Instructions for use

K-Control TLC 4955, 4956, 4957
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1 User instructions

1.1 User guide

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

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>AI</td>
<td>Assembly instructions</td>
</tr>
<tr>
<td>TI</td>
<td>Technician's instructions</td>
</tr>
<tr>
<td>SC</td>
<td>Safety checks</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>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 Symbols

- **Important information for users and service technicians**

- **CE mark (European Community). A product with this mark complies with the requirements of the relevant EC directives, i.e. the standards applicable in Europe.**

- **Action request**

- **Follow the instructions for use! Refer to the chapter on Safety/Warning symbol**

- **Device ON, turned on**

- **Device OFF, disconnection from the power supply**

1.1.3 Target group

This document is for dental technicians and laboratory personnel.
1.2 Service

Service-Hotline:
+49 7351 56-1000
Service.Zahntechnik@kavo.com
Please indicate the product serial number in all requests!
For further information, please visit: www.kavo.com

1.3 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 12 months from the date of purchase as confirmed by the salesperson.
In case of justified complaints, KaVo will honour 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 maintenance, 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 fibres, glassware, rubber parts and the colourfastness of plastic parts.
The warranty expires if defects or their consequences could possibly have arisen because the product has been modified or changed. 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 guaranty, the statutory warranty claims of the purchaser also apply with a warranty period of 12 months.

1.4 Transportation and storage

1.4.1 Currently valid packaging regulations

Note
Only valid for the Federal Republic of Germany.

Dispose of and recycle the sales packaging appropriately in accordance with current packaging regulations, employing waste management or recycling companies. Comply with the comprehensive return system. KaVo has had its sales packaging licensed for this purpose. Please comply with the regional public waste-disposal system.

1.4.2 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-mentioned obligations will mean that the damage will be considered to have arisen following delivery (in accordance with the General German Freight Forwarders’ Terms and Conditions, Art. 28).

**Outside 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 packaging 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 following delivery (in accordance with CMR law, Chapter 5, Art. 30).
1.4.3 Information on the packaging: Storage and transportation

**Note**
Please keep the packaging in case you need to return the product for servicing 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>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>![upright]</td>
<td>Transport upright with the arrows pointing upwards!</td>
</tr>
<tr>
<td>![fragile]</td>
<td>Fragile - protect against impact!</td>
</tr>
<tr>
<td>![moisture]</td>
<td>Protect from moisture!</td>
</tr>
<tr>
<td>![load]</td>
<td>Permissible stacking load</td>
</tr>
<tr>
<td>![temperature]</td>
<td>Temperature range</td>
</tr>
<tr>
<td>![humidity]</td>
<td>Humidity</td>
</tr>
<tr>
<td>![air-pressure]</td>
<td>Air pressure</td>
</tr>
</tbody>
</table>
2 Safety

2.1 Description of safety instructions

2.1.1 Warning symbol

| Warning symbol |

2.1.2 Structure

⚠️ DANGER
The introduction describes the type and source of the hazard.
This section describes potential consequences of non-compliance.
▶ The optional step includes necessary measures for hazard prevention.

2.1.3 Description of hazard levels

Safety instructions distinguishing between three hazard levels are used in this document to prevent personal and property damage.

The warning and safety notes in this document must be observed to prevent personal injury and material damage. The warning notes are designated as shown below:

NOTICE
In cases which – if not prevented – could lead to material damage.

CAUTION
indicates a hazardous situation that can cause damage to property or mild to moderate injuries.

WARNING
indicates a hazardous situation that can lead to serious or fatal injury.

DANGER
indicates a maximal hazard due to a situation that can directly cause death or fatal injury.

2.2 Safety instructions

2.2.1 General

ℹ️ Note
Only competent and trained personnel may use the product!
Each time before using the device, the qualified user shall ensure that the device is functionally safe and in a proper condition.

**DANGER**

**Explosion hazard.**
Risk of fatal injury.
- Do not use KaVo product in areas subject an explosion hazard.

**CAUTION**

**Improper maintenance or repair of the unit.**
Damage to and malfunction of the unit.
- Repair and servicing work on the electronic part of the unit may be done only by skilled staff or KaVo-trained technicians.
- Use original KaVo spare parts only.

Users have a duty to:
- Only use equipment that is operating correctly
- Protect themselves and others against hazards.

The following persons are authorised to repair and service the KaVo product:
- Technicians of KaVo branch offices after appropriate product training.
- Specifically KaVo-trained technicians of KaVo franchised dealers.

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.

**Note**

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

**2.2.2 Product-specific**

**WARNING**

**Injury or damage from damaged functional parts.**
Damage to functional parts can cause further damage or personal injury.
- Check the device, electrical cables and any accessories for possible damage to the insulation and replace if necessary.
- If functional parts are damaged: discontinue your work and repair the damage or notify a service technician!

**WARNING**

**Vapours, chips and dust may be produced during the processing of various materials.**
These can damage the eyes and airways.
Use protective goggles and respiratory protection and suitable dust extraction as needed.
2 Safety | 2.2 Safety instructions

⚠️ CAUTION
Damage by liquids.
Faults on electrical components.
- Protect openings of the product from any ingress of liquids.
- Do not continue using the device and contact Customer Service, if there is any ingress of liquid into the device.

NOTICE
Unsuitable speed.
Damage to the product.
Problems processing selected material.
- Check the speed setting each time you turn on the unit!

NOTICE
Premature wear and malfunctions from improper care.
Reduced product life.
- Use recommended care products only.

⚠️ CAUTION
Risk due to incorrectly stored handpiece.
Risk of injury. Handpiece may move in the support if the tools that are used become hooked in.
- Do not start the handpiece while it is in the tray. Make sure you have a safe grip / hold on the handpiece when you start it.

⚠️ CAUTION
Rotating instruments and tools
Injury hazard
- Protect loose-fitting clothes (e.g. with a hairnet) from being caught and reeled up.

ℹ️ Note
Please comply with the instructions for use of the handpieces.
3 Product description

3.1 Purpose - Intended use

3.1.1 General

Note
Only competent and trained personnel may use the product!

This product has only been approved for use indoors.

This KaVo product is suitable for controlling KaVo motorised handpieces (low voltage motors) used for processing materials in dentistry, industry and trade applications by means of rotating tools. Any other type of use is not permitted.

"Proper use" includes following all instructions for use and ensuring that all inspections and service tasks are performed.

The applicable national legal regulations must be observed during the use of the device, in particular the following:

- Current occupational safety regulations
- Current accident prevention regulations

Each time before using the device, the qualified user shall ensure that the device is functionally safe and in a proper condition.
3.2 Knee control K-Control TLC 4955

① Speed, torque and program selection (rotary switch and pushbutton)
② Speed preset button
③ Torque preset button
④ Note: Follow the operating instructions
⑤ CCW rotation button
⑥ Speed limiting button
⑦ 4-colour display (speed, torque, program no. display)
⑧ Knee switching plate
⑨ Control cable jack (connection to the dust extractor)
⑩ Mains switch
⑪ Mains cable terminal
⑫ 12 V relay output
⑬ Motor socket (4-pin)
⑭ Mounting bracket
3.3 Foot control K-Control TLC 4956

Foot control K-Control TLC 4956

1. Display with LEDs and bar indicators
2. Program selection/speed selection button
3. CCW rotation/torque selection button
4. Foot pedal
5. Motor socket (4-pin)
6. Control cable jack (connection to the dust extractor)
7. 12 V relay output
8. Mains cable terminal
9. Note: Follow instructions for use
3.4 Table-top control K-Control TLC 4957

Table-top control K-Control TLC 4957

① Speed, torque and program selection (rotary switch and pushbutton) ② Speed preset button
③ Torque preset button ④ Note: Follow instructions for use
⑤ Speed limiting button ⑥ CCW rotation button
⑦ 4-colour display (speed, torque, program no. display) ⑦ Control cable jack (connection to the dust extractor)
⑧ Mains switch ⑨ Mains cable terminal
⑨ 12 V relay output ⑩ Motor socket (4-pin)
⑩ Starter socket (5-pin) ⑪ Foot pedal

3.5 Rating plates

Rating plate for knee control K-Control TLC 4955
3.6 Technical Data

**Knee control K-Control TLC 4955**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>95 mm</td>
</tr>
<tr>
<td>Depth</td>
<td>280 mm</td>
</tr>
<tr>
<td>Height</td>
<td>235 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>3,000 g</td>
</tr>
</tbody>
</table>

**Foot control K-Control TLC 4956**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>260 mm</td>
</tr>
<tr>
<td>Depth</td>
<td>290 mm</td>
</tr>
<tr>
<td>Height</td>
<td>140 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>3,000 g</td>
</tr>
</tbody>
</table>
### Table-top control K-Control TLC 4957

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>95 mm</td>
</tr>
<tr>
<td>Depth</td>
<td>280 mm</td>
</tr>
<tr>
<td>Height</td>
<td>235 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>3,000 g</td>
</tr>
</tbody>
</table>

#### Nominal voltages

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage range</td>
<td>100 to 240 V AC, 50 to 60 Hz</td>
</tr>
<tr>
<td>Rated power</td>
<td>max. 220 W</td>
</tr>
<tr>
<td>Overvoltage category</td>
<td>II</td>
</tr>
<tr>
<td>Line voltage fluctuations</td>
<td>± 10 %</td>
</tr>
</tbody>
</table>

#### Speed range CW rotation

<table>
<thead>
<tr>
<th>Motor Handpiece</th>
<th>Revs/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>K5 motor handpiece</td>
<td>1000 - 35 000</td>
</tr>
<tr>
<td>K9 motor handpiece</td>
<td>1,000 - 25,000</td>
</tr>
<tr>
<td>K-ERGOgrip</td>
<td>1,000 - 50,000</td>
</tr>
<tr>
<td>K-POWERgrip</td>
<td>1,000 - 50,000</td>
</tr>
</tbody>
</table>

#### Speed range CCW rotation

<table>
<thead>
<tr>
<th>Motor Handpiece</th>
<th>Revs/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>K5, K9, K-POWERgrip</td>
<td>limited to approx. 5,000</td>
</tr>
<tr>
<td>K-ERGOgrip</td>
<td>1,000 - 50,000</td>
</tr>
</tbody>
</table>

#### Exposure mode

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum duty time</td>
<td>2 minutes/ON</td>
</tr>
<tr>
<td>Cooling time</td>
<td>8 minutes/OFF</td>
</tr>
</tbody>
</table>

#### Sound pressure level

See: Sound pressure level in the instructions for use of this handpiece

#### Environmental conditions

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permissible ambient temperature range</td>
<td>+5 °C to +40 °C</td>
</tr>
<tr>
<td>Permissible to max. relative humidity</td>
<td>80 % (non-condensing)</td>
</tr>
<tr>
<td>Degree of soiling</td>
<td>2</td>
</tr>
<tr>
<td>Air pressure</td>
<td>700 hPa to 1060 hPa</td>
</tr>
<tr>
<td>Max. elevation</td>
<td>2000 m above sea level</td>
</tr>
</tbody>
</table>
3 Product description | 3.7 Scope of delivery

**Transportation and storage conditions**

Temperature range: -20°C to +70°C

Relative humidity: 5% to 95% (non-condensing)

Air pressure: 700 hPa to 1060 hPa

**Note**
Prior to start-up, very cold products must be heated to a temperature of Heat to 20°C to 25°C. Avoid condensation.

**Note**
Relay output and control output for the dust extraction system: Equipment may only be connected that is compliant with DIN EN 61010-1!

### 3.7 Scope of delivery

- Knee control K-Control TLC 4955:
  - Knee control unit
  - Power cable
  - Instructions for use
  - Control line
- Foot control K-Control TLC 4956:
  - Foot control unit
  - Power cable
  - Instructions for use
  - Control line
- Table-top control K-Control TLC 4957:
  - Tabletop control
  - Power cable
  - Instructions for use
  - Control line
4 First use

Note
Prior to start-up, very cold products must be heated to a temperature of
Heat to 20°C to 25°C. Avoid condensation.

Note
Do not switch the handpiece on while the chuck is open!

Note
Do not cover the air vent.

4.1 Combined control/handpiece

The following handpieces can be used in conjunction with the K-Control TLC
4955, 4956 and 4957 controls:
- K-POWERgrip 4941
- K5plus 4911
- K9-handpiece 4930
- K9 micro motor 970
- K9 milling spindle 960
- K-ERGOgrip 4944

4.2 Nominal voltage - Nominal frequency

- Test whether rated voltage and rated frequency comply with specifications
  on the rating plate.
4.3 Location

Note
This KaVo product must be set up on a level, stable, horizontal surface and its secure footing must be ensured. Do not set up right next to the edge of the table. Connecting cables, connections to motorised handpieces and foot control must be routed safely. Avoid creating tripping hazards.

4.3.1 Knee control K-Control TLC 4955

- Drill holes for the mounting bracket on the side of the enclosure.

Position of holes for mounting bracket

① Distance from upper edge: 93 mm  ② Hole spacing: 156.5 mm  ③ Distance from leading edge: 53 mm

- Screw the mounting rail into place and attach the knee control unit to it.

- Plug the connecting cable to the handpiece into the control unit and screw it tight.
Insert the mains plug into an appropriate, easily accessible and properly installed and grounded mains socket outlet.

**Note**
The knee control is attached to the mounting bracket. To remove it, you need to tug the knee control towards you and take it out of the bracket.

### 4.3.2 Foot control K-Control TLC 4956

- Set the foot control unit down on the floor.
- Plug the connecting cable to the handpiece into the control unit and screw it tight.
4.3 Location

Insert the mains plug into an appropriate, easily accessible and properly installed and grounded mains socket outlet.

**Note**
The device is separated from the supply mains by pulling out the mains or device plug.

### 4.3.3 Table-top control K-Control TLC 4957

- Set the tabletop control down on the workbench.
  Place the 4620 pedal switch on the floor underneath the workbench.
› Plug in the connecting cable to the handpiece and 4620 pedal switch and screw it tight.

![Diagram of control unit with connecting cable](image)

› Insert the mains plug into an appropriate, easily accessible and properly installed and grounded mains socket outlet.

› If applicable, connect the control line to the controller and to the dust extraction system.

**See also:**

- Instructions for use of the dust extraction system
5 Operation

**Note**
Note the safety instructions before each use.

**Note**
The device should be set up so that the power disconnection device can be easily accessed.

Be aware of intermittent operation!

### 5.1 Operating the knee control and tabletop control

Position of holes for mounting bracket

1. Distance from upper edge: 93 mm
2. Hole spacing: 156.5 mm
3. Distance from leading edge: 53 mm
5.1.1 Controls on the knee control and table-top control

Controls on the knee control and table-top control

① Speed, torque and program selection (rotary switch and pushbutton)
② Speed preset button
③ Torque preset button
④ Speed limiting button
⑤ CCW rotation button
⑥ 4-colour display (speed, torque, program no. display)

5.1.2 Turn on the control

Turn on the mains switch. Wait 3 seconds after actuating the power switch.

 réserve
The control’s software version will appear on the display for one second.
 réserve
This will be followed by the values of the last program set, with the stored max. speed and max. torque.
 réserve
The display lights up in the colour allocated to the program.

Note
Whilst the LED associated with the speed preset button is lit, the speed can be set using the rotary switch.
5.1 Operating the knee control and tabletop control

- Press the knee switching plate or foot pedal. Press the knee switching plate to start the motor and adjust the speed in the range between the motor's min. speed and the max. speed setting. The motor is started at the set speed with the foot pedal.

### 5.1.3 Setting the speed

- Press the speed preset button to activate the speed setting function.
  - The button's LED lights up.
- Use the rotary switch to set the speed.
  - The set speed is indicated on the display in units of 1,000 rpm.

**Note**
The max. speed setting is limited to 30,000 rpm. In order to be able to set higher speeds, you must first activate the speed limiting button. The same also applies to default programs. The button LED will light up to indicate that speed limiting has been cancelled.

**See also:**
- 5.1.6 Calling up and saving programs, Page 26

### 5.1.4 Setting the torque

- Press the torque preset button to activate the torque setting function.
  - The button's LED lights up.
- Use the rotary switch to set the torque.
  - The set torque is indicated on the bar indicator on the display in units of 10%. The display indicates the percentage value of the motor's max. possible torque.

**See also:**
- 5.1.6 Calling up and saving programs, Page 26

### 5.1.5 Activating CCW rotation

**Note**
You can switch to CCW rotation at any speed setting. On some handpieces, the CCW rotation speed range is limited.

- Press the CCW rotation button to switch from CW to CCW rotation.
  - The button's LED lights up.
  - The speed is indicated on the display with a minus sign.
- Press the CCW rotation button again to switch from CCW to CW rotation.

### 5.1.6 Calling up and saving programs

Four speed and torque setting combinations can be saved as programs and recalled. Each of the four programs is allocated a different background colour on the display.

- Press the pushbutton briefly to call up the speed and torque settings for the next program.
5 Operation | 5.2 Operating the foot control

**The display colour changes.**

**Note**
The speed and torque settings can be modified in the usual way.

**See also:**
- 5.1.3 Setting the speed, Page 26
- 5.1.4 Setting the torque, Page 26
  - Press the pushbutton for approx. 3 seconds to save the current speed and torque settings (clockwise rotation) in the current program.
  - The display flashes once.

### 5.2 Operating the foot control

#### 5.2.1 Controls on the foot control

![Operating the foot control](image)

- **1 Bar indicator for speed**
- **2 Bar indicator for torque**
- **3 Status LED for program display (4-colour)**
- **4 LED for CCW rotation**
- **5 Program selection/speed selection button**
- **6 CCW rotation/torque selection button**
- **7 Foot pedal**

#### 5.2.2 Turn on the control

**Note**
When the device is turned on, the speed limiting is activated for safety reasons (max. 30,000 rpm) even with saved programs.

- Connect the power line.
- A corresponding number of LEDs light up on the bar indicator for one second to indicate the control’s software version in binary form similar to an error display.
- This will be followed by the values of the last program set, with the stored max. speed and max. torque.
- The status LED lights up in the colour allocated to the program.

**See also:**
- 7 Troubleshooting, Page 31
5.2.3 Setting the speed

- Press the speed selection button briefly several times in succession to set the speed.
  ⇒ The set speed is indicated in increments of 20% on the right-hand bar indicator relative to the maximum speed of the connected motor.

Note
The settings are saved automatically for the current program.

See also:
5.2.6 Calling up programs, Page 28

5.2.4 Setting the torque

- Press the torque selection button briefly several times in succession to set the max. torque.
  ⇒ The set torque is indicated in increments of 20% on the left-hand bar indicator relative to the maximum torque of the connected motor.

Note
The settings are saved automatically for the current program.

See also:
5.2.6 Calling up programs, Page 28

5.2.5 Activating CCW rotation

Note
You can switch to CCW rotation at any speed setting. On some handpieces, the CCW rotation speed range is limited.

- Press and hold down the CCW rotation button for at least 2 seconds to switch from CW to CCW rotation.
  ⇒ The LED for CCW rotation lights up.
- Press the CCW rotation button again to switch from CCW to CW rotation.

5.2.6 Calling up programs

The four last set speed and torque setting combinations are saved automatically as programs and can be recalled. Each of the four programs is allocated a different colour on the status LED.

- Press and hold down the program selection button for at least 2 seconds to call up the speed and torque settings for the next program.
5.3 Operation in KaVo suction systems

The enclosed control line (Mat. no. 10007198) allows the K-Control TLC controllers to be operated in combination with the SMARTair dust extraction system or the EXTRAMATIC multiple unit dust extraction system.

**Note**

The dust extraction system and the K-Control TLC controllers must be connected to different power sockets.

Use the control line (Mat. no. 10007198) to connect the K-Control TLC to SMARTair.
6 Maintenance

6.1 Servicing

Note
No preventive maintenance and servicing required. Repair work may be done only by skilled staff or by technicians trained by KaVo.

Note
The electrical safety according to VDE 0701 must be demonstrated.

6.1.1 Cleaning

Note
Prevent any ingress of liquids.

Note
Do not use solvents or aggressive chemicals.

▶ Wipe only the external surfaces with a soft moist cloth and, possibly, a mild cleanser.

6.2 Safety checks in accordance with IEC 62638 (VDE 0701 / 0702)

The applicable national legal regulations must be observed during the use of the device, in particular:

- the applicable occupational health and safety regulations.
- the applicable accident prevention regulations.

The overarching guidelines and/or national laws, national regulations and the rules of technology applicable to this product for start-up and use of the KaVo product for the intended purpose are to be applied and complied with.

Compliance with the requirements of VDE 0701-0702 concerning product safety upon start-up, after changes and repair as well as in recurrent tests is required. Caution: Electrical safety checks have to be carried out by electrical engineering professionals or by individuals trained in electrical engineering and supervised by an electrical engineering professional.

An electrical engineering professional is defined to be anyone whose training, knowledge and experience as well as knowledge of the pertinent regulations allow him or her to assess the imminent work and recognise possible hazards. It is at the discretion of the electrical engineering professional in charge to decide whether or not further individual tests are required in order to attain the safety target.

If safety deficiencies or damage is/are detected during the recurrent test, the testing process must be discontinued and the equipment must be labelled accordingly and banned from further use or submitted for repair of the defect.
## 7 Eliminating disturbances

### Note
On the knee control and table top control, the error display is shown on the display together with the word "ERROR". The speed and torque displays will be hidden by this text. An error display (number) provides information about the possible cause of the error.

### Note
If the controllers are used on suction lines with a switch-on pulse via the control line, the motor stop running if the suction power is insufficient or if the priority is set accordingly.

### Note
Errors in the foot control are indicated by a red flashing LED. On the foot control, errors are displayed on the two bar indicators. The error number comprises the total number of LEDs lit on the two bar indicators. The LEDs on the right-hand bar indicator are counted at a factor of 1 and those on the left-hand bar indicator at a factor of 5.

Example: If, in the event of an error, 2 LEDs light up on the left-hand side and 4 on the right, error 14 \((2 \times 5 + 4 \times 1 = 14)\) will be displayed.

<table>
<thead>
<tr>
<th>Malfunction</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Motor overload.</td>
<td>▶ Relieve motor, stop and restart.</td>
</tr>
<tr>
<td>02</td>
<td>DC motor (collector-type) blocked.</td>
<td>▶ Remove blockage, stop motor and restart. ▶ Close the chuck on the handpiece.</td>
</tr>
<tr>
<td>03</td>
<td>No handpiece connected.</td>
<td>▶ Connect the handpiece and restart.</td>
</tr>
<tr>
<td>04</td>
<td>A motor phase has been lost (e.g. due to a cable break).</td>
<td>▶ Check the cable and replace it if necessary.</td>
</tr>
<tr>
<td>05</td>
<td>Motor ID error or unknown motor connected.</td>
<td>▶ Replace the handpiece and/or have the control repaired.</td>
</tr>
<tr>
<td>06 to 30</td>
<td>Control malfunction.</td>
<td>▶ Turn the control off and on. If the error display appears again, have the control repaired.</td>
</tr>
<tr>
<td>16</td>
<td>Electronics overload.</td>
<td>▶ Reduce motor load. ▶ Note pauses/intermittent operation. ▶ If the error display appears again, have the control repaired.</td>
</tr>
<tr>
<td>Handpiece does not run. Background light of the LCD display flashes or the active LEDs on the foot control flash.</td>
<td>The &quot;Filter full&quot; LED on the SMARTair is on red or the EXTRAMATIC works in de-dusting mode.</td>
<td>▶ Change SMARTair filter bag or wait until the EXTRAMATIC de-dusting is finished.</td>
</tr>
</tbody>
</table>
## 8 Accessories

<table>
<thead>
<tr>
<th>Presentation</th>
<th>Material summary</th>
<th>Material number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pedal switch</td>
<td>0.617.0460</td>
</tr>
<tr>
<td></td>
<td>Handpiece tray</td>
<td>1.005.3460</td>
</tr>
<tr>
<td></td>
<td>Control cable</td>
<td>1.000.7198</td>
</tr>
</tbody>
</table>
9 Declaration of conformity

Manufacturer:
Kaltenbach & Voigt GmbH
Bismarckring 39
D-88400 Biberach

K-Control TLC 4955
Kniesteuergerät Kontrol TLC

K-Control TLC 4956
Fusssteuergerät Kontrol TLC

K-Control TLC 4957
Tischsteuergerät Kontrol TLC

in connection with
K5plus 4911 / K-POWERgrip 4941 / K-ERGOgrip 4944
K9-Frässpindel 960 / K9-Kleinmotor 970 / K9-Handstück 4930

2006/42/EC EC Directive - Machineries
2014/35/EC EC Directive - Low Voltage
2014/30/EC EC Directive - EMC - Electromagnetic Compatibility

EN 61010-1 Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements
EN 61326-1 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements

We declare in sole responsibility that the products manufactured by us to which this statement refers, conform to the essential requirements according to the above-mentioned directives. The specified standards or normative documents were applied to evaluate the product.

We erklären in alleiniger Verantwortung, dass die von uns hergestellten Produkte auf die sich diese Erklärung bezieht, mit den grundlegenden Anforderungen gemäß den Bestimmungen der obigen Richtlinien übereinstimmen. Zur Beurteilung des Erzeugnisses wurden die benannten Normen oder normative Dokumente angewandt.

Nous déclarons sous notre seule responsabilité que les produits fabriqués par nos soins, auxquels se réfère cette déclaration, sont conformes aux exigences essentielles selon les dispositions des directives susmentionnées. Les normes ou autres documents normatifs désignés sont utilisés pour l'évaluation de ce produit.

Dichieriamo sotto nostra esclusiva responsabilità che i prodotti da noi fabbricati, a cui si riferisce la presente dichiarazione, sono conformi ai requisiti fondamentali ai sensi delle disposizioni della direttiva susmenzionate. Per la valutazione del prodotto sono stati applicati i norme o i documenti normativi citati.

Prohlašujeme s výhradní odpovědností, že se námi vyráběné výrobky, na které se vztahuje toto prohlášení, shodují se základním požadavky podle předpisů vyšší úrovně směrnice. K posouzení výrobku byly použity uvedené normy nebo normativy.

Por la presente declaramos que en nuestra propia responsabilidad los productos que nosotros fabricamos, y a los que hace referencia esta declaración, cumplen los requisitos básicos de conformidad con las disposiciones de la directiva análoga mencionada. Las normas o documentos normativos mencionados se aplican en la evaluación de dichos productos.

Effective date Biberach, 09.01.2018

Stefan Trampler
Director Regulatory Affairs

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