

## General Terms and Conditions of maxon motor ag

These General Terms and Conditions govern the contractual relationship between customers (private and corporate customers) of maxon motor ag's Online Shop (hereinafter referred to as the "customer") and

maxon motor ag  
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CH-6072 Sachseln  
Switzerland

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E-mail: e-shopinfo@maxonmotor.com

Commercial Register no. CH-140.3.001.820-3  
VAT no. 464684

General Managers: Dr. Karl-Walter Braun, Armin Lederer, Eugen Elmiger, Dr. Ulrich Claessen

(hereinafter referred to as "maxon motor").

### 1 Subject of the General Terms and Conditions

These General Terms and Conditions govern all Online Shop purchase contracts concluded between the customer and maxon motor. The version of the General Terms and Conditions that is valid on the date the contract is concluded shall apply.

The customer is advised to read through these General Terms and Conditions before submitting an order and to print a copy thereof or to download and save a copy in the form of a PDF document.

Any conflicting or deviating terms and conditions of the customer will not form part of the contract, unless this has been approved explicitly and in writing by maxon motor.

### 2 Contracting parties and sales territory

maxon motor concludes purchase contracts via its Online Shop with private customers (in their capacity as "consumers") who have the capacity to act and are at least 18 years old, as well as with corporate customers. By submitting an order the private customer confirms that he/she has reached the age of majority and is able to conclude a contract with maxon motor ag.

The products offered via the Online Shop are only delivered to customers who have their registered office or place of residence in Switzerland or in Liechtenstein.

Customers from other countries can request a quotation via the Online Shop. This request for a quotation will be forwarded to the maxon motor representative in the customer's country of domicile or residence, who will follow up the request and contact the customer.

If maxon motor concludes a contract with a customer who does not have the capacity to act and conclude contracts, or who is domiciled or resident outside of the above sales territory, owing to a mistake or because the customer provided inaccurate information, maxon motor reserves the right to withdraw from the contract before the delivery of the goods.

### **3 Order volume**

The order volume for certain Online Shop products is limited to a maximum of 49 units per product, per order.

If the customer wishes to order 50 or more units of an individual product, he/she is requested to contact maxon motor. Alternatively, the customer can still place the order via the Online Shop, but only those orders with a volume not exceeding 49 units will be processed in accordance with these General Terms and Conditions. Orders with a volume exceeding 49 units will be processed by maxon motor as a request for a quotation. maxon motor will then contact the customer regarding the request for a quotation.

### **4 Conclusion of contract**

All product information available from the Online Shop, such as technical data, pictures, measurements or information on the field of application and specifications, etc. is non-binding and subject to change at any time unless it is explicitly described as binding.

The range of products available from the Online Shop is non-binding. The customer selects the required products from this range and adds these to the shopping cart. The customer can change the contents of the shopping cart or empty the shopping cart partly or entirely before the order is submitted. The customer orders the products in the shopping cart by clicking on the "Order" button, thereby submitting a binding offer for the conclusion of a contract to maxon motor. At the same time the customer accepts these General Terms and Conditions.

maxon motor confirms receipt of the order with an automatic e-mail. However, this confirmation of receipt, which also contains information on the customer's right to cancel the order, does not serve as maxon motor's acceptance of the offer.

maxon motor only accepts the offer by sending an order confirmation by e-mail or letter or by delivering the products. The purchase contract is therefore concluded when the order confirmation is sent to the customer, but at the latest when the products are delivered to the customer.

If a delivery cannot be made within the deadline given in the order confirmation, the customer is no longer bound to his/her order. If the order is nevertheless delivered at a later date, the customer may refuse acceptance of the delivery without incurring any costs.

## 5 Right of cancellation

### Cancellation instructions

The customer can cancel the offer to conclude a contract, without providing reasons, in writing (e.g. by letter, fax or e-mail) within 14 days or, if the goods are delivered before the delivery deadline, by returning the goods. The deadline starts to run from the date on which the customer receives these cancellation instructions in writing (e.g. by letter, fax or e-mail), but not before the goods are delivered to the customer (or in the case of a repeating delivery, not before the first partial delivery to the customer), and also not before we have fulfilled our obligation to provide the customer with this information. To meet the cancellation deadline the notice of cancellation must be sent or the goods delivered before the deadline expires. The cancellation notice must be sent to:

maxon motor ag  
Brünigstrasse 220  
CH-6072 Sachseln  
Switzerland

Fax: + 41 41 666 16 16  
E-mail: e-shopinfo@maxonmotor.com

To enable maxon motor to process the cancellation as fast as possible, customers are requested to include the e-shop order number and the product order information.

### Consequences of a cancellation

In the case of a valid cancellation, the deliveries/payments received by both parties must be returned. If the customer cannot return the order in full or in part or can only return the products in a deteriorated condition, he/she may have to replace their value to maxon motor. This does not apply if the deterioration in the condition of the products is exclusively caused by the customer's inspection of the products as would have been possible in a normal shop. The customer can avoid the obligation to replace the value of an item whose condition has deteriorated while it was used properly by not starting to use the product as if it were his/her property and by refraining from doing anything that might affect its value.

Items that can be sent by package mail must be returned. The customer must pay the cost for returning the product up to a product value of CHF 64.00, provided that the product was delivered in compliance with the order. The right to return the wrong goods is reserved. Items that cannot be sent by package mail will be collected from you, provided that maxon motor is requested in writing (e.g. by letter, fax or e-mail) to collect the goods within the abovementioned deadline of 14 days.

Payment obligations must be met within 30 days. The deadline starts to run for the customer on the date on which the notice of cancellation is sent or the goods are returned and for maxon motor on the date on which the goods are received.

These cancellation instructions are also provided to you in writing, at the latest on delivery of the order.

### End of cancellation instructions

## **6 Delivery deadlines and delivery**

Provided that the required information is available, the Online Shop description of the product will contain information on its availability. The delivery periods given by the Online Shop are approximate only and therefore non-binding, but maxon motor will do its best to meet these delivery deadlines.

If a delivery date is provided in the order confirmation, this date is regarded as binding.

maxon motor reserves the right to send the customer a product of the same quality and price (replacement product) if a product ordered by the customer is not available. The customer is not obliged to accept the replacement product and may return this product at the cost of maxon motor. Alternatively, maxon motor reserves the right to withdraw from the contract if a product is unavailable. In this case the customer will be informed of the unavailability of the ordered product without delay. Any payments made by the customer before this time will be repaid immediately.

If the customer fails to accept the delivery or violates any other obligations to cooperate, maxon motor is entitled to invoice the customer for the resulting loss and any additional costs caused by the default of acceptance.

The customer must check the completeness and correctness of the order immediately on receipt and inform maxon motor of any mistakes immediately.

## **7 Prices and postage**

The price is determined by the date of the order.

The prices provided by the Online Shop (product overview and details) are exclusive of Swiss VAT of 7.6% and delivery costs and postage. The customer receives an order overview before finalizing the order which states the final price including Swiss VAT of 7.6% and delivery costs and postage.

The delivery costs and postage are determined by the type of delivery and the delivery address. These costs are notified to the customer separately before the order is submitted and are also listed in the order confirmation sent by e-mail.

The order confirmation and the invoice list the price including Swiss VAT as well as the costs for delivery and postage.

## 8 Payment

Online Shop orders can be paid by credit card, Postfinance, PayPal or advance payment. Customers domiciled or resident in Switzerland can also request an invoice. maxon motor reserves the right to also only deliver orders to customers in Switzerland after receiving payment by credit card, Postfinance, PayPal or in advance.

Invoices must be settled within 30 days.

Credit card, Postfinance and PayPal payments are processed by Datatrans AG, Stadelhoferstrasse 33, 8001 Zurich ([www.datatrans.ch](http://www.datatrans.ch)). The credit card information provided by the customer when placing the order is transmitted to Datatrans AG via an SSL-encrypted connection.

The account details for advance payments are provided in the order confirmation. When the payment is received by maxon motor, the order is sent out within the delivery deadline provided in the order confirmation.

## 9 Reservation of ownership

The delivered goods remain the property of maxon motor until the customer pays all outstanding invoices.

## 10 Customer service

maxon motor can be contacted at the following address if you have any questions regarding our products and our Online Shop:

Customer Service  
maxon motor ag  
e-Shop Sales  
Brünigstrasse 220  
CH-6072 Sachseln  
Switzerland

e-shopinfo@maxonmotor.com  
Tel.: + 41 41 666 16 41  
Fax: + 41 41 666 16 16

## 11 Warranties

maxon motor provides a warranty of quality and title for all newly manufactured goods for a period of two years from the date of delivery. This does not apply to the following cases of improper use or for defects deriving from non-compliance with the standard specifications for maxon motor products [No. 100](#) and [No. 101](#). The standard specifications form an integral part of these General Terms and Conditions. The buyer has the following alternative rights under the warranty:

- a) Removal of defects or delivery of a replacement,
- b) Reduction of the purchase price,
- c) Cancellation of the contract

maxon motor can choose whether it wants to remove the defects or deliver a replacement. A reduction in the purchase price and the cancellation of the contract can only be claimed after maxon motor has been unsuccessfully requested to remove the defects and has also been sent a reminder in this regard. The payment of damages instead of the delivery of a replacement is excluded. Warranty claims must be asserted against maxon motor by way of declaration.

maxon motor does not provide any warranties for defects deriving from improper use (in particular: the use of force; wrong cabling; use counter to the specifications, in particular the standard specifications [No. 100](#) and [No. 101](#); electrical or mechanical overloading; etc.) or from natural wear and tear, unless the customer can prove that the defects resulted from misleading user instructions. maxon motor's liability is excluded if any repairs or other manipulations are done by someone other than maxon motor or its authorized representatives.

## 12 Liability

maxon motor is liable vis-à-vis private customers within the limits of the law.

There is no liability for slight negligence. The amount for which maxon motor is liable is limited to the typically foreseeable damage at the time the contract was concluded. If material contractual duties are violated, maxon motor will be liable for the culpable conduct of its legal representatives, employees and third parties whose negligence must be attributed to maxon motor. There is no liability for any damage to items other than the purchased product. maxon motor is only liable for indirect damage, in particular loss of profits, caused intentionally or through gross negligence by maxon motor, its legal representatives, employees and third parties whose negligence must be attributed to maxon motor.

These liability exclusions and restrictions do not apply where maxon motor has provided an explicit warranty of a quality, fraudulently concealed a defect, or accepted a guarantee. They also do not apply to loss or damage arising out of injury to life, body or health and where imperative provisions of the law apply, in particular product liability.

## 13 Data protection

The data obtained from the customer using the Online Shop is processed in compliance with the data protection declaration. The seller undertakes to comply with all applicable legal standards when gathering, processing and using personal data. With the exception of the data that has to be forwarded to enable the processing of orders and provision of warranties, no data is forwarded to any third parties. The data protection declaration, which forms an integral part of these General Terms and Conditions, contains detailed data protection information.

## 14 Special provisions for corporate customers

In deviation of par. 5 of the General Terms and Conditions, corporate customers do not have a cancellation right.

The warranty period for corporate customers is twelve months. maxon motor must be notified of defects in writing without delay but at the latest two weeks from the delivery date. If this is not done, all warranty claims will lapse.

maxon motor is only liable to corporate customers for the violation of material contractual duties (cardinal obligations). Liability for slight negligence and the violation of immaterial contractual duties is excluded.

The reduction of the warranty period and the warranty and liability exclusions do not apply where maxon motor has accepted a guarantee, provided a warranty of a quality or fraudulently concealed a defect, or to loss or damage arising out of injury to life, body or health and where imperative provisions of the law apply.

## 15 Applicable law and place of jurisdiction

**This agreement is exclusively subject to Swiss law, to the exclusion of any international treaties, in particular the Vienna Sales Convention. Sachseln is the exclusive place of jurisdiction.**

**This agreement only applies to private customers if imperative provisions of the law of the country in which the customer is resident or where he/she usually resides do not exclude a choice of jurisdiction or applicable law in contracts with private customers.**

**If the customer is a private customer, the place of jurisdiction for proceedings against the customer is the latter's place of residence. In this case the agreement is subject to the law of the country in which the customer usually resides, provided that Swiss law deviates to the detriment of the customer from imperative provisions of the law applying at the customer's place of residence.**

## 16 Final provisions

If individual provisions of these General Terms and Conditions should be legally invalid or lose their legal validity at a later date, or if there are any gaps in these provisions, the validity of the other provisions and the General Terms and Conditions themselves will not be affected. In such a case the invalid or missing provision(s) must be replaced or supplemented by a provision that comes as close as possible to the original economic and legal purpose of these General Terms and Conditions.

maxon motor reserves the right to amend these General Terms and Conditions at any time. The amended General Terms and Conditions will be made available in the Online Shop. The contract is governed by the version of the General Terms and Conditions of maxon motor ag that applies on the date that the contract is concluded.

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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.

If additional requirements need to be met, we shall cooperate with you to work out more detailed specifications.

### Note to the Catalogue 2008/09:

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. 100 for maxon DC motor, maxon A-max and maxon RE-max

### 1. Principles

The **standard specification** describes tests carried out on the **finished motor and during the production process**. In order to guarantee our high quality standard, we check materials, parts and sub-assemblies 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 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. Data control within one minute running time.

**Measurement voltage** +/- 0.5 %  
(for voltages  $\geq 3$  V)

**No-load speed** +/- 10 %  
**No-load current**  $\leq$  maximum specified value

**Sense of rotation** cw = clockwise  
**Motor position** horizontal

By connecting the red wires or if voltage is applied to the '+' Terminal, shaft rotation is CW (clockwise) as seen from the mounting end. For CCW running, the specified tolerance data may only be marginally exceeded.

**Terminal resistance:** Representatively winding resistance is verified through random sampling instead. It should be noted that terminal resistance depends on the rotor's rotational position. The highest reading is recorded. No useful results are gained by measuring the resistance of graphite brushes on an ohmmeter on account of their current density-based transfer resistance. Too low a reading is produced with precious metal brush motors if a set of brush blades bridges two commutator segments, thereby short-circuiting one coil segment.

**Commutation:** The neutral position of the brushes is tested and checks for open or partially short-circuited windings for example are made using storage oscilloscopes. Commutation displays for precious metal brushes and graphite brushes are not directly comparable. Precious metal brush commutation display features clean traces up to the motor's recommended maximum speed, but with graphite brushes, this is only expected up to around one third of that. In addition, it should be noted that the contact resistance of graphite brushes and the torque constant may change during the run-in period due to increased brush seating. As a result, no-load current and speed may drift marginally. The same effect may also be observed if motors are being operated under no-load condition over a longer period. Although every motor is fully adjusted and tested during manufacturing, the Quality Control Department rechecks these values through random sampling.

2.2 **Mechanical data** per outline drawing:

Standard measuring instruments (for electrical length measuring DIN 32876, micrometer per DIN 863, dial indicator DIN 878, calliper per DIN 862, bore calliper DIN 2245, thread calliper per DIN 2280 and others) are used.

2.3 **Other data**

**Rotor imbalance:** Rotors are balanced according to standard data or customer requirements during manufacturing. The completely assembled motor permits only a subjective assessment which is done using the random sampling method.

**Inductance** is determined during the first sample test.

**Measuring frequency** 1 kHz.

**Corrosion resistance:** Our products are tested according to test climate 23/83-1 DIN 50015 at the first sample test.

**Coating:** Surface treatment and coating procedures used by maxon were selected on the basis of their merits to resist corrosion. Evaluations of these treatments are made according to their applicable standard, such as ISO 2082 or DIN 50017 KK.

2.4 **Noise:** Depending on speed the necessary motions in the motor cause noise and vibration of varying degrees, frequency and intensity. An objective assessment can only be made at great expense and with precise specifications. For this reason, maxon chooses to evaluate routinely, but only on a subjective basis and for extremes within a lot. 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.

2.5 A **motor's service** life essentially depends on the operating and ambient conditions. Consequently, the many possible variations do not allow us to make a general statement on service life. For this reason, maxon performs internal tests under uniform criteria during the initial sampling procedure.

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

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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.

If additional requirements need to be met, we shall cooperate with you to work out more detailed specifications.

### Note to the Catalogue 2008/09:

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*-powermax 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 sub-assemblies 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  $\geq 3$  V)

**No-load speed** +/- 10 %  
**No-load current**  $\leq$  maximum specified value

**Sense of rotation** CW / CCW  
**Motor position** horizontal

When connecting the motor according to the catalogue (or printed matter), the shaft turns CW as seen from the mounting end.

**Terminal resistance** is verified through random sampling. The specified electro-mechanical parameters are sufficiently guaranteed with these measurements. Although every motor is fully adjusted and tested during manufacturing, the Quality Control Department rechecks these values through random sampling.

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

### 2.3 Other data

**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.

**Inductance** is determined during initial sampling checks.  
Measuring frequency 1 kHz.

**Corrosion resistance:** Our products are tested according to test climate 23/83-1 DIN 50015 at the first sample test.

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

**Coating:** Surface treatment and coating procedures used by maxon were selected on the basis of their merits to resist corrosion. Evaluations of these treatments are made according to their applicable standard, such as ISO 2082 or DIN 50017 KK.

2.4 **Noise:** Depending on speed the necessary motions in the motor cause noise and vibration in varying degrees, frequency and intensity. An objective assessment can only be made at great expense and with precise specifications. For this reason, maxon chooses to evaluate routinely, but only a subjective basis and for extremes within a lot. 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.

2.5 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. For this reason, maxon performs internal tests under uniform criteria during the initial sampling procedure.

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.

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