Instructions for use

ELECTROmatic M/C and PM/PC
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1 User notes

1.1 User guidelines

**Requirement**
Read these instructions prior to first startup to avoid misuse and prevent damage.

**Requirement**
If other languages are required, they can be requested from the responsible KaVo branch. Prior approval from KaVo must be obtained before copying and passing on the instructions for use.

1.1.1 Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>IFU</td>
<td>Instructions for use</td>
</tr>
<tr>
<td>CI</td>
<td>Care instructions</td>
</tr>
<tr>
<td>Short ifU</td>
<td>Short instructions for use</td>
</tr>
<tr>
<td>AI</td>
<td>Assembly instructions</td>
</tr>
<tr>
<td>TI</td>
<td>Technician’s instructions</td>
</tr>
<tr>
<td>IEC</td>
<td>International Electrotechnical Commission</td>
</tr>
<tr>
<td>RI</td>
<td>Repair instructions</td>
</tr>
<tr>
<td>RK</td>
<td>Retrofitting kit</td>
</tr>
<tr>
<td>AS</td>
<td>Assembly set</td>
</tr>
<tr>
<td>CK</td>
<td>Conversion kit</td>
</tr>
<tr>
<td>EP</td>
<td>Enclosed parts</td>
</tr>
<tr>
<td>EMC</td>
<td>Electromagnetic compatibility</td>
</tr>
<tr>
<td>PI</td>
<td>Processing instructions</td>
</tr>
</tbody>
</table>

1.1.2 General marks and symbols

![Warning](image)
See section on Hazard levels

![Information](image)
Important information for users and technicians

![CE Mark](image)
CE mark (European Community). A product bearing this mark meets the requirements of the applicable EU directive.

![Action](image)
Action required

Hazard levels

The warning and safety notes in this document must be observed to prevent personal injury and property damage. The warning notes are designated as shown below:
1 User notes | 1.2 Target group

DANGER
In cases which – if not prevented – directly lead to death or severe injury.

WARNING
In cases which – if not prevented – can lead to death or severe injury.

CAUTION
In cases which – if not prevented – can lead to minor or moderate injury.

NOTICE
In cases which – if not prevented – can lead to property damage.

1.2 Target group

This document is for dentists, dental practice staff and service staff.

1.3 Service

Note
Send the product in for a service check every two years.

In this service check, the safety checks are performed according to IEC 62353 - VDE 0751-1.

Please direct all questions regarding the product, service and maintenance to the KaVo Technical Service:
Toll-free: 1-888-ASK-KAVO (888-275-5286)
Email: techservice@kavokerr.com
Please refer to the serial number of the product in all inquiries!

1.3.1 Repair Service

For repairs, please contact KaVo Repair Service.
For scheduling or if you have any questions, please contact:
KaVo Repair Service
KaVo Dental Technologies, LLC
11727 Fruehauf Drive
Charlotte, NC 28273 USA
Toll-free Direct Customer Service: 1-888-ASK-KAVO (888-275-5286)
Email: techservice@kavokerr.com
www.kavo.com
1.4 Warranty terms and conditions

Within the scope of the applicable KaVo delivery and payment conditions, KaVo guarantees proper function, absence of defects in material and workmanship for a period of 36 months from the date of purchase as confirmed by the salesperson.

In case of justified complaints, KaVo will honor its warranty with a free replacement or repair.

The warranty does not cover defects and their consequences that arose or may have arisen due to natural wear, improper handling, cleaning or servicing, non-compliance with operating, maintenance or connection instructions, corrosion, contaminated media supply or chemical or electrical influences deemed abnormal or impermissible in accordance with factory specifications.

The warranty does not usually cover lamps, light conductors made of glass and glass fibers, glassware, rubber parts and the colorfastness of plastic parts.

The warranty shall be void if defects or their consequences may be related to modifications of or changes to the product. Warranty claims can only be asserted when they are immediately reported to KaVo in writing.

This notification must be accompanied by a copy of the invoice or delivery note on which the manufacturing number is clearly visible. In addition to the warranty, the statutory warranty claims of the purchaser also apply with a warranty period of 12 months.

Defects and the consequences of defects, in particular because of insufficient servicing of the water filter, are not covered by the warranty.

1.5 Transportation and storage

1.5.1 Damage in transit

In Germany

If the packaging is visibly damaged on delivery, please proceed as follows:

1. The recipient of the package must record the loss or damage on the delivery receipt. The recipient and the representative of the shipping company must sign this delivery receipt.
2. Leave the product and packaging in the condition in which you received it.
3. Do not use the product.
4. Report the damage to the shipping company.
5. Report the damage to KaVo.
6. Consult with KaVo first, before returning a damaged product.
7. Send the signed delivery receipt to KaVo.

If the product is damaged but there was no discernable damage to the packaging on delivery, proceed as follows:

1. Report the damage to the shipping company immediately and no later than 7 days after delivery.
2. Report the damage to KaVo.
3. Leave the product and packaging in the condition in which you received it.
4. Do not use a damaged product.
Note
Failure on the part of the recipient to comply with any of the above-men-
tioned obligations will mean that the damage will be considered to have
arisen only after the time of delivery (in accordance with the General German
Freight Forwarders’ Terms and Conditions, Art. 28).

Outside of Germany

Note
KaVo shall not be held liable for damage arising from transportation.
The shipment must be checked on arrival.

If the packaging is visibly damaged on delivery, please proceed as follows:
1. The recipient of the package must record the loss or damage on the delivery
receipt. The recipient and the representative of the shipping company must
sign this delivery receipt.
   Without this evidence, the recipient will not be able to assert a claim for
damages against the shipping company.
2. Leave the product and packaging in the condition in which you received it.
3. Do not use the product.

If the product is damaged but there was no discernable damage to the packag-
ing on delivery, proceed as follows:
1. Report any damage to the shipping company immediately and no later than
   7 days after delivery.
2. Leave the product and packaging in the condition in which you received it.
3. Do not use a damaged product.

Note
If the recipient fails to comply with any of the above-mentioned obligations,
the damage will be considered to have arisen only after the time of delivery
(in accordance with CMR law, Chapter 5, Art. 30).

1.5.2 Information on the packaging: Storage and transport

Note
Please keep the packaging in case you need to return the product for servic-
ing or repair.

The symbols printed on the outside are for transportation and storage, and
have the following meaning:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>⚠️</td>
<td>Caution</td>
</tr>
<tr>
<td>Ⓜ️</td>
<td>Follow instructions for use</td>
</tr>
<tr>
<td>📜</td>
<td>Please note the electronic instructions for use</td>
</tr>
<tr>
<td>📄</td>
<td>HIBC Code</td>
</tr>
</tbody>
</table>
### Instructions for use ELECTROmatic M/C and PM/PC

#### 1 User notes | 1.6 Disposal

<table>
<thead>
<tr>
<th>CE mark</th>
<th>VDE mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET mark</td>
<td></td>
</tr>
<tr>
<td>GOST R certification</td>
<td></td>
</tr>
<tr>
<td>EAC conformity mark (Eurasian Conformity = Eurasische Konformität)</td>
<td></td>
</tr>
</tbody>
</table>

#### Transport upright with the arrows pointing upwards!

#### Fragile - protect against impact!

#### Permissible stacking load

#### Stacking limit by number

#### Protect from moisture!

#### Temperature range

#### Air pressure

#### Humidity

Do not dispose this product into the ordinary municipal waste or garbage system

---

### 1.6 Disposal

**Note**

Any waste produced must be recycled or disposed of in strict compliance with all applicable national regulations in a manner which is safe for both people and the environment. If you have any questions regarding proper disposal of the KaVo product, please contact the KaVo branch.
1.7 Disposal of electronic and electrical devices

**Note**
In accordance with EC directive 2012/19 concerning waste electrical and electronic equipment, this product is subject to the cited directive and must be disposed of accordingly within Europe.
For more information, please visit www.kavo.com or contact your specialized dental supplier.

For final disposal:

**In Germany**

To return an electrical device, you need to proceed as follows:
1. On the homepage www.enretec.de of enretec GmbH, you can download a form for a disposal order under the menu item, eom. Download the disposal order or complete it as an online order.
2. Enter the corresponding information to complete the order, and submit it as an online order or by fax +49 (0)3304 3919 590 to enretec GmbH.
   The following contact options are also available for questions and for initiating a disposal order:
   Telefon: +49 (0) 3304 3919 500
   Email: eom@enretec.de and
   Postal address: enretec GmbH, Geschäftsbereich eomRECYCLING®
   Kanalstraße 17
   D-16727 Velten
3. A unit that is not permanently installed will be picked up at the office.
   A permanently installed unit will be picked up at the curb at your address on the agreed date.
   The owner or user of the device will have to bear the cost of disassembly, transportation and packaging.

**International**

For country-specific information on disposal, contact your dental supplier.
2 Safety

The instructions for use are a component of the product and must be read carefully prior to use and be accessible at all times. The device may only be used in accordance with the intended use, any other type of use is not permitted.

2.1 Infection hazard

Patients, users or third parties can be infected by contaminated medical devices.

▶ Take suitable personal protective measures.
▶ Follow the instructions for use of the components.
▶ Before initial startup and after each use, process the product and accessories appropriately.
▶ Carry out the processing as described in the instructions for use. The procedure has been validated by the manufacturer.
▶ If you deviate from this procedure, it is essential to make sure that the processing is effective.
▶ Process the product and accessories appropriately before disposal.

2.2 Explosion hazard area

Electrical sparks in the product can lead to explosion or fire.

▶ Do not use product in explosion hazard areas.
▶ Do not operate the product in an oxygen-enriched atmosphere.
▶ Do not use the product in the vicinity of flammable gases.

2.3 Technical condition

A damaged device or components can injure patients, users and third parties. A damaged power cable or missing protective conductor can lead to electrical shock.

▶ Use the device and components only if there is no damage on the outside.
▶ Check the power cable before use.
▶ Connect only to sockets with a protective contact that meet the respective national regulations.
▶ Check the proper working order and proper condition of product and accessories before each use.
▶ Have parts with sites of breakage or surface changes checked by the Service.
▶ Safety checks may only be performed by trained service personnel.
▶ Perform a test run with the handpiece before each use.
▶ If any of the following defects on the product or accessories occurs, stop working and have the service personnel carry out repair work:
  ▪ Malfunctions
  ▪ Damage
  ▪ Irregular running noise
  ▪ Excessive vibration
• Overheating
• Dental bur or diamond is not firmly locked in the handpiece

Careless setup/installation of the product or accessories can cause injury to patients, users and third parties. Power supplies and/or cords/hoses on the floor can cause slipping or tripping.

▶ Power supply and cord/hoses need to be set-up/routed appropriately such that they are not on the floor.

**Note**
The SAFEdrive function is a monitoring function for detection of defective high-speed handpieces. Defective high-speed handpieces can heat up strongly during use due to additional friction, especially in the head region, and possibly cause burn injuries. KaVo recommends to activate the SAFEdrive function during treatments inside the oral cavity in order to reduce the risk of burn injuries caused by defective high-speed handpieces.

### 2.4 Ingress of liquids

Use of the product in moist or electrically conductive environments can lead to electrical shock and injury to patients, users and third parties.

▶ Use the product in dry environments exclusively.
▶ Use the product only in environments that are not electrically conductive.
▶ Protect openings of the product from any ingress of liquids.
▶ Do not place the product in a trough-like container.
▶ If any liquid is detected on the device, disconnect the power cable from the supply mains right away and do not touch the product.
▶ Make sure that the surface of the product is absolutely dry before plugging the power cable back into the socket.
▶ After interventions on and repairs of the device and before re-use, have the service personnel perform a safety check on the device.

### 2.5 Accessories and combination with other equipment

Use of un-authorized accessories on the device or un-authorized modifications to the device can lead to injury.

▶ Only use accessories that have been approved for combination with the product by the manufacturer.
▶ Only use accessories that are equipped with standardized interfaces.
▶ Do not make any modifications to the device unless these have been approved by the manufacturer of the product.

Improper use of handpieces can cause injuries.

You need to comply with the following guidelines to ensure the safe use of the electrically-driven handpieces:

▶ Comply with the instructions for use of the respective handpiece.
▶ Check the speed setting each time you turn on the device.
▶ Comply with the permissible maximum speed and maximum contact pressure of the tools as specified by the tool manufacturer.
▶ Comply with the servicing instructions for handpieces as specified in the respective instructions for use.
Never press the push-button during operation of the device.
Never use the push-button to lift the cheek or tongue.

Improper use of tools, e.g. wrong drill lengths and files, can cause injuries.
Comply with manufacturer's instructions (mode of operation, speed, torque levels, torsion resistance, etc.), and use the files according to their intended use.

2.6 Qualification of personnel

Application of the product by users lacking appropriate medical training can injure the patient, the user or third parties.
Make sure that the user has read and comprehends the instructions for use.
Only employ the device if the user has the appropriate medical training.
Comply with national and regional regulations.

The bluish LED light of the motors can damage the cornea or lens of the eye.
Do not gaze into the lamp when it is in operation.
Use adequate shielding for eye protection.

2.7 Service and repair

Servicing work that is described in the "Servicing" chapter of the present Instructions for Use can be performed by the operator/user.

Repairs and safety checks may only be performed by trained service personnel. The following persons are authorized to do this:
- Service technicians of KaVo branches after the appropriate product training
- Service technicians of KaVo authorized dealers after the appropriate product training
- Independent service technicians after the appropriate product training

Comply with the following items during all servicing work:
Have the service and testing tasks carried out in accordance with the authorized personal.
After interventions on and repairs of the device and before re-use, have the service personnel perform a safety check on the device.
The device should be serviced, cleaned, and stored in a dry location, and should be disconnected from the power system, according to instructions, if it is not to be used for extended periods.

Note
KaVo provides wiring diagrams, component lists, descriptions, calibration instructions or other information on request to support the service personnel during repair work.

2.8 Electromagnetic fields

Electromagnetic fields might interfere with the functions of implanted systems (such as cardiac pacemakers).
Medical electrical devices are subject to special precautions regarding electromagnetic compatibility and must be installed and operated in accordance with the tables of electromagnetic compatibility.

**See also:**
- 12 Information on electromagnetic compatibility, Page 74

High-frequency communications devices may interfere with medical electrical devices.
- Ask patients if they have a cardiac pacemaker or other system implanted before you start the treatment.
- Comply with the tables of electromagnetic compatibility during installation and commissioning.
- If the device needs to be used in the immediate vicinity of other equipment, monitor the device or system for malfunctions.
3 Product description

The ELECTROmatic dental control unit is a stand-alone system for operating electric driven handpieces. An external power supply provides electric power to the unit. The 4-hole tubing connected to the unit supplies chip / cooling air, water and pressure signal. The electrical low-voltage motor is connected to the KaVo-specific tubing of the ELECTROmatic. The converted pneumatic output signal (electrical energy) from a dental treatment center drives the motor to operate an electric driven dental handpiece. The speed of the electric handpiece is controlled by air pressure of the dental treatment center. The control unit is positioned close to a treatment unit at the location preferred by the dentist. The ELECTROmatic system consists of a base unit with a motor hose, an electrical motor, a transformer, and a power cord.

The following versions of the product can be ordered:

- ELECTROmatic M
- ELECTROmatic C
- ELECTROmatic PM
- ELECTROmatic PC

See also:
3.2 Scope of delivery, Page 18

Only the ELECTROmatic PM/PC version of the product is depicted in the following. The descriptions apply to all versions of the ELECTROmatic M/C and ELECTROmatic PM/PC product, unless explicitly stated otherwise.

3.1 Purpose - proper use

Indications for use:
The ELECTROmatic is intended to convert pneumatic output from a dental treatment center to electrical energy to drive the COMFORTdrive motor handpiece and the INTRA LUX KL 703 LED motor for operation of electrically-driven dental handpieces. This device is intended for use by a trained professional in the field of general dental medicine.

CAUTION
US Federal law restricts this device to sale by or on the order of a healthcare professional / dentist.
For dental use only.

Proper Use:
The overarching guidelines and/or national laws, national regulations and the rules of technology applicable to medical devices for startup and use of the KaVo product for the intended indications for use must be applied and followed.

<table>
<thead>
<tr>
<th>Definition (purpose)</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary function</td>
<td>Dental treatment for preparations and endodontics</td>
</tr>
</tbody>
</table>
3 Product description | 3.1 Purpose - proper use

<table>
<thead>
<tr>
<th>Definition (purpose)</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use</td>
<td>For dental treatment of humans</td>
</tr>
<tr>
<td></td>
<td>Tooth crown and root</td>
</tr>
<tr>
<td>Specification of the primary function</td>
<td>Network-dependent add-on devise for the dentist unit</td>
</tr>
<tr>
<td>Duration of use</td>
<td>Approximately 30 to 40 minutes with individual interruptions</td>
</tr>
</tbody>
</table>

KaVo shall not be responsible for damage caused by:

- External influences, poor media quality or faulty installation.
- The use of incorrect information.
- Repair work carried out incorrectly.
- If the 2-year service check have not been done
## 3.2 Scope of delivery

<table>
<thead>
<tr>
<th>Figure</th>
<th>Catalog number</th>
<th>ELECTROmatic M/C</th>
<th>ELECTROmatic C</th>
<th>ELECTROmatic PM</th>
<th>ELECTROmatic PC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control unit</td>
<td>1.011.1800</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Control unit</td>
<td>1.011.1900</td>
<td></td>
<td>X</td>
<td>X</td>
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<tr>
<td>Cover panel</td>
<td>1.011.8054</td>
<td></td>
<td>X</td>
<td>X</td>
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<tr>
<td>Mounting bracket</td>
<td>1.011.7165</td>
<td></td>
<td>X</td>
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<td></td>
</tr>
<tr>
<td>Insert holder</td>
<td>1.011.7168</td>
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<tr>
<td>Mounting plate</td>
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<tr>
<td>Power supply type 4882</td>
<td>1.005.0120</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</tr>
<tr>
<td>Figure</td>
<td>Catalog number</td>
<td>ELECTRo-matic M</td>
<td>ELECTRo-matic C</td>
<td>ELECTRo-matic PM</td>
<td>ELECTRo-matic PC</td>
</tr>
<tr>
<td>--------</td>
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</tr>
<tr>
<td>Power cable (country-specific)</td>
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<td></td>
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</tr>
<tr>
<td>1.002.6861</td>
<td>US 0.223.4142 EU 0.692.6901 UK 0.692.6851 AU 1.013.2293 BR 1.004.3850 CN 0.692.6881 CH</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>INTRA LUX Motor KL 703 LED</td>
<td>1.007.0150</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>KL Motor hose 1750 1.011.7200 or KL Motor hose 2200 1.011.5668</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>COMFORTbase 1750 1.011.7335 or COMFORTbase 2200 1.011.7076</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
### Note

Use exclusively the power cables and mains plugs approved in the specific country. Use exclusively the power cables and mains plugs with the electrical nominal data as listed in the following table.

<table>
<thead>
<tr>
<th>Power cable</th>
<th>Mains plug</th>
<th>IEC coupler</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ 3 x 18 AWG</td>
<td>▪ Style SJT</td>
<td>▪ EN 60320 / C13</td>
</tr>
<tr>
<td>▪ 60 °C / 140 °F</td>
<td>▪ Plug Hospital Grade</td>
<td>▪ 10 A</td>
</tr>
<tr>
<td>▪ 300 V</td>
<td>▪ NEMA 5 - 15</td>
<td>▪ 250 VAC</td>
</tr>
<tr>
<td>▪ black</td>
<td>▪ Norm UL 498, CSA C22.2 no 42</td>
<td>▪ black or transparent</td>
</tr>
<tr>
<td></td>
<td>▪ black or transparent</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Marking ZJCZ.E41542 oder ZJCZ+CSA oder ELBZ2/8</td>
<td></td>
</tr>
</tbody>
</table>

The installation set is part of the scope of delivery of all versions and consists of the following parts:
### ELECTROmatic installation set (Mat. no. 1.012.1883)

<table>
<thead>
<tr>
<th>Pos. no.</th>
<th>Mat. No.</th>
<th>Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>①</td>
<td>0.251.5804</td>
<td>Hexagonal nuts M4</td>
<td>6</td>
</tr>
<tr>
<td>②</td>
<td>0.242.4012</td>
<td>Washers</td>
<td>6</td>
</tr>
<tr>
<td>③</td>
<td>1.004.1568</td>
<td>Offset screwdriver SW5</td>
<td>1</td>
</tr>
<tr>
<td>④</td>
<td>1.012.0213</td>
<td>Screws M4x12</td>
<td>8</td>
</tr>
<tr>
<td>⑤</td>
<td>0.220.0441</td>
<td>Pad</td>
<td>4</td>
</tr>
<tr>
<td>⑥</td>
<td>1.012.0184</td>
<td>Screws 4x14</td>
<td>4</td>
</tr>
<tr>
<td>⑦</td>
<td>1.012.1999</td>
<td>Spacer bolt, 35 mm</td>
<td>4</td>
</tr>
<tr>
<td>⑧</td>
<td>1.012.1853</td>
<td>Offset screwdriver Torx T20</td>
<td>1</td>
</tr>
<tr>
<td>⑨</td>
<td>1.007.9736</td>
<td>Filter insert</td>
<td>2</td>
</tr>
</tbody>
</table>

### Note
The pads enclosed in the installation set can be attached to the underside of the device, if needed. The purpose of the pads is to prevent the device from slipping.

### See also:
- 4.6 Installation position 3: Mount on a holder or on the backside of a holder, Page 38
3.3 ELECTROmatic – Versions

ELECTROmatic PM/PC

ELECTROmatic M/C

ELECTROmatic Front and rear of the device

① Control panel/cover panel
② Control unit
③ Power supply connector
④ Motor hose connector
⑤ 4-hole standard connection
⑥ Water filter, replaceable

3.4 Motor hose

KL motor hose/COMFORTbase

① Connector for ELECTROmatic
② KL motor hose 1750/2200 / COMFORTbase 1750/2200
③ Spray regulation
④ Connector for motor
⑤ Connector for COMFORTdrive
### 3.5 Control panel (PM/PC only)

**Note**
The ELECTROmatic M/C versions of the product have no control panel. An LED on the rear of the device flashes when the ELECTROmatic M/C is ready for use.

![Control panel ELECTROmatic PM/PC](image)

**Display information ELECTROmatic PM/PC**

- **1.** Speed memory 1
- **2.** SAFEdrive active = yellow
- **3.** Clockwise rotation = green
- **4.** Speed factor and unit
- **5.** Speed

**Display information example 1**

![Display information example 1](image)

**Display information example 2**

![Display information example 2](image)

- **1.** Speed memory 2
- **2.** SAFEdrive inactive = grey
- **3.** Counterclockwise rotation = red
- **4.** Speed factor and unit
- **5.** Speed
If the speed display is set to "analog", the speed is displayed in analog manner when the motor is running. When the motor is at rest, the maximum set speed is shown digitally and the display switches to analog only when the foot control is pressed, i.e. when the motor is started up.

Display information example 3
① Speed memory 3 ③ Clockwise rotation = green
② SAFEdrive inactive = grey ④ Analog speed display (approximately 50% of set maximum speed)

Display information example 4
① No speed memory selected ③ Counterclockwise rotation = red
② SAFEdrive active = yellow ④ Analog speed display (100% of set maximum speed)

Function of the operating keys of the ELECTROmatic PM/PC

<table>
<thead>
<tr>
<th>Key</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Plus" /> <img src="image2.png" alt="Minus" /></td>
<td>Press both the plus and minus key for 2 seconds to start the &quot;Settings&quot; menu.</td>
</tr>
</tbody>
</table>
3.6 Technical specifications of the ELECTROmatic

Dimensions of the package

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>472 mm / 18.58&quot;</td>
</tr>
<tr>
<td>Width</td>
<td>190 mm / 7.48&quot;</td>
</tr>
<tr>
<td>Height</td>
<td>113 mm / 4.45&quot;</td>
</tr>
</tbody>
</table>

Dimensions and weight of the control unit

<table>
<thead>
<tr>
<th>Device version</th>
<th>Width in mm/inch</th>
<th>Depth in mm/inch</th>
<th>Height in mm/inch</th>
<th>Weight in g/ounces</th>
</tr>
</thead>
<tbody>
<tr>
<td>M/C</td>
<td>143/5.63</td>
<td>118/4.65</td>
<td>36/1.42</td>
<td>331/11.68</td>
</tr>
<tr>
<td>PM/PC</td>
<td>145/5.71</td>
<td>132/5.2</td>
<td>44/1.73</td>
<td>381/13.44</td>
</tr>
</tbody>
</table>

Requirements

Protection class: IP 30
### Ambient conditions

<table>
<thead>
<tr>
<th>Permissible installation sites</th>
<th>Indoor use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permissible ambient temperature range</td>
<td>+10°C to +35°C / 50°F to 95°F</td>
</tr>
<tr>
<td>Maximum relative humidity</td>
<td>80 % at 31 °C / 88 °F</td>
</tr>
<tr>
<td>Maximum relative humidity linearly decreasing</td>
<td>50 % at 40 ° / 104 °F</td>
</tr>
<tr>
<td>Pollution degree</td>
<td>2</td>
</tr>
<tr>
<td>Permissible up to</td>
<td>3,000 m / 9843 feet altitude</td>
</tr>
<tr>
<td>Air pressure</td>
<td>700 to 1060 hPa</td>
</tr>
</tbody>
</table>

### Transportation and storage conditions

| Permissible ambient temperature range | -20°C to +50°C / -4°F to +122°F |
| Permissible up to a maximum humidity of | 5 to 90 % non-condensing |
| Air pressure | 700 to 1060 hPa |

### Mode: intermittent operation

| Operating time | 0.5 minutes |
| Pause time | 9 minutes |

- Do not exceed the threshold load of the motor of 0.5 minutes operating time / 9 minutes pause.

### Note

In practical application, pulse loads lasting seconds or pause times lasting seconds or minutes are realistic, usually without reaching the maximally possible motor current. This corresponds to the common working procedure of dentists.

### Note

If a handpiece is defective, the treatment time might be less than 30 seconds due to the SAFEdrive function (automatic motor shut-off).

### See also:

6.6 Protection function SAFEdrive (PM/PC only), Page 58
### Media options

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water quality according to DIN EN 7494-2</td>
<td>Tap water</td>
</tr>
<tr>
<td>Water hardness</td>
<td>8.4 to 12 °dH</td>
</tr>
<tr>
<td>pH</td>
<td>7.2 to 7.8</td>
</tr>
<tr>
<td>System pressure</td>
<td>1.8 to 5 bar / 26 to 72.5 psi</td>
</tr>
<tr>
<td>Spray air</td>
<td>1.0 to 2.5 bar / 14.5 to 36.2 psi</td>
</tr>
<tr>
<td>Spray water</td>
<td>0.8 to 2.0 bar / 11.6 to 29 psi</td>
</tr>
<tr>
<td>Cooling air exit at the motor coupling</td>
<td>6 to 9 Nl/min</td>
</tr>
<tr>
<td>Air filter</td>
<td>50 micrograms</td>
</tr>
<tr>
<td>Customer-provided water filtering</td>
<td>80 µm</td>
</tr>
</tbody>
</table>

### Ideal settings at the dental unit

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>System pressure</td>
<td>3 bar / 43.5 psi</td>
</tr>
<tr>
<td>Spray air pressure ¹)</td>
<td>1 bar / 14.5 psi</td>
</tr>
<tr>
<td>Spray water pressure ¹)</td>
<td>0.8 bar / 11.6 psi</td>
</tr>
</tbody>
</table>

¹) pressure measured at the motor coupling using a pressure gauge **Mat. no. 1.003.1050.**

### Speed

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed range of the Motor KL 703</td>
<td>100 - 40,000 min⁻¹ (rpm)</td>
</tr>
<tr>
<td>Speed range of the COMFORTdrive 200 XDR</td>
<td>20,000 - 200,000 min⁻¹ (rpm)</td>
</tr>
</tbody>
</table>

### Motor torque

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum torque of the Motor KL 703</td>
<td>3 Ncm</td>
</tr>
<tr>
<td>Torque of the Motor KL 703 minimum</td>
<td>0.15 Ncm</td>
</tr>
<tr>
<td>Maximum torque COMFORTdrive 200 XDR</td>
<td>0.4 Ncm</td>
</tr>
</tbody>
</table>

### Electrical ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage</td>
<td>36 V DC</td>
</tr>
<tr>
<td>Power</td>
<td>120 W</td>
</tr>
</tbody>
</table>
Motor cords

Cable lengths, 1.75 m / 2.20 m (69" / 87")
depends on ordered version

3.7 Symbols on product and rating plate

The rating plates are affixed to the underside of the unit.

Accompanying documents

- Please note the instructions for use
- Please note the instructions for use
- Please note the electronic instructions for use
- HIBC Code

Certification

- CE mark (Communauté Européenne)
- VDE mark
- MET mark
- GOST R certification
- EAC conformity mark (Eurasian Conformity = Eurasische Konformität)

Product characteristics

- Manufacturer
- Device type
- Serial number
- Catalog number
- Type B applied part
3.8 Power supply type 4882

Supply voltage

Operating mode: continuous operation with intermittent load

Protection class II

Do not dispose of with household waste

3.9 Technical data for the power supply type 4882

Note
The connection of the power supply must comply with the country-specific regulations and requirements for medical devices.

Dimensions and weight

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Metric</th>
<th>Inch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>160 mm</td>
<td>6.3 &quot;</td>
</tr>
<tr>
<td>Height</td>
<td>44 mm</td>
<td>1.7 &quot;</td>
</tr>
<tr>
<td>Depth</td>
<td>76 mm</td>
<td>3 &quot;</td>
</tr>
<tr>
<td>Weight</td>
<td>0.78 kg</td>
<td>27.51 ounces</td>
</tr>
<tr>
<td>Length of connection cable</td>
<td>4.5 m</td>
<td>177&quot;</td>
</tr>
</tbody>
</table>
Instructions for use ELECTROmatic M/C and PM/PC

3 Product description | 3.10 Symbols on the nameplate of the type 4882 power supply

Electrical ratings

|                                |                  |
|                                | 100 to 240 V AC, 47 to 63 Hz |
| Supply voltage                 | 36 V DC          |
| Output voltage                 | 120 W            |
| Power                          | 3.34 A           |
| Current                        | ± 10 %           |
| Overvoltage category           | II               |
| Mains voltage fluctuations     | ± 10 %           |

Requirements

| Protection class                   | I                  |
| Protection class                   | IP 40              |

Environmental conditions

| Permissible installation sites    | Indoor use         |
| Permissible ambient temperature range | 0°C to +40°C / 32°F to 104°F |
| Relative humidity                | 10 to 95% RH non-condensing |
| Pollution degree                 | 2                  |
| Permissible up to                | 3,000 m / 9843 feet altitude |
| Air pressure                     | 700 to 1060 hPa    |

Transportation and storage conditions

| Ambient temperature              | -20 °C to +80 °C / -4 °F to 176 °F |
| Relative humidity                | 10 to 95% RH non-condensing       |
| Air pressure                     | 700 hPa to 1060 hPa              |

3.10 Symbols on the nameplate of the type 4882 power supply

The rating plate is located on the underside of the device.

Certification

<table>
<thead>
<tr>
<th>TÜV Rheinland mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>UL mark for components for USA/Canada</td>
</tr>
<tr>
<td>CE mark</td>
</tr>
</tbody>
</table>
### Product characteristics

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Device type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Catalog number</td>
</tr>
<tr>
<td>Input data: voltage, frequency, current</td>
<td>Output data: power, voltage, current</td>
</tr>
<tr>
<td>S/N:</td>
<td>Serial number</td>
</tr>
<tr>
<td>WEEK:</td>
<td>Manufacturing date</td>
</tr>
<tr>
<td>Do not dispose of with household waste</td>
<td></td>
</tr>
</tbody>
</table>
4 Installation

4.1 Location

**WARNING**

Installation of the device on a dental treatment unit.
Electrical shock or fire hazard.
- Mind the electrical cord of the power supply! Route all cords appropriately such that they do not get squashed, clamped or have a chair rolling over them.
- Before installation, note the instructions for use and installation instructions of the treatment unit on which the device is to be installed.

See also:
- 2.3 Technical condition, Page 12

**CAUTION**

Damage to the dentist element.
Installations involving an intervention on the dental unit might damage components, which can interfere with the safe function and cause injury.
- Have installations involving an intervention on the dental unit performed by trained expert personnel only.
- Have the treatment center subjected to a safety check after installation.

**CAUTION**

Power supply and cords/hoses are on the floor.
Slipping and tripping.
- Power supply and cord/hoses need to be set-up/routed appropriately such that they are not on the floor.

**Note**

To completely disconnect the device from the mains, the mains plug must be pulled. For this reason, the unit must be set-up appropriately such that the mains plug and the electrical outlet are easily accessible.

**Note**

Use the power supply in dry environments exclusively. Make sure that the power supply is protected from the ingress of liquids.
- Place the product in an easily accessible place and visible for diagnostic purposes.

4.2 Installation positions

There is a wide range of installation options for the ELECTROmatic. This overview makes no claim of being comprehensive. If possible, the installation should be done without modification of the dentist element and/or existing attachment options on the dentist element should be utilized.

The 4 basic installation positions on holders are described in the following:
- Installation position 1: Below a holder
- Installation position 2: On the side of a holder
- Installation position 3: On a holder or on the backside of a holder
• Installation position 4: Mount control panel as remote control

Optional: Install control panel as remote control (PM/PC only)

All installation positions afford the opportunity to install the ELECTROmatic in two separate parts: The control panel as a remote control and the control unit in two different installation positions.

For this purpose, the control panel must be disconnected from the control unit.

See also:
4.7.1 Disconnect the control panel from the control unit and install it on the mounting bracket, Page 40

The control panel is connected to the control unit by a standard telephone cable of 80 cm in length.
4.3 Preparing the installation

- Keep the installation set handy.
- For the parts from the scope of delivery required for each installation, see list in the respective installation chapter.
- If needed, keep a suitable tool for shortening the mounting plate handy.

**Note**

If a larger gap needs to be bridged for installation, larger spacer bolts from commercial electronics supplies can be used.

- Connect the motor hose to the ELECTROMatic.
- Connect motor to motor hose.

**See also:**

- 5.1.3 Connecting the motor, Page 49
- Check to make sure that the motor is seated firmly in the holder of the treatment unit.

4.4 Installation position 1: Mount below a holder
Damage to the dentist element.
Installations involving an intervention on the dental unit might damage components, which can interfere with the safe function and cause injury.
▶ Have installations involving an intervention on the dental unit performed by trained expert personnel only.
▶ Have the treatment center subjected to a safety check after installation.
▶ Use the insert holder as a template for the screw positions on the underside of the holder. If possible, use existing screws or perforations as screw positions.

Installation variant a)

The following parts from the scope of delivery and the installation set are required:
- 1x Insert holder
- 4x Screws M4x12 ④ with self-locking nuts ①
- 4x Washers ②
▶ Use 4 screws ④ and 4 washers ② to screw the insert holder to the holder and fasten it using the 4 nuts ①.

Installation variant b)

The following parts from the scope of delivery and the installation set are required:
- 1x Insert holder
- 8x Screws M4x12 ④
- 4x Spacer bolts, 35 mm ⑦
▶ Use 8 screws to mount the spacer bolts ⑦ or larger commercial spacer bolts (electronics supplies) between the insert holder and the lower edge of the holder to increase the distance between the holder and the insert holder, if applicable.
Installation variant c)

The following parts from the scope of delivery and the installation set are required:

- 1x Insert holder
- 4x Screws M4x12 with self-locking nuts
- 4x Washers
- 1x Mounting plate

To increase the distance between the holder and the insert holder, if applicable, chamfer the mounting plate twice (U-shape) and use it for a spacer.

Make sure that the insert holder is firmly seated.

Slide the control unit of the ELECTROmatic into the insert holder.

4.5 Installation position 2: Mount on the side of a holder

**CAUTION**

Damage to the dentist element.

Installations involving an intervention on the dental unit might damage components, which can interfere with the safe function and cause injury.

- Have installations involving an intervention on the dental unit performed by trained expert personnel only.
- Have the treatment center subjected to a safety check after installation.

The following parts from the scope of delivery and the installation set are required:

- 1x Mounting plate
- 4x Screws M4x12 with self-locking nuts
4 Installation | 4.5 Installation position 2: Mount on the side of a holder

- 4x Washers ②
- 2x Plastic screws ⑥ for fastening to the mounting plate
- Shorten the mounting plate with a suitable tool, if needed.

▶ Shorten the mounting plate with a suitable tool, if needed.

▶ Select the position of the mounting plate. If possible, use existing screws or perforations as screw positions.
▶ Screw the ELECTROmatic to the round side of the mounting plate using 2 plastic screws ⑥ tightening the screws only lightly.

▶ Use the 4 screws ④ and 4 washers ② to screw the mounting plate to the holder and secure it with the 4 nuts ①.

▶ Align the ELECTROmatic in its final ergonomic position and screw it to the mounting plate such as to be hand-tightened.
4.6 Installation position 3: Mount on a holder or on the backside of a holder

On a holder

⚠️ CAUTION
Damage to the dentist element.
Installations involving an intervention on the dental unit might damage components, which can interfere with the safe function and cause injury.
- Have installations involving an intervention on the dental unit performed by trained expert personnel only.
- Have the treatment center subjected to a safety check after installation.
- Use the control unit as a template for the screw positions on a holder or on the backside of a holder. If possible, use existing screws or perforations as screw positions.

Installation variant a)

The following parts from the scope of delivery and the installation set are required:
- 1x Mounting bracket
- 2x Screws M4x12 ⚫ with self-locking nuts ⚫
- 2x Washers ⚫
- 2x Plastic screws
- Use 2 plastic screws to screw the mounting bracket to the control panel.

- Fold the mounting bracket and fasten it to the holder using 2 screws, 2 washers and 2 self-locking nuts.
Installation variant b)

The following parts from the scope of delivery and the installation set are required:
- 2x Screws
  - Use screws to screw the control unit directly to the holder.

Installation variant c)

The following parts are needed:
- Double-sided adhesive tape
  - Stick pads in the 4 recesses on the underside of the device and then set up the control unit.
  - The pads keep the control unit from slipping.
4.7 Installation position 4: Mount control panel as remote control (PM/PC only)

4.7.1 Disconnect the control panel from the control unit and install it on the mounting bracket

► To detach the control panel from the control unit, unscrew 2 screws on the underside of the device.

► Pull the control panel off the control unit.
► Break out one of the 4 cable feed-throughs on the inside of the cover panel.

► Guide the connecting cable of the control unit through this opening to the control panel.
► Hold the cover panel to the position of the control panel and tighten the 2 screws on the underside of the device again.
If required, break out the cable feed-through on the control panel.

Guide the connecting cable of the control unit through this opening to the control panel.
Use 2 plastic screws to screw the control panel to the mounting bracket such as to be hand-tightened.

Define the position for the control unit and check the length of the standard telephone cable.
Mount the control unit.

See also:
4.4 Installation position 1: Mount below a holder, Page 34

The following chapters describe the installation of the control panel at the different installation positions.
### 4.7.2 Mount control panel on a holder / on the backside of a holder

![Diagram of control panel installation](image)

**CAUTION**

**Damage to the dentist element.**

Installations involving an intervention on the dental unit might damage components, which can interfere with the safe function and cause injury.

- Have installations involving an intervention on the dental unit performed by trained expert personnel only.
- Have the treatment center subjected to a safety check after installation.

The following parts from the scope of delivery and the installation set are required:

- 1x Insert holder
- 1x Mounting bracket
- 1x Cover panel
- 4x + 2x Screws M4x12 with self-locking nuts
- 4x + 2x Washers
- Optional: 4x Spacer bolts, 35 mm
- Optional: 1x Mounting plate
- 2x Plastic screws

- Define the position of the control panel on the holder or on the rear of the holder and draw a hole pattern for attachment. If possible, use existing screws or perforations as screw positions.
- Drill the holes.
- Screw the mounting bracket with control panel to the holder or to the rear of the holder using the 2 screws, washers and nuts.
Mount the control unit.

See also:
+ 4.4 Install below the dentist element, a holder or a cabinet, Page 34

### 4.7.3 Mount control panel on the side of a holder

**CAUTION**

**Damage to the dentist element.**

Installations involving an intervention on the dental unit might damage components, which can interfere with the safe function and cause injury.

- Have installations involving an intervention on the dental unit performed by trained expert personnel only.
- Have the treatment center subjected to a safety check after installation.

**Installation variant a)**

The following parts from the scope of delivery and the installation set are required:

- 1x Mounting plate
- 1x Mounting bracket
- 1x Cover panel
- 4x Screws M4x12 ④ with self-locking nuts ①
- 4x Washers ②
- 2x Plastic screws ⑥ for fastening to the mounting plate
- Shorten the mounting plate with a suitable tool, if needed.

- Select the position of the mounting plate. If possible, use existing screws or perforations as screw positions.
Mark the attachment points and drill the holes on the holder.
Screw the mounting bracket with control panel to the round side of the mounting plate using the plastic screws only lightly.

Use the 4 screws and the washers to screw the mounting plate to the holder and secure it with the nuts.

Align the ELECTROMatic in its final ergonomic position and screw it down such as to be hand-tightened.

**Installation variant b)**

The following parts from the scope of delivery and the installation set are required:
- 1x Mounting bracket
- 1x Cover panel
- 2x Screws M4x12 with self-locking nuts
- 2x Washers
Mark the attachment points and drill the holes.
Use the 2 screws and washers to screw the mounting bracket with control panel to the holder in upright orientation and secure it with the nuts.
Align the ELECTROMatic in its final ergonomic position and screw it down such as to be hand-tightened.
Installation variant c)

The following parts from the scope of delivery and the installation set are required:
- 1x Mounting bracket
- 1x Cover panel
- 2x Screws M4x12 with self-locking nuts
- 2x Washers
- 2x Plastic screws, for fastening to the mounting bracket

▶ Use a suitable tool to shorten the mounting bracket to the size of the control panel.
▶ Use 2 plastic screws to screw the control panel to the mounting bracket such as to be hand-tightened.

▶ Mark the attachment points and drill the holes.
▶ Use the 2 screws and the washers to screw the mounting bracket with control panel to the holder and secure it with the nuts.
▶ Align the ELECTROmatic in its final ergonomic position and screw it down such as to be hand-tightened.
Mount the control unit.

See also:

4.4 Installation position 1: Mount below a holder, Page 34

4.7.4 Mount control panel to cabinet/wall

Installation on a cabinet/wall

⚠️ CAUTION

Damage to the dentist element.

Installations involving an intervention on the dental unit might damage components, which can interfere with the safe function and cause injury.

- Have installations involving an intervention on the dental unit performed by trained expert personnel only.
- Have the treatment center subjected to a safety check after installation.

The following parts from the scope of delivery and the installation set are required:

- 1x Insert holder
- 1x Mounting bracket
- 1x Cover panel
• 4x + 2x Screws M4x12 🐌 with self-locking nuts 🐍
• 4x + 2x Washers 🐌
• Optional: 4x Spacer bolts, 35 mm 🐍
• Optional: 1x Mounting plate
• 2x Plastic screws 🐌

▶ Open the cabinet.
▶ Define the position of the control panel in the cabinet or on the wall and draw a hole pattern for attachment. If possible, use existing screws or perforations as screw positions.
▶ Installation in a cabinet: Use 2 plastic screws to screw the control panel to the cabinet.
▶ Installation on the wall: Use 2 screws 🐍 and washers 🐌 to screw the mounting bracket with control panel to the wall and secure it with the nuts 🐍.
▶ Mount the control unit.

See also:
４.４ Installation position 1: Mount below a holder, Page 34

4.8 Connect the ELECTROmatic

See also:
４.１.２ Connect the ELECTROmatic, Page 48
４.１.５ Connect the power supply, Page 50

4.9 Check the installation

▶ Check if the fastening is secure.
▶ Perform the startup.

See also:
４.５ Startup, Page 48
5 Commissioning

Note
The ELECTROmatic may be operated exclusively with the INTRA LUX KL703 LED motor (Mat. no. 1.007.0150), the COMFORTdrive motorized contra-angle handpiece and the type 4882 power supply.

5.1 Connection

5.1.1 Electrical operating conditions

NOTICE
Property damage due to incorrect pressures.
Property damage to motor or handpiece.
▶ Set the pressures according to the technical specifications.

NOTICE
Property damage due to bad media.
Property damage to motor or handpiece.
▶ Make sure that the compressed air is dry and free of dirt and oil according to EN ISO 7494-2.
▶ Make sure that the pH of the water is between 7.2 and 7.8.

Note
If the water is hard (above 12 °dH), a water softening device based on an ion-exchange procedure must be fitted.
Insufficient water hardness (below 8.4 °dH) can promote the growth of algae.

Note
If necessary, insert a filter, water trap or air dryer.

Air and water requirements according to DIN EN 7494-2

The compressed air must be free of oil, dirt, and contamination. If needed:
- Use a compressor with a dry air system.
- Include an upstream air filter (on the compressor), if applicable.
- Blow out the lines before connecting them.

5.1.2 Connecting the ELECTROmatic

NOTICE
Property damage due to soiled water lines.
Property damage to the product.
▶ Make sure that the water filter does not get clogged by soiled water.
▶ For this purpose, rinse the turbine hose for at least 1 minute before connecting its free end to the product in order to remove any soiled water from the lines.
Note
The ELECTROmatic has an automatic spray air and spray water shut-off. The automatic spray air and spray water shut-off prevents the following:
- Dripping of spray water after the motor is stopped
- Continuous exit of water/air through leaky treatment centers

▶ Connect the 4-hole, 5-hole or 6-hole turbine hose of the treatment unit to the filter of the ELECTROmatic.

or

▶ If the turbine hose of the treatment unit has a 2-hole or 3-hole connector, replace the turbine hose with a 4-hole, 5-hole or 6-hole turbine hose or use a commercial adapter available from specialized dealers.

See also:
11 Accessories and consumables, Page 73

5.1.3 Connecting the motor

▶ Slightly wet the O-rings on the connection hose with KAVOspray.
▶ Connect the motor to the supply hose and twist.
⇒ The correct attachment position is attained automatically.

▶ Screw tight the hose-side union nut proceeding in the direction of the arrow.
5.1.4 Connect the motor cord

- Plug the motor hose onto the motor hose connector on the rear of the ELECTROmatic device and screw it tight.

- Set the spray regulation on the hose to maximum amount of water.

See also:
6.3 Regulating the spray water, Page 57

5.1.5 Connect the power supply

**CAUTION**
Power supply and cords/hoses are on the floor.
Slipping and tripping.
- Power supply and cord/hoses need to be set-up/routed appropriately such that they are not on the floor.

**NOTICE**
Property damage from non-approved power supply.
Property damage to the product.
- Operate the product with the type 4882 power supply (Mat. no. 1.005.0120) exclusively.

**Note**
The connection of the power supply must comply with the country-specific regulations and requirements for medical devices.

**Note**
The power supply automatically adjusts to the available mains voltage.

**Note**
Grounding reliability can only be achieved when the equipment is connected to an equivalent receptacle marked "Hospital Only" or "Hospital Grade".

**Note**
The protective earth conductor is used as functional earthing (FE) rather than as protective earthing (PE).

**Note**
Use the power supply in dry environments exclusively. Make sure that the power supply is protected from the ingress of liquids.
Connect the type 4882 power supply to the socket of the ELECTROmatic.
Connect the power cable first to the power supply and then to the supply mains socket.
Route the cables appropriately such that there is no kinking and, if possible and permitted by the treatment unit, in the support arm.
Affix the cord with cord ties and/or cord tape.

5.2 Calibrating the foot control

Press the foot control down once as far as it will go (maximum pressure) in order to calibrate the foot control.

This starts up the motor and the system calibrates automatically to the existing system pressure.

Automatic calibration of the foot control
The calibration is performed automatically during the first startup, when the foot control is pressed for the first time.
Once the calibration of the foot control has been done once, the calibration to the maximum system pressure takes place automatically in the background during operation (automatic calibration).
Minor pressure fluctuations are balanced automatically in this process.
5.3 Measure cooling air quantity at motor coupling

- Place the airflow measuring tube (Mat. no. 0.411.4441) on the motor.

- Press the foot control to start the motor.

- Adapt the system pressure of the treatment unit appropriately such that the cooling airflow is 6 to 9 NL/min (upper edge of sphere 2).
- Comply with the system pressure limits from the technical specifications for media.

See also:
3.6 Technical specifications of the ELECTROmatic, Page 25

5.4 Making the device settings

- Press both the plus and minus key for 2 seconds to start the "Settings" menu.
▶ Press the arrow keys to select the various parameters.

▶ Press the Plus key to increase a value.

or

▶ Press the Minus key to decrease a value.

⇒ The settings are always saved instantaneously.

▶ Press both the plus key and the minus key for 2 seconds to exit from the "Settings" menu.

The following device settings can be changed according to need and/or displayed when the device is being put into service.

<table>
<thead>
<tr>
<th>Display information</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Software Version" /></td>
<td>Displays the software versions.</td>
</tr>
<tr>
<td><img src="image" alt="SAFEdrive On/Off" /></td>
<td>Turning SAFEdrive on / off.</td>
</tr>
<tr>
<td><img src="image" alt="LUX Brightness" /></td>
<td>The LUX brightness can be adjusted between 0 and 4. &quot;0&quot; means that the LUX light is switched off.</td>
</tr>
</tbody>
</table>

See also:

- 6.6 Protection function SAFEdrive (PM/PC only), Page 58
Display information | Setting
--- | ---
[Image] | The LUX afterglow time of the straight or contra-angle handpiece can be adjusted between 0 and 9 seconds. "0" means that the LUX light does not afterglow.
[Image] | The volume of the key tone can be adjusted between 1 and 3.
[Image] | You can select from 3 different kinds of key tones.
[Image] | Pressure display in psi and bar for checking the input pressure of the turbine hose.
[Image] | Alignment of display. The display can be aligned accordingly depending on its installation position.
5 Commissioning | 5.4 Making the device settings

<table>
<thead>
<tr>
<th>Display information</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td>Select from digital and analog speed display.</td>
</tr>
</tbody>
</table>

| ![Image](image2.png) | Reset the device to factory settings. Restores the condition of the device at the time of delivery. Press the "Plus" key 2x to reset the device to factory settings. |
6 Operation

CAUTION

Growth of germs.
Infections.
▶ Before treating a patient, let the spray air and spray water exit for at least 20 seconds.
▶ Before the first start-up and after downtimes (weekends, holidays, vacations, etc.), the air and water lines must be purged and/or rinsed.
▶ The germ reduction of the ELECTROmatic must be carried out via the treatment unit.

See also:

8 Processing steps in accordance with DIN EN ISO 17664, Page 63

NOTICE

Incorrectly set parameters.
Property damage from incorrect input values.
▶ Check all input values on the display before use.

NOTICE

Contaminated or moist compressed air at the compressed air connection.
Premature wear.
▶ Supply dry, clean and uncontaminated compressed air in accordance with ISO 7494-2 only.

Note
Please note the transmission/reduction ratio of the attachment handpieces as these have an impact on the displayed speed of the clamped tool.

6.1 Switching the ELECTROmatic on/off

The unit is ready for operation as soon as it is connected.
▶ To switch the product on, connect the device to the power circuit.
⇒ An LED on the rear of the ELECTROmatic M/C flashes.
⇒ The treatment parameters are displayed on the display of the ELECTROmatic PM/PC:

▶ To switch the device off, unplug the unit from the mains.
⇒ The LED on the rear of the ELECTROmatic M/C is off.
Note
The power consumption on idling is so low that the device does not need to be disconnected.

6.2 Start the motor

Note
The pressure to start the motor is 1 bar/14.5 psi.
The minimum operating pressure at 40,000 rpm is 1.8 bar/26 psi.

- Press the foot control until the motor starting pressure (1 bar / 14.5 psi) is exceeded.
  ⇒ The motor/COMFORTdrive starts up.

- Push the foot control down as far as it will go.
  ⇒ The set maximum speed is reached.

- Press the foot control partly down in order to regulate the speed between minimum and maximum speed.

6.3 Regulating the spray water

⚠️ CAUTION
Hazard from insufficient amount of spray water.
Damage to the cog due to overheating.
- Make sure that the motor speed is appropriate for the preparation on hand.
- Use the requisite minimal amount of spray water.

- Rotate the regulating sleeve ② right or left to infinitely adjust the water portion of the spray.
  ⇒ Regulating sleeve rotated all the way to the right ① = no water supplied
  ⇒ Regulating sleeve rotated all the way to the left ③ = maximum amount of water
6.4 Changing the speed setting

Note
In the ELECTROmatic M/C without display, the speed can be changed only with the foot control of the treatment unit. If a foot control without steps is actuated, the instrument is operated at the maximum motor speed of 40,000 min⁻¹ (rpm).

To make sure that a certain speed is not exceeded and/or is maintained in the ELECTROmatic M/C without display, a reducing contra-angle handpiece needs to be used (e.g. EXPERTmatic LUX contra-angle handpiece E15 L, MASTERmatic LUX M07 L or MASTERmatic LUX M29 L).

The user can set 3 speed memories and invoke by pressing the keys, "1", "2" or "3".

The following factory settings a pre-selected as defaults for the speed memories:

<table>
<thead>
<tr>
<th>Speed memory</th>
<th>INTRA LUX KL 703 LED [min⁻¹/rpm]</th>
<th>COMFORTdrive 200 XDR [min⁻¹/rpm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3,000</td>
<td>20,000</td>
</tr>
<tr>
<td>2</td>
<td>20,000</td>
<td>160,000</td>
</tr>
<tr>
<td>3</td>
<td>40,000</td>
<td>200,000</td>
</tr>
</tbody>
</table>

▶ Press the "1", "2" or "3" key.

⇒ The display shows the set speed (speed min⁻¹ x 1,000).

▶ Press the Plus or Minus key to change the saved value.

⇒ The display shows the speed.

▶ Press the "1", "2" or "3" key for more than 3 seconds to save the value in the respective speed memory.

⇒ Speed memory "1", "2" or "3" flashes and an audio signal is issued.

⇒ The set value is being saved.

6.5 Changing the direction of rotation

▶ Press the "Direction of motor rotation" key.

⇒ The direction of motor rotation changes.

⇒ The symbol on the display indicates the direction of motor rotation.

6.6 Protection function SAFEdrive (PM/PC only)

WARNING
Use of incorrect straight and contra-angle handpieces.
Risk of burn injury or overheating.
▶ Use only original KaVo high-speed handpieces of the 25L, E25, M25, M05, 25LP, 25LPA, 25LPR, 25LCA series or the COMFORTdrive motorized contra-angle handpiece.
**WARNING**

**Deactivation of the SAFEdrive function.**

Increased risk of burn injury or overheating due to defective high-speed handpieces.

- KaVo recommends to always activate the SAFEdrive function during any dental treatment with high-speed handpieces or the COMFORTdrive.

---

**Note**

The SAFEdrive function is a monitoring function for detection of defective high-speed handpieces. Defective high-speed handpieces can heat up strongly during use due to additional friction, especially in the head region, and possibly cause burn injuries. KaVo recommends to activate the SAFEdrive function during treatments inside the oral cavity in order to reduce the risk of burn injuries caused by defective high-speed handpieces.

---

**Note**

SAFEdrive is deactivated by default at the time of delivery.

SAFEdrive reduces the probability and damage upon overheating of defective or poorly maintained handpieces thus minimizing the risk of burn injuries to the patient.

**SAFEdrive function:**

Possible defects can be detected by continuous monitoring of the idling properties of the handpiece during its use.

If the protective function is triggered, the SAFEdrive initially reduces the motor speed and then stops the motor altogether if the excessive load persists.

---

**Note**

SAFEdrive works only with KaVo high-speed handpieces of the 25L, E25, M25, M05, 25LP, 25LPA, 25LPR, 25LCA series and the COMFORTdrive motorized contra-angle handpiece. Inadvertent triggering of the SAFEdrive function cannot be excluded if handpieces made by other manufacturers are used.

---

### 6.6.1 Turning SAFEdrive on / off

The user can turn the SAFEdrive function on or off individually for the three speed memories.

With regard to handpieces from third-party manufacturers, KaVo recommends disabling the SAFEdrive function as the SAFEdrive protection function is effective only with high-speed handpieces from KaVo.

- Press both the plus and minus key for 2 seconds to start the "Settings" menu.

- Press the arrow keys until the display shows "SAFEdrive".
Use the Plus and Minus keys to select the desired SAFEdrive combination for the speed memory.
- The settings are always saved instantaneously.
- The activated speed memories are shown in blue.
- All combinations for SAFEdrive are possible:

Press both the plus key and the minus key for 2 seconds to exit from the "Settings" menu.

6.6.2 Use with the SAFEdrive function

With regard to handpieces from third-party manufacturers, KaVo recommends disabling the SAFEdrive function as the SAFEdrive protection function is effective only with high-speed handpieces from KaVo.

See also:
- 6.6.1 Turning SAFEdrive on / off, Page 59

If SAFEdrive is activated and the handpiece is overloaded, the first stage, "SAFEdrive alert", is activated:
- The motor power is reduced (can lead to a drop in motor speed).
- The LUX light starts to pulse.
- The SAFEdrive icon is yellow and flashes.

Requirement
The handpiece is not defective

- If you use a handpiece from a third-party manufacturer, deactivate SAFEdrive or use a high-speed handpiece from KaVo.
▶ If the SAFEdrive icon is yellow and flashes, relieve the handpiece of its load for at least 2 seconds, i.e. lift it off the tooth.
⇒ The motor reaches maximum speed again and the SAFEdrive icon turns yellow again.
▶ As soon as the motor reaches maximum speed again and the SAFEdrive icon turns yellow, continue working as usual making sure to use intermittent mode as the operating mode.

See also:
☞ 3.6 Technical specifications of the ELECTROmatic, Page 25

If the exposure to the load persists for more than 10 seconds, the stage, "SAFEdrive error", is reached:
• The motor is stopped automatically.
• The SAFEdrive icon is red and flashes.
▶ If you use a handpiece from a third-party manufacturer, deactivate SAFEdrive or use a high-speed handpiece from KaVo.
▶ If an automatic motor stop signals that the "SAFEdrive error" status is evident, remove the handpiece from the mouth of the patient and proceed as follows:
▶ Carefully check the handpiece head for:
  - Temperature
  - Damage
  - Ability to rotate the bur
▶ The motor can be restarted if there is no damage or overheating evident. To do so, press the foot control again.
▶ When you continue working make sure not to touch the cheek with the handpiece head and, in particular, with the press-button.
▶ If damage or overheating is evident, replace the handpiece or have it repaired.
7 Decommissioning

7.1 Disconnecting the electrical connection

▶ To disconnect the power cable from the mains, unplug the connector of the power supply from the supply mains socket.
▶ Unplug the power cable from the device.

7.2 Disconnecting the ELECTROmatic from the treatment unit

▶ Disconnect the 4-hole, 5-hole or 6-hole hose of the treatment unit from the filter or the adapter of the 2-hole to 4-hole connector of the ELECTROmatic.

7.3 Unplugging the motor/COMFORTdrive

▶ Unplug the plug of the motor cord from the connector on the device. Make sure to grasp the plug as close to the device as possible.

Note

Clean and disinfect the motor while it is connected to the motor cord.

See also:

Instructions for use INTRA LUX KL 703 LED / COMFORTdrive 200 XDR
8 Processing steps in accordance with DIN EN ISO 17664

Note
The processing steps for the motor, the COMFORTdrive and the straight and contra-angle handpieces are described in the corresponding instructions for use.

NOTICE
Improper disinfection.
Property damage to the product.
- Do not immerse product in liquids.
- Use disinfectant in accordance with the instructions of the manufacturer.
- No spray disinfection.
- Only disinfect by wiping.
- Never use chlorine-containing disinfectants.

Note
The processing instructions have been validated by the manufacturer. Any departure from the instructions provided must be checked by the processing entity for efficacy and possible detrimental consequences.

8.1 Cleaning

Note
Do not use solvents or aggressive chemicals.

8.1.1 Preparation at the site of use
- Unplug the unit from the main power supply.
- Decontaminate as close as possible to use.
- Remove extensive soiling immediately after it occurs.

8.1.2 Manual external cleaning

Note
Do not use scouring cleansers.
- Make sure that the device is disconnected from the mains.
- Dampen a soft cloth with tap water or a mild cleaning solution (weak soapy water).
- Wipe all external surfaces of the ELECTROmatic housing and the external surfaces of the motor cord with the lightly dampened cloth.

8.1.3 Manual cleaning of the inside
There is no specific cleaning of the inside of the unit.
For protection from infection, it is recommended to rinse the water and air ducts (coolant media) for at least 20 seconds before treating a patient.
8.1.4 Mechanical cleaning of the exterior and interior

Not applicable.

8.2 Disinfection

**CAUTION**

Growth of germs.
Infections.

- Before treating a patient, let the spray air and spray water exit for at least 20 seconds.
- Before the first start-up and after downtimes (weekends, holidays, vacations, etc.), the air and water lines must be purged and/or rinsed.
- The germ reduction of the ELECTROmatic must be carried out via the treatment unit.

KaVo recommends the following products for germ reduction of the spray water of the treatment unit:

- KaVo Oxygenal 6 made by KaVo Dental GmbH www.kavo.com
- BluTab made by ConFirm Monitoring Systems Inc www.blutab.com
- ICX® Water Treatment Tablets made by A-dec
- Use in accordance with manufacturer specifications.

**Note**
The unit must be disinfected manually only.

8.2.1 Manual external disinfection

- Use a soft disposable cloth and an approved disinfectant for germ reduction by wiping down all visible surfaces of the unit, foot control surfaces, and connecting cables. Make sure that all surfaces are fully wetted.
- Let the disinfectant act for the prescribed time.
- Dry the surfaces.

Permissible disinfectants (application range in accordance with the available manufacturer's instructions for use and national guidelines. Please note material safety data sheets.) KaVo recommends the following products based on the compatibility of the materials. The microbiological efficacy must be ensured by the disinfectant manufacturer.

- FD 322 (Dürr)
- Microcide AF Liquid (Schülke & Mayr)
- CaviCide (Metrex)
- Incidin Liquid (Ecolab)

**Note**
Comply with the instructions for use of the disinfectant.

8.2.2 Manual disinfection of the interior

The germ reduction of the ELECTROmatic must be carried out via the treatment unit.
▶ Connect the ELECTROmatic to the treatment unit.
▶ Follow the instructions for germ reduction of the treatment unit.

The product should be used according to the instructions of the manufacturer and the Instructions for Use of the treatment unit.

8.2.3 Mechanical disinfection of the exterior and interior

The exterior and interior of this product are not designed for automated disinfection.

8.3 Packaging

Not applicable.

8.4 Sterilization

Not applicable.

8.5 Storage

Processed products must be stored, protected from bacteria, to the extent possible, and dust, in a dry, dark, cool room.

**Note**

Comply with the expiration date of the sterilized items.

8.6 Service, inspection and testing after processing

**Note**

It is essential to comply with the hygiene requirements (sterility) during the test after processing. If sites of fracture and obvious changes of the surface are visible, the parts need to be checked by the Service.

Check for cleanliness, intactness, servicing, and repair as described in the following:

▶ Check the adjustable functions of the unit and the motor function.
▶ Check the control commands on the foot control.
9 Maintenance

KaVo recommends that only original KaVo parts® be used for operating and repairs since their safety, operation and specific suitability have been tested in extensive tests.

Note

KaVo grants no guarantee of function and KaVo accepts no liability unless original replacement parts and operating materials are used exclusively.

Note

The device must not be serviced or repaired during treatment/use.

The servicing work described in the following can be performed by the operator/user.

9.1 Changing the filter - water inlet

⚠️ CAUTION

Hazard from insufficient amount of spray water.

Insufficient spray water can cause the medical device to overheat and damage the tooth.

▶ Check and/or change the filter.
▶ Check the spray water channels and clean the spray nozzles with the nozzle pin according to need.

KaVo recommends checking the filter every 3 months initially and to change the filter insert according to need. The scope of delivery includes 2 filter inserts. After this time, the filter should be regularly checked and replaced according to need with the interval being appropriate for the conditions at your practice and the degree of soiling.

▶ Undo the union nut proceeding in the direction of the arrow.

▶ Replace the filter insert (Mat. no. 1.007.9736) ① if there is any visible soiling.
9.2 Replacing the LED lamp of the KL 703 motor

**CAUTION**
Danger from hot lamp.
Risk of burn injury.
- Do not touch lamp after previous operation. Let the lamp cool off.

- Pull the sleeve off while twisting slightly.
- Push the old KaVo Mini LED lamp out of the mount with your fingernail and remove it.
- Inset the new KaVo Mini LED lamp into the recess such that the contact surfaces align with those of the mount. Slide the lamp into the mount. Place the sleeve on the motor and pull it up.

Note
The KaVo Mini LED lamp is a semiconductor element and must be operated with direct current only. The lamp must be inserted with the poles in the correct orientation for the lamp to work properly.

**NOTICE**
LED lamp inserted in wrong position/with wrong polarity.
Damage to or bending of the contacts.
- Make sure that position and polarity are correct.

- **Case 1:** KaVo Mini LED lamp is on
- **Case 2:** The KaVo Mini LED lamp is faint
  - Increase the cold light intensity on the unit until the desired light intensity is reached.
- **Case 3:** KaVo Mini LED lamp is red or off
  - Insert KaVo Mini LED lamp after rotating it 180° about its axis.
  - Put the sleeve on while twisting it slightly.
9.3 Replacing the LED lamp of the COMFORTbase

The user may change the bulb.

⚠️ CAUTION

**Hot lamp.**
Risk of burn injury.
- Wait for the lamp to cool down before replacing it.
- Slide the enclosed lamp changer on the MULTI LED and pull out the lamp in axial direction.

- Insert the new lamp into the lamp changer, and introduce it into the hole in the face of the supply hose. Carefully press the lamp into the socket.
- Carefully eject the lamp with the ejector.

**Note**
The KaVo MULTI LED bulb is a semiconductor element and may only be operated with direct current. To ensure proper function, the LED needs to be inserted with the correct polarity.

⚠️ NOTICE

**LED lamp inserted in wrong position/with wrong polarity.**
Damage to or bending of the contacts.
- Make sure that position and polarity are correct.

The following may happen after you turn on the KaVo MULTI LED lamp:
- **Case 1:** KaVo MULTI LED lamp is on.
- **Case 2:** KaVo MULTI LED lamp is red or off.
  - Take the KaVo MULTI LED lamp out of its mount as described above and re-insert it after rotating it by 180° about its axis.

9.4 Replacing the motor hose

- If the motor hose is defective, disconnect the motor hose from the motor, and unscrew it from and pull it off the rear of the ELECTROmatic device.
- Connect a new motor hose to the device and the motor.

**See also:**
- 5.1.4 Connect the motor cord, Page 50
- 5.1.3 Connect the motor, Page 49
Dispose of the defective motor hose in appropriate manner.
10 Troubleshooting

**Note**
The ELECTROmatic PM/PC displays error messages and/or instructions visually on its display.
The ELECTROmatic M/C displays error messages and/or instructions by means of a flashing LED on the rear of the device. The error code is indicated by how often the LED flashes, e.g. the LED flashes 7 times for error message "E7". The motor is shut off in any case of malfunction.

- If the error message does not disappear or the error is reported again, contact Service.
- Restart the unit with all the other error messages.

<table>
<thead>
<tr>
<th>Malfunction</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>No or insufficient spray water</td>
<td>Spray water regulation is closed.</td>
<td>▶ Open the spray water fully.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>See also:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.3 Regulating the spray water, Page 57</td>
</tr>
<tr>
<td>Water line is soiled</td>
<td></td>
<td>▶ Open the spray water fully.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>See also:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.3 Regulating the spray water, Page 57</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▶ Pull the handpiece off and actuate the spray water in bursts (rinsing process).</td>
</tr>
<tr>
<td>Filter insert is soiled</td>
<td></td>
<td>▶ Replace filter on water inlet.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>See also:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>9.1 Changing the filter - water inlet, Page 66</td>
</tr>
<tr>
<td>Spray water on treatment unit or foot control is closed.</td>
<td>No voltage supply.</td>
<td>▶ Open the spray on the treatment unit.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▶ If the error persists, unscrew the turbine hose and check if there is any flow of water.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▶ If there is no flow of water, notify a service engineer.</td>
</tr>
<tr>
<td>Device malfunctions (no display, the LED on the rear of the device does not flash).</td>
<td>No voltage supply.</td>
<td>▶ Check/restore voltage supply and correct connection.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>⇒ The standby LED on the power supply is on.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>See also:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.8 Power supply type 4882, Page 29</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▶ If the standby LED on the power supply is not on, replace the power supply.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▶ If error persists, notify the service engineer.</td>
</tr>
<tr>
<td>Device malfunctions (no display, the LED on the rear of the device flashes).</td>
<td>No voltage supply on the control panel. No connection to the control panel.</td>
<td>▶ Check/restore correct connection.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▶ Replace the connection cable to the control panel.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▶ Replace the control panel.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▶ If error persists, notify the service engineer.</td>
</tr>
<tr>
<td>Malfunction</td>
<td>Cause</td>
<td>Remedy</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Maximum speed not reached.  | Supply pressure changed strongly. | ▶ Repeatedly push the foot control down as far as it will go.  
  ⇒ The motor starts-up during this process. The automatic calibration increases the speed continuously up to the maximum pressure.  
  ▶ Kink or leak in supply hose.  
  ▶ Remove the kink and check for damage!  
  ▶ In case of damage/leakage, replace the supply hose.  
  ▶ If error persists, notify the service engineer.  
  ▶ Motor and/or handpiece are sluggish.  
  ▶ Replace or repair handpiece.  
  ▶ If error persists, notify the service engineer.  |
| LUX light is red.           | Incorrect LED poles.          | ▶ Rotate LED or replace it, if applicable.                              |
| LUX light is not on.        | LED is defective.             | ▶ Replace the LED.  
  ▶ If error persists, notify the service engineer.  |
| Motor hose is defective.    |                              | ▶ Replace motor hose.                                                  |
| Device is defective.        |                              | ▶ Replace the control unit.  
  ▶ If error persists, notify the service engineer.  |
| SAFEdrive icon flashes yellow. SAFEdrive alert. | Motor is overloaded.  
  **Also refer to:** Chapter on SAFEdrive Protection Function | ▶ If you use a handpiece from a third-party manufacturer, deactivate SAFEdrive or use a high-speed handpiece from KaVo.  
  ▶ If you use a high-speed handpiece from KaVo, relieve the handpiece of its load for at least 2 seconds, i.e. lift it off the tooth.  
  ▶ As soon as the motor reaches maximum speed again and the SAFEdrive icon turns yellow, continue working as usual making sure to use intermittent mode as the operating mode.  
  ▶ Carefully check the handpiece head for:  
  - Temperature  
  - Damage  
  - Ease of operation  
  ▶ The motor can be restarted if there is no damage or overheating evident. To do so, press the foot control again.  
  ▶ Service the handpiece.  
  ▶ If damage or overheating is evident, replace the handpiece or have it repaired.  |
| SAFEdrive icon flashes red.  | Motor is overloaded.  
  **Also refer to:** Chapter on SAFEdrive Protection Function | ▶ If you use a handpiece from a third-party manufacturer, deactivate SAFEdrive or use a high-speed handpiece from KaVo.  
  ▶ If you use a high-speed handpiece from KaVo, remove the handpiece from the mouth of the patient and proceed as follows:  
  ▶ Carefully check the handpiece head for:  
  - Temperature  
  - Damage  
  - Ease of operation  
  ▶ The motor can be restarted if there is no damage or overheating evident. To do so, press the foot control again.  
  ▶ Service the handpiece.  
  ▶ If damage or overheating is evident, replace the handpiece or have it repaired.  |

**See also:**
- 3.6 Technical specifications of the ELECTROmatic, Page 25
- 6.6 Protection function SAFEdrive (PM/PC only), Page 58
## 10 Troubleshooting

<table>
<thead>
<tr>
<th>Malfunction</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event E2</td>
<td>Foot control is being pressed during start-up.</td>
<td>▶ Do not press the foot control when you switch the unit on.</td>
</tr>
<tr>
<td>Event E3</td>
<td>No motor is connected.</td>
<td>▶ Connect the motor.</td>
</tr>
<tr>
<td>Event E4</td>
<td>Motor is blocked.</td>
<td>▶ Relieve the motor of load, stop and start on foot control.</td>
</tr>
<tr>
<td>Event E5</td>
<td>Automatic light and motor shut-off during continuous operation of the motor.</td>
<td>▶ Comply with defined operating mode.</td>
</tr>
<tr>
<td>Event E8</td>
<td>Saved data or settings have been reset to starting value.</td>
<td>▶ Confirm message and check or correct the program settings. ▶ If error persists, notify the service engineer.</td>
</tr>
<tr>
<td>Event E12</td>
<td>No connection to motor.</td>
<td>▶ Check/restore correct connection. ▶ Replace the motor cord. ▶ If error persists, notify the service engineer.</td>
</tr>
<tr>
<td>Event E14</td>
<td>Motor overload.</td>
<td>▶ Relieve the motor of load, stop and start on foot control.</td>
</tr>
<tr>
<td>All other events</td>
<td>Internal system error.</td>
<td>▶ Turn the unit off and on. ▶ If error persists, notify the service engineer.</td>
</tr>
</tbody>
</table>
### 11 Accessories and consumables

<table>
<thead>
<tr>
<th>Name</th>
<th>Catalog number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter insert</td>
<td>1.007.9736</td>
</tr>
<tr>
<td>Airflow measuring tube</td>
<td>0.411.4441</td>
</tr>
<tr>
<td>Adaptor for the airflow measuring tube</td>
<td>1.005.1702</td>
</tr>
<tr>
<td>Motor INTRA LUX KL 703 LED</td>
<td>1.007.0150</td>
</tr>
<tr>
<td>KL Motor hose 1750</td>
<td>1.011.7200</td>
</tr>
<tr>
<td>KL Motor hose 2200</td>
<td>1.011.5668</td>
</tr>
<tr>
<td>COMFORTdrive 200 XDR</td>
<td>1.007.3570</td>
</tr>
<tr>
<td>COMFORTbase 1750</td>
<td>1.011.7335</td>
</tr>
<tr>
<td>COMFORTbase 2200</td>
<td>1.011.7076</td>
</tr>
<tr>
<td>Mini LED for INTRA LUX KL 703 LED motor</td>
<td>1.007.8474</td>
</tr>
<tr>
<td>KaVo MULTI LED lamp for COMFORTbase</td>
<td>1.007.5372</td>
</tr>
<tr>
<td>O-ring set 8.3x0.68 for INTRAmatic</td>
<td>0.200.6120</td>
</tr>
<tr>
<td>O-ring set 4.7x0.7 for COMFORTbase coupling</td>
<td>1.005.0327</td>
</tr>
<tr>
<td>O-ring 17x1 (KL motor)</td>
<td>1.003.5822</td>
</tr>
<tr>
<td>O-ring 17x0.8 (KL motor)</td>
<td>1.003.5656</td>
</tr>
<tr>
<td>KaVo straight and contra-angle hand-pieces</td>
<td>See KaVo INTRAmatic Handpiece Program</td>
</tr>
</tbody>
</table>
12 Information on electromagnetic compatibility

12.1 Guidelines and manufacturer's declaration - electromagnetic emission

The ELECTROmatic is intended for use in an environment of the kind specified below. The customer or user of the ELECTROmatic should make sure that the device is used in an environment of the specified type.

<table>
<thead>
<tr>
<th>Measurements of emitted interference</th>
<th>Conformance</th>
<th>Electromagnetic environment - Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>HF emissions according to EN 55011 (CISPR 11)</td>
<td>Group 1</td>
<td>The ELECTROmatic uses HF energy exclusively for its internal functions. Therefore, the HF emission of the device is very low and interference with adjacent electronic devices is unlikely.</td>
</tr>
<tr>
<td>HF emissions according to EN 55011 (CISPR 11)</td>
<td>Class B</td>
<td>The ELECTROmatic is suitable for use in all facilities, including residential facilities, and areas that are directly connected to a public supply mains that also supplies buildings used for residential purposes.</td>
</tr>
<tr>
<td>Emission of harmonics according to IEC 61000-3-2</td>
<td>Class A</td>
<td>The ELECTROmatic is suitable for use in all facilities, including residential facilities, and areas that are directly connected to a public supply mains that also supplies buildings used for residential purposes.</td>
</tr>
<tr>
<td>Emission of voltage fluctuations/flicker according to IEC 61000-3-3</td>
<td>Conforms</td>
<td>The ELECTROmatic is suitable for use in all facilities, including residential facilities, and areas that are directly connected to a public supply mains that also supplies buildings used for residential purposes.</td>
</tr>
</tbody>
</table>

12.2 Guidelines and manufacturer's statement - Electromagnetic immunity

The ELECTROmatic is intended for use in an environment of the kind specified below. The customer or user of the ELECTROmatic should make sure that the device is used in an environment of the specified type.
### Interference immunity tests

<table>
<thead>
<tr>
<th>IEC 60601 test levels</th>
<th>Compliance level</th>
<th>Electromagnetic environment - Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrostatic discharge (ESD) according to IEC 61000-4-2</td>
<td>± 8 kV contact discharge ± 15 kV atmospheric discharge</td>
<td>± 8 kV contact discharge ± 15 kV atmospheric discharge</td>
</tr>
<tr>
<td>Fast transient electrical interference / bursts according to IEC 61000-4-4</td>
<td>± 2 kV for power lines ± 2 kV for input and output lines</td>
<td>± 2 kV for power lines and input and output lines</td>
</tr>
<tr>
<td>Surges according to IEC 61000-4-5</td>
<td>± 1 kV push-pull voltage ± 2 kV common mode voltage</td>
<td>± 1 kV push-pull voltage ± 2 kV common mode voltage</td>
</tr>
<tr>
<td>Voltage interruptions, short-term interruptions, and fluctuations of the supply voltage according to IEC 61000-4-11</td>
<td>0 % / 0.5 cycles at 0º to 315º in 45º increments 0 % / 1 cycle 70 % / 25 cycles 0 % / 250 cycles</td>
<td>0 % / 0.5 cycles at 0º to 315º in 45º increments 0 % / 1 cycle 70 % / 25 cycles 0 % / 250 cycles</td>
</tr>
<tr>
<td>Magnetic field at the supply frequency (50/60 Hz) according to IEC 61000-4-8</td>
<td>30 A/m</td>
<td>30 A/m</td>
</tr>
</tbody>
</table>

### 12.3 Guidelines and manufacturer’s statement - Electromagnetic immunity

The ELECTROmatic is intended for use in an environment of the kind specified below. The customer or user of the ELECTROmatic should make sure that the device is used in an environment of the specified type.
Interference immunity tests | IEC 60601 test levels | Compliance level | Electromagnetic environment - Guidelines
--- | --- | --- | ---
Wire-based HF interference according to IEC 61000-4-6 | 3 V\text{eff} 150 kHz to 80 MHz outside ISM bands\textsuperscript{a} | 3 V\text{eff} | Handheld and mobile wireless devices should not be used at a shorter distance from the ELECTROmatic including cords than the recommended safe clearance calculated using the appropriate equation for the emission frequency. Recommended safe distance: 
\[d = 1.17 \sqrt{P}\] 
\[d = 0.35 \sqrt{P}\] for 80 MHz to 800 MHz 
\[d = 0.70 \sqrt{P}\] for 800 MHz to 2.5 GHz where P is the maximal nominal power of the transmitter in watts (W) as specified by the transmitter manufacturer and d is the recommended safe clearance in meters (m).
\textsuperscript{a}The ISM frequency bands (for industrial, scientific, and medical applications) between 150 kHz and 80 MHz are 6.765 MHz to 6.795 MHz; 13.553 MHz to 13.567 MHz; 26.957 MHz to 27.283 MHz, and 40.66 MHz to 40.70 MHz.

Wireless HF interference according to IEC 61000-4-3 | 3 V/m 80 MHz to 2700 MHz | 3 V/m | The field strength of stationary wireless radio transmitters as measured locally\textsuperscript{b} should be lower than the conformance level at all frequencies.
\textsuperscript{b}The field strength of stationary wireless radio transmitters as measured locally\textsuperscript{c} should be lower than the conformance level at all frequencies.
\textsuperscript{c}Interference is possible in the vicinity of devices bearing the following icon.

\textsuperscript{a}The ISM frequency bands (for industrial, scientific, and medical applications) between 150 kHz and 80 MHz are 6.765 MHz to 6.795 MHz; 13.553 MHz to 13.567 MHz; 26.957 MHz to 27.283 MHz, and 40.66 MHz to 40.70 MHz.
\textsuperscript{b}The ISM frequency bands between 150 kHz and 80 MHz and in the frequency range from 80 MHz to 2.5 GHz are intended to reduce the probability of mobile/handheld communications facilities causing interference when they are inadvertently introduced into the patient area. For this reason, the additional factor of 10/3 is applied in the calculation of the recommended safe clearances in these ranges of frequencies.
\textsuperscript{c}The field strength of stationary transmitters, such as, e.g. base stations of mobile phones and mobile terrestrial radio devices, amateur radio stations, AM and FM radio and television transmitters, cannot be determined exactly based on theoretical considerations. A site study should be considered to determine the electromagnetic environment in terms of stationary transmitters. If the field strength measured at the site, at which the ELECTROmatic is used, exceeds the compliance levels shown above, the ELECTROmatic should be monitored to demonstrate proper function. If any uncommon performance characteristics are observed, additional measures may be required, such as, e.g., changing the orientation or using a different location for the ELECTROmatic
\textsuperscript{d}In the frequency range of 150 kHz to 80 MHz, the field strength should be less than 3V\text{eff} V/m.

Comment 1: At 80 MHz and 800 MHz, the higher frequency range applies.
Comment 2: These guidelines may not be applicable in every case. The spread of electromagnetic waves is absorbed and reflected by buildings, objects and people.

12.4 Recommended safe distances between portable and mobile HF telecommunications equipment and the ELECTROmatic

The ELECTROmatic is intended for use in an electromagnetic environment, in which the HF interference parameters are controlled. Doing so, the customer or user of the ELECTROmatic can help prevent electromagnetic interference by maintaining the minimum clearance between portable and mobile HF telecommunication devices (transmitters) and the ELECTROmatic depending on the output of the communication device as indicated below.

The table shows the necessary safe distance depending on the transmission frequency in m:

<table>
<thead>
<tr>
<th>Rated power of the transmitter in W</th>
<th>150 kHz to 80 MHz (d=1.17 \sqrt{P})</th>
<th>80 MHz to 800 MHz (d=0.35 \sqrt{P})</th>
<th>800 MHz to 2.5 GHz (d=0.70 \sqrt{P})</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.01</td>
<td>0.12</td>
<td>0.04</td>
<td>0.07</td>
</tr>
<tr>
<td>0.1</td>
<td>0.37</td>
<td>0.11</td>
<td>0.22</td>
</tr>
<tr>
<td>1</td>
<td>1.17</td>
<td>0.35</td>
<td>0.70</td>
</tr>
<tr>
<td>10</td>
<td>3.70</td>
<td>1.11</td>
<td>2.21</td>
</tr>
<tr>
<td>100</td>
<td>11.70</td>
<td>3.5</td>
<td>7.0</td>
</tr>
</tbody>
</table>

For transmitters whose maximum rated power is not in the above table, the recommended safe distance \(d\) in meters (m) can be calculated using the equation for the respective gap, where \(P\) is the maximum rated power of the transmitter in Watts (W) according to the manufacturer’s information.

Comment 1: At 80 MHz and 800 MHz, the higher frequency range applies.

Comment 2: These guidelines may not be applicable in every case. The spread of electromagnetic waves is absorbed and reflected by buildings, objects and people.