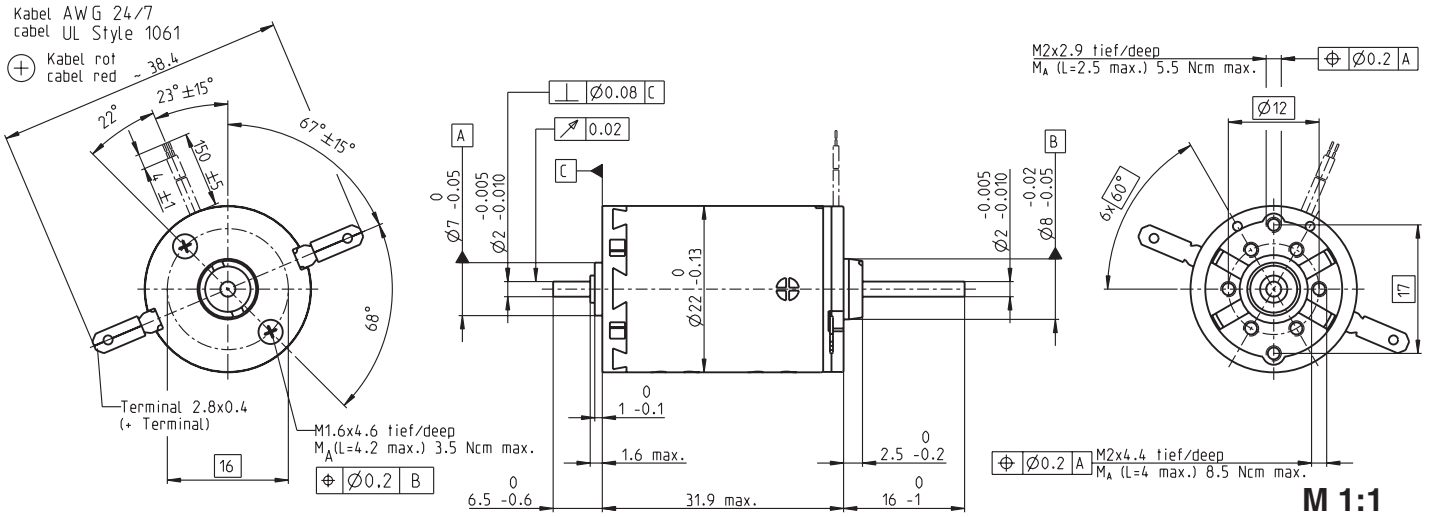
maxon A-max 22 ∅22 mm, Precious Metal Brushes CLL, 3.5 Watt, CE approved



Stock program
Standard program
Special program (on request)

Order Number

with terminals	110130	110132	110133	**110134**	110135	110136	110137	**110138**	110139	**110140**	110141	110142	
with cables	139846	352986	352987	352988	352989	352990	352991	352992	352993	352994	352995	352996	

Motor Data

	Values at nominal voltage													
1	Nominal voltage	V	4.5	6.0	7.2	7.2	7.2	9.0	12.0	15.0	18.0	24.0	36.0	42.0
2	No load speed	rpm	7220	6640	7000	6240	5630	6140	6640	6680	6480	6520	6950	7320
3	No load current	mA	26.7	17.8	16.0	13.6	11.8	10.6	8.88	7.17	5.73	4.33	3.16	2.92
4	Nominal speed	rpm	5050	3980	4380	3600	2950	3470	3950	3990	3780	3790	4170	4560
5	Nominal torque (max. continuous torque)	mNm	4.82	6.38	6.43	6.43	6.37	6.36	6.30	6.29	6.25	6.19	6.06	6.10
6	Nominal current (max. continuous current)	A	0.840	0.761	0.674	0.601	0.536	0.468	0.376	0.302	0.243	0.182	0.126	0.115
7	Stall torque	mNm	16.1	16.0	17.2	15.3	13.5	14.7	15.7	15.7	15.1	14.9	15.2	16.3
8	Starting current	A	2.74	1.88	1.77	1.40	1.11	1.06	0.916	0.741	0.574	0.427	0.311	0.300
9	Max. efficiency	%	82	82	82	82	81	81	82	82	81	81	81	82
	Characteristics													
10	Terminal resistance	Ω	1.64	3.20	4.07	5.13	6.46	8.48	13.1	20.2	31.3	56.2	116	140
11	Terminal inductance	mH	0.106	0.222	0.288	0.362	0.445	0.584	0.890	1.37	2.10	3.68	7.29	8.95
12	Torque constant	mNm / A	5.90	8.55	9.73	10.9	12.1	13.9	17.1	21.2	26.2	34.8	48.9	54.3
13	Speed constant	rpm / V	1620	1120	981	875	790	689	558	450	364	274	195	176
14	Speed / torque gradient	rpm / mNm	452	418	410	412	422	422	428	429	435	443	462	454
15	Mechanical time constant	ms	19.1	18.8	18.7	18.7	18.7	18.8	18.7	18.8	18.8	18.9	19.1	19.0
16	Rotor inertia	gcm²	4.05	4.30	4.35	4.33	4.24	4.25	4.18	4.18	4.14	4.07	3.95	3.99

Specifications

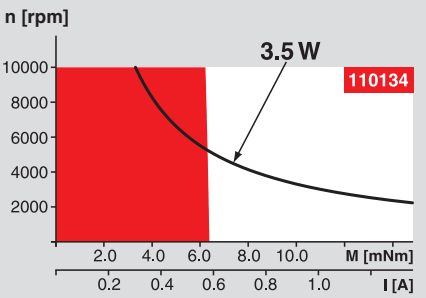
	Thermal data	
17	Thermal resistance housing-ambient	20 K / W
18	Thermal resistance winding-housing	6.0 K / W
19	Thermal time constant winding	10.1 s
20	Thermal time constant motor	540 s
21	Ambient temperature	-30 ... +65°C
22	Max. permissible winding temperature	+85°C
	Mechanical data (sleeve bearings)	
23	Max. permissible speed	10000 rpm
24	Axial play	0.05 - 0.15 mm
25	Radial play	0.012 mm
26	Max. axial load (dynamic)	1 N
27	Max. force for press fits (static)	80 N
	(static, shaft supported)	440 N
28	Max. radial loading, 5 mm from flange	2.8 N
	Mechanical data (ball bearings)	
23	Max. permissible speed	10000 rpm
24	Axial play	0.05 - 0.15 mm
25	Radial play	0.025 mm
26	Max. axial load (dynamic)	3.3 N
27	Max. force for press fits (static)	45 N
	(static, shaft supported)	440 N
28	Max. radial loading, 5 mm from flange	12.3 N
	Other specifications	
29	Number of pole pairs	1
30	Number of commutator segments	9
31	Weight of motor	54 g

CLL = Capacitor Long Life

Values listed in the table are nominal.
Explanation of the figures on page 49.

Option
Ball bearings in place of sleeve bearings
Without CLL

Operating Range



Comments

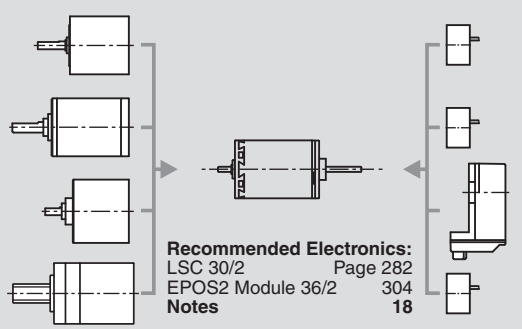
Continuous operation
In observation of above listed thermal resistance (lines 17 and 18) the maximum permissible winding temperature will be reached during continuous operation at 25°C ambient.
= Thermal limit.

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

Assigned power rating

maxon Modular System

Overview on page 16 - 21



Planetary Gearhead
∅22 mm
0.1 - 0.6 Nm
Page 220 / 221

Planetary Gearhead
∅22 mm
0.5 - 2.0 Nm
Page 222 / 223

Spur Gearhead
∅24 mm
0.1 Nm
Page 227

Spindle Drive
∅22 mm
Page 247 / 248

Recommended Electronics:
LSC 30/2 Page 282
EPOS2 Module 36/2 304
Notes **18**

Encoder MR
32 Imp.,
2 / 3 channels
Page 258

Encoder MR
128 / 256 / 512 Imp.,
2 / 3 channels
Page 260

Encoder Enc
22 mm
100 Imp., 2 channels
Page 265

Encoder MEnc
∅13 mm
16 Imp., 2 channels
Page 274