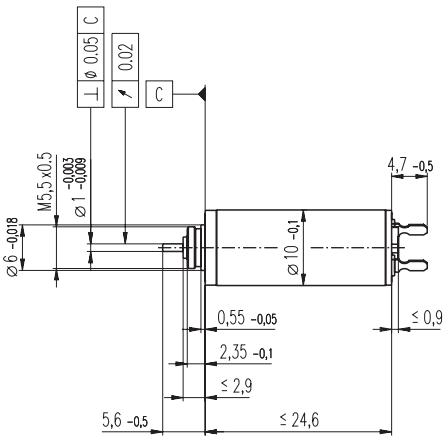
Planetary Gearhead
∅10 mm
0.01 - 0.15 Nm
Details page 192



Recommended Electronics:
LSC 30/2 page 251
Notes 17

RE 10 ∅10 mm, Precious Metal Brushes, 1.5 Watt, CE approved





M 1:1

Stock program
Standard program
Special program (on request!)

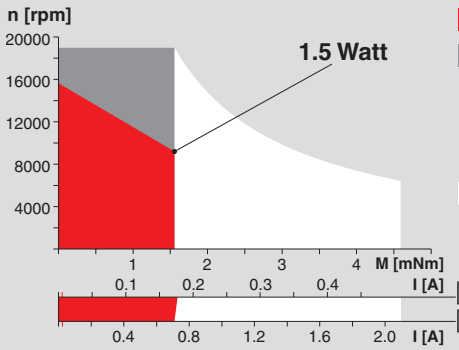
Order Number	118392	118393	118394	118395	118396	118397	118398	118399	118400
Motor Data									
1 Assigned power rating W	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
2 Nominal voltage Volt	3.0	3.0	4.5	4.5	6.0	6.0	9.0	9.0	12.0
3 No load speed rpm	13000	10700	12800	10600	12400	9880	12200	11100	12500
4 Stall torque mNm	3.12	2.52	3.03	2.47	3.01	2.61	3.08	2.83	3.24
5 Speed / torque gradient rpm / mNm	4250	4340	4290	4370	4180	3860	4010	3980	3930
6 No load current mA	24	19	16	12	11	8	7	6	6
7 Starting current mA	1440	963	919	619	660	458	444	371	360
8 Terminal resistance Ohm	2.08	3.11	4.90	7.27	9.09	13.1	20.3	24.3	33.3
9 Max. permissible speed rpm	19000	19000	19000	19000	19000	19000	19000	19000	19000
10 Max. continuous current mA	710	580	462	379	339	282	227	208	177
11 Max. continuous torque mNm	1.54	1.52	1.53	1.51	1.55	1.61	1.58	1.58	1.59
12 Max. power output at nominal voltage mW	1050	699	1000	673	962	665	971	810	1050
13 Max. efficiency %	76	75	76	74	76	75	76	76	77
14 Torque constant mNm / A	2.16	2.62	3.30	3.99	4.56	5.69	6.95	7.63	9.00
15 Speed constant rpm / V	4410	3650	2890	2400	2100	1680	1370	1250	1060
16 Mechanical time constant ms	4	4	4	4	4	4	4	4	4
17 Rotor inertia gcm²	0.098	0.096	0.096	0.094	0.098	0.105	0.101	0.102	0.103
18 Terminal inductance mH	0.02	0.03	0.04	0.06	0.08	0.12	0.18	0.21	0.30
19 Thermal resistance housing-ambient K / W	38	38	38	38	38	38	38	38	38
20 Thermal resistance rotor-housing K / W	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
21 Thermal time constant winding s	2	2	2	2	2	2	2	2	2

Specifications

- Axial play 0.05 - 0.15 mm
- Max. **sleeve bearing** loads
  axial (dynamic) 0.15 N
  radial (4 mm from flange) 0.4 N
  Force for press fits (static) 15 N
- Radial play **sleeve bearing** 0.012 mm
- Ambient temperature range -20 ... +65°C
- Max. rotor temperature +85°C
- Number of commutator segments 7
- Weight of motor 10 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).

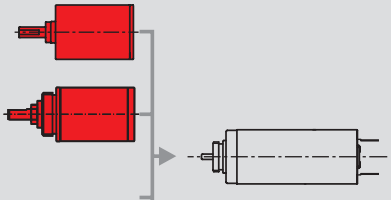
118400 Motor with high resistance winding
118392 Motor with low resistance winding

maxon Modular System

Overview on page 17 - 21

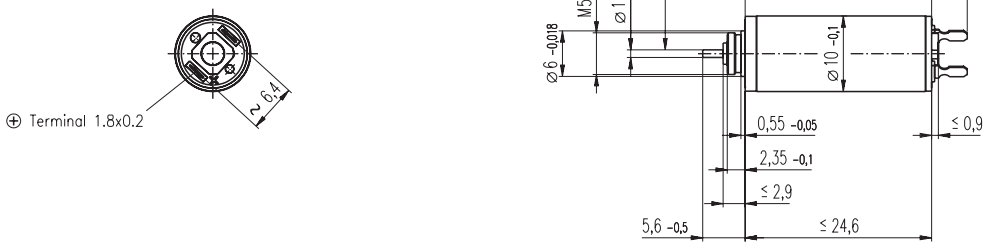
Planetary Gearhead
∅10 mm
0.005 - 0.1 Nm
Details page 191

Planetary Gearhead
∅10 mm
0.01 - 0.15 Nm
Details page 192



Recommended Electronics:
LSC 30/2 page 251
Notes 17

RE 10 ∅10 mm, Precious Metal Brushes, 1.5 Watt, CE approved



M 1:1

Stock program
Standard program
Special program (on request!)

Order Number

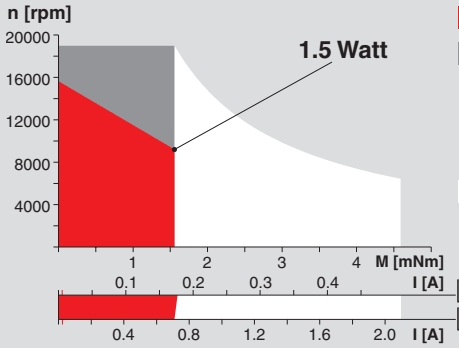
			118392	118393	118394	118395	118396	118397	118398	118399	118400
Motor Data											
1	Assigned power rating	W	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
2	Nominal voltage	Volt	3.0	3.0	4.5	4.5	6.0	6.0	9.0	9.0	12.0
3	No load speed	rpm	13000	10700	12800	10600	12400	9880	12200	11100	12500
4	Stall torque	mNm	3.12	2.52	3.03	2.47	3.01	2.61	3.08	2.83	3.24
5	Speed / torque gradient	rpm / mNm	4250	4340	4290	4370	4180	3860	4010	3980	3930
6	No load current	mA	24	19	16	12	11	8	7	6	6
7	Starting current	mA	1440	963	919	619	660	458	444	371	360
8	Terminal resistance	Ohm	2.08	3.11	4.90	7.27	9.09	13.1	20.3	24.3	33.3
9	Max. permissible speed	rpm	19000	19000	19000	19000	19000	19000	19000	19000	19000
10	Max. continuous current	mA	710	580	462	379	339	282	227	208	177
11	Max. continuous torque	mNm	1.54	1.52	1.53	1.51	1.55	1.61	1.58	1.58	1.59
12	Max. power output at nominal voltage	mW	1050	699	1000	673	962	665	971	810	1050
13	Max. efficiency	%	76	75	76	74	76	75	76	76	77
14	Torque constant	mNm / A	2.16	2.62	3.30	3.99	4.56	5.69	6.95	7.63	9.00
15	Speed constant	rpm / V	4410	3650	2890	2400	2100	1680	1370	1250	1060
16	Mechanical time constant	ms	4	4	4	4	4	4	4	4	4
17	Rotor inertia	gcm²	0.098	0.096	0.096	0.094	0.098	0.105	0.101	0.102	0.103
18	Terminal inductance	mH	0.02	0.03	0.04	0.06	0.08	0.12	0.18	0.21	0.30
19	Thermal resistance housing-ambient	K / W	38	38	38	38	38	38	38	38	38
20	Thermal resistance rotor-housing	K / W	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
21	Thermal time constant winding	s	2	2	2	2	2	2	2	2	2

Specifications

- Axial play 0.05 - 0.15 mm
- Max. **sleeve bearing** loads
  axial (dynamic) 0.15 N
  radial (4 mm from flange) 0.4 N
  Force for press fits (static) 15 N
- Radial play **sleeve bearing** 0.012 mm
- Ambient temperature range -20 ... +65°C
- Max. rotor temperature +85°C
- Number of commutator segments 7
- Weight of motor 10 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).

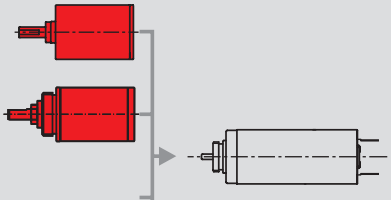
118400 Motor with high resistance winding
118392 Motor with low resistance winding

maxon Modular System

Overview on page 17 - 21

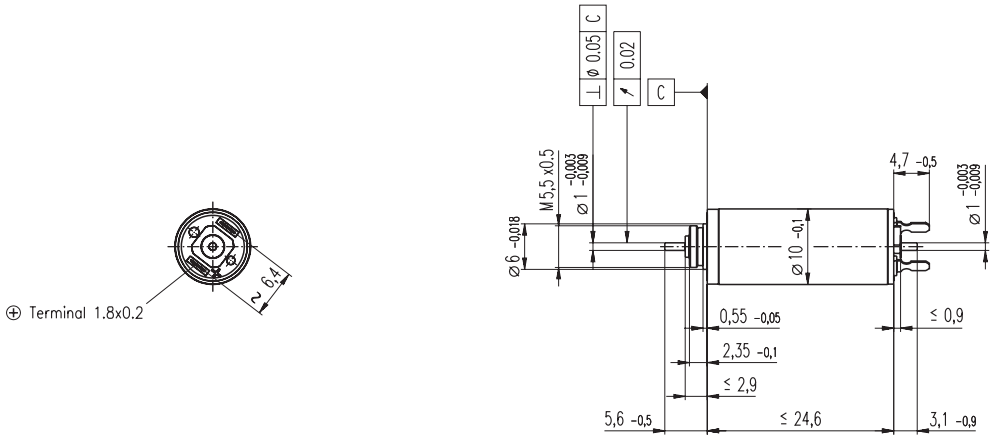
Planetary Gearhead
∅10 mm
0.005 - 0.1 Nm
Details page 191

Planetary Gearhead
∅10 mm
0.01 - 0.15 Nm
Details page 192



Recommended Electronics:
LSC 30/2 page 251
Notes 17

RE 10 ∅10 mm, Precious Metal Brushes, 1.5 Watt, CE approved



M 1:1

Stock program
Standard program
Special program (on request!)

Order Number

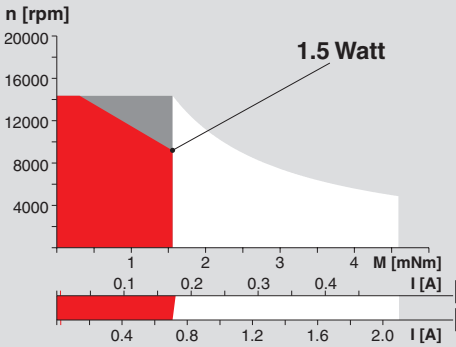
			256096	256097	256099	256100	256101	256102	256103	256104	256105
Motor Data											
1	Assigned power rating	W	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
2	Nominal voltage	Volt	2.4	3.0	4.5	4.5	6.0	7.2	9.0	10.0	12.0
3	No load speed	rpm	10400	10700	12800	10600	12400	11900	12200	12300	12500
4	Stall torque	mNm	2.49	2.52	3.03	2.47	3.01	3.13	3.08	3.14	3.24
5	Speed / torque gradient	rpm / mNm	4250	4340	4290	4370	4180	3860	4010	3980	3930
6	No load current	mA	22	19	16	12	11	9	7	7	6
7	Starting current	mA	1150	963	919	619	660	549	444	412	360
8	Terminal resistance	Ohm	2.08	3.11	4.90	7.27	9.09	13.1	20.3	24.3	33.3
9	Max. permissible speed	rpm	14300	14300	14300	14900	14300	14300	14300	14300	14300
10	Max. continuous current	mA	710	580	462	379	339	282	227	208	177
11	Max. continuous torque	mNm	1.54	1.52	1.53	1.51	1.55	1.61	1.58	1.58	1.59
12	Max. power output at nominal voltage	mW	669	699	1000	673	962	962	971	1000	1050
13	Max. efficiency	%	75	75	76	74	76	77	76	77	77
14	Torque constant	mNm / A	2.16	2.62	3.30	3.99	4.56	5.69	6.95	7.63	9.00
15	Speed constant	rpm / V	4410	3650	2890	2400	2100	1680	1370	1250	1060
16	Mechanical time constant	ms	4	4	4	4	4	4	4	4	4
17	Rotor inertia	gcm²	0.098	0.096	0.096	0.094	0.098	0.105	0.101	0.102	0.103
18	Terminal inductance	mH	0.02	0.03	0.04	0.06	0.08	0.12	0.18	0.21	0.30
19	Thermal resistance housing-ambient	K / W	38	38	38	38	38	38	38	38	38
20	Thermal resistance rotor-housing	K / W	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
21	Thermal time constant winding	s	2	2	2	2	2	2	2	2	2

Specifications

- Axial play 0.05 - 0.15 mm
- Max. **sleeve bearing** loads
  axial (dynamic) 0.15 N
  radial (4 mm from flange) 0.4 N
  Force for press fits (static) 15 N
- Radial play **sleeve bearing** 0.012 mm
- Ambient temperature range -20 ... +65°C
- Max. rotor temperature +85°C
- Number of commutator segments 7
- Weight of motor 10 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).

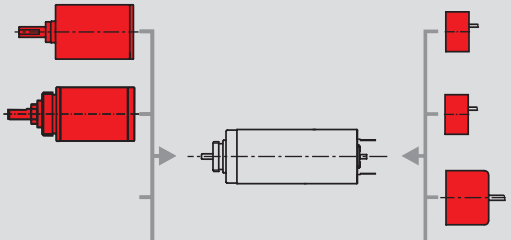
256105 Motor with high resistance winding
256096 Motor with low resistance winding

maxon Modular System

Overview on page 17 - 21

Planetary Gearhead
∅10 mm
0.005 - 0.1 Nm
Details page 191

Planetary Gearhead
∅10 mm
0.01 - 0.15 Nm
Details page 192



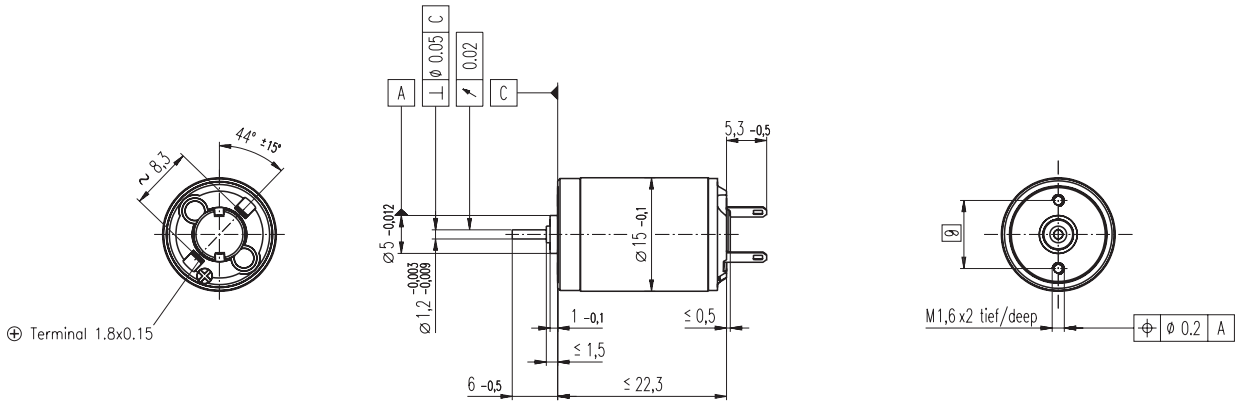
Digital MR Encoder
16 CPT,
2 channels
Details page 226

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

Digital Magnetic Encoder
∅10 mm
12 CPT, 2 channels
Details page 244

Recommended Electronics:
LSC 30/2 page 251
EPOS 24/1 page 262

RE 15 ∅15 mm, Precious Metal Brushes CLL, 1.6 Watt, CE approved



M 1:1

Stock program
Standard program
Special program (on request!)

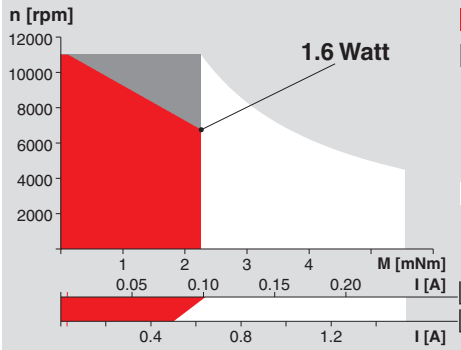
			Order Number							
			118643	118644	118645	118646	118647	118648	118649	118650
Motor Data										
1	Assigned power rating	W	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
2	Nominal voltage	Volt	3.0	4.5	6.0	7.2	9.0	12.0	15.0	24.0
3	No load speed	rpm	7770	7450	7980	7740	7710	8370	8110	9890
4	Stall torque	mNm	4.03	3.92	4.17	4.06	4.02	4.22	4.16	4.98
5	Speed / torque gradient	rpm / mNm	1970	1950	1960	1950	1970	2030	2000	2030
6	No load current	mA	27	17	14	11	9	7	6	5
7	Starting current	mA	1120	697	596	469	370	316	241	220
8	Terminal resistance	Ohm	2.67	6.46	10.1	15.3	24.4	38.0	62.2	109
9	Max. permissible speed	rpm	11000	11000	11000	11000	11000	11000	11000	11000
10	Max. continuous current	mA	500	418	334	271	215	172	135	101
11	Max. continuous torque	mNm	1.80	2.35	2.34	2.35	2.34	2.30	2.32	2.30
12	Max. power output at nominal voltage	mW	806	750	857	809	796	909	868	1270
13	Max. efficiency	%	72	71	72	72	72	72	72	74
14	Torque constant	mNm / A	3.60	5.62	7.01	8.67	10.9	13.4	17.2	22.7
15	Speed constant	rpm / V	2660	1700	1360	1100	878	714	554	421
16	Mechanical time constant	ms	10	10	10	10	10	10	10	10
17	Rotor inertia	gcm²	0.501	0.501	0.498	0.499	0.495	0.481	0.487	0.480
18	Terminal inductance	mH	0.05	0.12	0.19	0.29	0.46	0.69	1.15	1.99
19	Thermal resistance housing-ambient	K / W	35	35	35	35	35	35	35	35
20	Thermal resistance rotor-housing	K / W	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
21	Thermal time constant winding	s	4	4	4	4	4	4	4	4

Specifications

- Axial play 0.05 - 0.15 mm
- Max. **sleeve bearing** loads
  axial (dynamic) 0.2 N
  radial (5 mm from flange) 0.5 N
  Force for press fits (static) 20 N
- Radial play **sleeve bearing** 0.014 mm
- Ambient temperature range -20 ... +65°C
- Max. rotor temperature +85°C
- Number of commutator segments 5
- Weight of motor 20 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

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).

118650 Motor with high resistance winding
118643 Motor with low resistance winding

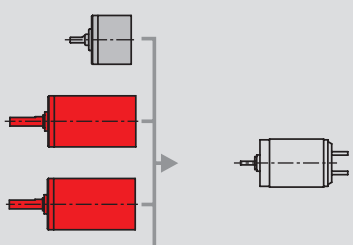
maxon Modular System

Overview on page 17 - 21

Spur Gearhead
∅16 mm
0.015 - 0.04 Nm
Details page 197

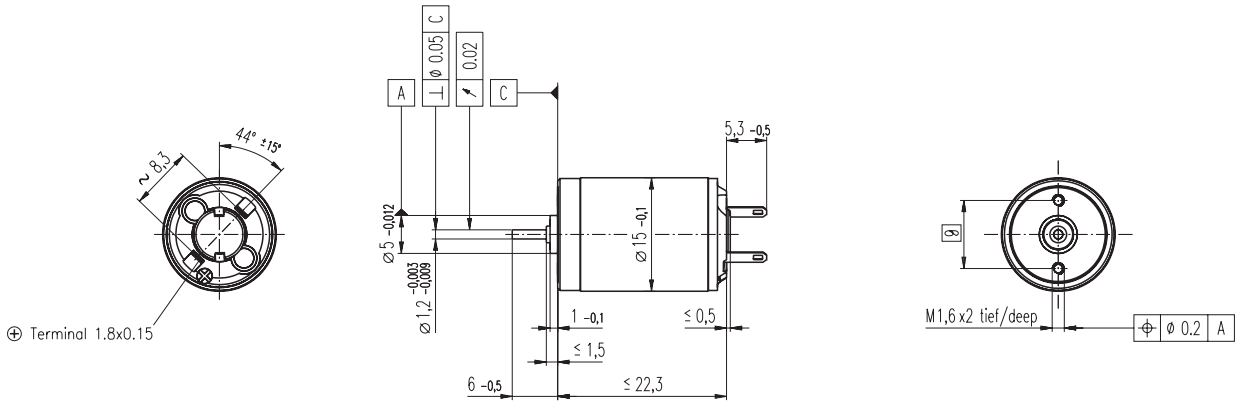
Planetary Gearhead
∅16 mm
0.1 - 0.3 Nm
Details page 200

Planetary Gearhead
∅16 mm
0.06 - 0.18 Nm
Details page 201



Recommended Electronics:
LSC 30/2 page 251
Notes 17

RE 15 ∅15 mm, Precious Metal Brushes CLL, 1.6 Watt, CE approved



M 1:1

Stock program
Standard program
Special program (on request!)

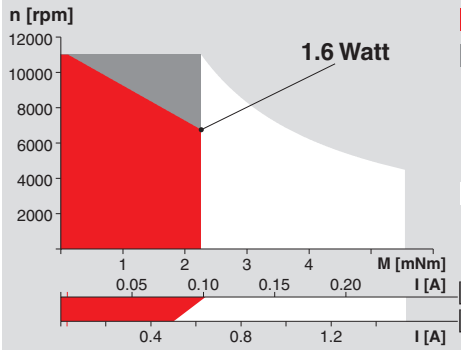
			Order Number							
			118643	118644	118645	118646	118647	118648	118649	118650
Motor Data										
1	Assigned power rating	W	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
2	Nominal voltage	Volt	3.0	4.5	6.0	7.2	9.0	12.0	15.0	24.0
3	No load speed	rpm	7770	7450	7980	7740	7710	8370	8110	9890
4	Stall torque	mNm	4.03	3.92	4.17	4.06	4.02	4.22	4.16	4.98
5	Speed / torque gradient	rpm / mNm	1970	1950	1960	1950	1970	2030	2000	2030
6	No load current	mA	27	17	14	11	9	7	6	5
7	Starting current	mA	1120	697	596	469	370	316	241	220
8	Terminal resistance	Ohm	2.67	6.46	10.1	15.3	24.4	38.0	62.2	109
9	Max. permissible speed	rpm	11000	11000	11000	11000	11000	11000	11000	11000
10	Max. continuous current	mA	500	418	334	271	215	172	135	101
11	Max. continuous torque	mNm	1.80	2.35	2.34	2.35	2.34	2.30	2.32	2.30
12	Max. power output at nominal voltage	mW	806	750	857	809	796	909	868	1270
13	Max. efficiency	%	72	71	72	72	72	72	72	74
14	Torque constant	mNm / A	3.60	5.62	7.01	8.67	10.9	13.4	17.2	22.7
15	Speed constant	rpm / V	2660	1700	1360	1100	878	714	554	421
16	Mechanical time constant	ms	10	10	10	10	10	10	10	10
17	Rotor inertia	gcm²	0.501	0.501	0.498	0.499	0.495	0.481	0.487	0.480
18	Terminal inductance	mH	0.05	0.12	0.19	0.29	0.46	0.69	1.15	1.99
19	Thermal resistance housing-ambient	K / W	35	35	35	35	35	35	35	35
20	Thermal resistance rotor-housing	K / W	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
21	Thermal time constant winding	s	4	4	4	4	4	4	4	4

Specifications

- Axial play 0.05 - 0.15 mm
- Max. **sleeve bearing** loads
  axial (dynamic) 0.2 N
  radial (5 mm from flange) 0.5 N
  Force for press fits (static) 20 N
- Radial play **sleeve bearing** 0.014 mm
- Ambient temperature range -20 ... +65°C
- Max. rotor temperature +85°C
- Number of commutator segments 5
- Weight of motor 20 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

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).

118650 Motor with high resistance winding
118643 Motor with low resistance winding

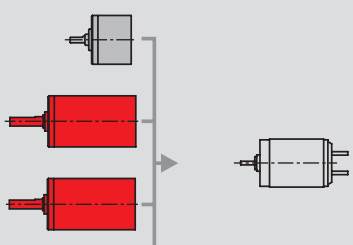
maxon Modular System

Overview on page 17 - 21

Spur Gearhead
∅16 mm
0.015 - 0.04 Nm
Details page 197

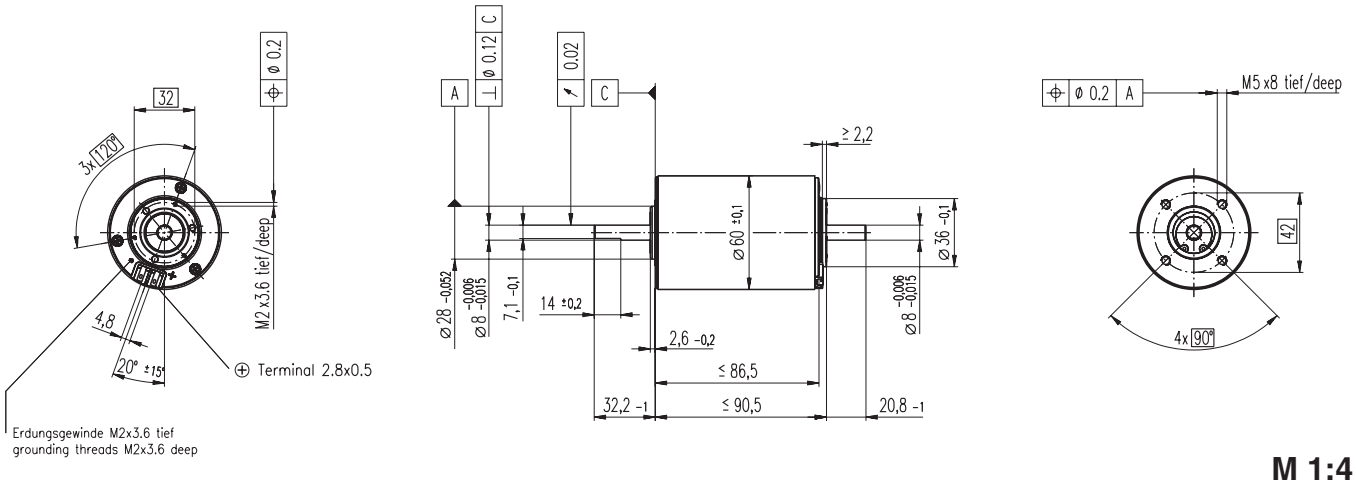
Planetary Gearhead
∅16 mm
0.1 - 0.3 Nm
Details page 200

Planetary Gearhead
∅16 mm
0.06 - 0.18 Nm
Details page 201



Recommended Electronics:
LSC 30/2 page 251
Notes 17

F 2260 ∅60 mm, Graphite Brushes, 40 Watt



M 1:4

Stock program
Standard program
Special program (on request!)

Order Number

2260. ... -51.216-200 (Insert winding number)

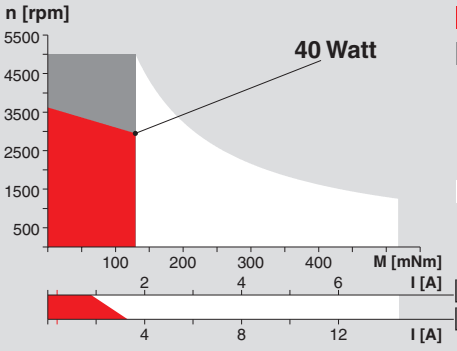
Winding number			811	812	813	814	815	816	817	818	810	819	820
Motor Data													
1	Assigned power rating	W	40	40	40	40	40	40	40	40	40	40	40
2	Nominal voltage	Volt	18.0	18.0	24.0	30.0	36.0	36.0	36.0	48.0	48.0	48.0	48.0
3	No load speed	rpm	4500	3450	3660	4270	4580	3630	2950	3190	2590	2090	1630
4	Stall torque	Nm	0.870	0.707	0.758	0.868	0.916	0.733	0.591	0.633	0.514	0.407	0.312
5	Speed / torque gradient	rpm / mNm	5.41	5.11	5.01	5.07	5.14	5.10	5.17	5.19	5.21	5.34	5.48
6	No load current	mA	387	283	225	215	194	147	117	95	75	60	46
7	Starting current	A	23.8	14.8	12.6	13.4	12.6	7.97	5.24	4.53	3.00	1.93	1.16
8	Terminal resistance	Ohm	0.755	1.21	1.91	2.25	2.87	4.52	6.87	10.6	16.0	24.9	41.2
9	Max. permissible speed	rpm	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
10	Max. continuous current	A	3.30	2.67	2.16	1.99	1.77	1.43	1.17	0.945	0.771	0.621	0.484
11	Max. continuous torque	mNm	120	127	130	130	129	132	132	132	132	131	130
12	Max. power output at nominal voltage	W	98.2	61.2	70.4	94.4	107	67.8	44.4	51.6	33.9	21.5	12.8
13	Max. efficiency	%	73	72	73	75	75	74	71	73	70	67	64
14	Torque constant	mNm / A	36.5	47.6	60.3	65.0	73.0	92.0	113	140	171	211	268
15	Speed constant	rpm / V	262	201	158	147	131	104	84.8	68.4	55.7	45.3	35.6
16	Mechanical time constant	ms	36	36	35	35	34	34	34	34	34	34	34
17	Rotor inertia	gcm²	638	666	665	651	638	641	630	623	620	604	589
18	Terminal inductance	mH	0.23	0.39	0.63	0.73	0.92	1.46	2.18	3.36	5.05	7.66	12.40
19	Thermal resistance housing-ambient	K / W	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
20	Thermal resistance rotor-housing	K / W	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
21	Thermal time constant winding	s	73	76	76	74	73	73	72	71	71	69	67

Specifications

- Axial play at axial load < 15 N ≤ 0.1 mm
  > 15 N 0.1 - 0.5 mm
  Axial play for motor combinations with encoder is limited to max. 0.15 mm
- Preloaded **ball bearing**
  Preload strength min. 15 N
- Max. **ball bearing** loads
  axial (dynamic) 15 N
  radial (5 mm from flange) 100 N
  Force for press fits (static) 400 N
  (static, shaft supported) 10 000 N
- Radial play **ball bearing** 0.05 mm
- Ambient temperature range -20 ... +100°C
- Max. rotor temperature +125°C
- Number of commutator segments 26
- Weight of motor 790 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.

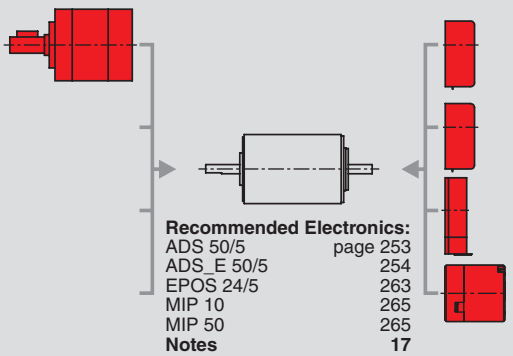
Short term operation
The motor may be briefly overloaded (recurring).

818 Motor with high resistance winding
811 Motor with low resistance winding

maxon Modular System

Overview on page 17 - 21

Planetary Gearhead
∅62 mm
8 - 50 Nm
Details page 223



Recommended Electronics:

ADS 50/5	page 253
ADS_E 50/5	254
EPOS 24/5	263
MIP 10	265
MIP 50	265
Notes	**17**

Digital Encoder HP HEDS 5540
500 CPT, 3 channels
Details page 237

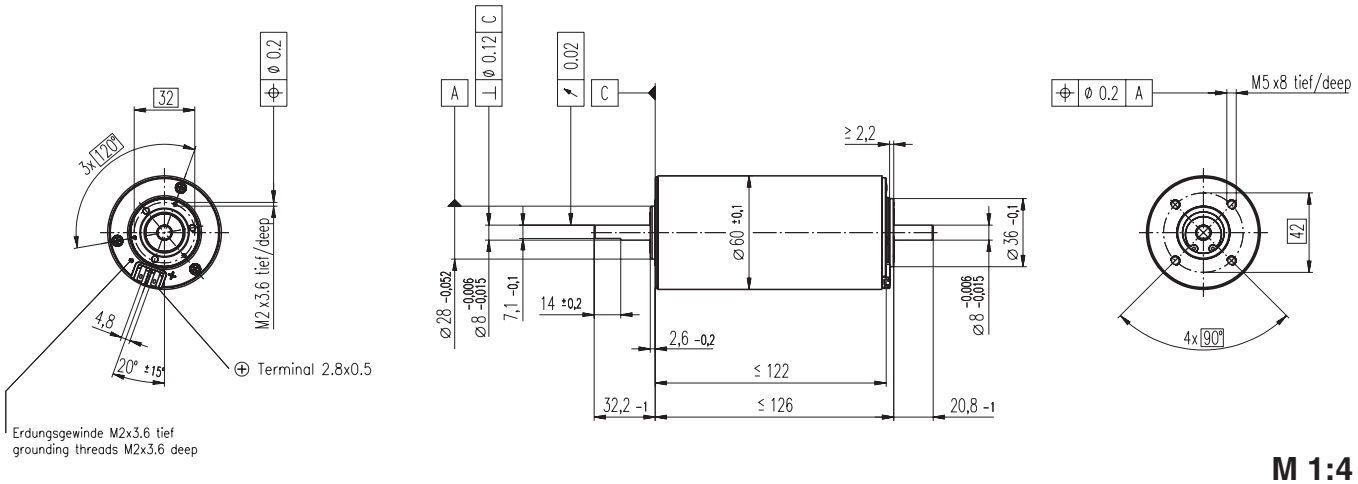
Digital Encoder HP HEDL 5540
500 CPT, 3 channels
Details page 239

Digital Encoder HP HEDS 6540
1000 CPT, 3 channels
Details page 242

Brake
∅40 mm
24 VDC, 0.4 Nm
Details page 269

July 2004 edition / subject to change

F 2260 ∅60 mm, Graphite Brushes, 80 Watt



M 1:4

Stock program
Standard program
Special program (on request!)

Order Number

2260. ... -51.216-200 (Insert winding number)

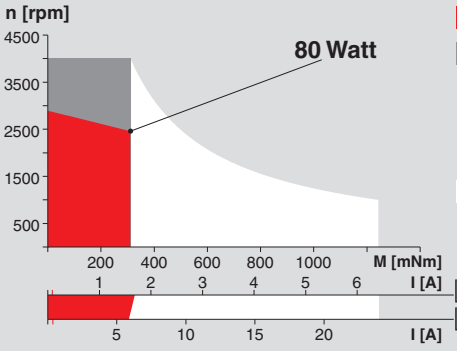
Winding number			880	881	882	883	884	885	886	887	888	889	890
Motor Data													
1	Assigned power rating	W	80	80	80	80	80	80	80	80	80	80	80
2	Nominal voltage	Volt	15.0	15.0	18.0	24.0	24.0	24.0	36.0	36.0	48.0	48.0	48.0
3	No load speed	rpm	3980	2740	2650	2850	2640	2230	2690	2200	2670	2360	1800
4	Stall torque	Nm	2.88	1.97	1.91	2.06	1.87	1.67	2.01	1.59	1.94	1.69	1.35
5	Speed / torque gradient	rpm / mNm	1.44	1.45	1.43	1.42	1.45	1.37	1.36	1.41	1.40	1.42	1.35
6	No load current	mA	563	351	278	226	206	168	140	109	103	89	65
7	Starting current	A	83.8	39.4	30.6	26.3	22.2	16.7	16.1	10.4	11.5	8.87	5.41
8	Terminal resistance	Ohm	0.179	0.381	0.589	0.911	1.08	1.44	2.24	3.47	4.18	5.41	8.88
9	Max. permissible speed	rpm	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000
10	Max. continuous current	A	7.50	5.87	4.84	3.95	3.66	3.21	2.59	2.10	1.91	1.69	1.33
11	Max. continuous torque	mNm	258	294	303	309	309	321	324	322	324	323	332
12	Max. power output at nominal voltage	W	283	135	128	149	126	94.8	139	89.7	133	103	62.6
13	Max. efficiency	%	79	78	79	80	79	79	81	79	81	80	79
14	Torque constant	mNm / A	34.4	50.1	62.6	78.3	84.5	100.0	125	153	169	191	250
15	Speed constant	rpm / V	277	191	153	122	113	95.3	76.3	62.3	56.5	50.0	38.1
16	Mechanical time constant	ms	20	20	19	19	19	19	18	18	18	18	18
17	Rotor inertia	gcm²	1330	1290	1270	1250	1230	1290	1270	1230	1230	1210	1260
18	Terminal inductance	mH	0.07	0.14	0.22	0.34	0.40	0.56	0.88	1.31	1.59	2.03	3.50
19	Thermal resistance housing-ambient	K / W	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
20	Thermal resistance rotor-housing	K / W	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
21	Thermal time constant winding	s	72	70	69	68	67	70	69	67	67	66	69

Specifications

- Axial play at axial load < 15 N ≤ 0.1 mm
  > 15 N 0.1 - 0.5 mm
  Axial play for motor combinations with encoder is limited to max. 0.15 mm
- Preloaded **ball bearing**
  Preload strength min. 15 N
- Max. **ball bearing** loads
  axial (dynamic) 15 N
  radial (5 mm from flange) 100 N
  Force for press fits (static) 400 N
  (static, shaft supported) 10 000 N
- Radial play **ball bearing** 0.05 mm
- Ambient temperature range -20 ... +100°C
- Max. rotor temperature +125°C
- Number of commutator segments 26
- Weight of motor 1300 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.

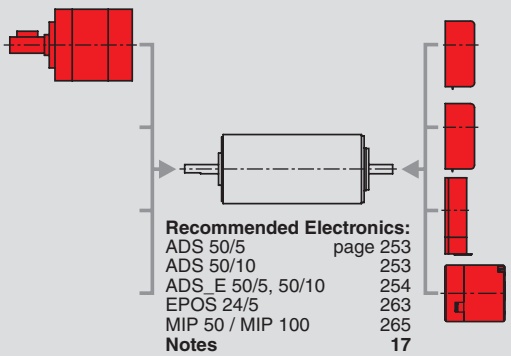
Short term operation
The motor may be briefly overloaded (recurring).

889 Motor with high resistance winding
881 Motor with low resistance winding

maxon Modular System

Overview on page 17 - 21

Planetary Gearhead
∅62 mm
8 - 50 Nm
Details page 223



Recommended Electronics:

ADS 50/5	page 253
ADS 50/10	253
ADS_E 50/5, 50/10	254
EPOS 24/5	263
MIP 50 / MIP 100	265
Notes	**17**

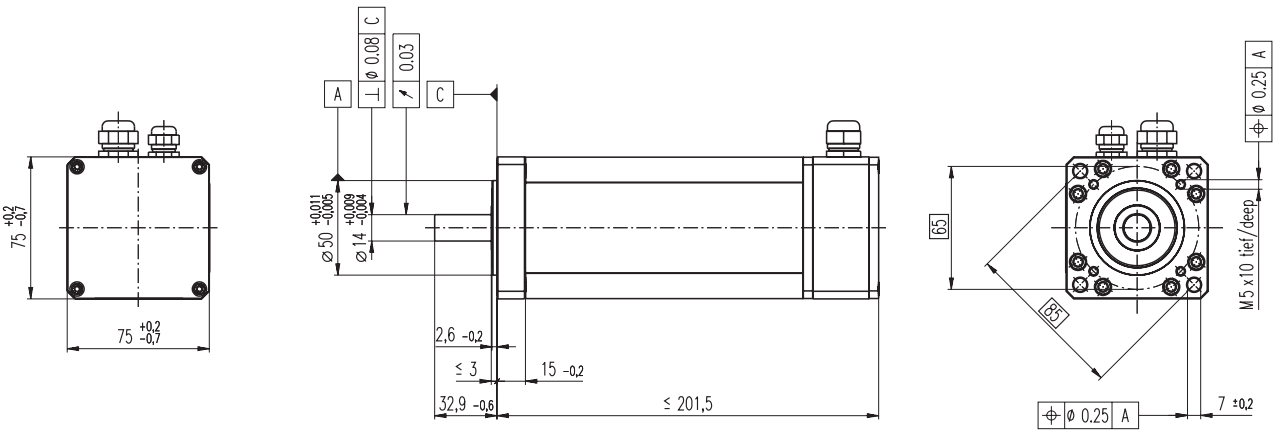
Digital Encoder HP HEDS 5540
500 CPT, 3 channels
Details page 237

Digital Encoder HP HEDL 5540
500 CPT, 3 channels
Details page 239

Digital Encoder HP HEDS 6540
1000 CPT, 3 channels
Details page 242

Brake
∅40 mm
24 VDC, 0.4 Nm
Details page 269

RE 75 □75 mm, Graphite Brushes, 250 Watt, IP54, SEV-approved



M 1:4

Stock program
Standard program
Special program (on request!)

Order Number

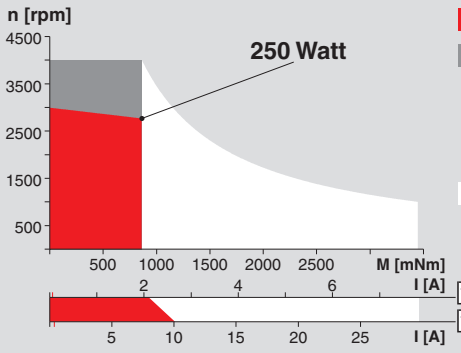
			118854	118855	118856	118857	118858	118859	118860	118861	118862	118863	118864
Motor Data													
1	Assigned power rating	W	250	250	250	250	250	250	250	250	250	250	250
2	Nominal voltage	Volt	24.0	30.0	48.0	60.0	72.0	80.0	96.0	120	140	160	180
3	No load speed	rpm	3770	3470	3860	3870	3730	3840	3900	3900	3720	3860	3840
4	Stall torque	Nm	13.9	13.9	15.5	15.5	14.8	14.9	16.0	15.9	14.6	15.2	14.9
5	Speed / torque gradient	rpm / mNm	0.283	0.258	0.255	0.255	0.256	0.261	0.246	0.248	0.256	0.256	0.260
6	No load current	mA	1440	1020	724	580	459	428	363	291	234	215	190
7	Starting current	A	240	174	133	106	81.3	76.2	68.9	54.6	41.1	38.8	33.7
8	Terminal resistance	Ohm	0.100	0.173	0.361	0.564	0.886	1.05	1.39	2.20	3.40	4.13	5.34
9	Max. permissible speed	rpm	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000
10	Max. continuous current	A	10.0	9.71	7.23	5.98	4.89	4.53	3.98	3.21	2.61	2.38	2.10
11	Max. continuous torque	mNm	581	776	841	869	888	888	924	934	929	933	930
12	Max. power output at nominal voltage	W	1290	1200	1520	1530	1420	1480	1610	1600	1410	1520	1490
13	Max. efficiency	%	80	81	84	84	84	84	85	85	85	85	85
14	Torque constant	mNm / A	58.1	79.9	116	145	182	196	233	291	356	392	443
15	Speed constant	rpm / V	164	119	82.1	65.7	52.6	48.7	41.1	32.9	26.8	24.3	21.5
16	Mechanical time constant	ms	4	4	4	4	4	4	4	4	4	4	4
17	Rotor inertia	gcm²	1400	1460	1420	1400	1380	1360	1420	1400	1360	1360	1340
18	Terminal inductance	mH	0.04	0.08	0.16	0.25	0.39	0.46	0.64	1.01	1.51	1.83	2.34
19	Thermal resistance housing-ambient	K / W	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
20	Thermal resistance rotor-housing	K / W	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
21	Thermal time constant winding	s	95	110	100	100	99	97	100	100	97	97	95

Specifications

- Brush monitoring system, (optional)
  Output signal that is free of potential,
  SPST, N.C.
- Contact load — max. 3 Watt
  Switching voltage — max. 150 VDC
  Switching current — max. 0.25 ADC
  Screw fitting for cable — PG 7
  Diameter of opening — 5 - 7 mm
- Motor connections
  Ring terminals — ∅ 6 mm
  Screw fitting for cable — PG 13
  Diameter of opening — 8 - 15 mm
  Recommended cable size — 2 x 4 mm²
- Protection to IP54, SEV approved
- Axial play — < 0.15 mm
- Ball bearing (fixed bearing on flange side)
- Max. ball bearing loads
  axial (dynamic) — 70 N
  radial (15 mm from flange) — 350 N
  Force for press fits (static) — 420 N
  (static, shaft supported) — 12 000 N
- Ambient temperature range — -20 ... +100°C
- Max. rotor temperature — +125°C
- Number of commutator segments — 26
- Weight of motor — 2800 g
- 2 pole permanent magnet
- Values listed in the table are nominal.

- Option: Output shaft with feather key A 5
  (5 x 5 x 25 DIN 6885) available on request

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.

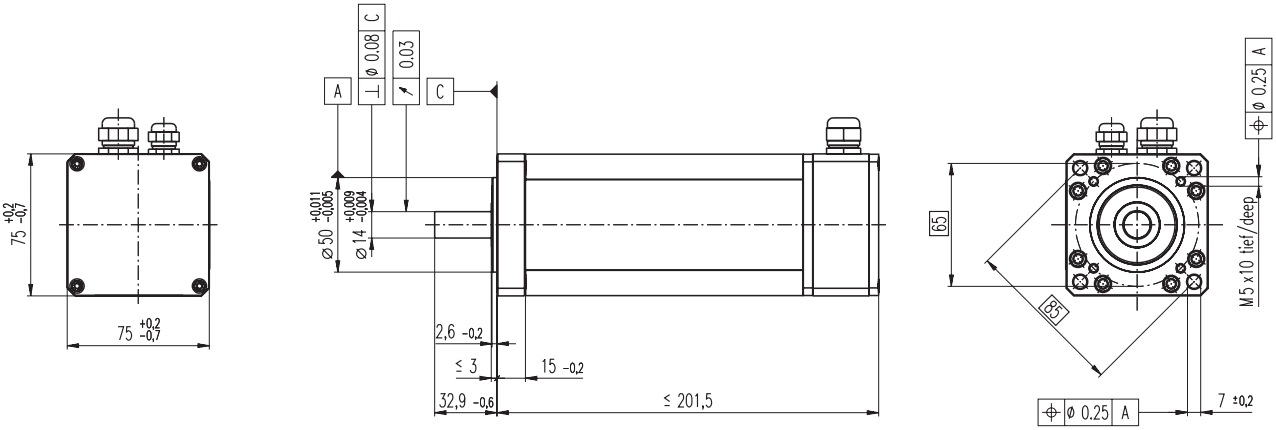
Short term operation
The motor may be briefly overloaded (recurring).

118864 Motor with high resistance winding
118854 Motor with low resistance winding

Recommended Electronics:
ADS 50/10 — page 253
ADS_E 50/10 — 254
Notes — **17**

July 2004 edition / subject to change

RE 75 ☐75 mm, Graphite Brushes, 250 Watt



M 1:4

Stock program
Standard program
Special program (on request!)

Order Number

	Motor Data		118819	118820	118821	118822	118823	118824	118825	118826	118827	118828	118829
1	Assigned power rating	W	250	250	250	250	250	250	250	250	250	250	250
2	Nominal voltage	Volt	12.0	24.0	36.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0
3	No load speed	rpm	1850	2770	2890	3100	2480	2300	1940	1550	1270	1150	1020
4	Stall torque	Nm	6.27	10.9	11.4	12.3	9.72	8.83	7.87	6.23	4.93	4.48	3.91
5	Speed / torque gradient	rpm / mNm	0.314	0.263	0.259	0.257	0.260	0.264	0.250	0.253	0.261	0.261	0.265
6	No load current	mA	571	520	367	306	214	190	147	105	79	69	58
7	Starting current	A	108	136	98.4	84.5	53.5	45.0	33.9	21.4	13.8	11.4	8.82
8	Terminal resistance	Ohm	0.111	0.176	0.366	0.568	0.897	1.07	1.42	2.24	3.47	4.21	5.44
9	Max. permissible speed	rpm	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000
10	Max. continuous current	A	10.00	9.70	7.23	5.98	4.89	4.53	3.98	3.21	2.61	2.38	2.10
11	Max. continuous torque	mNm	581	775	841	869	889	888	924	933	928	933	930
12	Max. power output at nominal voltage	W	273	748	838	973	618	521	393	249	161	133	103
13	Max. efficiency	%	77	84	85	86	86	86	86	85	84	84	83
14	Torque constant	mNm / A	58.1	79.9	116	145	182	196	233	291	356	392	443
15	Speed constant	rpm / V	164	119	82.1	65.7	52.6	48.7	41.1	32.9	26.8	24.3	21.5
16	Mechanical time constant	ms	5	4	4	4	4	4	4	4	4	4	4
17	Rotor inertia	gcm²	1400	1460	1420	1400	1380	1360	1420	1400	1360	1360	1340
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19	Thermal resistance housing-ambient	K / W	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
20	Thermal resistance rotor-housing	K / W	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
21	Thermal time constant winding	s	100	110	100	100	99	97	100	100	97	97	95

Specifications

- Brush monitoring system, (optional)
  Output signal that is free of potential,
  SPST, N.C
  Contact load max. 3 Watt
  Switching voltage max. 150 VDC
  Switching current max. 0.25 ADC
  Screw fitting for cable PG 7
  Diameter of opening 5 - 7 mm
- Motor connections
  Ring terminals ∅ 6 mm
  Screw fitting for cable PG 13
  Diameter of opening 8 - 15 mm
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- Axial play < 0.15 mm
- Ball bearing (fixed bearing on flange side)
- Max. ball bearing loads
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  radial (15 mm from flange) 350 N
  Force for press fits (static) 420 N
  (static, shaft supported) 12 000 N
- Ambient temperature range -20 ... +100°C
- Max. rotor temperature +125°C
- Number of commutator segments 26
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- Weight of motor 2800 g
- Values listed in the table are nominal.

- Option: Output shaft with feather key A 5
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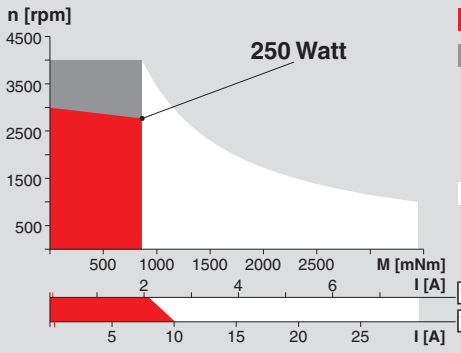
Operating Range

Comments Details on page 49



Recommended operating range

Continuous operation
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= Thermal limit.

Short term operation
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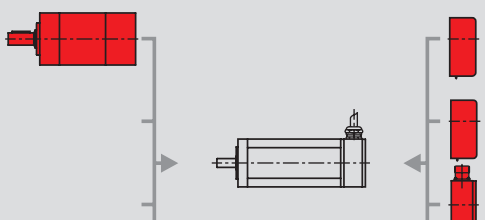
118829 Motor with high resistance winding
118819 Motor with low resistance winding

maxon Modular System

Overview on page 17 - 21

Planetary Gearhead
∅81 mm
20 - 120 Nm
Details page 224



Digital Encoder HP HEDS 5540
500 CPT, 3 channels
Details page 236

Digital Encoder HP HEDL 5540
500 CPT, 3 channels
Details page 238

Brake
☐75 mm
24 VDC, 1.4 Nm
Details page 272

Recommended Electronics:

ADS 50/10	page 253
ADS_E 50/10	254
EPOS 70/10	263
MIP 50, MIP 100	265
Notes	**17**