Instructions for use EXPERTmatic LUX contra-angle E25 L - REF 1.007.5550 EXPERTmatic contra-angle E25 C - REF 1.007.5551



## Distributed by:

KaVo Dental GmbH Bismarckring 39 D-88400 Biberach

Phone +49 7351 56-0 Fax +49 7351 56-1488 Manufacturer:

Kaltenbach & Voigt GmbH Bismarckring 39

D-88400 Biberach

www.kavo.com



# Content

1	User instructions			5
2	Safet	Safety		
		-	iption of safety instructions	
			Description of safety instructions: Warning symbol	
		2.1.2	Description of safety instructions: Structure	7
		2.1.3	Description of safety instructions: Description of danger levels	8
	2.2	Safety	r instructions	9
3	Prod	Product description		16
			se – Proper use	
			iical data	
	3.3	Transi	portation and storage conditions	21

(	Conter	nt	2
4	First	use	23
	4.1	Check the amount of water	25
5	Operation		
	5.1	Attach the medical device	27
	5.2	Remove the medical device	30
	5.3	Inserting the milling cutter or diamond grinder	30
	5.4	Removing the milling tool or diamond grinder	
6 Troubleshooting		36	
	6.1 Check for malfunctions		36
	6.2	Troubleshooting	37
		6.2.1 Troubleshooting: Exchanging the O-rings on the motor coupling	
		6.2.2 Troubleshooting: Changing the water filter	39
7	Setu	p methods according to DIN EN ISO 17664	41
	7.1	Preparation at the site of use	41

Disinfection: Manual disinfection - external 48

Disinfection: Manual disinfection - internal 49 Disinfection: Machine disinfection - external and internal 50 

Care products and systems - Servicing: Care with KaVo Spray .......53 

731

732

7.4

7.5

tent	4

9	9 Terms and conditions of warranty		
8	Tools	and consumables	63
	7.0	Storage	61
	7.7	Sterilisation	59
	7.6	Packaging	58

User instructions 5

#### 1 User instructions

Dear User

Congratulations on purchasing this KaVo quality product. By following the instructions below you will be able to work smoothly, economically and safely.

© Copyright by KaVo Dental GmbH

# Symbols

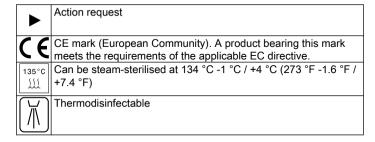


Refer to the Chapter on Safety/Warning symbol



Important information for users and service technicians

User instructions 6



### Target group

This document is intended for dentists and their assistants. The section on starting up is also intended for service technicians.

#### 2 Safety

## 2.1.1 Description of safety instructions: Warning symbol



Warning symbol

### 2.1.2 Description of safety instructions: Structure



# ⚠ DANGER

The introduction describes the type and source of the hazard.

This section describes the potential consequences of non-observance.

The optional step includes necessary measures for hazard prevention.

#### 2.1.3 Description of safety instructions: Description of danger levels

The safety instructions listed here, together with the three levels of danger will help avert property damage and injury.



# **↑** CAUTION

### CAUTION

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



# **↑** WARNING

# WARNING

indicates a hazardous situation that can cause death or serious injury.



## **⚠** DANGER

#### DANGER

indicates a hazardous situation that can directly cause death or serious injury.

#### 2.2 Safety instructions



# **⚠ WARNING**

Hazards for the care provider and the patient.

In the case of damage, irregular running noise, excessive vibration, untypical warming or when the cutter or grinder cannot be held.

► Do not use further and notify Service.



### **↑** CAUTION

#### Risks due to lack of control equipment.

Hazards can arise if control equipment is not available for changing the speed and the direction of rotation.

- The dental treatment unit connected must have control equipment for changing the speed and direction of rotation.
- A note is to be included in the documents accompanying the dental treatment unit, referring to responsibilities arising from safety, reliability and performance.
- The medical device may only be combined with a treatment centre released by KaVo.



#### **↑** CAUTION

Risk due to incorrectly stored handpiece.

Injury and infection caused by chucked cutter or grinder.

► After treatment, place the handpiece properly in the cradle, without the cutter or grinder.



# **↑** CAUTION

Risk of burn injury from hot handpiece head or hot handpiece lid.
Burn injuries in the mouth may be caused if the handpiece overheats.

▶ Never touch soft tissue with the handpiece head or handpiece lid!



### **↑** CAUTION

Premature wear and malfunctioning from improper storage during long periods of nonuse.

Reduced product life.

► The medical device should be cleaned, serviced and stored in a dry location, according to instructions, before long periods of nonuse.



# **↑** CAUTION

Hazard from use as a light probe.

Do not use the medical device as a light probe.

 Use an appropriate light probe for additional illumination of the oral cavity or site of preparation.



# **↑** CAUTION

Hazard from the use of handpieces equipped with electronic micromotors. Electronic micromotors generate much more energy than conventional pneumatic turbines and motors. Given the higher torque and speed, handpieces that are poorly serviced, damaged or used improperly can overheat which can cause serious burn injuries to the patient.

Observe the following points.



# Note

For safety reasons, we recommend that the tool holder system be checked annually after the warranty period expires.

The following guidelines must be observed to ensure save use of the electrically driven handpieces:

- The service instructions for handpieces must be precisely following when using KAVO spray or QUATTROcare care systems.
- Before each use, the handpiece must be checked for external damage.
- Before each use, perform a test run with the handpiece, and watch for atypical heating and unusual noise and vibration.
- Immediately stop using handpieces that act unusual.
- Never press the pushbutton during operation. This also includes lifting the cheek or tongue!

The following individuals are authorized to repair and service KaVo products:

- Technicians at KaVo branches throughout the world
- Technicians specially trained by KaVo

To ensure proper function, the medical device must be set up according to the reprocessing methods described in the KaVo Instructions for Use, and the care products and care systems described therein must be used. KaVo recommends specifying a service interval at the dental office for a licensed shop to clean, service and check the functioning of the medical device. This service interval depends on the frequency of use and should be adjusted accordingly.

Service may only be carried out by KaVo-trained repair shops using original KaVo replacement parts.

## 3 Product description



EXPERTmatic LUX contra-angle handpiece E25 L (Mat. no. 1.007.5550)



EXPERTmatic contra-angle handpiece E25 C (**Mat. no. 1.007.5551**)

#### 3.1 Purpose - Proper use

#### Purpose:

This medical device is

- Only intended for dental treatment. Any other type of use or alteration
  to the product is impermissible and can be hazardous. The medical
  device is intended for the following uses: Removal of carious material,
  cavities and crown preparations, removal of fillings, processing of tooth
  and restoration surfaces.
- A medical device according to relevant national statutory regulations.

#### Proper use:

According to these regulations, this medical device may only be used for the described application by a knowledgeable user. The following must be observed:

- the applicable health and safety regulations
- the applicable accident prevention regulations
- · these instructions for use

According to these regulations, it is the responsibility of the user to:

- only use equipment that is operating correctly,
- use the equipment for the proper purpose,
- protect him or herself, the patient and third parties from danger, and
- avoid contamination from the product.

#### 3.2 Technical data

Drive speed	max. 40,000 rpm
Speed transmission	1:5
Identification	1 red ring
Pushbutton chuck	1.6 mm diam.

Usable with cutters or grinders that conform to ISO 1797-1 Type 3.

The contra-angle handpiece can be mounted on all INTRAmatic Lux motors, and motors with a connection in accordance with ISO 3964 / DIN 13940.

#### 3.3 Transportation and storage conditions



# **↑** CAUTION

It is hazardous to start up the medical device after it has been stored strongly refrigerated.

This can cause the medical device to malfunction.

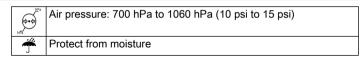
 Prior to start-up, very cold products must be heated to a temperature of 20°C to 25°C (68°F to 77°F).



Temperature: -20°C to +70°C (-4°F to +158°F)



Relative humidity: 5% RH to 95% RH absence of condensation



#### 4 First use



# **⚠** WARNING

Hazard from nonsterile products.
Infection danger to the care provider and patient.

 Before first use and after each use, prepare and sterilise the medical device if needed.



# **⚠** CAUTION

Damage from soiled and moist cooling air.

Contaminated and moist cooling air can cause malfunctions and lead to premature bearing wear.

Make sure that the supply of cooling air is dry, clean and uncontaminated according to ISO 7494-2.

#### 4.1 Check the amount of water



## **↑** CAUTION

Overheating of the tooth due to lack of cooling water. Thermal damage to the dental pulp.

 Adjust the water amount for the spray cooling to a minimum of 50 cm<sup>3</sup>/min



# **⚠** CAUTION

Hazard from insufficient spray water.

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

► Check the spray water channels and clean the spray nozzles with the nozzle needle **Mat. no. 0.410.0921** if necessary.

#### 5 Operation

#### 5.1 Attach the medical device



# **↑** WARNING

Detachment of the medical device during treatment.

A medical device that is not properly locked in place can become disconnected from the motor coupling and fall off.

Carefully pull on the medical device before each treatment to ensure that it is securely locked onto the motor coupling.



### **↑** CAUTION

Removing and attaching the contra-angle handpiece while the drive motor is rotating.

Damage to the drive.

Never attach or remove the contra-angle handpiece while the drive motor is rotating!



# **↑** CAUTION

# Damage

If the footswitch is pressed while you are connecting and removing the medical device, you can damage the medical device and motor coupling.

► Do not connect or remove the medical device while pressing the footswitch.



 Lightly spray O-rings on motor coupling with Mehrfunktionsspritze Spray.

Attach the medical device to the motor coupling and turn it until the guide stud audibly snaps into place.

 Pull on the medical device to make sure that it is securely affixed to the coupling.

#### 5.2 Remove the medical device

 Unlock the medical device from the motor coupling by twisting it slightly and then pulling it along its axis.

# 5.3 Inserting the milling cutter or diamond grinder

### Note

Only use carbide cutters or diamond grinders that comply with ISO 1797-1 type 3, are made of steel or hard metal and meet the following criteria:

- Shaft diameter: 1.59 to 1.60 mm
- Overall length: max. 25 mm
- Shaft clamping length: min. 11 mm
- Blade diameter: max. 2 mm





### **↑** WARNING

Use of unauthorised cutters or grinders.

Injury to the patient or damage to the medical device.

- Observe the instructions for use and use the cutter or grinder properly.
- Only use cutters or grinders that do not deviate from the specified data.



# **↑** CAUTION

Injury from using worn cutters or grinders.

Cutters or grinders could fall out during treatment and injure the patient.

▶ Never use cutters or grinders with worn shafts.



#### **↑** CAUTION

Danger of injury from cutters or grinders. Infections or cuts

Wear gloves or fingerstalls.



# **↑** CAUTION

Hazard from defective chucking system.

The cutter or grinder could fall out and cause injury.

Pull on the cutter or grinder to check that the chucking system is okay and the cutter or grinder is securely held. When checking, inserting and removing, use gloves or a fingerstall to prevent an injury or infection.



 Press the push button firmly with your thumb and simultaneously insert the milling or grinding tool until it contacts the stop.

Check that the cutter or grinder is securely attached by pulling on it.

#### 5.4 Removing the milling tool or diamond grinder



# **↑** WARNING

Hazard from rotating cutter or grinder.

Lacerations and damage to the chucking system.

- ► Do not touch rotating cutter or grinder.!
- ► Never press the press-button while the cutter or grinder is rotating!
- Remove the cutter or grinder from the contra-angle handpiece after treatment to avoid injury or infection while storing it.

Operation 35



After the cutter or grinder has stopped rotating, press the press-button with your thumb and simultaneously pull out the drill bit or bur.

#### 6 Troubleshooting

#### 6.1 Check for malfunctions



# **↑** CAUTION

Missing or damaged O-rings.

Malfunctions and premature failure.

▶ Make sure that all O-rings are on the coupling and undamaged.



# **↑** CAUTION

Heating of the product.

Burns or product damage from overheating.

Do not use the product if it is irregularly heated.

The medical device is too hot while idling: Check the amount of cooling air.

- The medical device is too hot while working: Caring for the medical device.
- When the speed drops or is uneven: Caring for the medical device.
- An O-ring is missing on the motor coupling: Replace O-ring.

#### 6.2.1 Troubleshooting: Exchanging the O-rings on the motor coupling



# **↑** CAUTION

**Hazard from improper care of the O-rings.**Malfunctions or complete failure of the product.

► Do not use Vaseline or other grease or oil.



#### Note

The O-rings on the motor coupling may only be lubricated with a cotton ball wetted with KaVo spray.

- Press the O-ring between your fingers to form a loop.
- ► Shove the O-ring to the front, and remove it.
- Insert new O-rings into the grooves.

#### 6.2.2 Troubleshooting: Changing the water filter



# **↑** CAUTION

Hazard from insufficient spray water.

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

- ► Check the filter and exchange if necessary.
- Check the spray water channels and clean the spray nozzles with the nozzle needle Mat. no. 0.410.0921 if necessary.



Screw out and remove the filter with the wrench (Mat. no. 1.002.0321).

Insert the new filter (Mat. no. 1.002.0271) and screw it in with the wrench.

#### Setup methods according to DIN EN ISO 17664

#### 7.1 Preparation at the site of use



## ♠ WARNING

Hazard from nonsterile products.

There is a risk of infection from contaminated medical devices.

- Take suitable personal protective measures.
- Remove all residual cement, composite or blood without delay.
- Recondition the medical device as soon as possible after treatment.
- Remove the cutter or grinder from the medical device.
- The medical device must be dry when transported for reconditioning.
- Do not place it in a solution or similar.

#### 7.2 Cleaning



#### **↑** CAUTION

Malfunctions from cleaning in the ultrasonic unit. Defects in the product.

Only clean manually or in a thermodisinfector.

## 7.2.1 Cleaning: Manual cleaning - external

Accessories required:

- Tap water 30 °C ± 5 °C (86 °F ± 10 °F)
- Brush, e.g. medium-hard toothbrush



Brush off under flowing tap water.



# 7.2.2 Cleaning: Automated external cleaning

KaVo recommends thermodesinfectors in accordance with EN ISO 15883-1 that are operated with alkaline cleaning agents at a pH value of max. 10 (e. g. Miele G 7781 / G 7881 – validation was performed with the "VARIO-TD" program, "neodisher® mediclean" cleaning agent, "neodisher® Z" neutralisation agent and "neodisher® mielclear" rinsing agent and extends only to the compatibility of materials with respect to Ka-Vo products).

- For program settings as well as cleansers and disinfectants to be used, please refer to the Instructions for Use of the thermodisinfector (complying with max. pH value of 10).
- In order to prevent negative effects on the medical device, make sure that the interior and the exterior of the medical device are dry, and then lubricate immediately with care agents from the KaVo care system.

## 7.2.3 Cleaning: Manual cleaning - internal

Can only be done with KaVo CLEANspray or KaVo DRYspray.

Cover the medical device with the KaVo CLEANpac bag, and place it on the corresponding care adapter. Press the spray button three times for 2 seconds each time. Remove the medical device from the spray attachment and let the cleaner work for one minute. Afterwards, rinse for 3-5 seconds with KaVo DRYspray.

See also: KaVo CLEANspray / KaVo DRYspray Instructions for Use



### Note

KaVo CLEANspray and KaVo DRYspray for manual interior cleaning are only available in the following countries:

Germany, Austria, Switzerland, Italy, Spain, Portugal, France, Luxembourg, Belgium, Netherlands, United Kingdom, Denmark, Sweden, Finland and Norway.

In other countries, only automated interior cleaning with thermodisinfectors in accordance with ISO 15883-1.

## 7.2.4 Cleaning: Automated internal cleaning



KaVo recommends thermodesinfectors in accordance with EN ISO 15883-1 that are operated with alkaline cleaning agents at a pH value of max. 10 (e. g. Miele G 7781 / G 7881 – validation was performed with the "VARIO-TD" program, "neodisher® mediclean" cleaning agent, "neodisher® Z" neutralisation agent and "neodisher® mielclear" rinsing agent and extends only to the compatibility of materials with respect to Ka-Vo products).

 For program settings as well as cleansers and disinfectants to be used, please refer to the Instructions for Use of the thermodisinfector (complying with max. pH value of 10). In order to prevent negative effects on the medical device, make sure that the interior and the exterior of the medical device are dry, and then lubricate immediately with care agents from the KaVo care system.

#### 7.3 Disinfection



# **↑** CAUTION

Malfunctioning from using a disinfectant bath or disinfectant containing chlorine.

Defects in the product.

Only disinfect in a thermodisinfector or manually.





KaVo recommends the following products based on material compatibility. The microbiological efficacy must be ensured by the disinfectant manufacturer

- Mikrozid AF Liquid made by Schülke & Mayr
- FD 322 made by Dürr
- CaviCide made by Metrex

# Consumables required:

Cloths for wiping off the medical device.

- Spray the disinfectant on a cloth, then thoroughly wipe down the medical device and leave the disinfectant to soak in according to the instructions from the disinfectant manufacturer
- Follow the instructions for use of the disinfectant

#### 7.3.2 Disinfection: Manual disinfection - internal

The efficacy of manual internal disinfection must be demonstrated by the manufacturer of the disinfection agent. With KaVo products, use only disinfection agents that have been released by KaVo with respect to the compatibility of materials (e.g. WL-cid / made by ALPRO).

Immediately after internal disinfection, lubricate the KaVo medical device immediately with care agents from the KaVo care system.

Follow the instructions for use of the disinfectant

#### 7.3.3 Disinfection: Machine disinfection - external and internal

KaVo recommends thermodesinfectors in accordance with EN ISO 15883-1 that are operated with alkaline cleaning agents at a pH value of max. 10 (e. g. Miele G 7781 / G 7881 – validation was performed with the "VARIO-TD" program, "neodisher® mediclean" cleaning agent, "neodisher® Z" neutralisation agent and "neodisher® mielclear" rinsing agent and extends only to the compatibility of materials with respect to Ka-Vo products).

 For program settings as well as cleansers and disinfectants to be used, please refer to the Instructions for Use of the thermodisinfector (complying with max. pH value of 10).



In order to prevent negative effects on the medical device, make sure that the interior and the exterior of the medical device are dry, and then lubricate immediately with care agents from the KaVo care system.

#### 7.4 Drving

## Manual Drving

 Blow off the outside and inside with compressed air until water drops are no longer visible.

# Automatic Drving

The drying procedure is normally part of the cleaning program of the thermodisinfector.

► Follow the instructions for use of the thermodisinfector

#### 7.5 Care products and systems - Servicing



## **↑** WARNING

Sharp cutters or grinders in the medical device.

Risk of injury from sharp or pointed cutters or grinders.

► Remove cutter or grinder.



# **↑** CAUTION

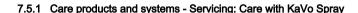
Premature wear and malfunctions from improper servicing and care.
Reduced product life.

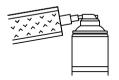
► Perform proper care regularly!





KaVo only guarantees that its products will function properly when the care products used are those listed as accessories, as they were tested for proper use on our products.





KaVo recommends servicing the product after each time it is used, i.e. after each automatic cleaning and before each sterilisation.

- Remove cutter or grinder.
- Cover the product with the CLEANpac bag.
- Place the product on the cannula and press the spray button for one second.

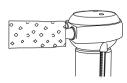
#### Servicing of the clamping chuck

KaVo recommends cleaning and servicing the chuck system once a week.



 Remove the cutter or grinder, place the spray nipple tip in the opening and spray.

 Carry out the servicing according to the instructions in the section, "Care with KaVo Spray".



### 7.5.2 Care products and systems - Servicing: Care with KaVo SPRAYrotor

KaVo recommends servicing the product after each time it is used, i.e. after each automatic cleaning and before each sterilisation.

- Place the product on the appropriate coupling of the KaVo SPRAYrotor and cover it with a CLEANpac bag.
- Service the product.

See also: Instructions for use KaVo SPRAYrotor

# 7.5.3 Care products and systems - Servicing: Servicing with KaVo QUATTROcare

Cleaning and care unit with expansion pressure for effective cleaning and care.



KaVo recommends servicing the product after each time it is used, i.e. after each automatic cleaning and before each sterilisation.

- Remove cutter or grinder.
- Service the product.

## Chuck care

KaVo recommends cleaning and servicing the chuck system once a week.

See also: Instructions for use KaVo QUATTROcare



 Remove the cutter or grinder, place the spray nipple tip in the opening and spray.

Subsequently treat with the care products and care systems specified.

See also: Care with KaVo QUATTROcare





#### Note

The sterilisation bag must be large enough for the handpiece so that the bag is not stretched.

The quality and use of the sterilisation packaging must satisfy applicable standards and be suitable for the sterilisation procedure!

 Individually weld the medical device in the sterilised item packaging (such as KaVo STERIclave bags Mat. no. 0.411.9912)!

#### 7.7 Sterilisation

Sterilisation in a steam steriliser (autoclave) in accordance with EN 13060/ ISO 17665-1



# **↑** CAUTION

Premature wear and malfunctions from improper servicing and care.

Reduced product life.

 Before each sterilisation cycle, service the medical device with KaVo care products.



## **⚠** CAUTION

Contact corrosion due to moisture.

Damage to product.

Immediately remove the product from the steamsteriliserafter the sterilisation cycle!



The KaVo medical device has a maximum temperature resistance up to 138  $^{\circ}$ C (280.4  $^{\circ}$ F).

(Depending on the available autoclave,) select a suitable procedure from the following sterilisation processes:

- Autoclave with three times initial vacuum:
  - at least 3 minutes at 134 °C -1 °C / +4 °C (273 °F -1.6 °F / +7.4 °F)
- Autoclave using the gravitation method:
  - at least 10 minutes at 134 °C -1 °C / +4 °C (273 °F -1.6 °F / +7.4 °F) or alternatively
  - at least 60 minutes at 121 °C -1 °C / +4 °C (250 °F -1.6 °F / +7.4 °F)
- Use according to the manufacturer's Instructions for Use.

## 7.8 Storage

Prepared products must be stored, protected from germs (as far as possible) and dust, in a dry, dark, cool room.

62

Comply with the expiry date of the sterilised items.

Tools and consumables

#### 8 Tools and consumables

Available from dental suppliers.

Material summary	Mat. no.
Instrument stand 2151	0.411.9501
Cellulose pad 100 units	0.411.9862
Cleanpac 10 units	0.411.9691
Nozzle needle	0.410.0921
Replacement filter	1.002.0271
Key	1.002.0321
O-ring	0.200.6120

Material summary	Mat. no.	
KaVo CLEANspray 2110 P	1.007.0579	
KaVo DRYspray 2117 P	1.007.0580	

Tools and consumables 64

Material summary	Mat. no.
KaVo Spray 2112 A	0.411.9640
ROTAspray 2 2142 A	0.411.7520
QUATTROcare plus Spray 2140 P	1.005.4525

#### 9 Terms and conditions of warranty

The following warranty conditions apply to this KaVo medical device:

KaVo provides the end customer with a warranty of proper function and guarantees zero defects in respect of material and processing for a period of 18 months from the date of the invoice, subject to the following conditions:

In case of justified complaints, KaVo will honour its warranty with a free replacement or repair. Other claims of any nature whatsoever, in particular with respect to compensation, are excluded. In the event of default, gross negligence or intent, this shall only apply in the absence of mandatory legal regulations to the contrary.

KaVo shall not be liable for defects and their consequences that have arisen or may arise from natural wear, improper handling, cleaning or maintenance, non-compliance with operating, maintenance or connection instructions, calcination or corrosion, contaminated air or water supplies or chem-

ical or electrical factors deemed abnormal or impermissible in accordance with KaVo's instructions for use or other manufacturer's instructions. The warranty granted does not usually extend to lamps, light conductors made of glass and glass fibres, glassware, rubber parts, and the colourfastness of plastic parts.

All liability is excluded if defects or their consequences originate from manipulations or changes to the product made by the customer or a third party that is not authorised by KaVo.

Warranty claims will only be accepted if the product is submitted along with proof of purchase in the form of a copy of the invoice or note of delivery. The dealer, purchase date, type, and serial number must be clearly evident from this document.



KaVo. Dental Excellence.