

With our Standard Specification we offer you a means to judge maxon motors in the most important respects. To our knowledge it covers normal applications. The Standard Specification is part of our "General Conditions of Sale".

Electrical equipment must meet certain minimum requirements, which was introduced into the European market after 1.1.96. Small motors will be identified as components and will therefore represent no separate electrical equipment within the sense of the guidelines. Nevertheless the majority of the maxon motor program are already CE certified. Certifying the motors takes place during operation at no-load and in the new condition.



The CE sign means that the product conforms to EU guidelines and procedures designed to achieve conformity were carried out.

RoHs

All our products are built under EU directive 2002/95/EG.

Note to the Catalogue 2010/11:

maxon motor ag accepts no liability for the accuracy of the information contained in this catalogue, nor for any damages which may result directly or indirectly from the use of such information.

This disclaimer does not apply to wilful intent, gross negligence, and does not affect legislation governing product liability.

The Standard Specification No. 101 for maxon EC motor, maxon *EC*-max, *EC*-4pole and maxon flat motor

1. Principles

The **standard specification** defines checks and tests performed on the **complete motor and during the production process**. In order to guarantee our high quality standard, we check compliance to specified measurements and characteristics of materials, parts and subassemblies through the manufacturing process and the complete motor. The obtained measurements are recorded and can be made available to customers if required. Random sampling plans are according to ISO 2859, MIL STD 105E and DIN/ISO 3951 (inspection by attributes, sequential sampling, variables inspection) as well as internal manufacturing controls. This standard specification always applies unless a different one has been agreed between the customer and maxon.

2. Data

- 2.1 **Electrical data** apply at 22° to 25°C and use of a 1 quadrant controller with block commutation: Data control within one minute running time.

Measurement voltage +/- 0.5 % for voltages $\geq 3V$ and $\pm 0.015 V$ for voltages $\leq 3V$

No load speed $\pm 10\%$

No load current \leq maximum specified value

Direction of rotation CW / CCW

Motor position horizontal or vertical

Notes: Measurement voltage may vary from the nominal voltage listed in the catalog. The no load current specified in the catalog is a typical value and not the maximum one. When connecting the motor according to the catalog (or labeling), the shaft turns CW as seen from the mounting end.

Terminal resistance is verified through random sampling.

Inductance is determined at product certification. Test frequency is 1 kHz. Terminal inductance depends on frequency. The specified electromechanical parameters are sufficiently guaranteed with these measurements.

- 2.2 **Mechanical data** per outline drawing: Standard measuring instruments (for electrical length measuring DIN 32876, micrometer per DIN 863, dial indicator DIN 878, caliper per DIN 862, bore caliper DIN 2245, thread caliper per DIN 2280 and others) are used.

- 2.3 **Rotor imbalance:** Rotors for EC motors with air-flux winding are balanced according to our standard guidelines during manufacturing. For EC motors with wound stator teeth, the rotors are mounted in gauges but not balanced as standard. Only a subjective assessment is possible on the complete motor which is done during random sampling.

- 2.4 **Electric strength:** Every motor is tested in its completed mounted state for earth short circuit.

- 2.5 **Noise:** Tests are carried out for anomalies within a lot on a subjective basis.

Depending on speed, the motions in the motor cause noise and vibration of varying degrees, frequency and intensity. The noise level experienced with a single sample unit should not be interpreted as indicative of the noise or vibration level to be expected of future deliveries.

- 2.6 **Service life:** Durability tests are carried out under uniform internal criteria as part of product certification. The service life of an EC motor essentially depends on the service life of the bearings. This is determined by type of operation, bearing load and ambient conditions. Consequently, the many possible variations do not allow us to make a general statement on service life.

2.7 Environmental influences

Protection against corrosion: Our products are tested during product certification on the basis of DIN EN 60068-2-30.

Coating of components: Surface treatment and coating procedures used by maxon are selected on the basis of their merits to resist corrosion. These treatments are evaluated at product certification according to their applicable standard.

3. Parameters that differ from or are additional to the data sheet can be set and are a central part of our systematic testing as the customer's specification. Test/inspection certificates are issued by prior agreement.

January 2010 edition / subject to change