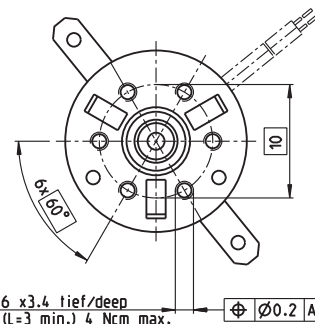
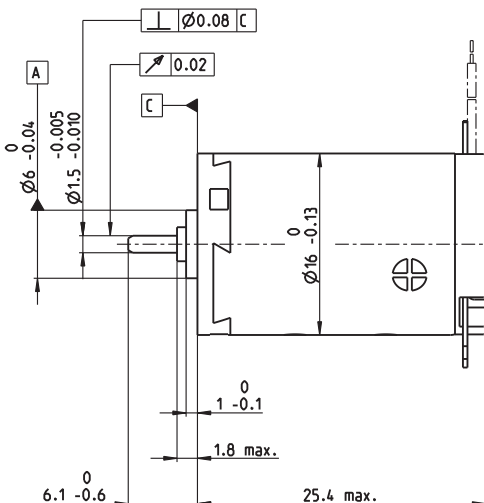
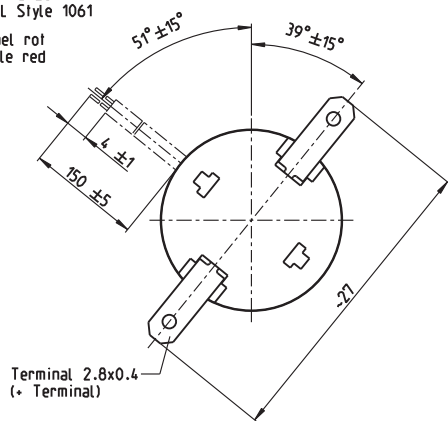


# A-max 16 $\varnothing 16$ mm, Precious Metal Brushes CLL, 2 Watt, CE approved

Kabel AWG 26/7  
 cable UL Style 1061  
 (+) Kabel rot  
 cable red



M 1.5:1

- Stock program
- Standard program
- Special program (on request)

## Article Numbers

	110041	110042	110043	110044	110045	110046	110047	110048	110049	110050
with terminals	139820	352815	134844	231379	220514	304672	352823	352816	260678	352817
with cables										

## Motor Data

Values at nominal voltage														
1 Nominal voltage	V	1.5	3	6	9	12	15	18	21	24	30			
2 No load speed	rpm	10800	12300	10100	12300	12300	13200	14100	13700	13800	11400			
3 No load current	mA	61.4	38.1	13.9	12.7	9.54	8.57	7.99	6.53	5.83	3.37			
4 Nominal speed	rpm	9360	8810	4530	6700	6660	7590	8480	8040	8120	5480			
5 Nominal torque (max. continuous torque)	mNm	0.712	1.3	2.22	2.19	2.17	2.17	2.15	2.14	2.11	2.08			
6 Nominal current (max. continuous current)	A	0.6	0.6	0.408	0.327	0.243	0.209	0.185	0.153	0.134	0.0864			
7 Stall torque	mNm	4.79	4.51	4.03	4.82	4.77	5.16	5.44	5.22	5.12	4.04			
8 Starting current	A	3.66	1.97	0.723	0.702	0.52	0.482	0.453	0.362	0.315	0.164			
9 Max. efficiency	%	77	75	75	76	76	76	76	76	76	74			
Characteristics														
10 Terminal resistance	$\Omega$	0.41	1.52	8.3	12.8	23.1	31.1	39.7	57.9	76.2	183			
11 Terminal inductance	mH	0.017	0.0519	0.306	0.467	0.831	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	2280	2770	2560	2590	2620	2600	2630	2670	2750	2880			
15 Mechanical time constant	ms	25.3	23.8	23.3	23.3	23.3	23.4	23.5	23.4	23.5	23.9			
16 Rotor inertia	gcm <sup>2</sup>	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...+65°C
  - 22 Max. permissible winding temperature: +85°C
- Mechanical data (sleeve bearings)**
- 23 Max. permissible speed: 19000 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
  - 28 Max. radial loading, 5 mm from flange: 1.4 N

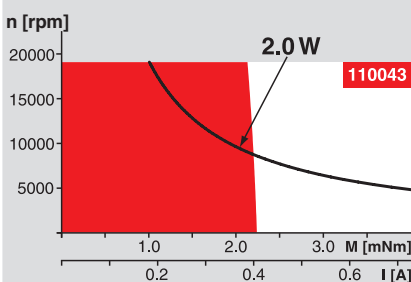
- Mechanical data (ball bearings)**
- 23 Max. permissible speed: 19000 rpm
  - 24 Axial play: 0.05 - 0.15 mm
  - 25 Radial play: 0.025 mm
  - 26 Max. axial load (dynamic): 2.2 N
  - 27 Max. force for press fits (static): 30 N
  - 28 Max. radial loading, 5 mm from flange: 7.8 N

- Other specifications**
- 29 Number of pole pairs: 1
  - 30 Number of commutator segments: 7
  - 31 Weight of motor: 21 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

### Spur Gearhead

$\varnothing 16$  mm

0.01 - 0.1 Nm

Page 212 - 215

### Planetary Gearhead

$\varnothing 16$  mm

0.06 - 0.18 Nm

Page 216

### Planetary Gearhead

$\varnothing 16$  mm

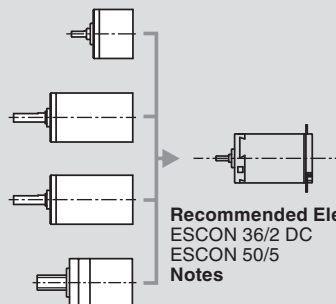
0.1 - 0.6 Nm

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### Spindle Drive

$\varnothing 16$  mm

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**Recommended Electronics:**  
 ESCON 36/2 DC Page 292  
 ESCON 50/5 Page 292

**Notes** 18

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