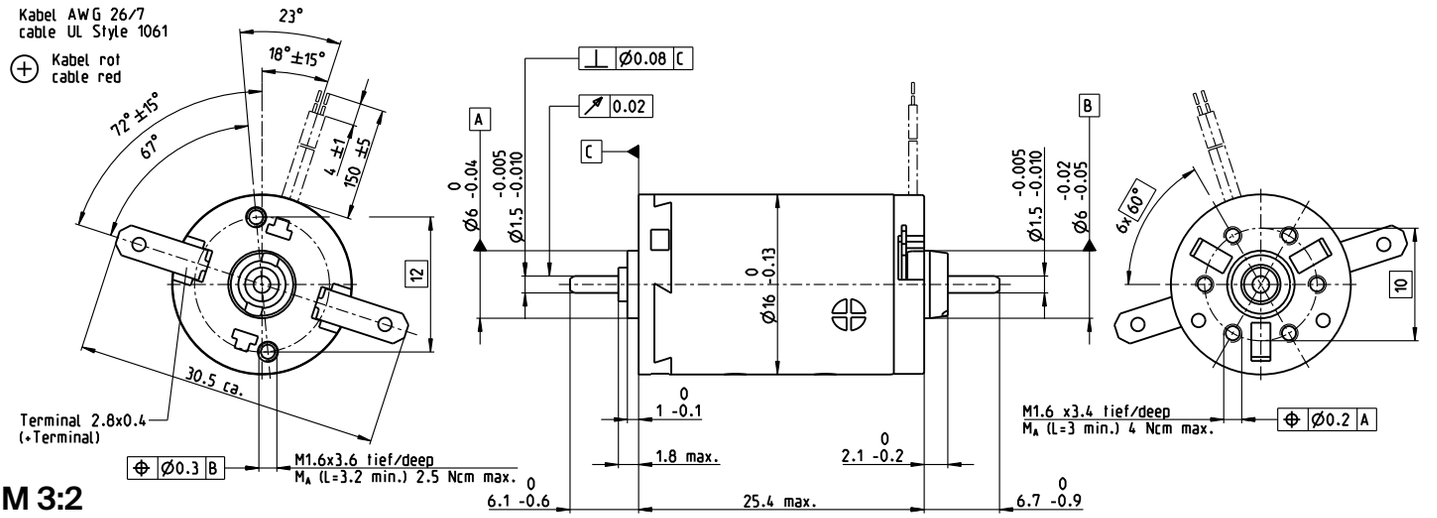
A-max 16 ∅16 mm, graphite brushes, 2 watt



M 3:2

Stock program
Standard program
Special program (on request)

Part Numbers

with terminals	110071	110072	110073	110074	110075	110076	110077	110078	110079	110080
with cables	139825	352870	352871	352872	352873	352874	352875	352876	352877	352878

Motor Data											
Values at nominal voltage											
1 Nominal voltage	V	1.5	3	6	9	12	14	15	18	21	30
2 No load speed	rpm	10200	11500	9360	11500	11500	11500	11000	10900	11300	10500
3 No load current	mA	282	164	65.6	54.6	41	35.1	31.1	25.9	23	15
4 Nominal speed	rpm	9010	8060	3280	5510	5460	5500	4860	4810	5100	4180
5 Nominal torque	mNm	0.579	1.29	2.42	2.36	2.34	2.35	2.35	2.33	2.28	2.24
6 Nominal current (max. continuous current)	A	0.72	0.72	0.495	0.394	0.293	0.253	0.224	0.186	0.162	0.105
7 Stall torque	mNm	5.36	4.65	4.05	4.84	4.78	4.82	4.54	4.48	4.49	4.04
8 Stall current	A	4.1	2.03	0.727	0.704	0.521	0.451	0.378	0.311	0.276	0.164
9 Max. efficiency	%	54	51	49	52	52	52	51	51	50	48
Characteristics											
10 Terminal resistance	Ω	0.366	1.48	8.25	12.8	23	31.1	39.7	57.9	76.1	183
11 Terminal inductance	mH	0.017	0.052	0.306	0.467	0.83	1.13	1.42	2.05	2.61	6.01
12 Torque constant	mNm/A	1.31	2.29	5.57	6.88	9.17	10.7	12	14.4	16.3	24.7
13 Speed constant	rpm/V	7290	4170	1720	1390	1040	893	795	663	587	387
14 Speed / torque gradient	rpm/mNm	2040	2690	2540	2580	2620	2590	2630	2660	2750	2880
15 Mechanical time constant	ms	22.6	23.1	23.1	23.2	23.3	23.3	23.5	23.4	23.5	23.9
16 Rotor inertia	gcm²	1.06	0.82	0.868	0.859	0.849	0.859	0.852	0.838	0.816	0.793

Specifications

Thermal data

17	Thermal resistance housing-ambient	29.8 K/W
18	Thermal resistance winding-housing	5.5 K/W
19	Thermal time constant winding	3.55 s
20	Thermal time constant motor	165 s
21	Ambient temperature	-30...+85°C
22	Max. winding temperature	+125°C

Mechanical data (sleeve bearings)

23	Max. speed	11 900 rpm
24	Axial play	0.05 - 0.15 mm
25	Radial play	0.012 mm
26	Max. axial load (dynamic)	0.8 N
27	Max. force for press fits (static)	35 N
	(static, shaft supported)	280 N
28	Max. radial load, 5 mm from flange	1.4 N

Mechanical data (ball bearings)

23	Max. speed	11 900 rpm
24	Axial play	0.05 - 0.15 mm
25	Radial play	0.025 mm
26	Max. axial load (dynamic)	2.2 N
27	Max. force for press fits (static)	30 N
	(static, shaft supported)	280 N
28	Max. radial load, 5 mm from flange	7.8 N

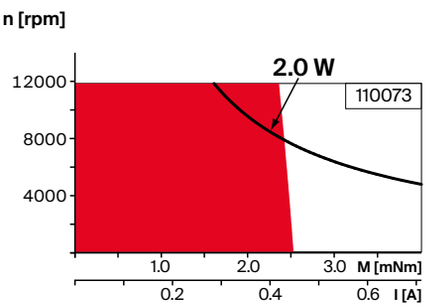
Other specifications

29	Number of pole pairs	1
30	Number of commutator segments	7
31	Weight of motor	22 g

Values listed in the table are nominal.
Explanation of the figures on page 90.

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

Modular System

Details on catalog page 44

Gear
401_GS 16 K
402_GS 16 A
403_GS 16 V
404_GS 16 VZ
405_GP 16 A
406_GP 16 C
447–449_GP 16 S

Sensor
472_ENX 13 GAMA
507_Encoder MR 32 CPT
508_Encoder MR 128-512 CPT

Motor Control
532_ESCON Module 24/2
532_ESCON 36/2 DC
541_EPOS4 Micro 24/5
542_EPOS4 Module 24/1.5
543_EPOS4 Compact 24/5 3-axes
544_EPOS4 Compact 24/1.5