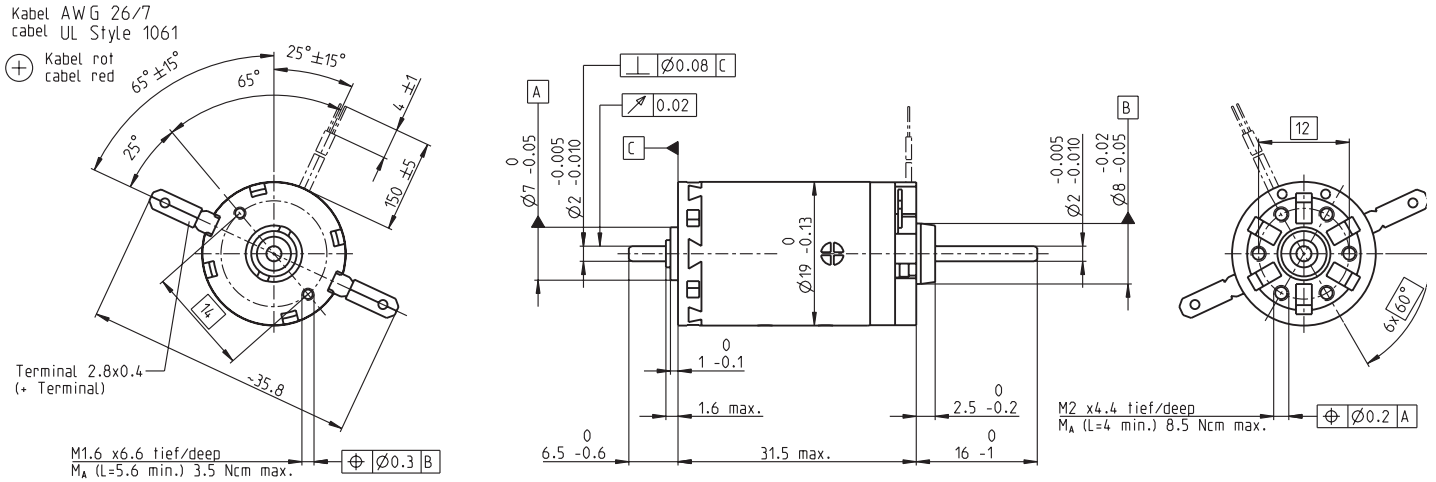
A-max 19 ∅19 mm, Graphite Brushes, 2.5 Watt



M 1:1

Stock program
Standard program
Special program (on request)

Order Number

with terminals	249991	249992	249993	249994	249995	249996	249997	249998	249999
with cables	240035	352971	353590	352972	352973	344596	352974	352975	352976

Motor Data

	Values at nominal voltage									
1	Nominal voltage	V	2.4	3.6	6.0	7.2	9.0	12.0	15.0	18.0	24.0
2	No load speed	rpm	11700	10200	12100	8960	8830	9920	9930	8920	8470
3	No load current	mA	287	157	113	66.0	51.8	44.5	35.6	26.2	18.6
4	Nominal speed	rpm	9580	7240	8530	4570	4540	5620	5650	4600	4050
5	Nominal torque (max. continuous torque)	mNm	0.783	1.79	2.76	3.84	3.95	3.86	3.89	3.91	3.84
6	Nominal current (max. continuous current)	A	0.720	0.720	0.720	0.591	0.476	0.393	0.316	0.239	0.168
7	Stall torque	mNm	4.78	6.59	9.77	8.23	8.50	9.29	9.40	8.45	7.74
8	Starting current	A	2.72	2.11	2.17	1.14	0.925	0.849	0.687	0.465	0.305
9	Max. efficiency	%	46	53	60	58	59	60	60	58	57
	Characteristics									
10	Terminal resistance	Ω	0.883	1.71	2.76	6.33	9.72	14.1	21.8	38.7	78.8
11	Terminal inductance	mH	0.0186	0.0587	0.121	0.314	0.506	0.719	1.12	1.98	3.87
12	Torque constant	mNm / A	1.76	3.13	4.50	7.23	9.19	10.9	13.7	18.2	25.4
13	Speed constant	rpm / V	5430	3050	2120	1320	1040	873	698	525	376
14	Speed / torque gradient	rpm / mNm	2720	1670	1300	1160	1100	1130	1110	1120	1170
15	Mechanical time constant	ms	73.2	36.7	30.1	26.2	25.3	25.0	24.7	24.4	24.6
16	Rotor inertia	gcm²	2.57	2.10	2.21	2.17	2.19	2.12	2.12	2.08	2.01

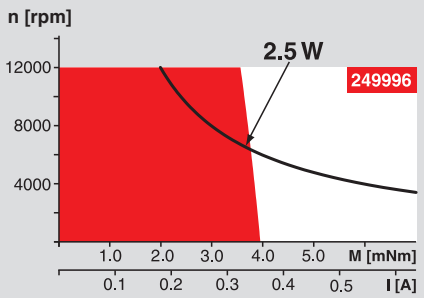
Specifications

	Thermal data	
17	Thermal resistance housing-ambient	21.3 K / W
18	Thermal resistance winding-housing	10.5 K / W
19	Thermal time constant winding	11 s
20	Thermal time constant motor	362 s
21	Ambient temperature	-30 ... +85°C
22	Max. permissible winding temperature	+125°C
	Mechanical data (sleeve bearings)	
23	Max. permissible speed	12000 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)	480 N
28	Max. radial loading, 5 mm from flange	2.7 N
	Mechanical data (ball bearings)	
23	Max. permissible speed	12000 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)	480 N
28	Max. radial loading, 5 mm from flange	11.9 N
	Other specifications	
29	Number of pole pairs	1
30	Number of commutator segments	9
31	Weight of motor	34 g

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

Option
Ball bearings in place of sleeve bearings

Operating Range



Comments

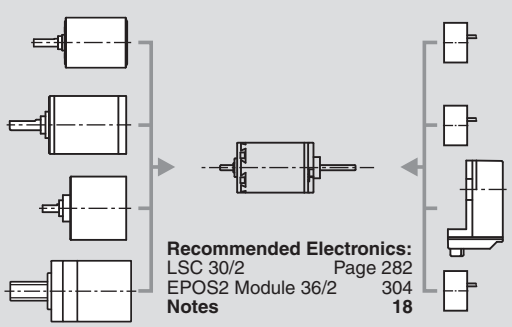
Continuous operation
In observation of above listed thermal resistance (lines 17 and 18) the maximum permissible winding temperature will be reached during continuous operation at 25°C ambient.
= Thermal limit.

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

Assigned power rating

maxon Modular System

Overview on page 16 - 21



Planetary Gearhead
∅19 mm
0.1 - 0.3 Nm
Page 218

Planetary Gearhead
∅22 mm
0.1 - 2.0 Nm
Page 220 / 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