Instructions for use
ESTETICA E80

Always be on the safe side.

KaVo. Dental Excellence.

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CE 0124

Contents

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

Abbre-viation	Explanation
GA	Instructions for use
PA	Care instructions
REC	Assembly instructions
TA	Technician's instructions
STK	Safety checks
IEC	International Electrotechnical Commission
RA	Repair instructions
EMC	Electromagnetic compatibility

1.1.2 Symbols

	See the section Safety/Warning Symbols
	Important information for users and technicians
CE	CE mark (Communauté Européenne). A product with this mark meets the requirements of the applicable EU directive.
▶	Action required

1.1.3 Target group

This document is for dentists and office personnel.

1.2 Service

Service hotline:
+49 (0) 7351 56-2500
Service.Einrichtungen@kavo.com
Please indicate the product serial number in all requests.
Additional information can be obtained at: www.kavo.comAdditional information can be obtained at: www.kavo.com

1.3 Warranty terms and conditions

KaVo provides the end customer with a warranty that the product cited in the hand-over certificate will function properly and guarantees zero defects in the material or

processing for a period of 12 months from data of purchase, subject to the following conditions:
Upon justified complaints of flaws or a short delivery, KaVo will make good its warranty by replacing the product free of cost or repairing it according to the customer's wishes. Other claims of any nature whatsoever, in particular with respect to compensation, are excluded. In the event of default and gross negligence or intent, this shall only apply in the absence of mandatory legal regulations to the contrary.
KaVo cannot be held liable for defects and their consequences due to natural wear, improper cleaning or maintenance, non-compliance with operating, maintenance or connection instructions, calcination or corrosion, contaminated air or water supplies or chemical or electrical factors deemed abnormal or impermissible in accordance with factory specifications.
The warranty does not usually cover bulbs, glassware, rubber parts and the colourfastness of plastics.
Defects or their consequences that can be attributed to interventions on or changes made to the product by the customer or a third party are excluded from the warranty.
Claims from this warranty can only be asserted when the transfer form (copy) belonging to the product has been sent to KaVo, and the original can be presented by the operator or user.

1.4 Transportation and storage

1.4.1 Currently valid packaging regulations

Note
Only valid for the Federal Republic of Germany.

Properly dispose of and recycle the sales packaging, in accordance with the relevant packaging regulations, through waste management businesses or recycling companies that run a comprehensive return system. KaVo has licensed its sales packaging in accordance with this directive. Please conform with the regional, public waste-disposal system regulations.

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. You must contact KaVo 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 upon 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 obligations will mean that the damage will be considered to have arisen following delivery (in accordance with ADSp. Art. 28).

Outside Germany

Note

KaVo is not liable for damage arising from transportation.
Immediately inspect the delivery after receipt!

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 upon delivery, proceed as follows:
1. Report the damage immediately or at least 7 days after the delivery to the delivery company.
2. Leave the product and packaging in the condition in which you received it.
3. Do not use a damaged product.

Note

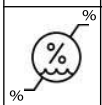
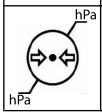
Failure on the part of the recipient to comply with any of the above obligations will mean that the damage will be considered to have arisen following delivery (in accordance with CMR law, Chapter 5, Art. 30).

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:

	Transport upright with the arrows pointing upwards
	Fragile - protect against impact.
	Protect from moisture.
	Permissible stacking load
	Temperature range
	Humidity
	Air pressure

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 danger.** This section illustrates the potential consequences of non-observance. ▸ The optional step covers necessary measures for avoiding hazards.

2.1.3 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 or moderate physical harm.

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

	⚠ DANGER DANGER indicates the maximum hazard level. indicates a hazardous situation that can directly cause death or serious injury.

2.2 Purpose – Proper use

2.2.1 General

The user must ensure that that the unit works properly and is in a satisfactory condition before each use.

The KaVo ESTETICA E80 system is a dental treatment unit in accordance with ISO 7494 that has a dental patient chair in accordance with ISO 6875. This KaVo product

is for dental purposes only and should only be used by medical professionals. The product may not be used for a purpose for which it was not intended.
"Proper use" includes following all the instructions for use and ensuring that all inspections and service tasks are performed.

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

KaVo accepts liability for the safety, reliability, and performance of components supplied by KaVo, provided:
- installation, instructions, expansions, adjustments, changes or repairs were carried out by technicians trained by KaVo or third parties authorised by KaVo, or by the personnel of authorised distributors.
- the unit was operated in accordance with the instructions for use, care and installation.
- the IT components supplied by the operator meet the technical requirements in these instruction for use for hardware and software, and they are installed and set up according to the descriptions of these components.
- in the case of repairs, the requirements of VDE 0751-1 "Repeat tests and tests before start-up of electrical items of medical equipment and systems - general regulations" are met in full.

Users have a duty to:
- Only use equipment that is operating correctly
- to protect himself, the patient and third parties from danger.
- to avoid contamination from the product

During use, national legal regulations must be observed, in particular:
- the applicable health and safety regulations
- the applicable accident prevention regulations

To guarantee constant readiness for use and maintenance of value of the KaVo product, the recommended annual servicing must be done.
The safety checks (SC) must be done at 2-year intervals.

Authorized to repair and service the KaVo product:
- Technicians with appropriate product training from KaVo branches
- Technicians of authorized dealers specially trained by KaVo

In Germany, operators, equipment managers and users are obliged to operate their equipment in accordance with the MPG regulations.
The services encompass all the test tasks required in accordance with § 6 of the medical devices operator ordinance (Medizinprodukte-Betreiberverordnung, MPBetreibV).

Note

The product must be cleaned and serviced according to instructions if it is not to be used for a long period.

Note

Only those accessories may be used that are approved for the device.

Information about electromagnetic compatibility

Note

Based on EN 60601-1-2 concerning the electromagnetic compatibility of electro-medical devices, we need to point out that:
• medical electrical devices are subject to special measures regarding electromagnetic compatibility and must be operated in accordance with KaVo assembly instructions.
• portable and mobile high-frequency communications devices can influence medical electronics.

See also: 10 Information about electromagnetic compatibility in accordance with EN 60601-1-2, Page 139

Note

KaVo cannot guarantee that accessories, lines and transformers not delivered by KaVo will correspond with EMC requirements of EN 60601-1-2.

Disposal

Note

Any waste which is generated must be recycled or disposed of in a manner which is safe both for people and for the environment. This must be done in strict compliance with all applicable national regulations.
Questions on proper disposal of the KaVo product can be answered by the KaVo branch.

Disposal of electronic and electrical devices

Note

According to EC directive 2002/96 concerning used electrical and electronic devices, this product is subject to the cited directive and must be disposed of accordingly within Europe.
Before disassembling / disposing of the product, it must be completely processed (disinfected, sterilized) according to the section "Preparation methods"
Additional information can be obtained from KaVo (www.kavo.com) or your dental supplier.

For final disposal, contact:

Germany

To return an electrical device, proceed as follows:

1. At the homepage www.enretec.de of enretec GmbH, you can download a form for a disposal request under the menu item `eom`, or you can use it as an online request.
2. Fill out the request with the corresponding information, and send it as an online request or by fax (+49(0)3304 3919 590) to enretec GmbH.
   The following avenues are also available for questions and for initiating a disposal request:
   Telephone: +49 (0) 3304 3919 500
   E-mail: pickup@eomRECYCLING.com and
   Post: enretec GmbH, eomRECYCLING Department
   Kanalstraße 17
   16727 Velten
3. Your**movable**device will be picked up in your practice, and your**permanently installed**unit will be picked up at the curb at your address on the agreed deadline. The owner or user of the device will bear the costs for disassembly, transportation and packaging.

International (EU)

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

2.2.2 Product-specific

Designated use and target group

The KaVo ESTETICA E80 is for treating children and adults in a dental context.
The KaVo ESTETICA E80 system is a dental treatment unit in accordance with *ISO 7494* that has a dental patient chair in accordance with *ISO 6875*. This KaVo product is for dental purposes only and should only be used by medical professionals.

The device may only be used by medical professionals.

Connecting devices

Note
The USB interfaces of the system may only be connected to IT devices approved by KaVo.

Note
When connecting an IT device to the the medial electrical system, observe *EN 60601-1-1* .

Note
Charge the wireless foot control with the charger supplied by KaVo only.

Note
The foot control charger may only be used indoors and must be protected from moisture.

2.3 Safety instructions

2.3.1 General information

Note
The safety and reliability of the system can only be ensured when the described procedure is followed.

The KaVo product is not permitted to be used in areas subject an explosion hazard.

⚠ CAUTION

Premature wear and malfunctions from improper servicing and care.
Reduced production time.

- Perform regular proper care and maintenance.

⚠ WARNING

Injury or damage from damaged functional parts.
When functional parts are damaged, it can cause additional damage or personal injury.

- When functional parts are damaged, stop working and eliminate the damage or contact a service technician.
- Check the electrode lines and accessories for damage to the insulation.

⚠ CAUTION

Risks from electromagnetic fields.
The functions of implanted systems (such as pacemakers) can be influenced by electromagnetic fields.

- Ask patients before treatment!

⚠ CAUTION

Malfunctions due to electromagnetic fields.
The product meets the applicable requirements regarding electromagnetic fields. Given the complex interactions between equipment and cell phones, the product may be influenced by a cell phone that is in use.

- Do not use cell phones in medical offices, hospitals, or laboratories.
- Put electronic devices such as e.g. computer storage media, hearing aids etc. down during operation!

2.3.2 Product-specific

⚠ CAUTION

Risk of injury when the dentist unit or assistant unit is moved.
The patient or practice personnel may be injured or bruised.

- Monitor the patient and practice personnel when moving the dentist unit or assistant unit.

⚠ CAUTION

The swinging arm may fall and cause injury.
If the swinging arm is overloaded, it can become damaged and injure the patient or user.

- Never load the swinging arm, spring arm or dentist's unit by using it as a support.

⚠ WARNING

Injury or infection hazard from laid down instruments.
Given the arrangement of the instruments, injury or infections in the hand and underarm can arise when reaching for the tray holder or operating device. Increased risk of infection from diseased patients.

- Be aware of the arrangement of the instruments when accessing the tray holder or operating device.

⚠ CAUTION

Electricity
Electrical shock can result from incorrectly connecting a non-medical system to the interfaces of the device.

- When connecting an IT device to the medical system, follow EN 60601-1-1 (system paper).
- The USB interface in the dentist's or assistant's unit may only be operated using the intended KaVo multimedia system.
- The USB interface interface may not be used for other devices.

⚠ CAUTION

Health damage due to germ formation.
Infection hazard.

- Before starting, rinse all the water drain lines without instruments.
- Before start-up and after the device has not been used for a while (weekends, holidays, vacations, etc.), rinse or purge with air the air and water lines.
- Carry out an intensive disinfection.
- Actuate the tumbler filler repeatedly.

⚠ CAUTION

Third party device connection kit (optional): Hazard of reinfection from standing water.
Infections.
When a water-using unit is connected to the third-party connection kit, always perform the following tasks on the device:

- Before starting, rinse all the water drain lines without instruments (if applicable).
- Before startup and after the device has not been used for a while (weekends, holidays, vacations, etc.), rinse or purge the air and water lines.
- Make sure that the water-using unit is resistant to H_2O_2 since the water is sterilised with OXYGENAL 6 (at a concentration up to 0.02%).

⚠ CAUTION

Damage to the instrument hoses from stickers.
Instrument hoses can explode.

- Do not affix stickers or adhesive tape.

⚠ CAUTION

Long stay in the patient chair.
Decubitus formation.

- Take precautions against the formation of decubitus in long treatments.

⚠ CAUTION

Risk of injury and material damage from incorrect use of the charger for the wireless foot control.
Personal injuries, damage to the wireless foot control or the charger.

- Do not use the treatment unit during the charging process!
- Do not use the wireless foot control charger supplied to charge non-rechargeable batteries.
- Charge the wireless foot control with the charger supplied only.

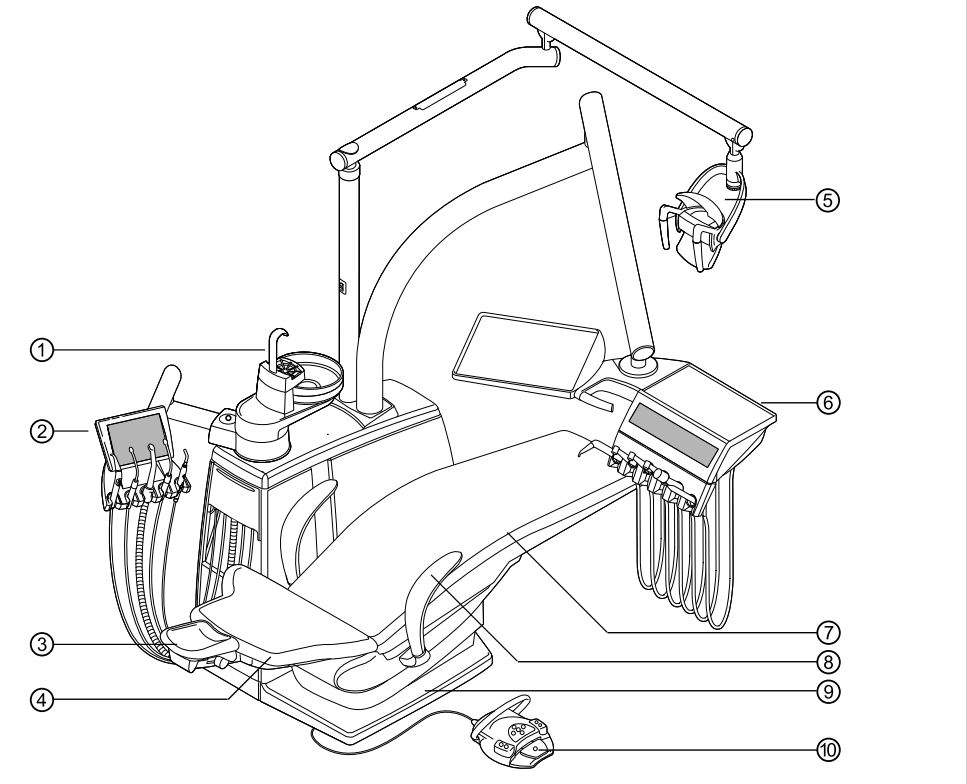
⚠ CAUTION

Risk of injury when the dental chair or headrest is moved.
Hair of the patient or practice personnel may get caught when the headrest of the dental chair is moved.

- Mind the hair of the patient or practice personnel when moving the dental chair or the headrest.

3 Product description

3.1 Treatment unit



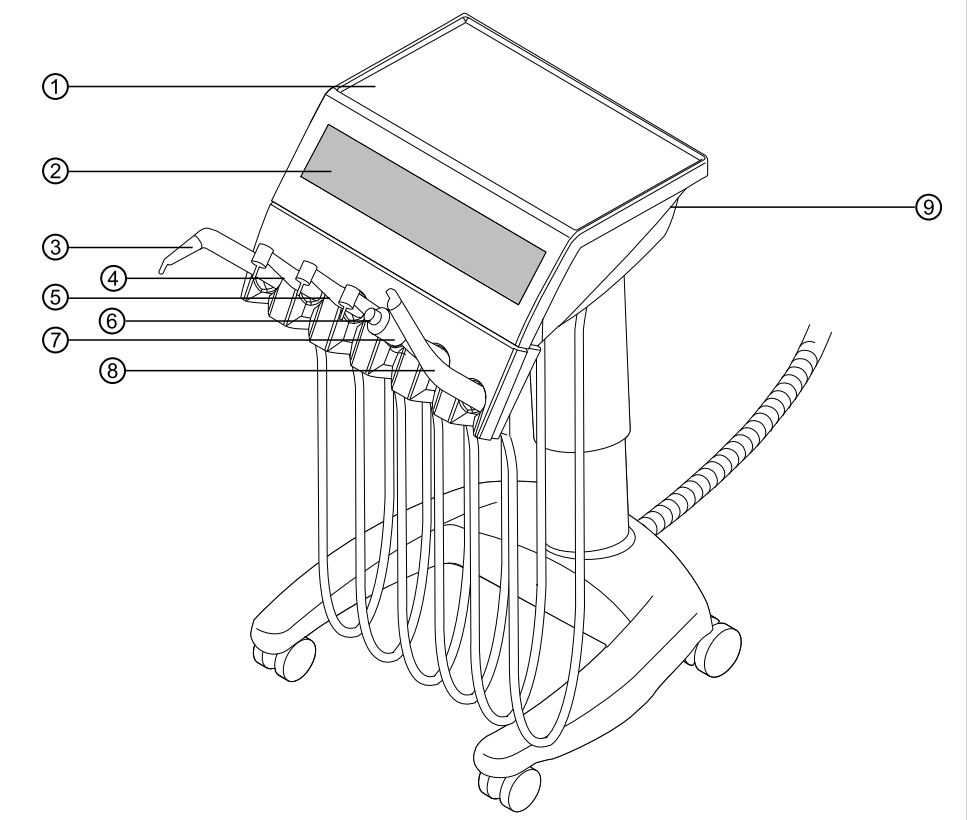
① Patient unit
② Assistant unit
③ Headrest
④ Backrest
⑤ Operating light
⑥ Dentist unit
⑦ Seat
⑧ Armrest
⑨ Kickplate
⑩ Foot control

Note
The dentist's unit may differ from the picture depending on the model.

3.2 Dentist element

3.2.1 Cart

Note
The holder assignment and arrangement of the instruments can be changed as needed and does not have to follow the picture.

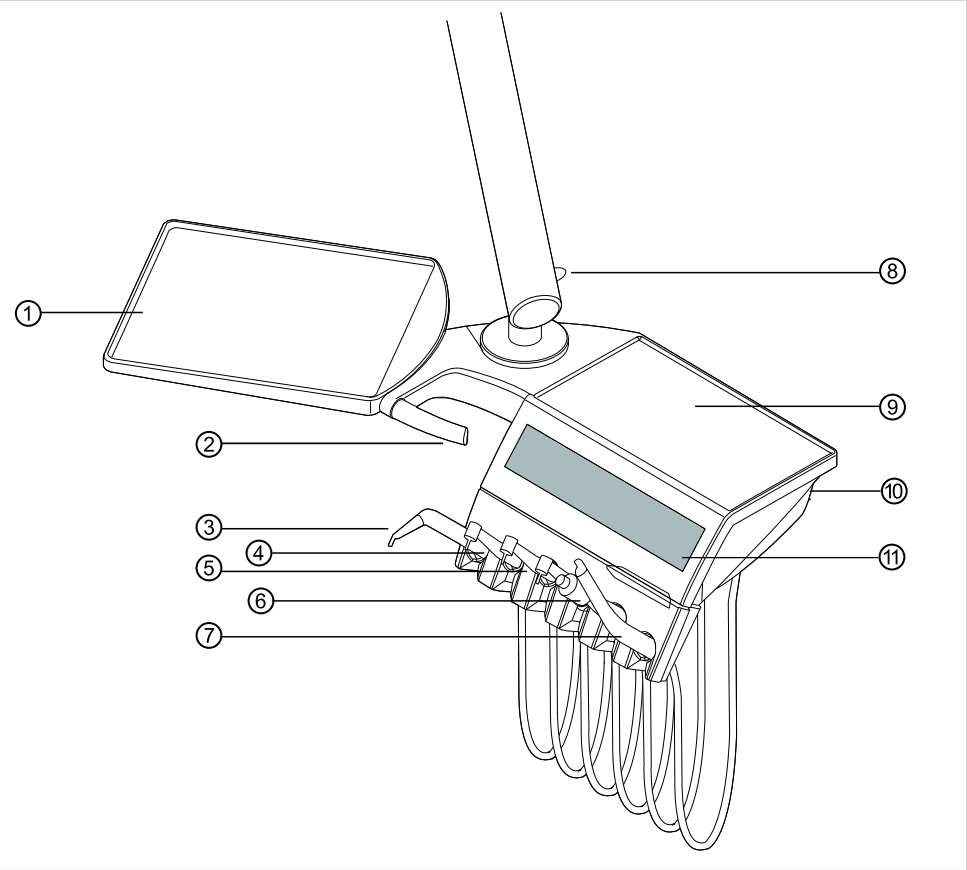


① Tray holder
② Control element
③ Multi-function syringe
④ Turbine (multiflex coupling)
⑤ INTRAlux Motor KL 702
⑥ INTRAlux Motor KL 702
⑦ Scaler PIEZOlux
⑧ ERGOcam 4
⑨ Site for affixing the USB interface
⑩ SL550 surgical motor connection (optional accessory)

3.2.2 T table

Note

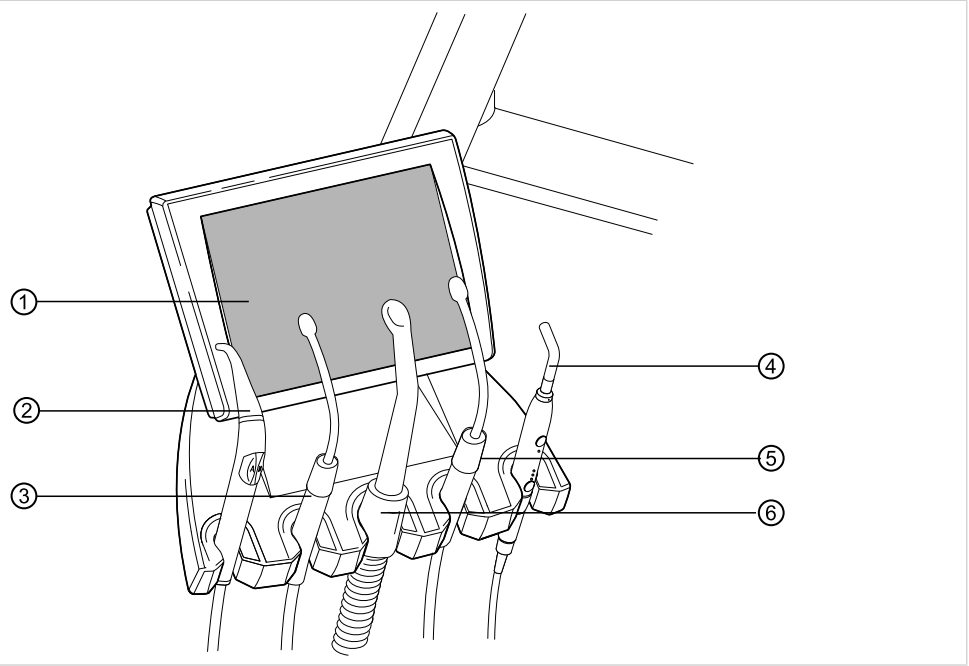
The holder assignment and arrangement of the instruments can be changed as needed and does not have to follow the picture.



① Tray holder
② Handle
③ Multi-function syringe
④ Turbine (multiflex coupling)
⑤ INTRAlux Motor KL 702
⑥ Scaler PIEZOlux
⑦ ERGOcam 4
⑧ Locking brake
⑨ Tray holder
⑩ Site for affixing the USB interface
⑪ SL550 surgical motor connection (optional accessory)
⑫ Control element

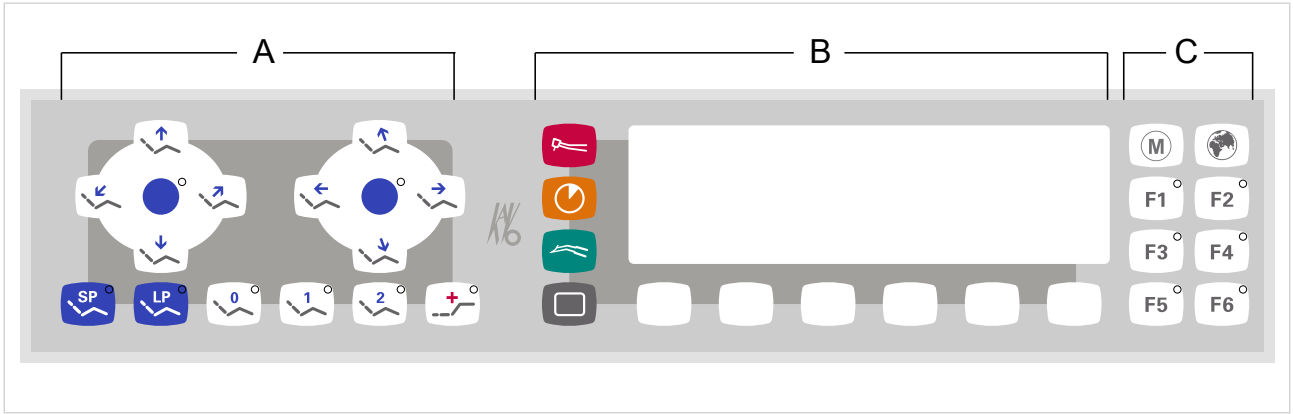
3.3 Assistant unit

Note
The holder assignment and arrangement of the instruments can be changed as needed and does not have to follow the picture.



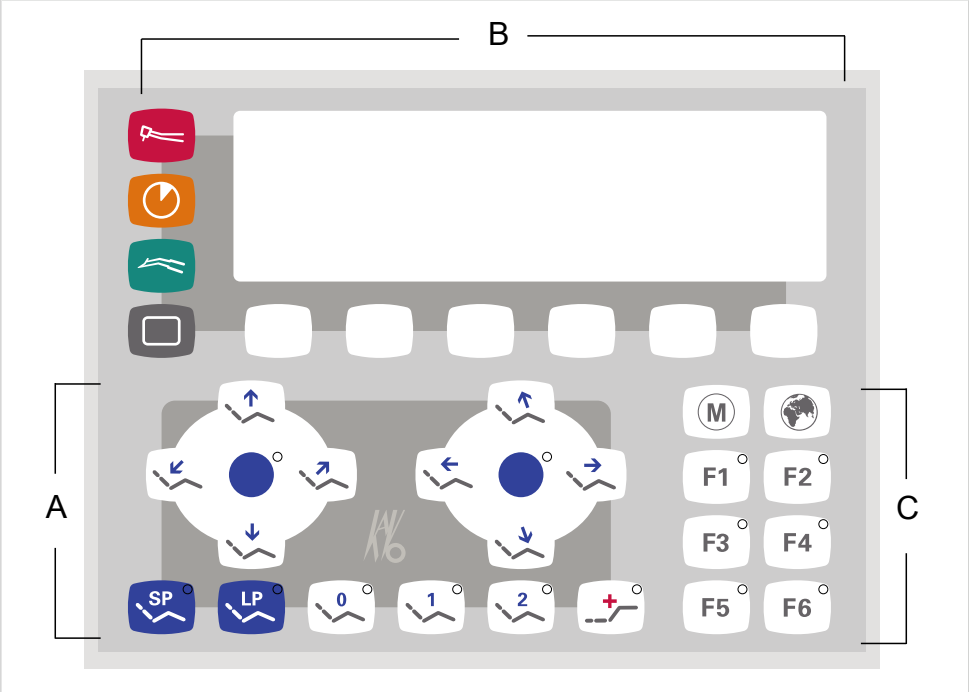
① Control element
② Triple-function syringe or multi-function syringe
③ Kit for 2nd saliva ejector (suction-operated)
④ Satelec Mini LED
⑤ Saliva ejector (suction-operated)
⑥ Spray mist suction (suction-operated)

3.4 MEMOdent control element



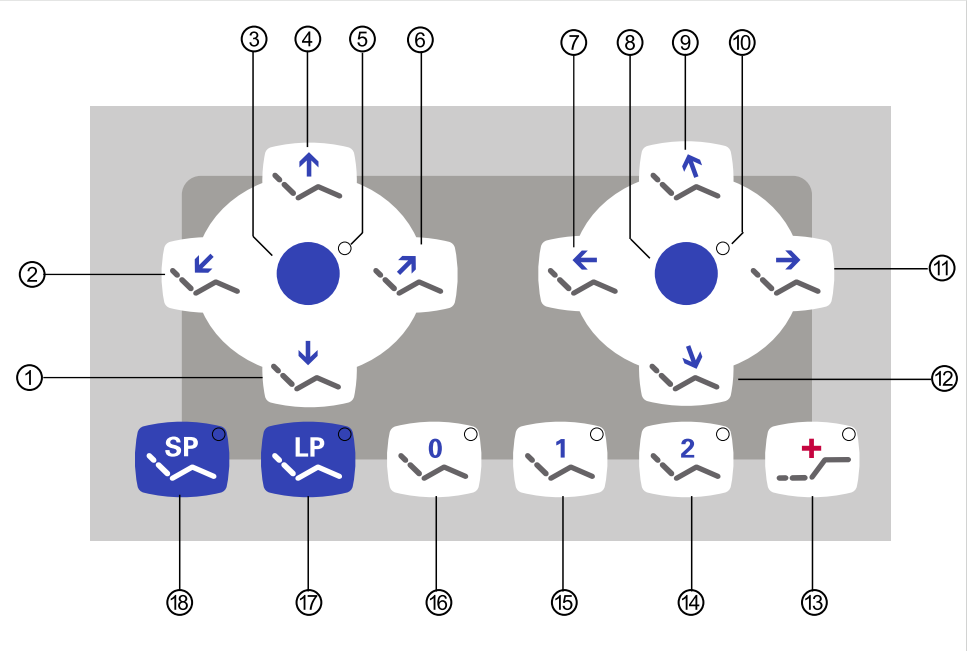
Dentist element

A Group of buttons for the patient chair
B Group of buttons for menu selection
C Group of function buttons



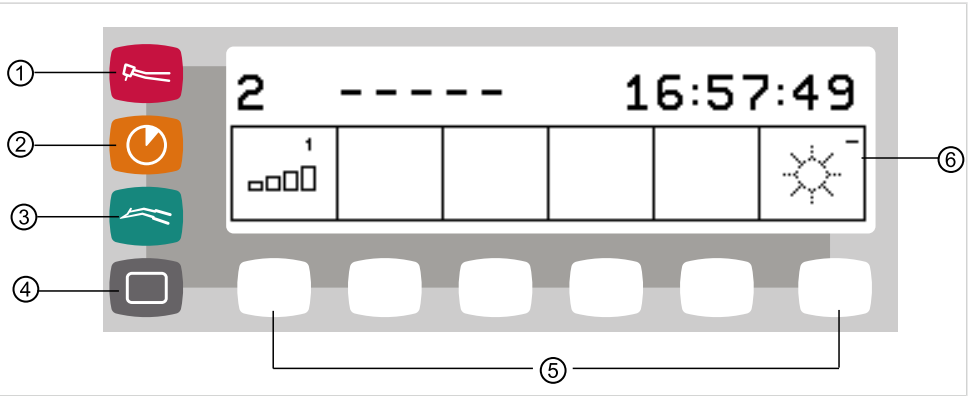
Assistant's unit

A Group of buttons for the patient chair
B Group of buttons for menu selection
C Group of function buttons



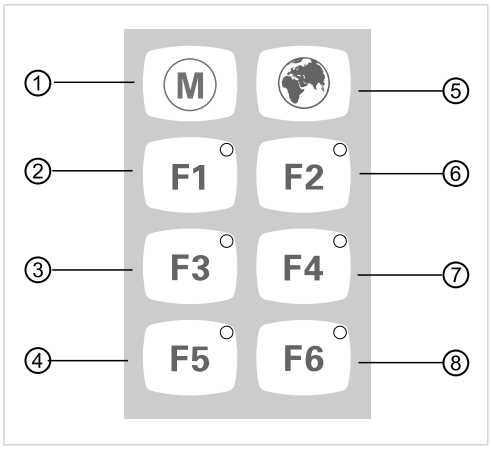
A Patient chair button group

① "Chair down" button
② "Backrest down" button
③ "Function level" button (Four-button wheel 1)
④ "Chair up" button
⑤ "Function level 2" LED (Four-button wheel 1)
⑥ "Backrest up" button
⑦ "Horizontal backward" button
⑧ "Function level" button (Four-button wheel 2)
⑨ "Seat up" button
⑩ "Function level 2" LED (Four-button wheel 2)
⑪ "Horizontal forward" button
⑫ "Seat down" button
⑬ Button for "Collapsed position"
⑭ "AP 2" button (automatic position 2)
⑮ "AP 1" button (automatic position 1)
⑯ "AP 0" button (automatic position 0)
⑰ "LP" button (last position)
⑱ "SP" button (rinse position)



B Group of buttons for menu selection

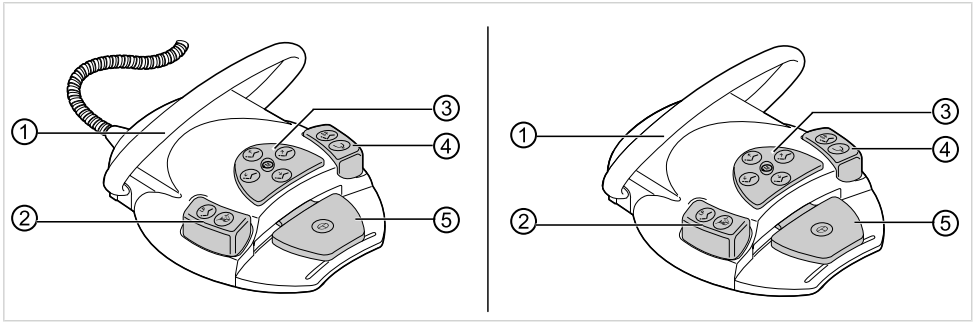
① "MEMOdent menu" button.
② "Timer menu" button
③ "Patient menu" button
④ "Multimedia menu" button
⑤ Menu function buttons
⑥ Display



C Function keys

① "Motorised auxiliary drives" key (Optional accessory)
② "F1" key (function key 1)
③ "F2" key (function key 2)
④ "F3" key (function key 3)
⑤ "Remote Control" key
⑥ "F4" key (function key 4)
⑦ "F5" key (function key 5)
⑧ "F6" key (function key 6)

3.5 Foot control



Cable-connected foot control and wireless foot control

① Stirrup switch
② "LP/preselected spray" foot-operated button
③ "Chair position/motor rotational direction" cross switch
④ "SP/blown air" foot-operated button
⑤ "Preselected level/instruments" foot-operated button

3.6 Signs on the product

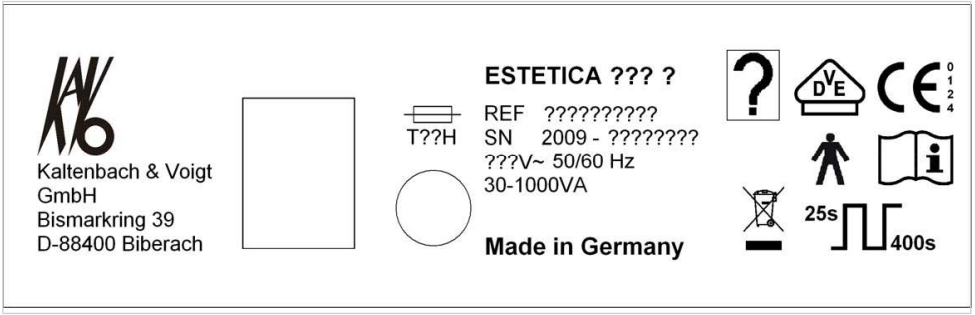
3.6.1 Warning plates and safety signs

	Follow the instructions for use.
	Do not step on the product.
	Do not sit on the product.

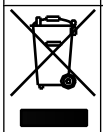
3.6.2 Rating plate and name plate

Note
The device base, dentist unit and chair all have the same serial number.

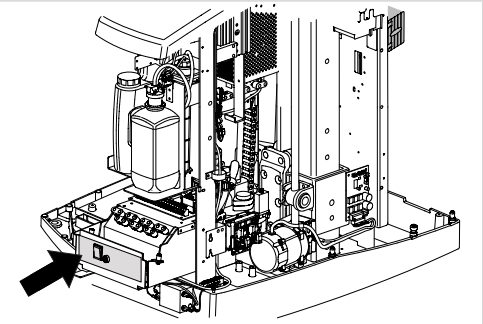
Rating plate on the base of the unit



Rating plate for the ESTETICA E80, 100V/110V/120V/130V/220V/230V/240V

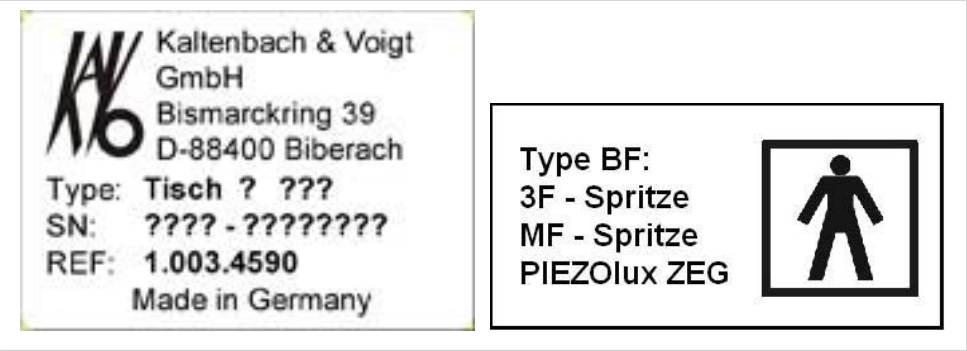
Type	Device type ESTETICA ??? ? The "???" is assigned E80. The "?" depends on the type of the dentist unit and is provided with a T or C.
SN	Year of manufacture - serial number
REF	Material number
	CE mark according to EC Directive 93/42 for medical devices
	VDE mark
	Disposal instructions, proper use
	Read and note the content of accompanying documents.

25s 400s	Mode: Operating time for the patient chair: 25 seconds patient chair pause time: 400 seconds (The permissible operating times correspond to dental practice).
	Classification Type B application parts
T??H	The "??" depend on the mains voltage and are assigned 6.3 or 10. Fuse for 100,110,120,130V: T10H Fuse for 220,230,240V: T6,3H
DVGW NW-0402 BT0111	Certification mark of the DVGW (Deutscher Verein des Gas- und Wasserfaches e.V.)



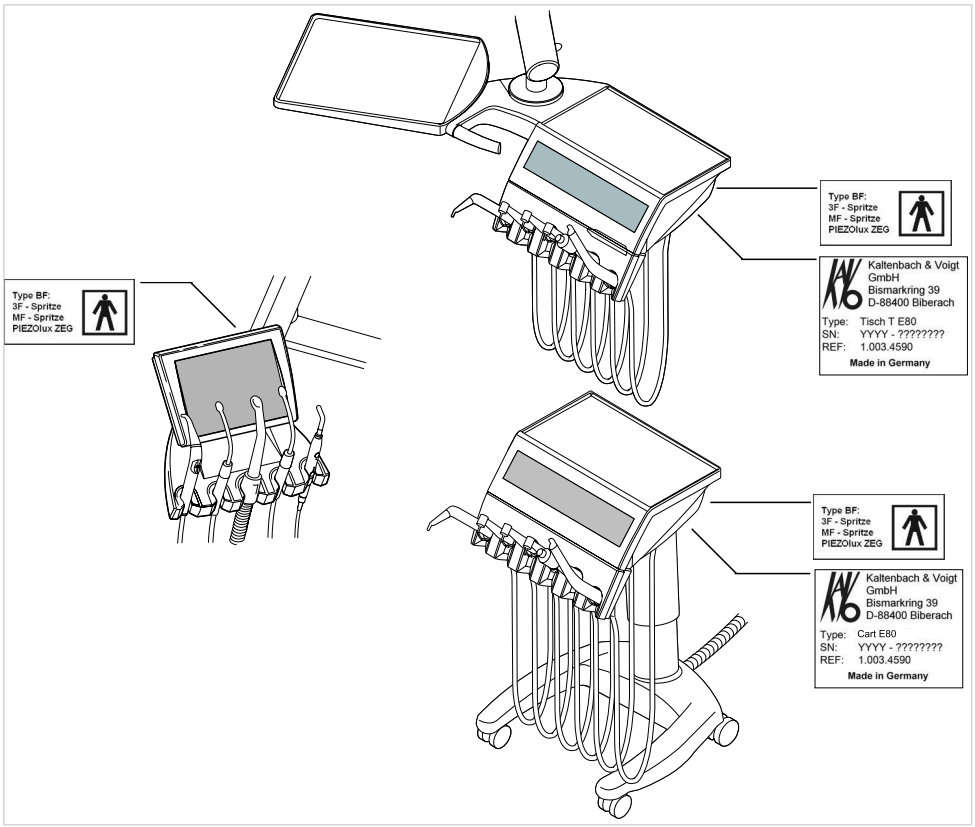
Mounting site for the rating pate on the device base

Rating plate and ID of the dentist and assistant units



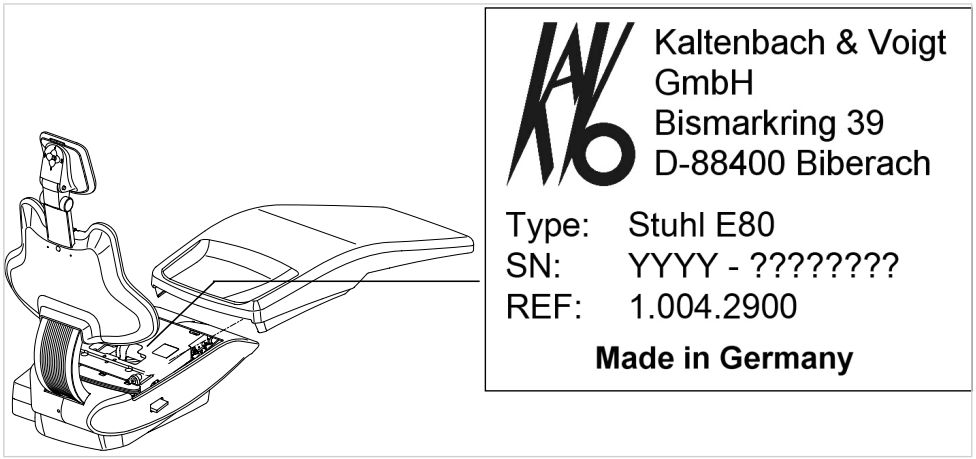
Dentist element rating plate (example: table T)/BF ID

Type	Example Table T E80
SN	Year of manufacture - serial number
REF	Material number
	Classification Type BF application parts



Attachment site for the rating plate and BF ID on the dentist and assistant units

Chair rating plate



Site of attachment of chair rating plate

Nameplate: wireless foot control

Type	Device type multifunctional radio foot control
SN	Year of manufacture - serial number
REF	Material number
	Disposal instructions **see also:** Proper use
	Follow the instructions for use
	Non-ionizing radiation (radio system included)
IPX1	Protection against spray water

The wireless foot control nameplate

3.7 Technical data

Electrical system

Electrical lead	3 x 1.5 mm^2
Free end above the floor	1000 mm
Input voltage	100/110/120/130/220/230/240 V AC
Frequency	50/60 Hz
Input voltage set by the manufacturer	See rating plate
Max. power consumption at 100 to 230 V	30 to 1000 VA
Customer fuse protection	C16 m.c.b. or screw-plug fuse 10 A
Protective conductor above floor	see DIN VDE 0100-710, 1000 mm
Heat emission at 100 to 230 V	97 to 3240 kJ/h
Foot control	IPX1 (moisture protection)

Media - Water

Note

If the water is very hard, a water softening device must be fitted in the ion-exchange process. Algae can form if this value is lower.

Water hardness	1.5 to 2.14 mmol/l = 8.4 to 12 dH
pH	7.2 to 7.8
Customer water filtration	80 µ
Water connection	R 1/2
Above-floor water connection	min. 40 mm, max. 75 mm
Water inlet pressure	2.0 to 6.0 bar
Water outlet pressure	5 l/min
Diameter of the drain connection	40 mm
Above-floor drain connection	20 mm
Outflow quantity	max. 4 l/min
Slope of water drain pipe	from the unit, at least 10 mm per meter

Media - Air

Air inlet pressure	5.2 bar to 7 bar
Air consumption	max. 80 Nl/min.
Air filtration at customer premises	50 µm
Steam content	Pressure dew point < 0°C
Oil content 0 µg/m³	Oil-free compressors
Air connection	R 1/2"
Air connection above floor	min. 40 mm, max. 75 mm
Diameter of the suction connection	40 mm
Suction connection above floor	20 mm
Suction vacuum	static at the device inlet: max. 190 mbar, dynamic: >45 mbar, recommended: 60 mbar

Note

If the negative dynamic pressure is > 180 mbar, the unit must be equipped with the negative pressure regulating valve assembly kit.

Suction vacuum flow	500 Nl/min

Wireless foot control

Frequency band	ISM 2.4 GHz
Radiated output	max. 0 dBm e.i.r.p. (max. 1 mW)
Supply	rechargeable battery
Type	Varta PoLiFlex PLF503759
Number of cells	1
Charging time	2 h
Rated capacity	1100 mAh, 1140 mAh type
Charger	1.005.4229
Operating time (charge cycle)	At least one month – The indicated operating time assumes normal handling of

	the treatment unit and wireless foot control. This may vary according to the treatment approach.

Operation

Maximum load on the patient chair	135 kg
Device dimensions	See setup plan in the assembly instructions

Transportation and storage conditions

Ambient temperature	-20 to +55°C
Relative humidity	5% to 95% non-condensing
Air pressure	700 to 1060 hPa

Weight

Table T E80	28 kg
Table C E80	31 kg
Chair E80	80 kg
Device E80	130 kg
E80T	238 kg
E80C	238 kg

3.7.1 Operating environment

Permissible elevation for operation	up to 2,000 m

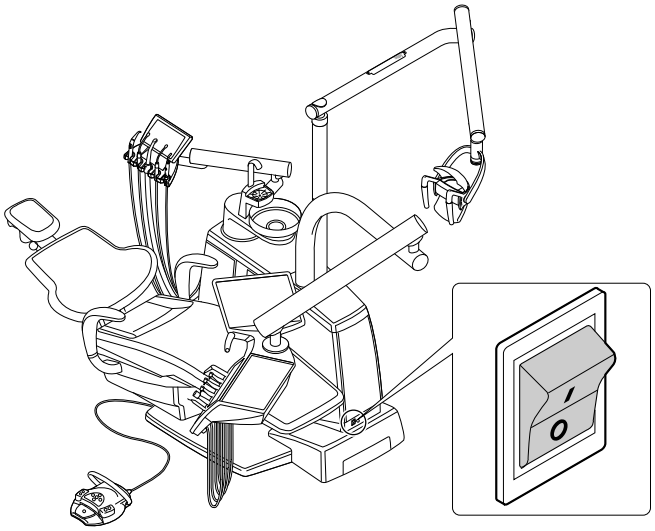
4 Operation

4.1 Switching on the device

	**⚠ CAUTION** **Injury and damage from the swinging arm** When the handle sensor on the dentist unit is touched when the device is turned on, the braking of the swinging arm is not guaranteed. ▸ Do no touch the handle sensor on the dentist unit when turning on the device.

Note
Switch the machine off before leaving the practice.

▸ Turn the device on with the main switch.



4.2 Move the dentist unit

	**⚠ CAUTION** **Damage from overloading the care provider part** Exceeding the maximum weight of 2 kg by adding instruments, accessories, etc. can cause damage. ▸ Do not overload the care provider part!

	**⚠ CAUTION** **Moving the dentist's unit or assistant's unit.** The patient or treatment personnel may be injured or crushed. ▸ Be aware of the patient and practice personnel when moving the dentist's unit or assistant's unit.

4.2.1 Move the cart

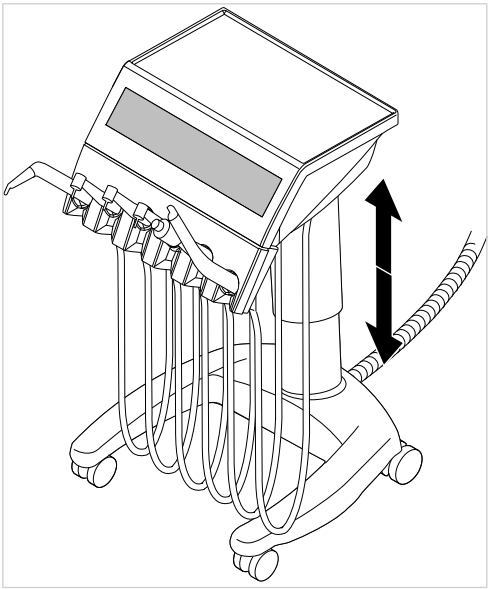
	**⚠ CAUTION** **Moving and overloading the cart.** Danger of tipping and damaging the cart. ▸ Only use the card on a continuously smooth floor. ▸ Do not overextend the supply hose for the cart. ▸ Make sure that there are no obstructions on the floor. ▸ Do not sit on the provider part or step on the castor.

Note
The area in which the cart can be move is restricted by the length of the lines and hoses that connect the cart to the base of the device. Only move the cart within this range.

- ▸ To change the position of the cart, hold the cart by the bow-type handle and move it to the desired position. Make sure that there are no obstructions on the floor.

The top part of the dentist's unit can be positioned in 9 levels.

Note
Do not lift the dentist's unit using the handle.



- ▸ Lift the top part of the dentist's unit until it locks into place.
- ▸ To release the lock, move the top part all the way up and then move it down.

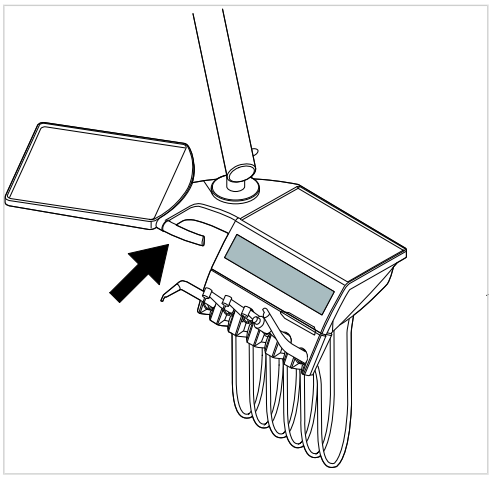
4.2.2 Moving the T table

	**⚠ CAUTION** **Excessive load on the support system** The patient or treatment personnel may be injured. The support system may be damaged. ▸ Do not exceed the permissible maximum weight (generated e.g. by instruments and accessories). ▸ Do not use the swinging arm for a support!

The joints in the support arm have pneumatic brakes. The support arm is difficult to move when the device is turned off.

▸ When the device is turned on, grab the dentist's unit by the handle and move it.

The brakes are released. The dentist's unit is easy to move.



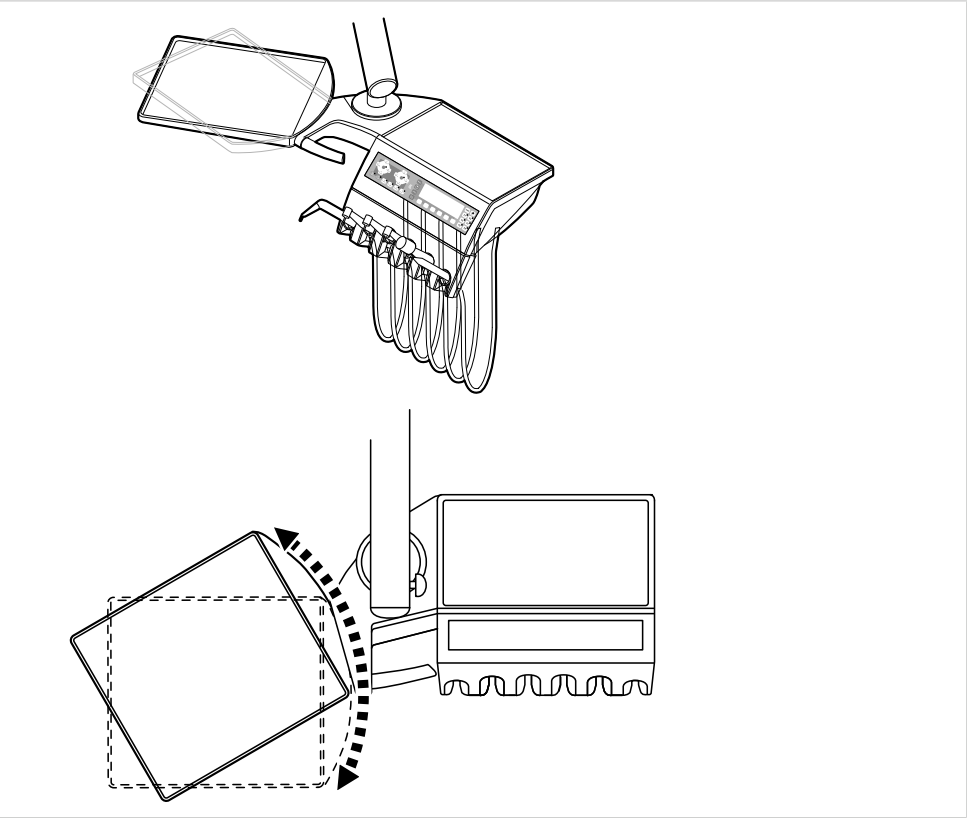
▸ Release the handle.

The support arm automatically brakes. The dentist's unit is difficult to move.

4.2.3 Moving the tray

The tray can be swung.

- Push the tray into the desired position.

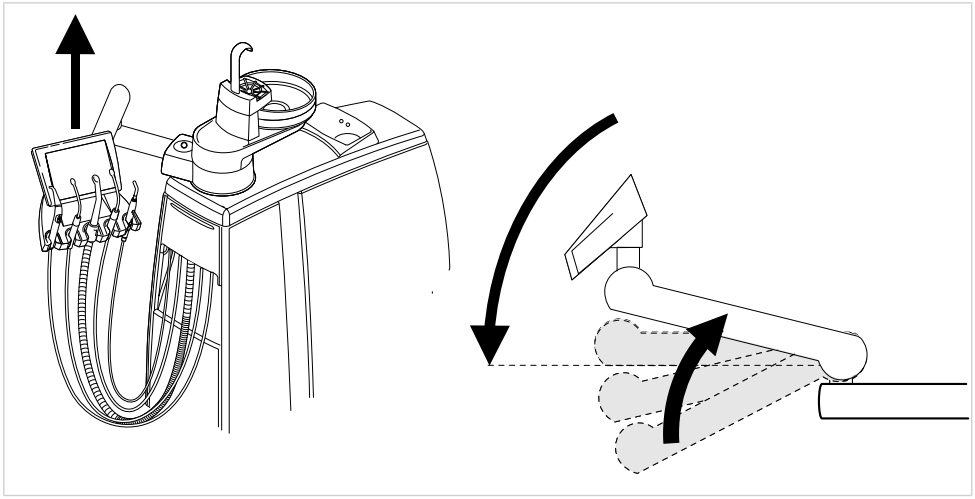


4.3 Moving the assistant element

	⚠ CAUTION **Damage from overloading the care provider part** Exceeding the maximum weight of 1 kg by adding instruments, accessories, etc. can cause damage. - Do not overload the care provider part!

The assistant's unit can be moved vertically into four levels.

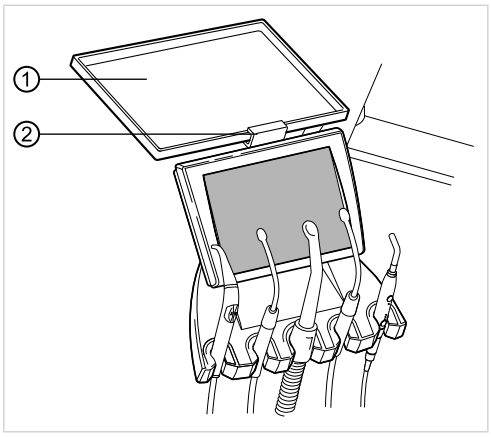
- Pull the assistant's unit upwards slightly until it locks into place.



To release the lock, the assistant's unit must be lifted all the way up.

4.3.1 Attaching the tray holder

- Mount the tray holder on the assistant's unit.



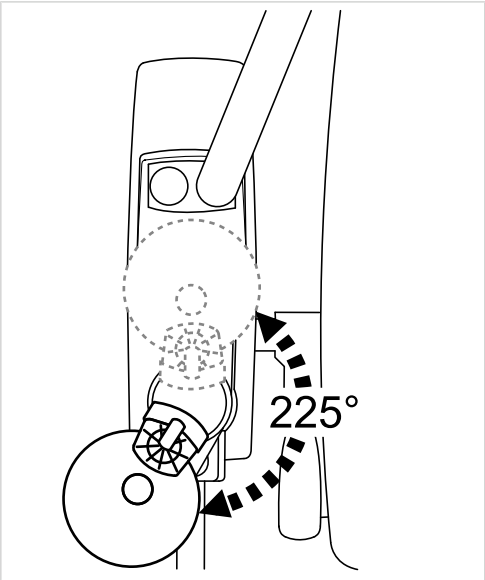
① Tray holder ② Holder

The support ② for the tray holder ①is an optional accessory.

4.4 Move the patient unit

Note
No liquids may be emptied into the mouth rising basin when the devices is turned off.

The patient part can be swung using a motor (additional equipment) or manually. The swinging range is 225 °C.



Motorised adjustment of the patient unit

When the automatic position of the patient part is saved, the position of the patient chair is also saved.

There are two memory positions available:
1. Save by pressing the "SP" button:
   The patient part moves into the rinse position after the chair has stopped moving.
2. Save by pressing the buttons "AP 0", "AP 1" or "AP 2":
   The patient part moves back into the resting position where it was before moving to automatic position.

4.5 Adjusting the patient chair

⚠ CAUTION

Danger of injury from automatic chair adjustment
Injury can arise from the automatic adjustment of the chair position.

- Only use the automatic functions under the supervision of the user.

Note

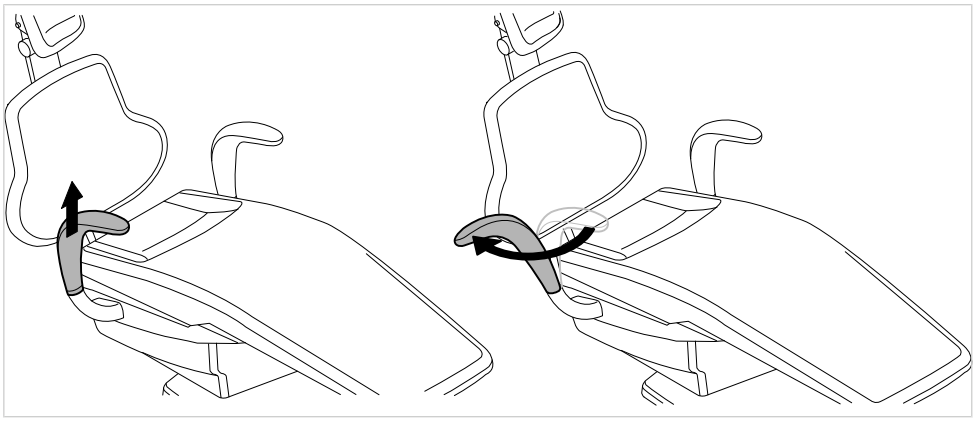
The lift and backrest motors have thermal fuses. The motors shut down at an operating temperature of 105 °C. The cooling phase lasts approx. 15 minutes. After the cooling phase is over, the lift and backrest motors are operable. Such temperatures are not reached in normal practice. The shutoff temperature can be reached when the motors are frequently actuated in presentations and events (approximately 8 complete movement cycles).

	**⚠ CAUTION** **The patient chair is overloaded** The support system or chair is damaged. The patient or treatment personnel is injured. ▸ Do not exceed a maximum permissible weight of 135 kg. ▸ Do not sit on the head or foot end of the patient chair when it is horizontally aligned. ▸ Monitor the patient when changing the chair position.

4.5.1 Rotating the armrest outward

The arm rest can be swung out 90° for the patient to get in and out.

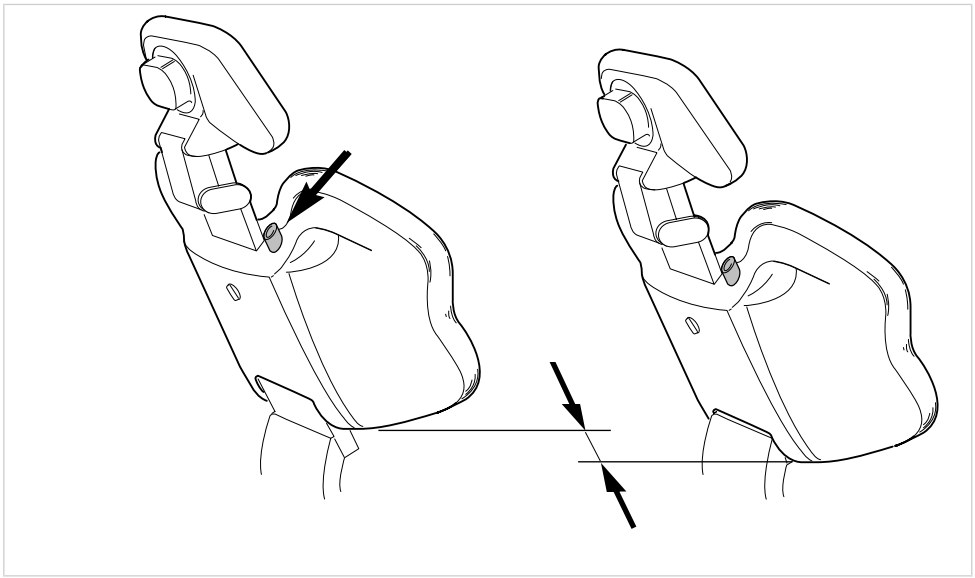
▸ Pull the arm rest up and swing it out.



▸ The swing the arm rest back until it locks in place.

4.5.2 Setting the backrest comfort

▸ Press the button to adjust the backrest height.



4.5.3 Manual positioning of the patient chair using the MEMOdent control element

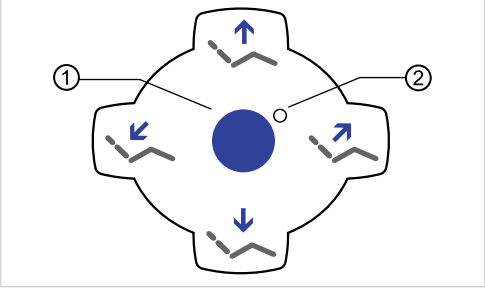
	**⚠ CAUTION** **Motorised movement of the chair** The patient or treatment personnel can be clamped or crushed. ▸ Monitor the patient and treatment personnel when changing the patient's position.

The buttons on button wheel 1 and button wheel 2 have dual functions. Therefore when adjusting the chair position, always be aware of the active function level of the button wheel. The active function level is displayed by the LEDs on the button wheel.

The motorised headrest (optional accessory) can be adjusted using button wheel 2.

See also: Adjusting the motorised headrest with the MEMOdent control element, Page 41

Adjusting the chair height and backrest position (MEMOdent)

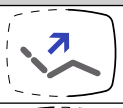
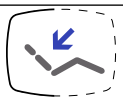


Four-button wheel 1

Requirement
Function level 1 is active. LED ② does not shine.
If function level 1 is not active, press the "Function level" ① button.

Use the following buttons to adjust the chair height and position of the backrest:

Button	Function
	The chair moves up.
	The chair moves down.

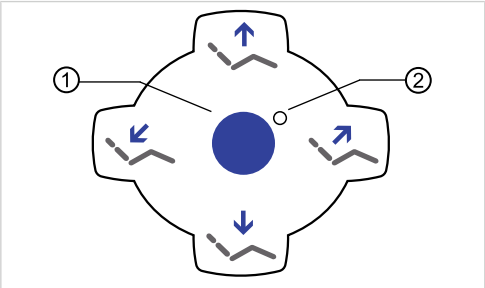
Button	Function
	The backrest moves up.
	The backrest moves down.

- Press the related key.

  The chair or backrest moves in the desired direction.

Positioning the chair with reduced speed (MEMOdent)

The chair height and backrest position can be adjusted with reduced speed (for example to precisely position a patient under a microscope).



Four-button wheel 1

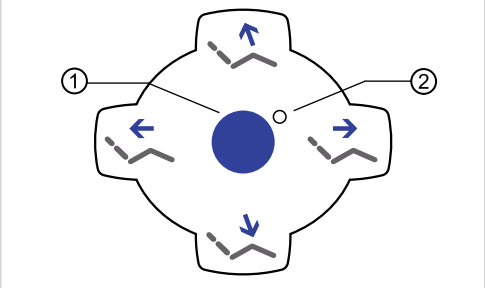
Requirement
Function level 2 is active. LED ② shines.
If function level 2 is not active, press the "Function level" ① button.

- Position the patient chair as when using the normal speed.

See also: Adjusting the chair height and backrest position (MEMOdent), Page 35

Adjusting the seat height and horizontal chair position (MEMOdent)

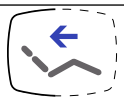
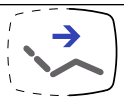
To treat small persons or children and optimize the lumbar support, the seat can be lifted and lowered.



Four-button wheel 2

Requirement
Function level 1 is active. LED ② does not shine.
If function level 1 is not active, press the "Function level" ① button.

Use the following buttons to adjust the seat height and horizontally position the chair:

Button	Function
	The seat moves up.
	The seat moves down.
	The chair moves horizontally to the rear.
	The chair moves horizontally to the front.

- Press the related key.

  The chair or seat moves in the desired direction.

4.5.4 Automatic positioning of patient chair

⚠ CAUTION

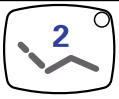
Motorised movement of the chair
The patient or treatment personnel can be clamped or crushed.

- Monitor the patient and treatment personnel when changing the patient's position.

Selecting the automatic chair position

The chair can be automatically positioned using the following buttons:

Key	Operation
	Move to the rinsing position.
	The last position before actuating the SP is assumed.
	Move to automatic position 0.
	Move to automatic position 1.

Key	Operation
	Move to automatic position 2.
	Move to the collapsed position.

- Briefly press the desired button.

  Chair automatically moves to the stored position.
  Upon arrival at the stored position, the display diode on the button is turned on.

Saving automatic chair positions

Recommended assignment of buttons:
"SP" button: rinsing position
"AP 0" button: entry and exit position
"AP 1" button: treatment position, e.g. for lower jaw treatment
"AP 2" button: treatment position, e.g. for upper jaw treatment
"Collape position" button: collapse position

- Move the chair to the desired position.

See also: 4.5.3 Manual positioning of the patient chair using the MEMOdent control element, Page 35

- To save the chair position, press "AP 0", "AP 1", "AP 2", "SP" or "Collapsed position", press the button until you hear a signal.

  The LED of the pressed button shines. The chair position is saved.

Note
When retrieving the rinsing position, the value for the chair height is calculated from the saved chair height and the position of the headrest. The rinse position is thereby adapted to the height of the patient.

Last position

After the "LP" button is pressed, the chair moves into its position before the "SP" button was pressed.

Note
The memory is erased when you turn off the device. After turning on the device again (for example in the morning or after lunch), the chair does not execute a specific movement when you press the "LP" button.

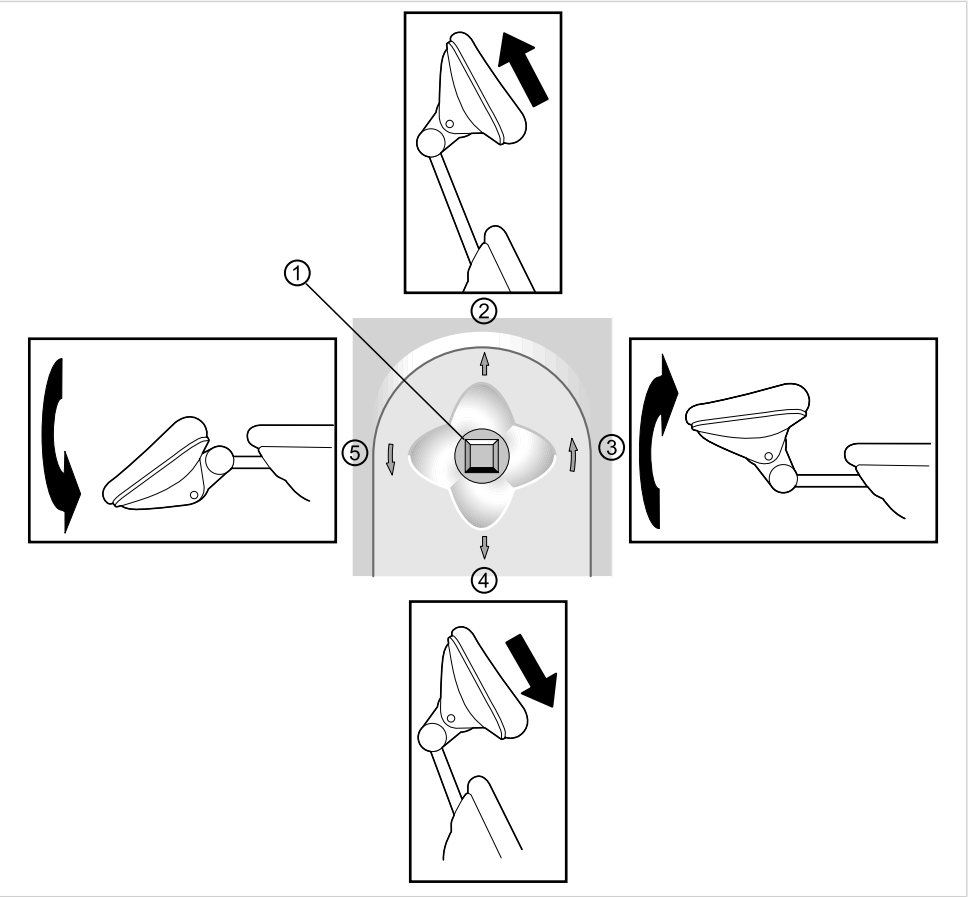
4.5.5 Adjust the motorised headrest

The motorised support for the headrest allows you to optimally situate the patient with easy manual manipulations. The compensated sequence of movements move the patient's head into an anatomically correct position.

The headrest can be adjusted manually using the joystick switch on the headrest, the dentist's or assistant's unit, or automatically by means of a preset automatic position.

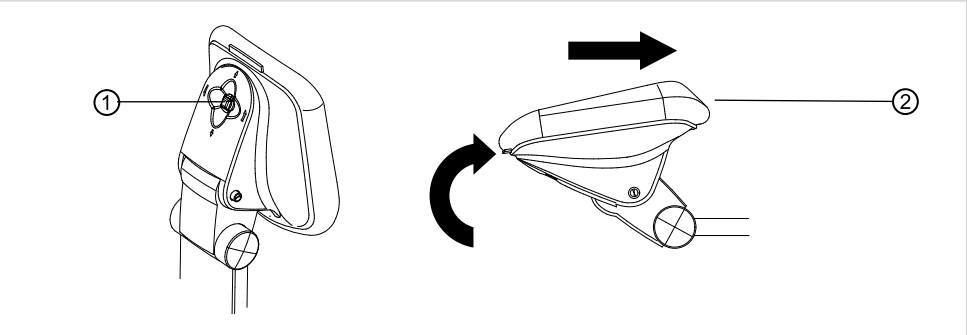
Setting the motorised headrest on the joystick switch

The height and angle of the headrest can be adjusted with the soft silicone joystick switch ①.



- Press the joystick switch ① in direction ② to extend the bar length.
- Move the joystick switch ① in direction ④ to shorten the bar length.
- Press the joystick switch ① in direction ③ to angle the headrest the the front, for example for treating the maxilla (compensated procedure).
- Press the joystick switch ① in direction ⑤ to angle the headrest the the rear, for example for treating the mandible (compensated procedure).

Special function 1 (small persons, round shoulders):



- Press joystick switch ①.

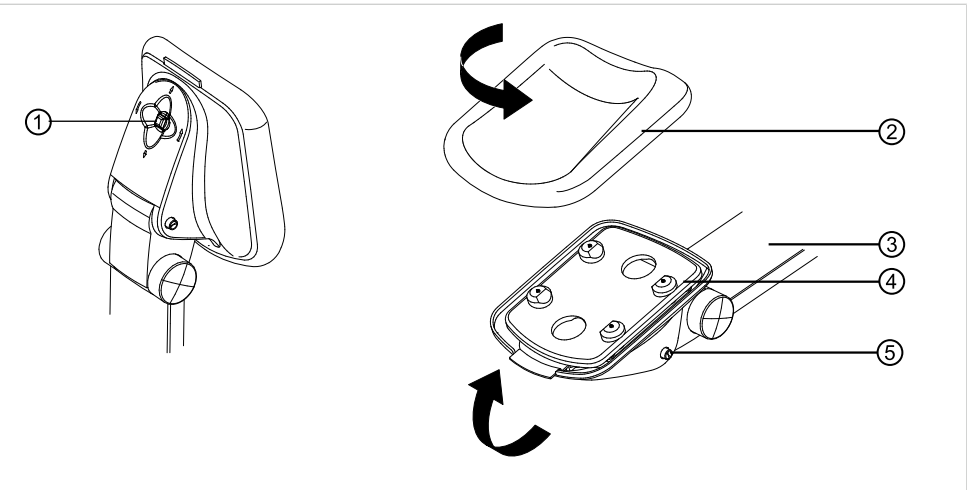
  A signal sounds. Compensation is turned off. All six of the AP display diodes shine. All axes can be independently operated using the joystick switch ①.

- Position the headrest ② with the joystick ①.

Press the Joystick switch ① to switch on compensation. All functions are available.

Special function 2 (children's position, continuous plane):

For treating children, the head cushion can be adjusted so that it forms a single plane with the backrest cushion.



Note
When press button ⑤, do not adjust the angle with the joystick switch①!

- Hold down the joystick switch ①.

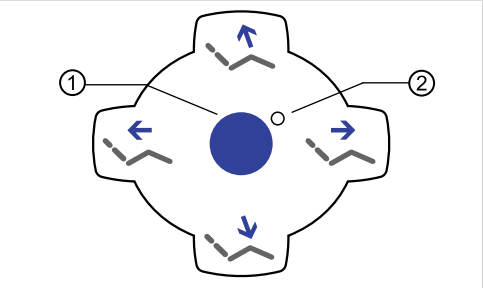
  A signal sounds.
  The programmed position for treating children is assumed (bar is completely inserted ③). The child's position is displayed by the running light of the six AP keys.

- Press button ⑤ to move jammed headrests ④.
- Tip the headrest ④ until it is in line with the backrest and locks into place.
- If necessary, change the bar length ③.
- Turn the rotating cushion ② so that the flat part faces the backrest.

Press button ⑤ and manually swing the headrest back to automatically assume the standard starting position. All functions are again available.

Adjusting the motorised headrest with the MEMOdent control element

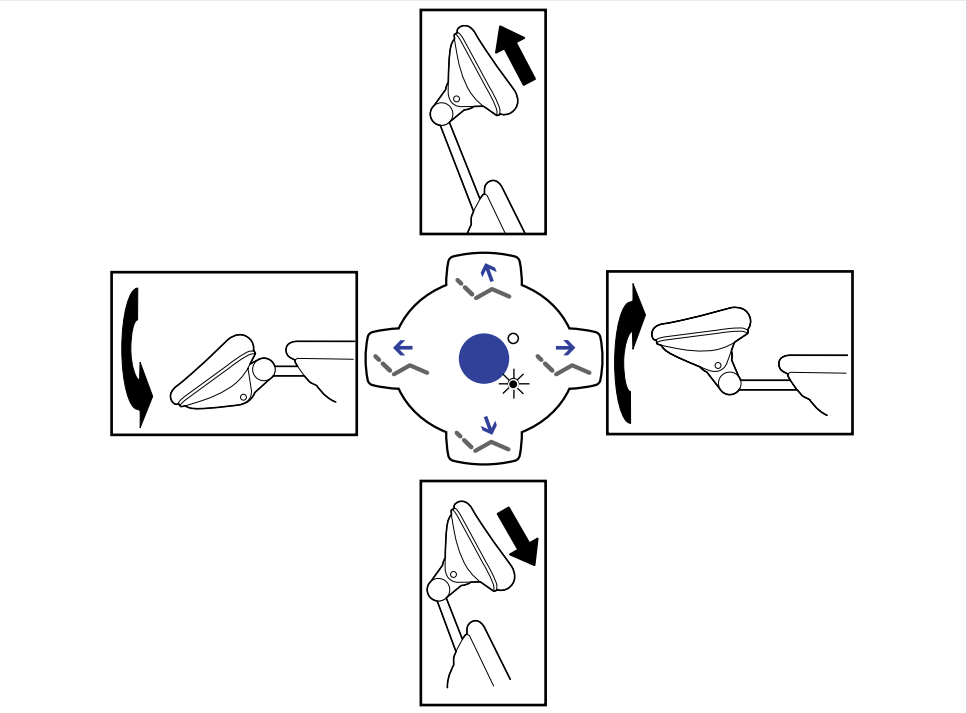
Use the MEMOdent control element to adjust the height and angle of the headrest. The four-button wheel assumes the function of the joystick switch.

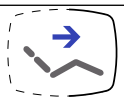


Four-button wheel 2

Requirement
Function level 2 is active. LED ② is on.
If function level 1 is not active, press the "Function level" ① button.

The following buttons can be used to adjust the motorised headrest:



Key	Function
	The bar lengthens.
	The bar shortens.
	The headrest tilts forward.
	The headrest tilts backward.

- Press the corresponding button.

  The headrest moves in the desired direction.

Automatic positioning of the motorised headrest

When you save the automatic chair positions, the angle of the headrest is also saved.

- After selecting the automatic position, you can manually adjust the headrest if desired.

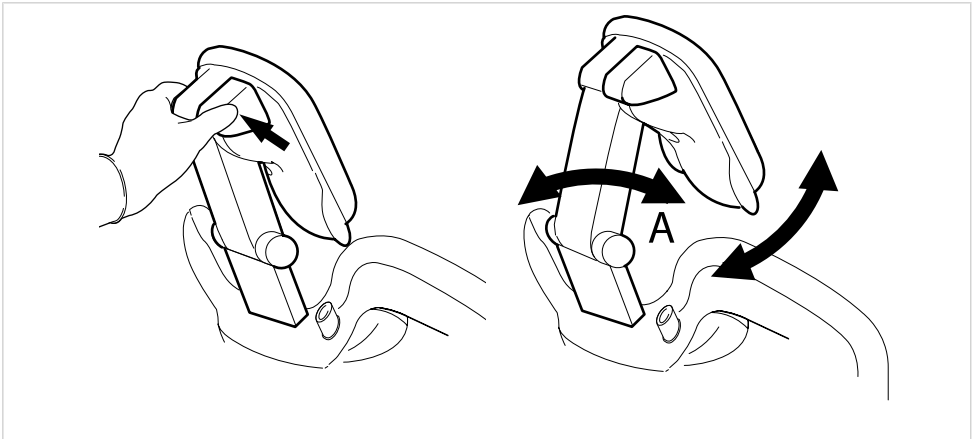
4.5.6 Setting the two-joint headrest

⚠ CAUTION

Adjusting the headrest.
Injury of neck muscles.

- Make sure that the patient is aware of the headrest setting.
- Patients need to raise their head slightly during adjustment.

The bar length and angle of the headrest can be adjusted.



- Press the lock button and push in or pull out the headrest depending on the patient's height.

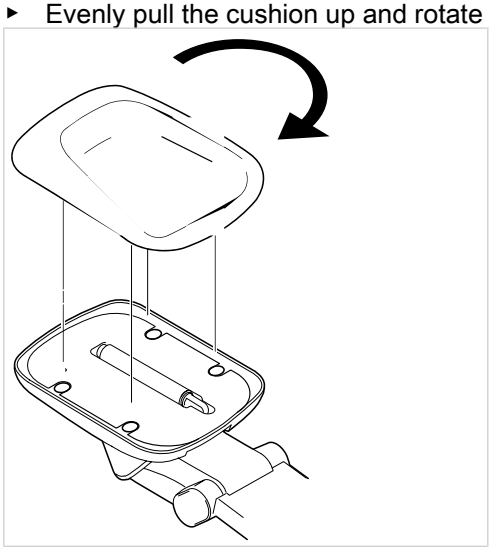
Note
The service technician can adjust the braking force.

- Press the lock button and swing the headrest into the desired position.
  When swinging the headrest back into position, make sure that there is nothing between the area A and head cushion.

Turning the head cushion

The head rest cushion is a rotating cushion. It can be turned to offer better neck support, for example when treating children.

- Evenly pull the cushion up and rotate it 180°.

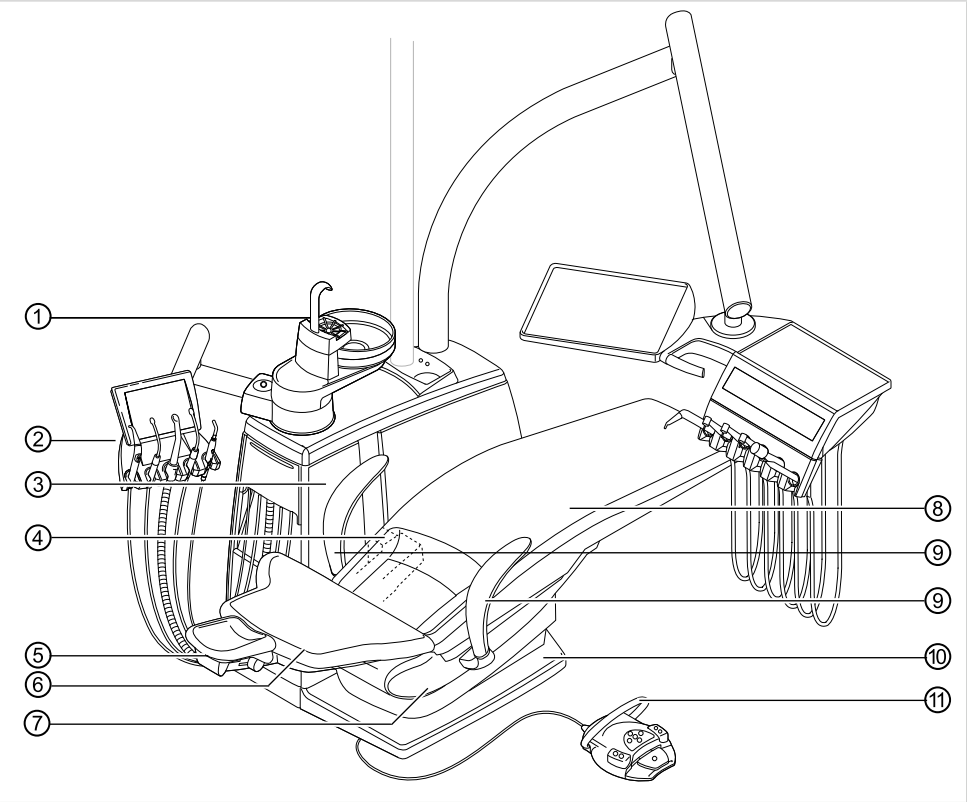


- Then snap the head cushion back on.

4.6 Safety shut-down

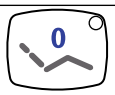
The safety shutoffs are provided to protect the patient and office staff from injury and the treatment unit from damage.

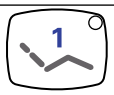
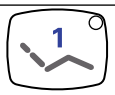
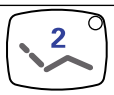
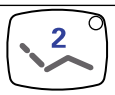
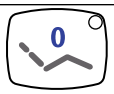
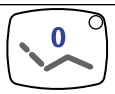
The safety cut-offs can be found at the following places on the treatment unit.



① Patient unit
② Assistant unit
③ Side cover of device base
④ Support covers
⑤ Button on motorised headrest
⑥ Backrest
⑦ Trendelenburg covers
⑧ Seat
⑨ Armrest left/right
⑩ Guiding carrier cover
⑪ Clip on (wireless) foot control

If a person or object actuates a safety shutoff, the chair immediately stops moving. The fact that the safety shutoff has been activated is displayed by the corresponding display flashing on the dentist's or assistant's unit.

Pos. no.	Confirmed safety shut-down	Display diode on the dentist's unit	Display diode on the assistant unit
①	Patient unit (assistant side only)		
②	Assistant's unit (assistant side only)		
③	Side cover of device base (assistant side only)		
④	Support covers		
⑤	Button on motorised headrest		

Pos. no.	Confirmed safety shut-down	Display diode on the dentist's unit	Display diode on the assistant unit
⑥	Backrest		
⑦	Trendelenburg cover		
⑧	Seat		
⑨	Armrest left/right		
⑩	Guiding carrier cover		
⑪	Clip on foot control (assistant side only)		

Note

The chair's position cannot be changed with the key wheels when a safety shutoff is activated.

- To deactivate an activated safety shutoff, remove the triggers from the to the range of movement of the stool.

⚠ CAUTION

Changing the chair's position when the safety circuit is on.
Personal injury.
Damage to the device.

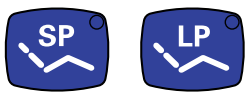
- When changing position, do not move the chair against the active safety circuit when actively shutting off the safety circuit.

⚠ CAUTION

Pinching from the treatment chair.
The safety shutoff of the treatment chair is activated by lifting the respective component. Depending on the patient's body weight and the leverage, more force can be exerted on the object to be triggered than is necessary to trigger the switching function.

- The treatment personnel must move outside of the chair's swinging range whenever the chair moves.

To allow the chair to move freely, it can also be moved when the safety circuit is on.



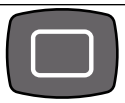
- Simultaneously press the "SP" and "LP" buttons and move the chair using the button wheel buttons.

4.7 Controlling functions by means of the MEMOdent control element

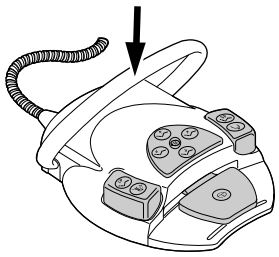
4.7.1 Preselecting and using the basic menus

Four basic menus can be selected:

- To preselect one of the four basic menus, press the corresponding button.

Key	Basic menu
	MEMOdent menu
	Timer menu
	Patient menu
	Multimedia menu

The basic menu to be shown in the display after the device is turned on and after instruments are replaced can be saved. Except for the Multimedia menu.

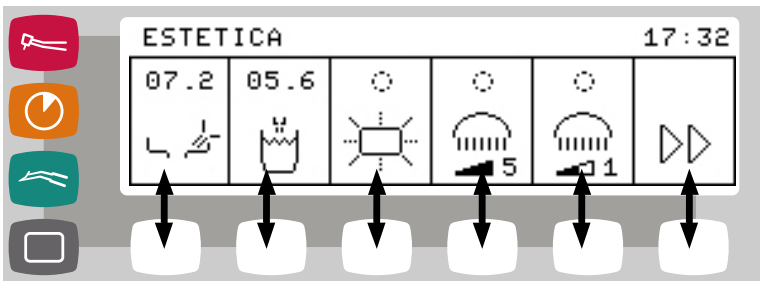


- Hold down the stirrup switch and the corresponding basic menu for approximately 4 seconds.

  Saving is acknowledged with a tone.

Selecting functions

There is a selection button below each display field to select the individual functions. The selection buttons are assigned to the respective symbol in the display above.



4.7.2 Using the MEMOdent menu

- Press the "MEMOdent menu" button.

  The display switches to the MEMOdent menu.

Instrument-specific values are displayed and adjusted in the MEMOdent menu.

The display depends on which instrument was withdrawn.

To save the instrument-specific values, there are 4 memory levels (E, 1, 2, 3) each for six dentists (dentist 1 to dentist 6).
In level E, the centring of the foot control pedal is deactivated, and no preferential speed can be programmed.

Selecting the dentist

- Press "Preselect level" button for 4 seconds while instruments have been replaced.

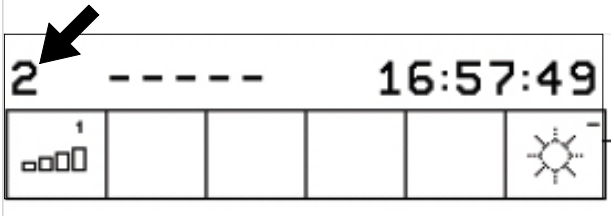
  The display switches to the Settings menu.

- Press the key for the desired dentist (dentist 1 to dentist 6).

The number of dentists can be set by the service technician.
Two dentists are set as the default.

Select the level

- To select a level, briefly press the selection button for "Preselect level".



4.7.3 Changing the turbine settings in the MEMOdent menu

Note

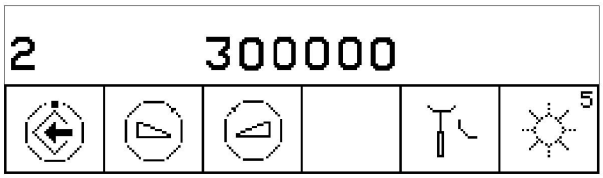
Following instructions for use, service instructions and installation instructions in the instrument packaging.

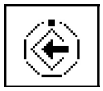
The following settings can be changed in the MEMOdent menu:
- Speed
- Cooling status
- Cold light intensity

- Remove the turbine from the holder.
- To select a level, briefly press the selection button for "Preselect level".

- Press the key for "Preselect level" for 4 seconds to change the settings.

  The display changes to the turbine setting menu.





- Press the "Save" key to save the values. You can save after setting each value, or after setting all values.

  Saving is acknowledged with a tone.

Setting the speed

- Press the key for "Decrease value" to decrease the speed.

or

- Press the "Increase value" key to increase the speed.

  The speed is shown in the display.

Setting the cooling level

- Adjust the cooling with the "Cooling level" key.

Symbol	Function
	No cooling
	Air cooling

Symbol	Function
	Spray water cooling
	Cooling status NaCl (optional eccessory)

See also: 4.12 Use pump for physiological saline (optional accessory), Page 109

Setting the cold light

The cold light can be set in 9 levels.

- Briefly press the "Cold light" key.

  The cold light intensity changes one level.

If the cold light is unselected, a dash appears in the display.

4.7.4 Changing the settings for the INTRA LUX Motor KL 702

Note
Following instructions for use, service instructions and installation instructions in the motor packaging.

The following settings can be changed in the MEMOdent menu:
- Direction of motor rotation
- Speed
- Cooling status
- Cold light intensity

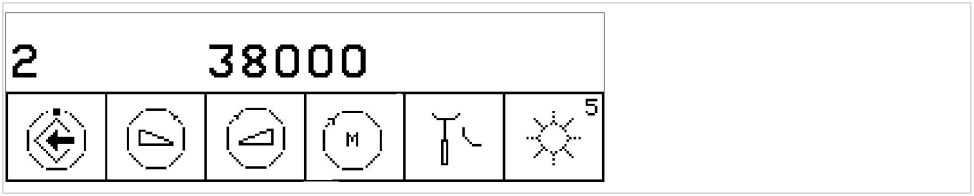
The settings for the speed, cooling and cold light are made in the same manner as with the turbine.

- Take motor from the support.

- Briefly press "Preselect level" button to select the level.

- Press the key for "Preselect level" for 4 seconds to change the settings.

The display changes to the motor settings menu.



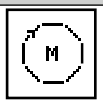
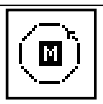
- Press the "Save" key to save the values. You can save after setting each value, or after setting all values.

  Saving is acknowledged with a tone.

Setting the rotational direction of the motor

Note
The rotational direction of the motor can only be changed when the motor is at rest.

- Choose clockwise or counterclockwise rotation with the selection button for "Motor rotational direction".

Symbol	Function
	Clockwise rotation
	CCW rotation

4.7.5 Changing PiezoLED settings in the MEMOdent menu

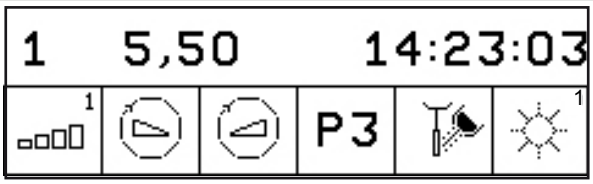
Note
Please comply with the enclosed "PiezoLED" Instructions for Use.

The following settings can be changed in the MEMOdent menu:
- Output intensity
- Operating mode (P1 / P2 / P3 / E)
- Cooling status (no cooling / spray water cooling)
- Light On/Off (intensity cannot be set)

Save new settings

- Take PiezoLED from the support.

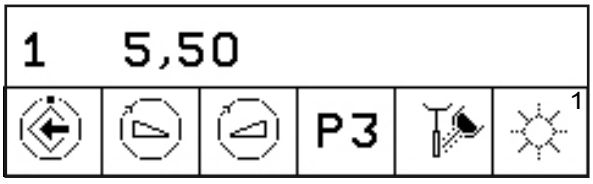
  The following is shown on the display.



- Briefly press "Preselect level" button to select the level.

- Press "Preselect level" button for 4 seconds.

  The display switches to the settings menu of the PiezoLED.



- Press the "Save" key to save the values. You can save after setting each value, or after setting all values.

  Saving is acknowledged with a tone.

Setting the intensity

- Press the button for "Decrease value" to decrease the intensity.

or

- Press the button for "Increase value" to increase the intensity.

  The intensity is shown on the display.

Define operating mode

Note

The selection of the mode depends on the treatment method and the tip used. For information about the selection of an operating mode, please refer to the "Operating modes P1 / P2 / P3 and E" section of the "PiezoLED Instructions for Use".

- Press the "Mode" key to select the operating mode.
  Modes P1 / P2 / P3 / E are available for selection.

Setting the cooling level

- Adjust the cooling with the selection button for "Cooling status".

Symbol	Function
	No cooling
	Spray water cooling

Dosing the amount of spray water

⚠ CAUTION

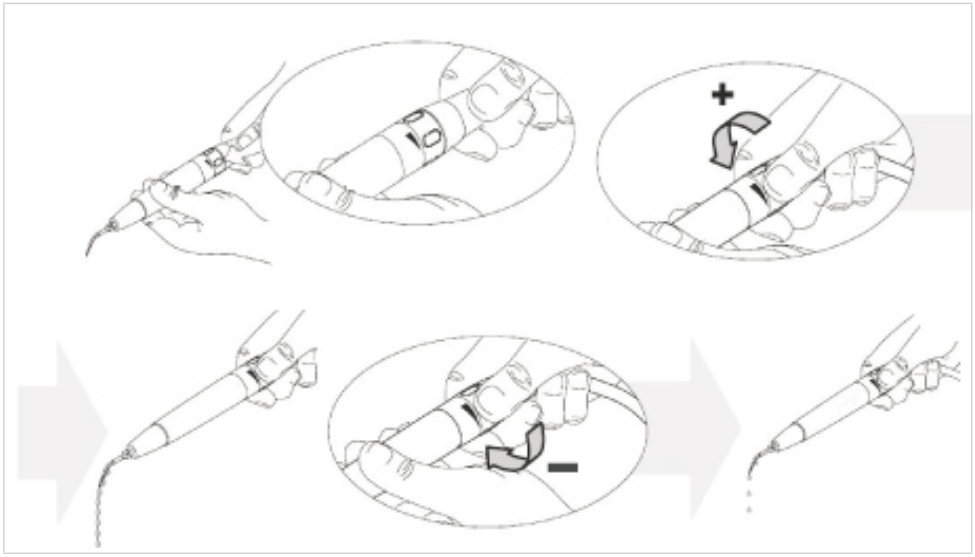
Lack of working tip cooling.
Heat damage to tooth or handpiece.

- Never work under dry conditions, except in case of tips designed for these conditions.
- Set the minimal flow rate to 6 l/min. For this purpose, adjust the flow rate such the water is just between dripping and flowing during irrigation.

- For the amount of spray water for each tip, please refer to the PiezoLED Instructions for Use.

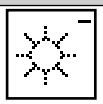
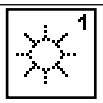
See also: PiezoLED Instructions for Use

- Adjust the amount of spray water using the regulating ring.



Turn the light On / Off (PiezoLED only)

- Briefly press the "Light" button to switch between "On" and "Off".

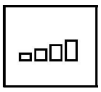
Symbol	Function
	Light "On"
	Light "Off"

4.7.6 Changing PIEZOlux settings in the MEMOdent menu

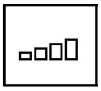
Note
Following instructions for use, service instructions and installation instructions in the instrument packaging.

The following settings can be changed in the MEMOdent menu:
- Intensity
- Cooling status
- Cold light intensity

The cold light intensity is adjusted in the same manner as with the turbine.

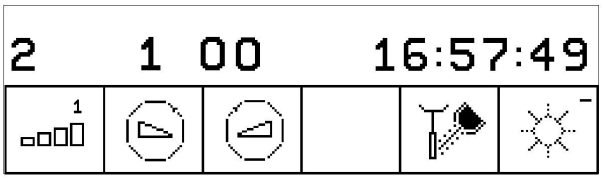


- ▸ Briefly press "Preselect level" button to select the level.
- ▸ Take PIEZOlux from the support.



- ▸ Press the key for "Preselect level" for 4 seconds to change the settings.

  The display changes to the PIEZOlux settings menu.



Establishing the intensity

- ▸ Press the button for "Decrease value" to decrease the intensity.

or

- ▸ Press the button for "Increase value" to increase the intensity.

  The intensity is shown on the display.

Setting the cooling level to switchable or not switchable

Note

When delivered, the spray water cannot be switched with the the PIEZOlux. The cooling level is set to switchable by a service technician in service mode.

4.7.7 Changing multi-function syringe settings in the MEMOdent menu

Note

Following instructions for use, service instructions and installation instructions in the instrument packaging.

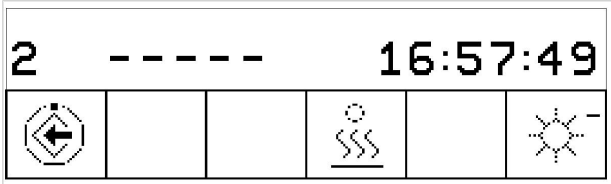
The following settings can be changed in the MEMOdent menu:
- Cold light intensity
- Air/water heating

The cold light intensity is adjusted in the same manner as with the turbine.

- Briefly press "Preselect level" button to select the level.
- Take multifunction syringe from the support.

- Press "Preselect level" button for 4 seconds in order to change settings.

  The display switches to the Settings menu of the multifunction syringe.



- Press the "Save" key to save the values. You can save after setting each value, or after setting all values.

  Saving is acknowledged with a tone.

Adjusting the air/water heating

- Adjust the heating with the key for "Air/water heating".

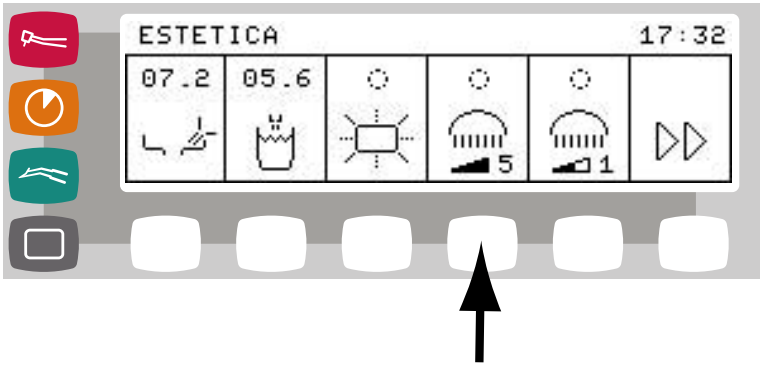
Symbol	Function
	Air/water heating on
	Air/water heating off

4.7.8 Operating the KAVOLUX 1410 C operating light

Turning the operating light On and Off

- Press the "Patient menu" button.

  The display changes to the patient menu.



- Press operating light button.

  Operating light 1410 C is turned On.
- Press operating light button again.

  Operating light 1410 C is turned Off.

Setting the brightness

Note

The maximal possible brightness of the light is adjusted in five steps using the operating light button (MEMOdent).

- Press and hold the operating light button.

  There is one beep, the brightness changes. The brightness level is displayed.
- Release the button once the desired brightness level is reached.

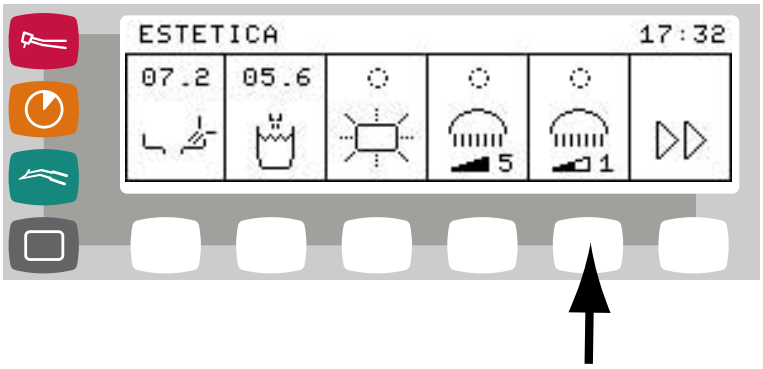
  A number from 1 to 5 in the display indicates the set brightness level.

Dimming the operating light

Note
The maximal brightness can be dimmed with the button for dimming the operating light (MEMOdent).

- Press the "Patient menu" button.

  The display changes to the patient menu.



- Press button for dimming the operating light.

  Light intensity is reduced.
- Press button for dimming the operating light again.

  The light intensity is switched back to maximal brightness.

Setting the brightness for dimming

Note
The brightness of dimming can be adjusted in 5 steps using the button for dimming the operating light (MEMOdent). The maximal brightness of dimming is always less than maximal brightness.

- Press and hold the button for dimming the operating light.

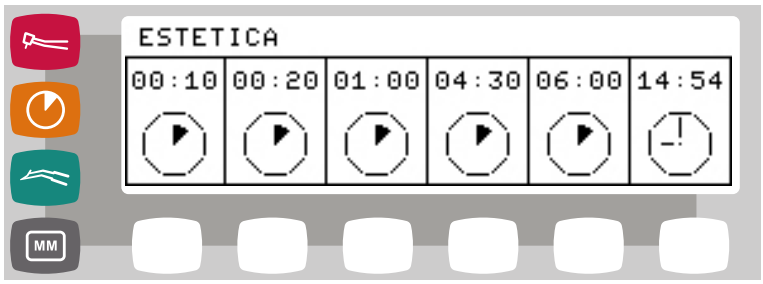
  There is one beep, the brightness changes. The brightness level is displayed.
- Release the selection button once the desired brightness level is reached.

  A number from 1 to 5 in the display indicates the set brightness level.

4.7.9 Using the Timer menu

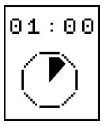
- Press the "Timer menu" button.

The display changes to the timer menu.



Five timer times can be set and recalled in the Timer menu. In the display, the timer times are displayed in five display fields above the corresponding timer symbol. The current time of day is displayed in another display field.

Select the timer time



- In order to start a timer time, press the "Timer" button.

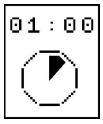
  This starts up the timer. A beep is emitted when the time has expired.

- In order to stop a timer time, press the "Timer" button again.

Note

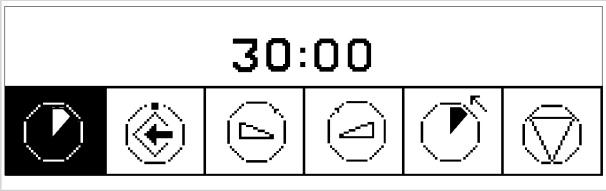
The activated timer times are also shown in the MEMOdent menu.
When several timer times are running simultaneously, they are displayed in the sequence of when they elapse. Once each activated timer time elapses, a signal sound is emitted.

Setting the timer time



- Press the button for any "Timer" for 4 seconds.

  The display switches to the Settings menu.
  The symbol of the timer to be set is shown as an inverse display.



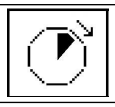
- Press the key for "Decrease value" to reduce the time.

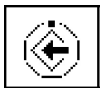
or

- Press the key for "Increase value" to increase the time.

The set time is displayed in the display.

- Establish the direction of counting by pressing the "Count down/up" key.

Symbol	Function
	The timer counts down (for example: 0:30 to 0)
	The timer counts up (for example: 0 to 0:30)

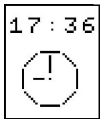


- Press the "Save" button to save the value.

  A beep confirms that the value has been saved.

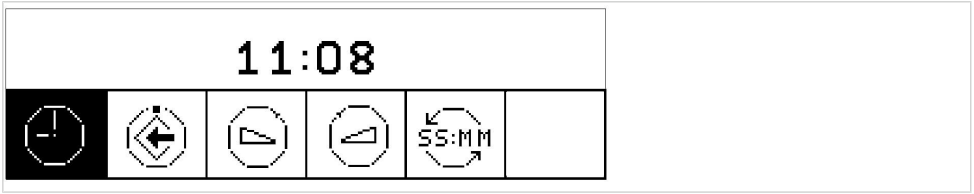
The process can be terminated with the "Cancel" button.

Adjusting the clock time



- Press the "Clock time" key for 4 seconds.

  The display changes in the settings menu.
  The clock symbol is portrayed inversely.



- Press the key for "hour/minutes" to switch between hours, minutes and seconds.

- Press the key for "Decrease value" to reduce the time.

or

- Press the key for "Increase value" to increase the time.

The set time is displayed in the display.

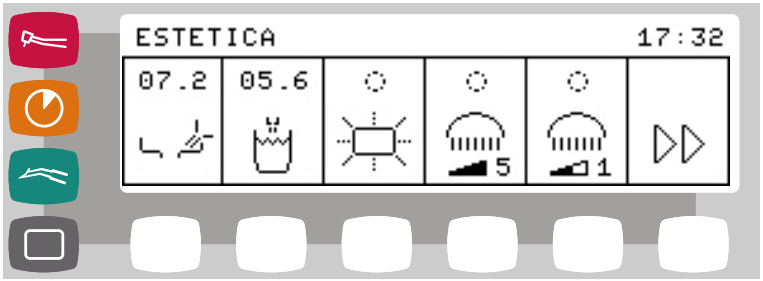
- Press "Save" button to save the value.

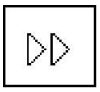
  A beep confirms that the value has been saved. The seconds are set to zero.

4.7.10 Using the patient menu

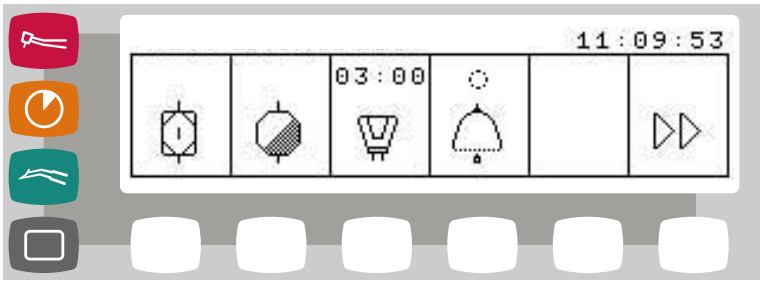
- Press "Patient menu" button.

  The display switches to the Patient menu.

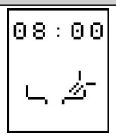
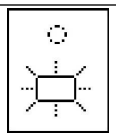


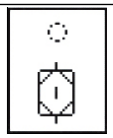
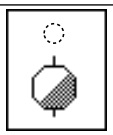
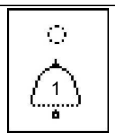
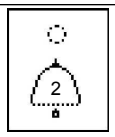


Use the "Continue" button to advance the display.



The following functions are available in the Patient menu

Symbol	Function
	Bowl flushing Bowl is flushed for 8 seconds. The flushing time can be changed. Bowl flushing turns on automatically when the patient chair reaches the flushing position.
	Tumbler filler Tumbler is filled for 4 seconds. The filling time can be changed. The beaker is filled automatically when it is replaced on the patient unit. (Works with activated tumbler sensor only!)
	X-ray viewer Turns X-ray viewer On/Off.
	Operating light Turns operating light On/Off.

Symbol	Function
	Dimming the operating light
	Intensive disinfection (rinse cycle) **Also refer to:**Care instructions
	HYDROclean HYDROclean function **Also refer to:**Care instructions
	Hydrocolloid Hydrocolloid is turned on for 3 minutes. The hydrocolloid time can be changed.
	Bell 1 Bell 1 is active for as long as the button is pressed. Function for bell, door opener, etc.
	Bell 2 Bell 2 is active for as long as the button is pressed. Function for summoning the assistant, summoning the patient, etc.

Note

Bells 1 and 2 can also be set by the service to be permanently functional. Press once to turn on, press again to turn off.

Note

Service can set bell 2 so that it is started when the timer3 is activated. The bell rings until timer 3 ends. The timer can be prematurely stopped by pressing the timer 3 key.

- ▸ In order to activate a function, press button below the display field.
- ▸ Press button again in order to discontinue the function.

Changing the settings in the patient menu

The following settings can be made in the patient menu:

- Bowl rinsing time
- Tumbler filling time
- Time for filling tumbler with the tumbler sensor (optional accessory)
- Hydrocolloid time

Adjusting the bowl rinsing and tumbler filling time

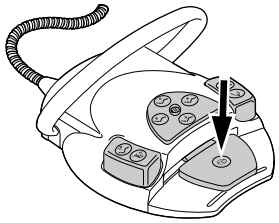
- ▸ Press the "Bowl flush" or "Beaker filling" buttons for 4 seconds until a beep is heard.

A tone sounds for 1 second when you set the bowl rinsing and tumbler filling times.

- Release the button when the desired time is reached.

Note
A technician can block the setting of the time.

Set the tumbler sensor filling time for the tumbler sensor (additional equipment).



- Press and hold the operating foot control.

- Press the "Beaker filling" button for 4 seconds until a beep is heard.
- Release the "Beaker filling" button once the desired time is reached.
- Relase the foor control.

Note
The tumbler sensor function can be activated or deactivated by simultaneously pressing the stirrup switch and the "Tumbler filler" key.

Set hydrocolloid time

A maximum time of 8:30 minutes can be set.

- Press the "Hydrocolloid" button for 4 seconds.

  The display changes to the hydrocolloid time settings menu.

- Press the key for "Decrease value" to reduce the time.

or

- Press the key for "Increase value" to increase the time.

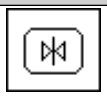
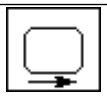
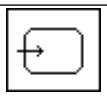
The set time is displayed in the display.

4.7.11 Using the Multimedia menu

- Press "Multimedia menu" button.

  The display switches to the Multimedia menu.

The following functions are available in the Multimedia menu:

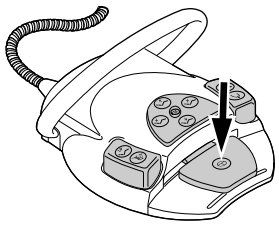
Symbol	Function from briefly pressing the key	Function from holding down the key
	"Freeze" Create freeze frame.	"Save" Save current picture.
	Go to previous picture.	No function
	Go to next picture.	No function
	Switch the source of pictures between camera and video.	No function
	Switch the display between full image mode and quad mode.	No function
	Delete current picture.	Delete all pictures.

- To activate a function, press the key below the display field briefly or longer.

See also: ERGOcom instructions for use

4.7.12 Use function buttons F1 to F6

The functions from the basic menu can be directly selected using the function buttons. There are 6 memories (F1 to F6) available.



- Hold down the foot pedal.

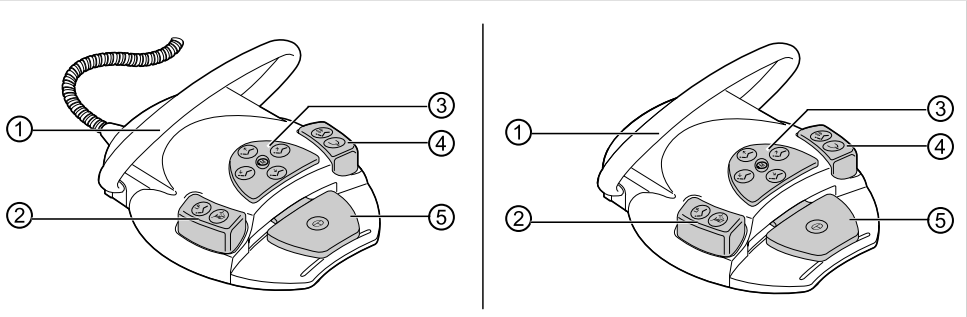
- Hold down any function key (F1 to F6).
- Press the key for the desired function to save this function on the function key.

  The signal sounds. The selected function is saved on the function key.

4.8 Operating the foot switch

4.8.1 General functions

The footswitches of the foot control have two functions. The function of the control depends on whether an instrument is in its holder or whether it has been removed.



Foot control (left)/wireless foot control (right)

Item	with a mounted instrument	with a removed instrument
①	Stirrup switch	
②	"LP" footswitch	"Preselected spray" footswitch
③	Cross-switch: "Manual operation of patient chair"	Cross-switch: "Counterclockwise motor rotation"
④	"SP" footswitch	"Blown air" footswitch
⑤	"Preselected level" foot pedal	"Instruments" foot pedal

4.8.2 Special functions of the wireless foot control

⚠ CAUTION

Electricity
Injury to persons or damage to the wireless foot control.

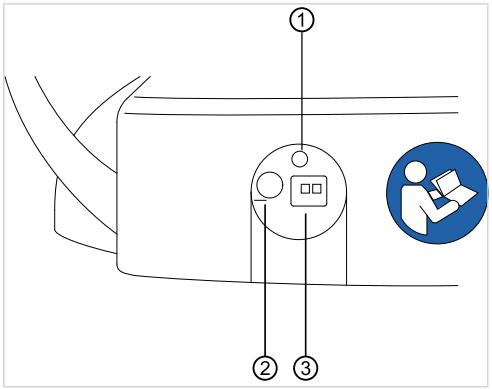
- The dentist may not simultaneously touch the charging socket and patient.
- Do not touch the contacts of the charging socket!

⚠ CAUTION

Damage or malfunction from improper care.
Reduced production time.

- Consult the instructions in the PA for correct care.

With the wireless foot control, the activities of the user are transmitted to the treatment unit wirelessly.



Rear of the wireless foot control

Item No.	Labelling	Function
①	LED display	Status display / charge status display
②	On/Off switch	On/off switch to prevent deep discharge during long periods of non-use. The wireless foot control can remain switched on at all times as a matter of principle. The device must be switched off for transport. The battery can also be charged when it is switched off.
③	Charge socket	Charge socket for the provided charger (**Mat. no. 1.005.4229**).

The battery charge of the wireless foot control is indicated by the LED display and is signaled by a tone.

Residual capacity	Status of the foot control	Status display / charge status display	Beep
< 100 %	Idle state Foot control turned on	flashes green (approx. 2 second intervals)	-
	Active actuation	flashes green (approx. 200 millisecond intervals)	-
< 30 %	Idle state Foot control turned on	flashes yellow (approx. 2 second intervals)	A single brief tone when a key is pressed.
	Active actuation	flashes yellow (approx. 200 millisecond intervals)	A single brief tone when a key is pressed.
< 10 %	Idle state Foot control turned on	flashes yellow (approx. 2 second intervals)	Two brief tones when a key is pressed.
	Active actuation	flashes yellow (approx. 200 millisecond intervals)	Two brief tones when a key is pressed.

	**⚠ CAUTION** **Critical battery level** If the battery reaches a critical charge status, a signal is sounded every time a function key is pressed. ▸ Always charge batteries when necessary. ▸ To ensure that the battery of the wireless foot control is always charged in a timely manner, note the visual and acoustic signals of the wireless foot control when starting the treatment unit.

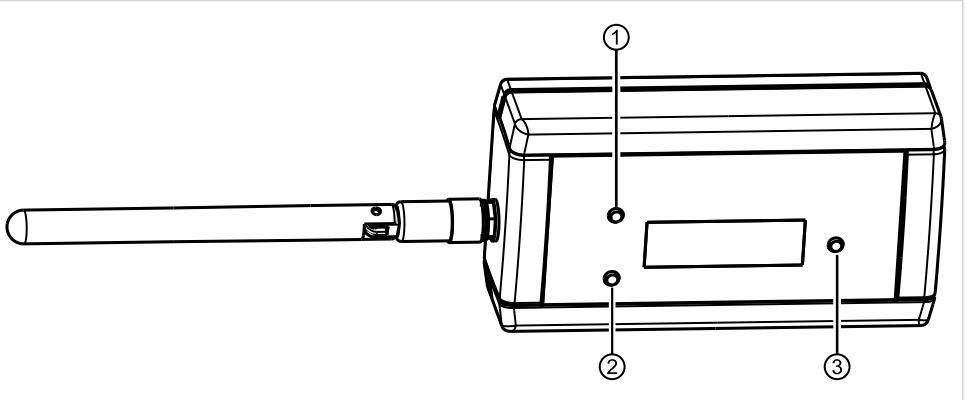
4.8.3 Create a connection between the wireless foot control and treatment unit

Note

Only one foot control can log on to a RF receiver. If a different foot control was previously logged on, the last logged on foot control is deleted each time the synchronisation procedure starts.

Note

Each foot control and each RF receiver has a unique address that is exchanged during synchronisation. This ensures unambiguous assignment.
To prevent problems from arising when several cable-free foot controls are used, the different foot controls use different channels.



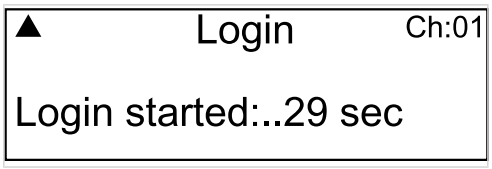
RF receiver

① UP key
② DOWN key
③ "Confirmation" key

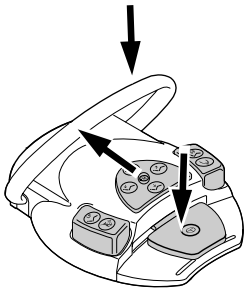
To establish a connection between the wireless foot control and the treatment unit, the devices need to be synchronised. Synchronisation needs to be performed once by a service technician.

▸ Use the UP or DOWN keys to select the menu item "Login", and activate with "OK".

Synchronisation starts. The currently set channel is displayed.



A combination of keys must be entered on the wireless foot control in the proper sequence during a countdown of 30 seconds.



- Press the foot pedal, then move the cross switch toward "Chair up", and then actuate and hold the stirrup switch until OK appears on the display.

  If synchronisation is successful, the message "OK" appears on the display, and the status LED of the wireless foot control shines green for 5 seconds.

If the keys are not pressed within the 30 second countdown period or if the keys are in the incorrect sequence, synchronisation is terminated after the 30 second period is over.
The display indicates if synchronisation was successful.

Display	Meaning
– timeout –	A radio partner was not found.
– ok –	The radio partner was successfully trained. The connection is established.
– Invalid device –	An attempt was made to train a device that was not permitted for the terminal. The RF receiver can only be synchronised with the wireless foot control.

- If synchronisation is unsuccessful, repeat the process, make sure that the sequence is correct and observe the countdown time.

- After synchronisation on the RF receiver is successful, press the UP or DOWN keys to select the menu item "Exit", and activate with "OK".

Note

Since there is no cable connection, the foot control and treatment unit must be clearly assigned to each other. This assignment can be effected by identifying the wireless foot control through a self-selected designation (such as the number of the treatment room) on the rating plate of the wireless foot control.

Example of the identification of the wireless foot control

⚠ CAUTION

Improper use of the wireless foot control
Damage or malfunction

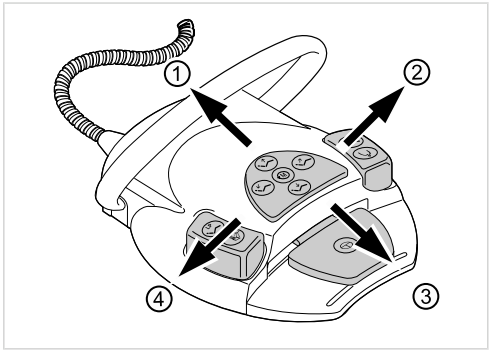
- In case of improper use (such as cleaning), turn off the wireless foot control or the treatment unit.

4.8.4 Positioning the patient chair with the foot control

Positioning the patient chair manually with the foot control

The cross switch of the foot control assumes the function of button wheel 1 on the dentist's unit when manually positioning the patient chair.

See also: 4.5.3 Manual positioning of the patient chair using the MEMOdent control element, Page 35



Requirement
All instruments are in their holder.

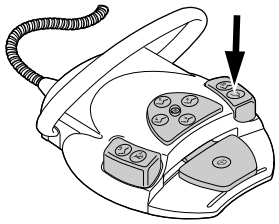
- Chair up: Move the cross switch on the foot control in direction ①.
- Chair down : Move the cross switch on the foot control in direction ③.
- Backrest up: Move the cross switch on the foot control in direction ②.
- Backrest down: Move the cross switch on the foot control in direction ④.

Positioning the patient chair automatically with the foot control

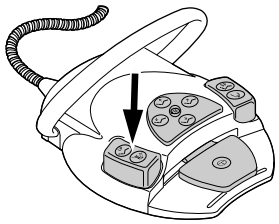
Note
The automatic chair positioning must be monitored by the treatment personnel.

Selecting the automatic chair position

Note
The foot-operated buttons "SP" and "LP" can also be assigned any "AP" buttons.



- Press the "SP" foot-operated button.



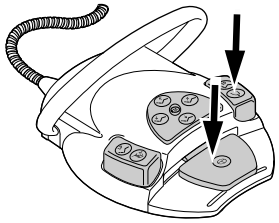
or

- Press the "LP" foot-operated button.

The chair moves into the saved position.

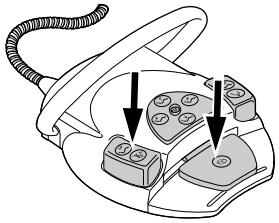
Delivery status:
- Spray key: LP Automatic position
- Blown air key: SP Automatic position

Reassign "SP" or "LP" foot buttons



- Hold down the footpedal and footswitch"SP", and simultaneously press any button for an automatic position (SP, LP, AP 0 to AP 3 or collapsed position) on the dentist's or assistant's unit until you hear a tone.

  The automatic position is saved in the foot-operated button.



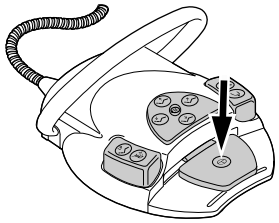
or

- Hold down the footpedal and footswitch "LP", and simultaneously press any button for an automatic position (SP, LP, AP 0 to AP 3 or collapsed position) on the dentist's or assistant's unit until you hear a tone.

  The automatic position is saved in the foot-operated button.

4.8.5 Preset level

Requirement
All instruments are in their holder.

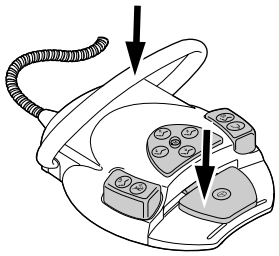


- Press the footpedal.

  The level is increased each time the foot-operated switch is pressed.

4.8.6 Preselect dentist

Requirement
All instruments are in their holder.



- Hold down the foot pedal and press the stirrup switch.

  Each time the bar switch is pressed, the selection advances to the next dentist (dentist 0 to 6).

Note
The number of dentists can be set by the service technician. Two dentists are set as the default.

4.8.7 Start and adjust instruments

Note
The foot pedal is equipped with a middle centring function, i.e., the foot pedal always returns to levels 1 to 3 each time after it is moved to the left or right.

⚠ CAUTION

Centring in the middle is effected for the foot control by a positioning motor.
If the positioning motor breaks down, switching from or into the middle position using the foot control is no longer feasible. The different levels can still be selected, but the foot pedal does not leave the middle position and cannot switch into the middle position. The speed currently set on the wireless foot control is always shown on the display of the treatment unit.

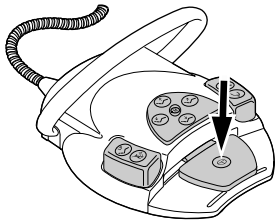
- Charge battery.
- If centring in the middle does not work despite the batteries being charged, the positioning motor is defective. Have the positioning motor checked!

Note

Delays can arise after a function has been triggered if the wireless connection of the wireless foot control is problematic.

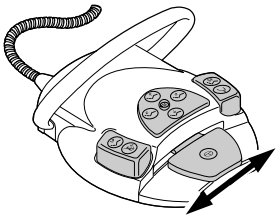
- Remove the instrument (such as turbine, motor, PIEZOlux, etc.) from the holder

  The instrument is active.



- Press the footpedal.

  The removed instrument runs at the set speed or intensity.



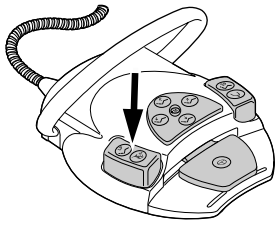
- Change the speed with the footpedal.

  The left stop corresponds to the minimum speed/intensity.
  The right stop corresponds to the maximum speed/intensity.

4.8.8 Setting the cooling condition

- Remove the instrument (such as turbine, motor) from the holder

  The instrument is active.



- "Preselected spray" footswitch.

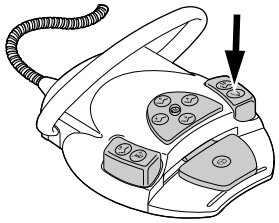
  The cooling level is raised each time the foot-operated button is pressed: no cooling - air - spray.

The cooling level is displayed on the dentist's and assistant's unit.

4.8.9 Activate blown air

- Remove the instrument (such as turbine, motor, PIEZOlux) from the holder.

  The instrument is active.



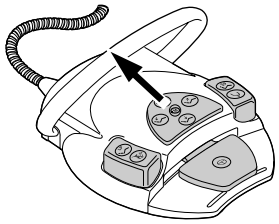
- Press the "Blown air" foot-operated button.

  As long as the foot-operated button is pressed, blown air exists the removed instrument.

4.8.10 Preselect counterclockwise motor rotation

- Remove the motor from the holder.

  The instrument is active.

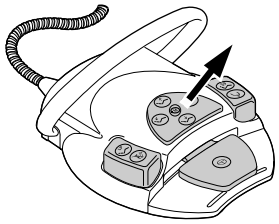


- Push the cross switch upward.

  The rotational direction of the motor is switched back and forth each time the cross-switch is actuated: counterclockwise rotation - clockwise rotation.

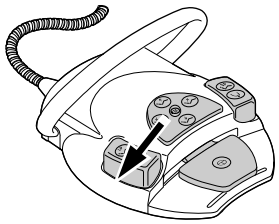
The rotational direction of the motor is displayed on the dentist's and assistant's unit.

4.8.11 Set instrument light



- Push the cross switch to the right.

  Cold light on (even when "Cold light: off" is preselected).



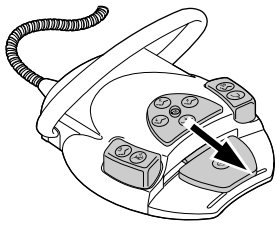
- Push the cross switch to the left.

  Changing the cold light status: on/off

4.8.12 Use physiological saline (optional accessory)

Requirement
Treatment unit is turned on. The instrument is connected to the pump via the pressure line.

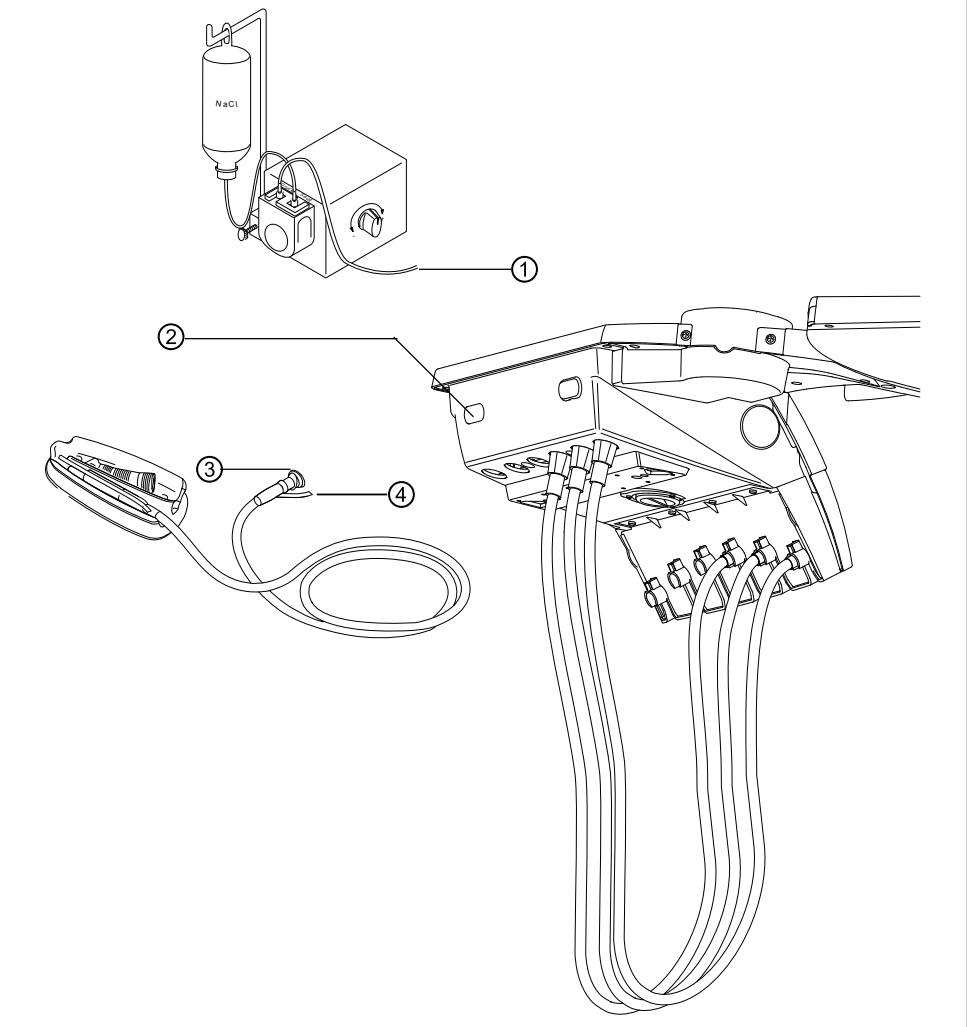
- Remove the instrument.



- Press the cross-switch of the foot control for 4 seconds until you hear the signal.

  After activation, you can select the "NaCl" cooling.

Connect the coolants to the surgical motor SL 550



Note
The coolant hose is integrated in the surgical motor hose.

- ▸ Connect the coupling of the surgical motor hose ③ to the connection ② of the dentist element.
- ▸ Shove on the coolant hose ④ of the surgical motor hose onto the plug-in nipple ① of the pump pressure hose.

4.8.13 Charge wireless foot control

The wireless foot control is operated by means of an installed rechargeable battery.

Note
Charge the wireless foot control with the charger supplied by KaVo only.

Note
The foot control charger may only be used indoors and must be protected from moisture.

⚠ CAUTION

Risk of injury and material damage from incorrect use of the charger for the wireless foot control.
Personal injuries, damage to the wireless foot control or the charger.

- ▸ Do not use the treatment unit during the charging process!
- ▸ Do not use the wireless foot control charger supplied to charge non-rechargeable batteries.
- ▸ Charge the wireless foot control with the charger supplied only.

- ▸ Connect the charger to the wireless foot control.

The charger display communicates the following:

Display	Meaning
shines green	The unit is ready
shines yellow	The battery is being charged
Shines weak green	Battery is charged
does not shine	The battery is dead, or there is a short-circuit
	The battery voltage is above the tolerance range
	Reversed poles

The transition from charging to full is indicated by the fluttering of the display.

4.9 Using instruments

Note
Consult the separate instructions for the installation, use and care of the individual instruments (such as the turbine, COMFORTdrive, camera, Satelec Mini LED, etc.).

4.9.1 Support logic

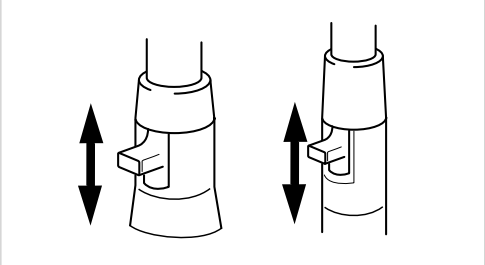
All the instruments on the dentist's side are secured against simultaneous use by holder logic.
Only the withdrawn instrument is active, i.e., any instrument that is withdrawn afterward is not started.

4.9.2 Using suction hoses

- ▸ Remove the spray mist suction device or saliva ejector from the holder.

  The spray mist suction device or saliva ejector automatically turns on, and then when it is placed in the holder, it turns off.

The suction flow of the saliva ejector or spray mist suction device can be reduced or blocked with the slide valves integrated in the handpieces.



- ▸ Move the slide valve completely upward.

  The slide valve is open: maximum suction.

- ▸ Move the slide valve down all the way.

  The slide valve is closed: no suction.

Note

Connectors for the spray mist suction and the saliva ejector without slider as well as reducing pieces for the spray mistsuction are available as accessories.

- Short cannula holder for the spray mist suction (**Mat. no. 0.764.5783**)
- Long cannula holder for the spray mist suction (**Mat. no. 0.764.5853**)
- Short cannula holder for the slather extractor (**Mat. no. 0.764.5863**)
- Cannula adapter for the reducing handpiece at 7 mm (**Mat. no. 0.764.5873**)
- Cannula adapter for the reducing handpiece at 11 mm (**Mat. no. 0.764.5883**)

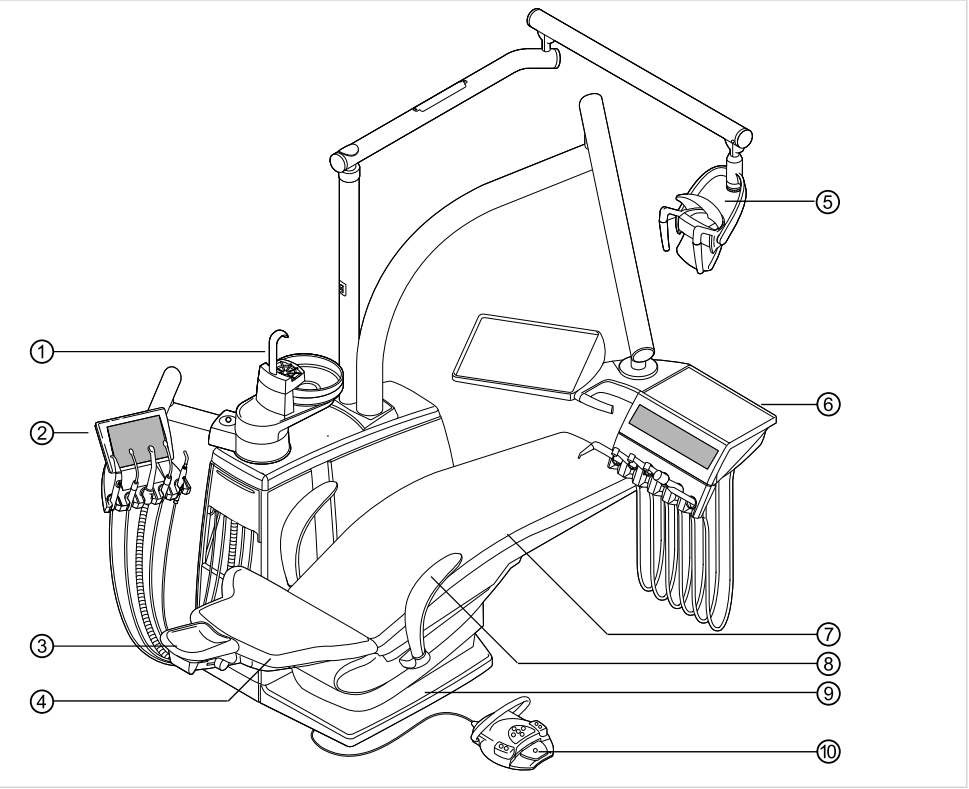
Vacu-Stopp

⚠ CAUTION

Danger of backflow
Swallowing or choking hazard for the patient

- Only actuate the vacuum stop when the suction cannula is not in the patient's mouth.

When the base switch is actuated, the suction of the removed hose is stopped.



① Patient unit
② Assistant unit
③ Headrest
④ Backrest
⑤ Operating light
⑥ Dentist unit
⑦ Seat
⑧ Armrest
⑨ Kickplate
⑩ Foot control

Note
A service technician can set the vacuum stop function to either stop all suction hoses or only stop the spray mist suction when the saliva ejector is simultaneously activated.

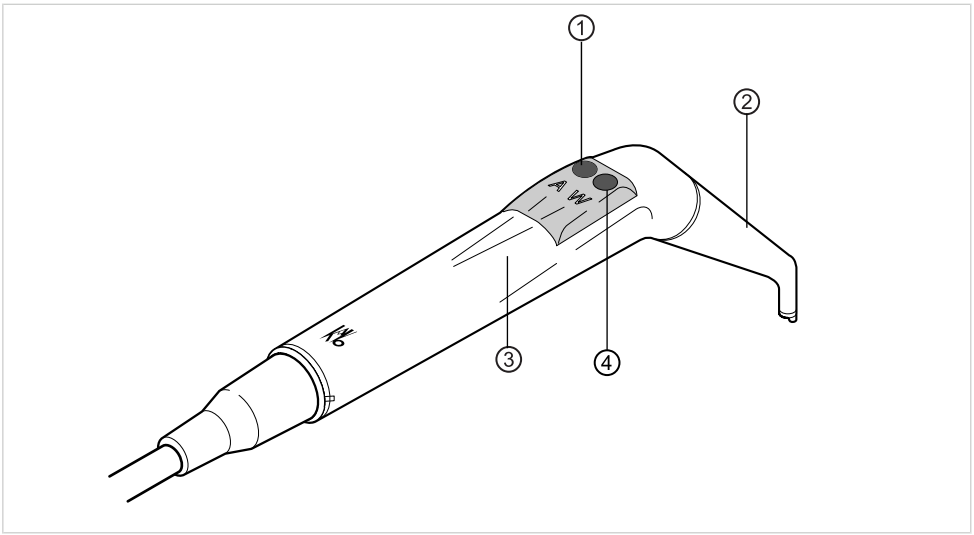
When delivered, the spray mist suction only stops when the vacuum stop function is used.

4.9.3 Using the triple-function syringe

	**⚠ CAUTION** **Cannulas that are worn or not locked into place.** Injury from swallowing the cannula. ▸ Before each treatment, ensure that the cannula is locked into place and firmly seated. ▸ Only use original KaVo cannulas.

	**⚠ CAUTION** **Injury hazard from keeping the cheek out of the way with the syringe** Irritation of the mucosa ▸ Rotate the cannula of the syringe into a working position in which contact with the mucosa is excluded.

Note
The cannulas can be rotated 360°..



① Air button
② Cannula
③ Grip sleeve
④ Water button

▸ Take the syringe from the holder.

▸ Press the air button ① and continuously increase or decrease the exiting air flow by applying more or less pressure on the air button ①.

or

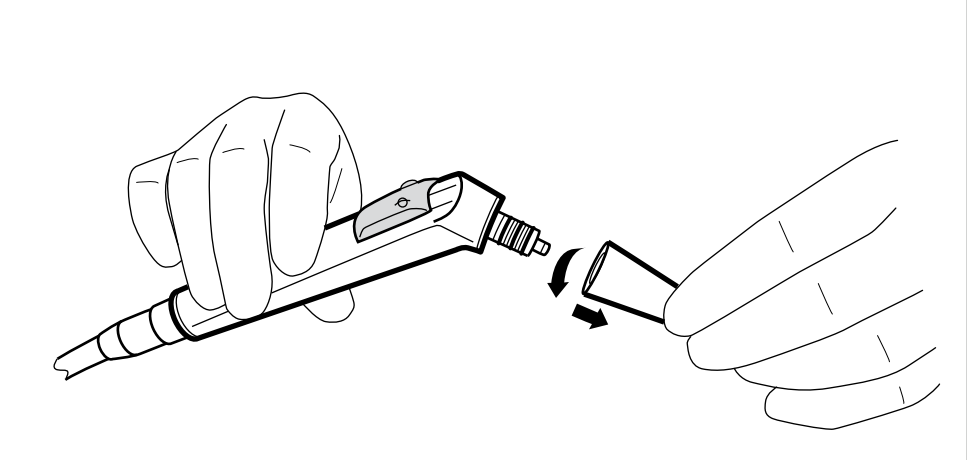
▸ Press the water button ④ and continuously increase or decrease the exiting water jet by applying more or less pressure on the water button ④.

or

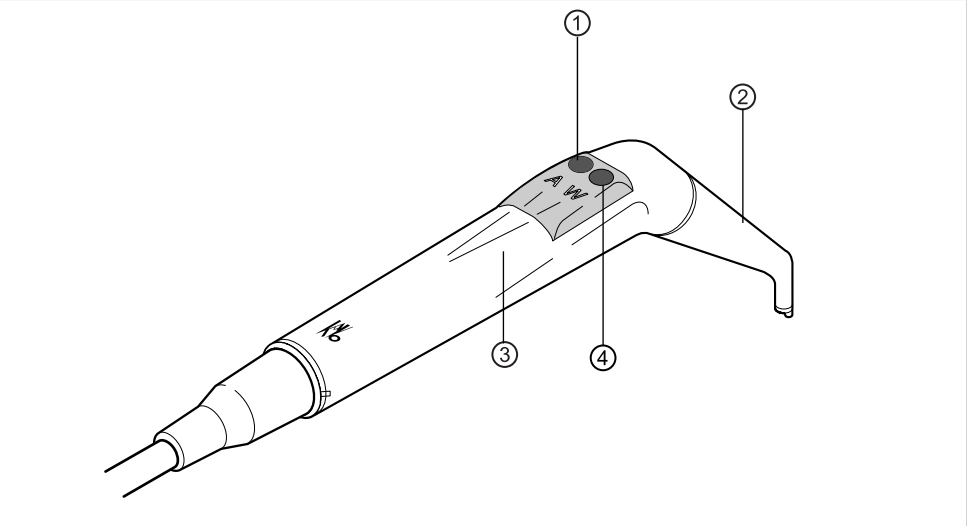
▸ Simultaneously press the air button ① and water button ④ and continuously increase or decrease the exiting spray by applying more or less pressure on the two buttons.

Removing the cannulas

- Remove the cannula with a slight amount of rotation while holding the tip on the grip sleeve.



4.9.4 Using the multi-function syringe



① Air button
② Cannula
③ Grip sleeve
④ Water button

	**⚠ CAUTION** **Injury hazard from keeping the cheek out of the way with the syringe** Irritation of the mucosa ▸ Rotate the cannula of the syringe into a working position in which contact with the mucosa is excluded.

⚠ CAUTION

Cannulas that are worn or not locked into place.
Injury from swallowing the cannula.

- ▸ Before each treatment, ensure that the cannula is locked into place and firmly seated.
- ▸ Only use original KaVo cannulas.

Note

Cannulas can be rotated by 360°.
On-time is 5 minutes while the resting time is 3 minutes.

Note

If only the cold light is preselected (heater: off), the multi-function syringe shines when it is removed from the holder.

- ▸ Take the syringe from the holder.
- ▸ Adjusting the air/water heating.

See also: 4.7.7 Changing multi-function syringe settings in the MEMOdent menu, Page 54

- ▸ Check the passage for the media in the cannula ② each time before using it on a patient.
- ▸ Press the air button ① and continuously increase or decrease the exiting air flow by applying more or less pressure on the air button ①.

or

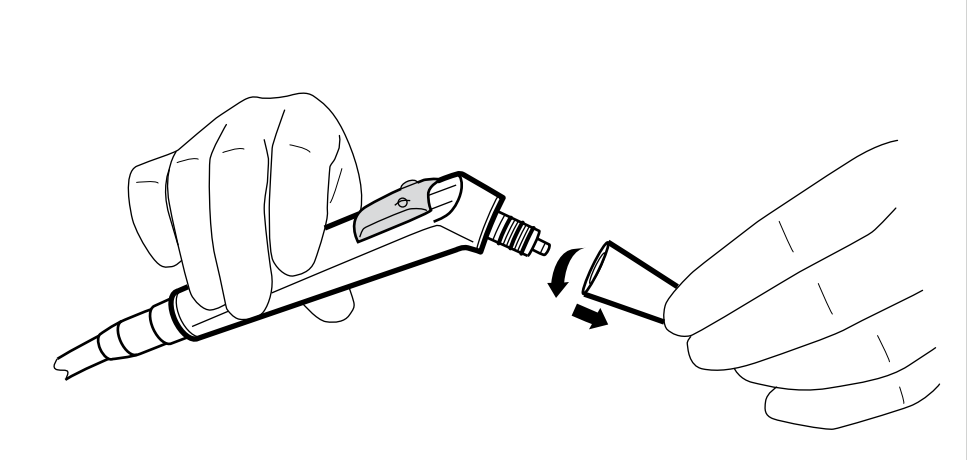
- ▸ Press the water button ④ and continuously increase or decrease the exiting water jet by applying more or less pressure on the water button ④.

or

- ▸ Simultaneously press the air button ① and water button ④ and continuously increase or decrease the exiting spray by applying more or less pressure on the two buttons.

Removing the cannulas

- Remove the cannula with a slight amount of rotation while holding the tip on the grip sleeve.



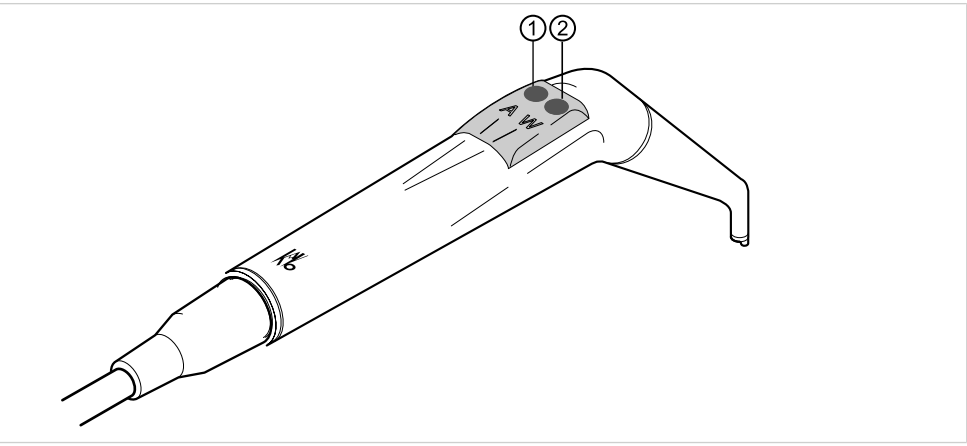
Using the cold light

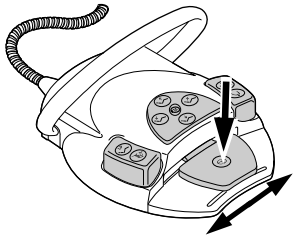
Requirement
The light and heating are preselected.

- Setting the cold light intensity.

See also: 4.7.7 Changing multi-function syringe settings in the MEMOdent menu, Page 54

- Press the air button ① and/or the water button ②.





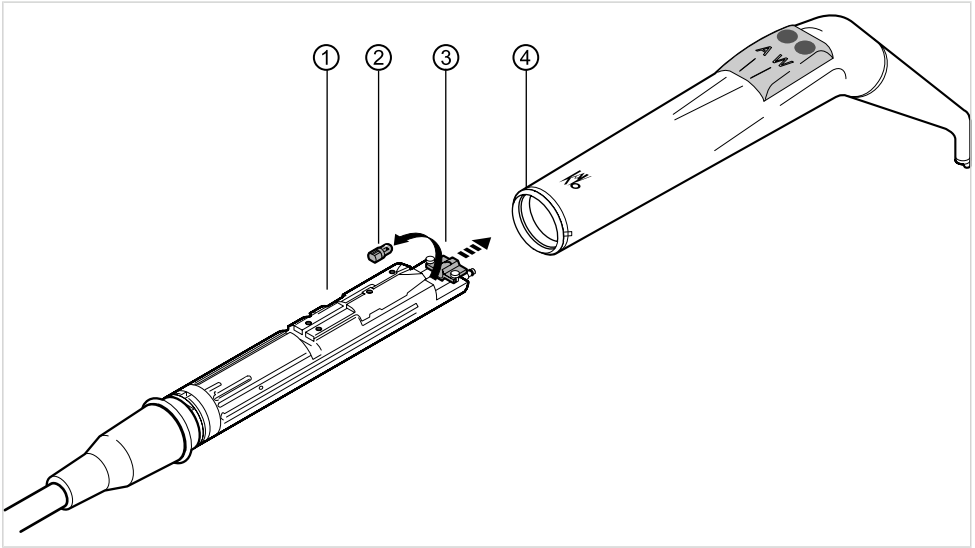
or

- Press the "Instruments" foot-operated button.

The light turns on.

Replacing the high-pressure lamp

	**⚠ CAUTION** **Injury hazard from hot valve body.** Burning hazard. ▸ Switch main device switch off. ▸ Let the handpiece cool after long use.



- Pull off the grip sleeve ④ together with the cannula from the valve body ①.

- Push the holder ③ forward, and pull the defective high-pressure bulb ② out of the socket.
- Insert the new high-pressure lamp (**Mat. no. 1.002.2928**).

4.9.5 Using the PiezoLED

	**⚠ CAUTION** **Instrument inserts can be damaged from long-term use, or when dropped or bent.** They cannot be guaranteed to function properly. Injury from insert breakage. ▸ Check the instrument inserts before each use.

⚠ CAUTION

Sharp-edged tips.
Risk of injury.

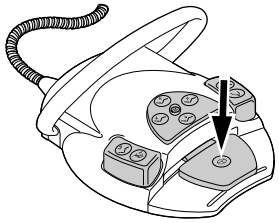
- When not in use, always keep the supplied torque wrench attached to the tip!

Note
Please comply with the enclosed "PiezoLED" Instructions for Use.

Operation via the MEMOdent menu

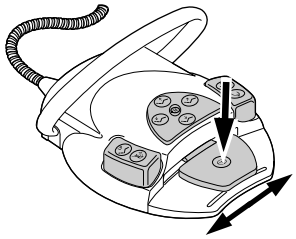
See also: 4.7.5 Changing PiezoLED settings in the MEMOdent menu, Page 50

Operation with the foot control



- Press the "Instruments" foot pedal.

  The PiezoLED works at the set intensity at levels 1 through 3.



- To adjust the intensity, move the "Instruments" foot pedal to the side.

4.9.6 Using the PIEZOlux

⚠ CAUTION

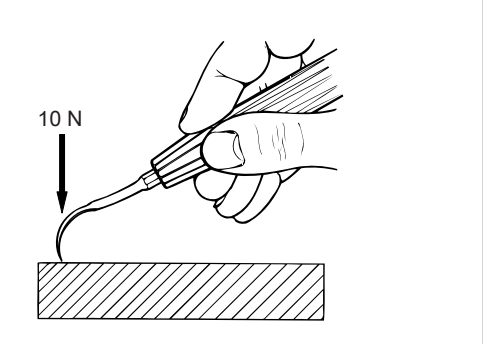
Instrument inserts can be damaged from long-term use, or when dropped or bent.
They cannot be guaranteed to function properly.
Potential injury from insert breakage.

- Check the instrument inserts before each use.
- In the case of frequent use, replace the instrument inserts every 9 - 12 months.
- Before each use, apply approx. 10 N of pressure to instrument inserts as an additional safety precaution. (10 N corresponds to the force arising from 1 kg).

⚠ CAUTION

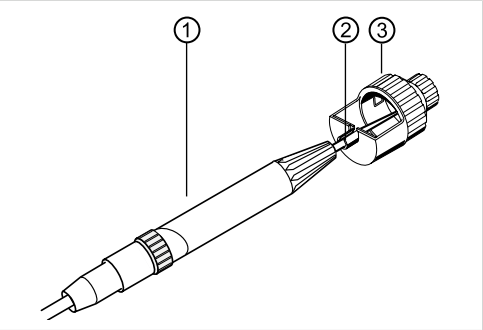
Sharp-edged tips.
Risk of injury.

- When not in use, always keep the supplied torque wrench attached to the tip!



Note

The torque wrench (**Mat. no. 1.000.4887**) is subject to natural wear and should be exchanged in case of malfunctions, or every 12 to 18 months at the latest.



- Using the torque wrench ③ provided with the accessories, screw the instrument insert ② into the handpiece ①, and tighten it until the maximum torque is reached.

  This is signaled when the torque wrench emits a cracking noise.

The KaVo ZEG PIEZOlux can gently remove calculus and plaque as well as excess cement from natural teeth without pain at a vibrational frequency of 30 kHz.

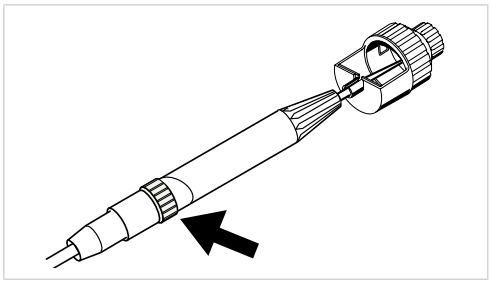
- Adjusting the intensity and cold light intensity.

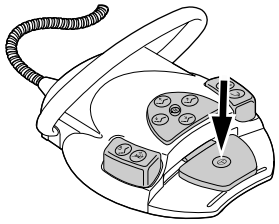
See also: 4.7.6 Changing PIEZOlux settings in the MEMOdent menu, Page 53

Note

The water is supplied through the working tip and can be adjusted corresponding to the tip on the water control.
The water flow should be adjusted so that the instrument tip sprays the water with its vibration.

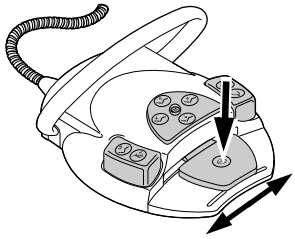
- Regulate the amount of exiting water with the ring.





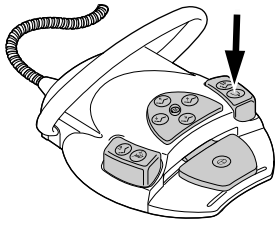
- Press the "Instruments" foot pedal.

  The PIEZOlux oscillates at the set intensity at levels 1 to 3.



- To control the intensity, move the "Instruments" foot pedal to the side.

- Remove calculus, plaque or excess cement with light, painting movements following the tooth surface.
  Make sure that the movement of the tip is in line with the handpiece axis. (The optimum removal occurs at a vibration width of 0.05 mm to 0.07 mm with a frequency of 30 kHz.)



Turn on the blown air with the foot-operated switch "Blown air".

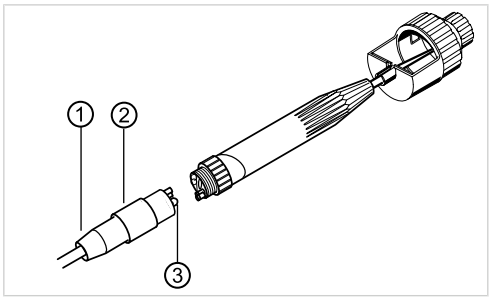
Changing the high-pressure lamp

⚠ CAUTION

Injury hazard from hot valve body.
Burning hazard.

- Switch main device switch off.
- Let the handpiece cool after long use.

- Turn off unit.

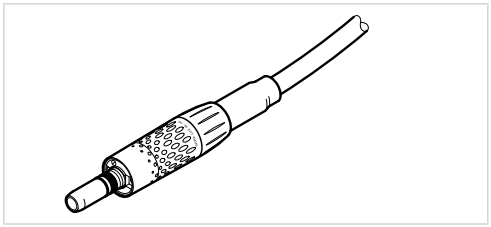


- Unscrew the hose ferrule ① from the handpiece, and remove the handpiece from the hose coupling ②.
- Pull the high-pressure lamp ③ out of the socket.
- Insert the new high pressure lamp (**Mat. no. 1.002.2928**) into the socket, and make sure that the contacts are correctly positioned.

4.10 Using the KL702 in ENDO mode (optional accessory)

4.10.1 General

Note
The endo drive may only be operated with the INTRAmatic LUX KL 702 motor.



INTRAmatic LUX KL 702

⚠ CAUTION

use of impermissible filing systems
Do not use impermissible filing systems and which can damage the product or cause personal injury.

- Only use permitted NiTi filing system with a calmness in the >2% that are suitable for rotary preparation.
- Only use files with shafts in conformance with DIN EN ISO 1797-1, DIN EN ISO 1797-2, DIN EN ISO 3630-1 and DIN EN ISO 3630-2 having a shaft diameter of 2.334 to 2.350 mm
- Follow manufacturer's instructions (mode of operation, speed, torque levels, torsion resistance, etc.), and use the files properly.

⚠ CAUTION

Use of damaged files
Damaged files can damage the product or cause personal injury.

- Before preparing each root canal, insert a dental dam for safety reasons.
- Before each use, the files must be checked for possible signs of material fatigue, deformation or excessive stress and replaced if necessary.

⚠ CAUTION

Incorrect transmission ratio
Damage from incorrect speed / incorrect torque.

- Only use KaVo 1:1 reducing shanks 20LH or 20LP with 1:1 INTRA LUX head 68 LU (**Mat. no. 1.003.7191**) or 3:1 INTRA LUX head 66 LU (**Mat. no. 1.004.4587**).

⚠ CAUTION

Excessive torque
Injury or damage to instruments.

- Only use root canal instruments in ENDO mode.

Technical data for the KL702 in ENDO mode

Note
The technical data apply to the KL702 in ENDO mode.

Speed range	up to 6,000 rpm
Maximum torque	3.0 Ncm

Mode

Note
30 seconds operating time/9 minutes pause is the potential load threshold of the motor (full load at maximum speed).

In practice, pulse loads lasting seconds or pause times lasting seconds or minutes are realistic given that the maximum possible motor current is not normally reached. This equates to the dentist's normal way of working.

4.10.2 Open ENDO mode

- Remove the INTRAmatic LUX KL702 endomotor from the holder.
- Press the "Motorised auxiliary drives" key

The display changes to the ENDO menu.

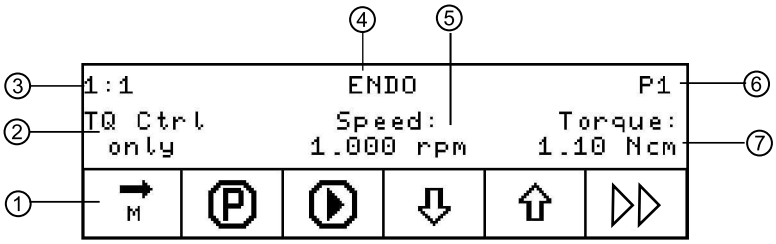
Note

Before using the endomotor, always check the speed and transfer ratio.

Endo mode is left once the INTRAmatic LUX KL702 endomotor is returned to the holder. The endo mode is automatically activated when the endomotor is removed, providing that endo mode was previously ended by putting the endomotor back in place.

Note

The device does not automatically start when endo mode was left by pressing the "Motorised auxiliary drives" button, or if endo mode has never been activated since the last time the unit was turned on.
A service technician can deactivate the automated start.



Parameters in the display

① Direction of motor rotation
② Torque mode
③ Transfer ratio
④ ENDO Mode
⑤ Speed
⑥ Parameter memory
⑦ Torque

⚠ CAUTION

Incorrectly set parameters.
Injury or property damage from incorrect input values.

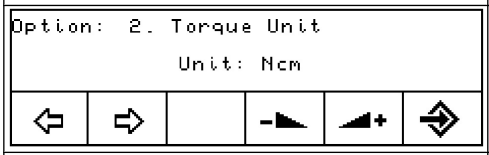
- Check all input values before use.

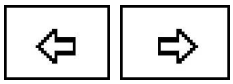
4.10.3 Changing settings in the option menu

- Press the "Next" key to switch to the option menu.

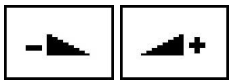
The last used menu is displayed.

The following settings can be changed in the option menu:

Display	Function
	Option: 1. Transmission factor Set the transmission factor to 1:1 or 3:1
	Option: 2. Display of torque Set the torque display in Ncm or in % 1:1 transmission: 100% = 2.5 Ncm 3:1 transmission: 100% = 8 Ncm
	Option: 3. Autorev./Fwd. time In Autorev./Fwd time mode, you can set the time (1 to 10 seconds) in which the motor automatically starts rotating to the right which makes it unnecessary to stop with the foot control.



Options 1, 2 or 3 can be selected by pressing the "Back" and "Forward" keys.



You can change the option parameters with the "Increase value" and "Decrease value" keys.

- Press the "Enter" key to leave the option menu.

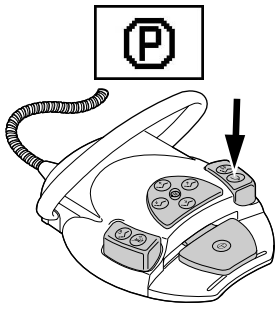
  The changed parameters are saved.

4.10.4 Setting the parameters

There are six parameter memories (P1 to P6).

The following parameters can be changed:
- Speed
- Torque
- Torque mode

Selecting where to save parameters



- Press "Programme" button in order to call-up the desired parameter memory location (P1 to P6).

or

- Press the "SP/Blown air" foot button.

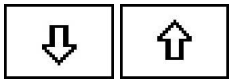
Each time the button is pressed, the parameter memory location advances by one step (P1 - P2 - P3 - … - P6 - P1)

Changing and saving parameters

- Press the "Program" key to open the desired parameter memory (P1 to P6).

- Press the key for "Select parameters" to select the desired parameter.

  The cursor flashes on the parameter to be changed.



- Press the "UP" or "DOWN" key to change the selected parameter.

Note
If you hold down the "Up" and "Down" keys repeat automatically.

- To save the parameters, press the "Program" key for two seconds until you hear the signal.

  The changed parameters are saved in the selected parameter memory.

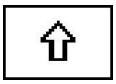
Note
You can save the parameters each time you set a new one, or after setting all the parameters.

Setting the speed

The speed can be adjusted in steps of 10 from 100 rpm to 500 rpm, in steps of 50 from 500 rpm to 1000 rpm, and in steps of 100 from 1000 rpm to 6000 rpm.

- Press the "DOWN" key to reduce the speed.

or



- Press the "Up" key to increase the speed.

The speed is shown on the display and is effective immediately.

Save the parameters in programs 1 to 6 using the "Program" key (press for 2 seconds). You can save after setting one parameter, or after setting all parameters. Saving is acknowledged with a tone.

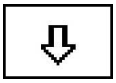
Setting the torque

The torque is limited to the set value.

Note
The ENDO warning signal sounds when you reach 90% of the set torque.

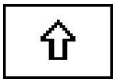
1:1 transmission ratio
The torque can be set in 0.05 Ncm steps in the range from 0.15 Ncm to 2.5 Ncm, or in 2% steps in the range from 1% to 100%.

3:1 transmission ratio
The torque can be set in 0.05 Ncm steps in the range from 0.4 Ncm to 8 Ncm, or in 1% steps in the range from 1% to 100%.



- Press the "Down" key to reduce the torque.

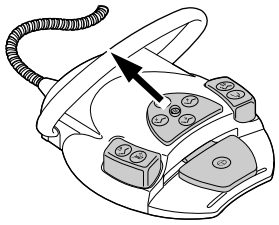
or



- Press the "Up" key to increase the torque.

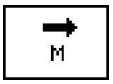
The torque is shown on the display and is effective immediately.

Save the parameters in programs 1 to 6 using the "Program" key (press for 2 seconds). You can save after setting one parameter, or after setting all parameters. Saving is acknowledged with a tone.



- Push 4-way button on the foot control upward in order to switch to counterclockwise rotation.

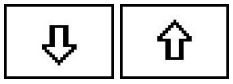
or



- Press "Motor rotational direction" button.

Set torque mode

Three different torque modes are available:
- Autoreverse
- Torque Control only
- Autorev / Forward

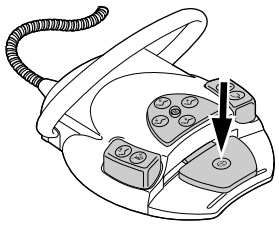


- Press the "Up" or "Down" key to select the desired torque mode.

The torque mode is shown on the display and is effective immediately.

Save the parameters in programs 1 to 6 using the "Program" key (press for 2 seconds). You can save after setting one parameter, or after setting all parameters. Saving is acknowledged with a tone.

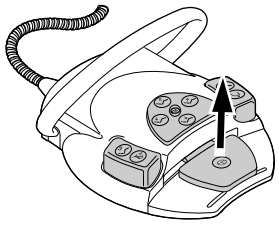
Set Autoreverse torque mode



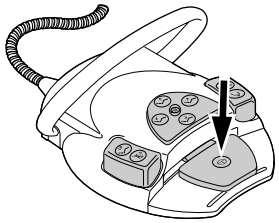
- Press the foot pedal

  The motor starts by rotating clockwise (if not otherwise selected)

A tone sounds when the set torque is reached. The motor rotates at a constant speed to the left.



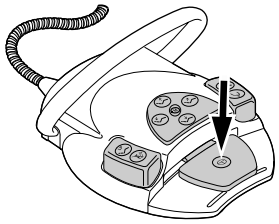
- To stop this, release the foot pedal.



- Press the foot pedal

  The motor rotates to the right.

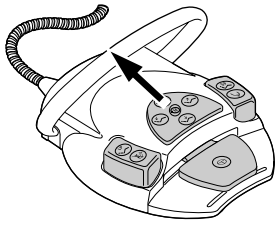
Torque mode Torque Control only



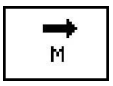
- Press the foot pedal

  The motor starts by rotating clockwise (if not otherwise selected)

The torque is limited to the set threshold. The speed reduces until it stops depending on the load.
The direction of rotation is always to the right.
A tone sounds when the set torque threshold is reached.



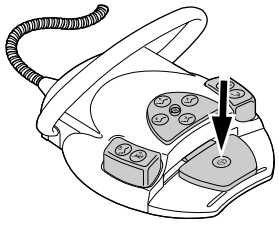
- Push 4-way button on the foot control upward in order to switch to counterclockwise rotation.



or

- Press "Motor rotational direction" button.

Torque mode Autorev / Forward



- Press the foot pedal

  The motor starts by rotating clockwise (if not otherwise selected)

When the set torque is reached, a signal sounds, and the motor switches to counterclockwise rotation. After the set time, the motor automatically switches to clockwise rotation. The time can be set in the option menu (Option 4).

Note

The motor's rotational direction can be reversed with the cross-switch on the footswitch in all torque modes.

4.10.5 Initiating ENDO mode

- Press the "Motorised auxiliary drives" button

or

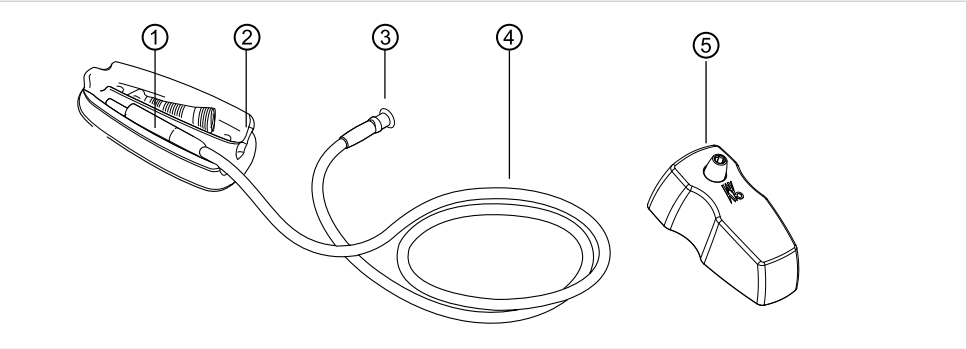
- Place the INTRAmatic LUX KL702 endomotor back in the holder.

Note

If the unit was switched to "Instant ENDO" mode, ENDO mode is only interrupted when the ENDO motor is placed in the holder, and it is continued when the ENDO motor is removed.
The function can be set by the service technician.

4.11 Using the SL550 surgical motor (optional accessory)

4.11.1 General



Overview

① Surgery motor
② Motor holder
③ Surgical hose coupling
④ Surgical hose
⑤ Calibration tool (**Mat. no. 1.005.7707**)

Note
Do not kink the motor hose since it may damage it.

Note
Before each torque-controlled application, the torque detection must be checked for proper function with a calibration tool, e.g. through a successful calibration process.

See also: 4.11.11 Calibration, Page 106

Note
The calibration sets the device to a certain motor-instrument combination. Therefore, if a different motor-instrument combination is used, compliance with the permissible torque variations cannot be guaranteed. However, a single motor can be used on two or more units that have been calibrated for the motor.

⚠ CAUTION

Hazard from defect in the torque recognition.
This can endanger the care provider and patient.

- Each time before torque monitoring is used, use the calibration tool to check if the torque recognition is working properly, for example by a successful calibration.

Note
The calibration can be carried out by the operator. If the calibration tool shows technical defects or if the expiry date of the calibration tool has expired, the calibration tool must be replaced.

Technical Data

Speed	300 to 40,000 rpm
The torque precision of the KaVo angle piece 27:1 (C09, C3) ranges from 20 to 30 Ncm and 20 to 50 rpm. Greater deviations are possible with other angle pieces.	± 3 Ncm
Pump delivery rate	25 to 150 ml/min
Delivery pressure	1.5 to 150 ml/min

Mode

Note
30 seconds operating time/9 minutes pause is the potential load threshold of the motor (full load at maximum speed).

In practice, pulse loads lasting seconds or pause times lasting seconds or minutes are realistic given that the maximum possible motor current is not normally reached. This equates to the dentist's normal way of working.

4.11.2 Connecting and operating the pump for physiological saline

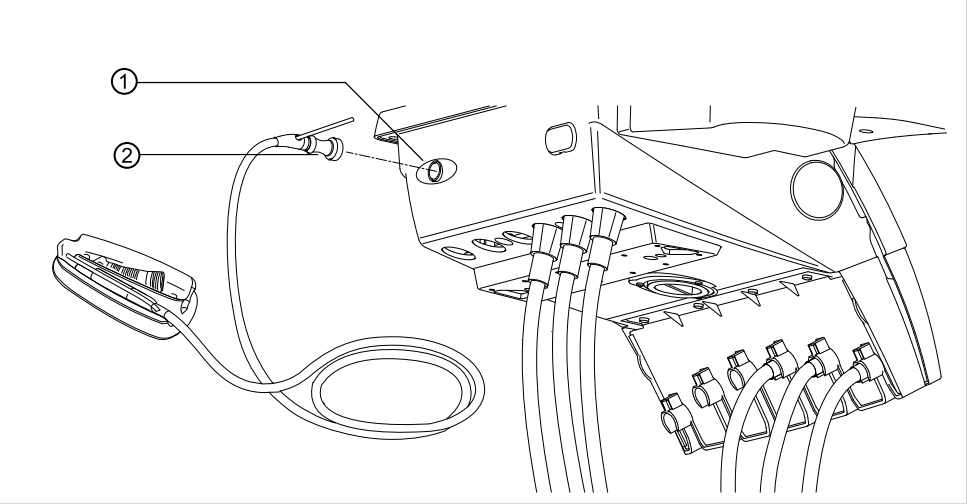
The surgical motor set comes with the kit "pump for physiological saline solution".

See also: 4.12 Use pump for physiological saline (optional accessory), Page 109

See also: Installation instructions for the saline solution kit

4.11.3 Connecting the SL 550 surgery motor

Note
The surgical mode can only be accessed when the surgical motor is connected to the surgical connection of the dentist element.



- Connect the coupling of the surgical motor hose ③ to the surgery connection ② of the dentist element.

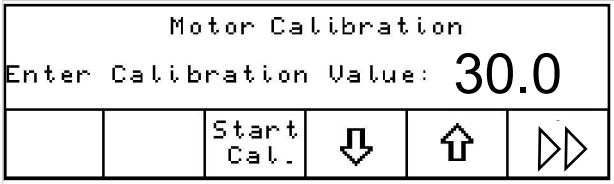
4.11.4 Calling-up the surgery mode

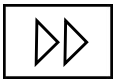
Requirement
- The surgical motor is connected.
- No instrument has been removed from the supports.
- KaVo contra-angle handpiece 27:1 (CL 03-09) must be attached.

Note
If no KaVo contra-angle handpiece 27:1 (CL 03-09) is attached, the surgery mode is started directly in "Free application", bypassing the "Calibration" mode.

- Press the "Additional motor drives" button.

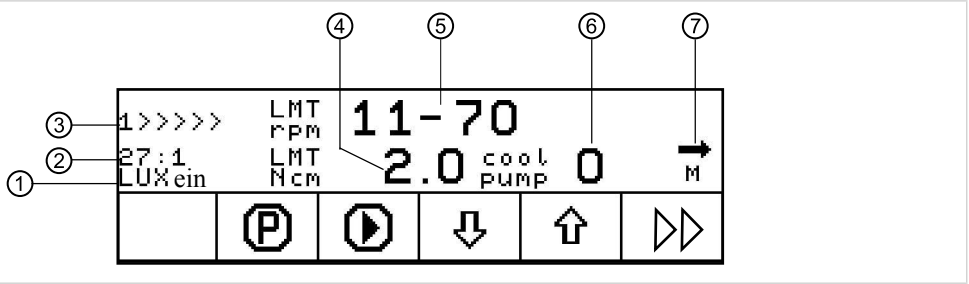
  The display switches to the "Calibration" mode.





- To leave "Calibration" mode, press the "Next" button.

The last saved calibration values are used.



① Light
② Transmission factor
③ Free application: no character
Programmed application: active step of the programme (1 through 6) is displayed
④ Torque
⑤ Speed
⑥ Coolant On/Off
⑦ Direction of motor rotation

4.11.5 Mount or pull off the handpiece or contra-angle handpiece

Note
Follow the instructions for use, service instructions and installation instructions in the instrument packaging.

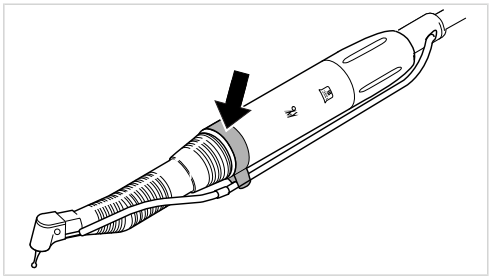
⚠ CAUTION
Damage from changing the handpiece and angle piece during operation.
Wear to the catch on the handpiece and angle piece and the motor
Unbalanced motor axis.
- Change the handpiece and angle piece only when the motor not running.

Mount the handpiece or contra-angle handpiece

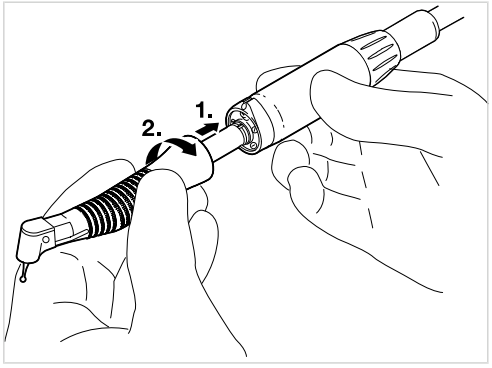
Note
Automatic detection of straight and contra-angle handpieces works only with KaVo straight or contra-angle handpieces with detection function.See also:Instructions for Use of the straight or contra-angle handpiece.

⚠ CAUTION
Damage from operating with open chucks
The handpiece or angle piece locks and rotates on its own axis.
- Only operate the handpiece or angle piece when the chuck is locked.

	**⚠ CAUTION** **Heat transmission from high-pressure** Burns from touching the high-pressure lamp. ▸ Only operate the motor with the retention ring mounted.



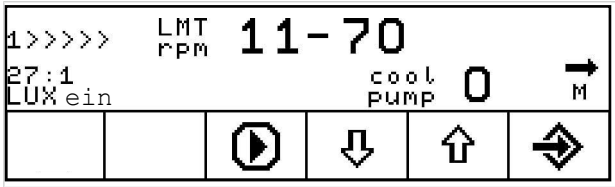
▸ Mount or remove the INTRA CL handpiece or angle piece on the SL 550 surgical motor until the catch audibly locks into place.



The handpiece or angle piece is automatically recognised.

	**⚠ CAUTION** **Incorrect input values.** Injury hazard. ▸ The input values must be checked before each use.

The parameters are not activated in "Programme" mode. The display shows two flashing selection fields if the transmisison factor of the attached straight or contra-angle handpiece differs from the set transmission factor.



Note

The straight or contra-angle handpiece is recognised immediately after it is attached and the transmission factor of the attached straight or contra-angle handpiece is shown on the display. The other operating data that are displayed relate to the previous instrument until the switch to the current instrument is effected.

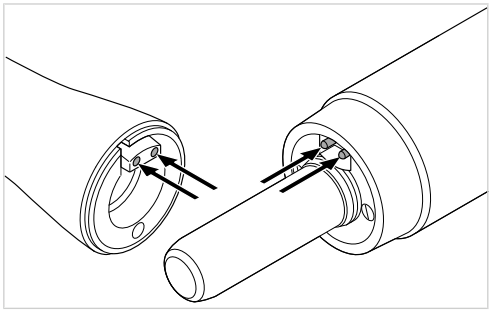
- Press the "Enter" button to take up the data of the recognised straight or contra-angle handpiece.
- Press the "Programme" button to continue with the straight or contra-angle handpiece that is already in the programme.
- Select one of the flashing selection fields to start up the motor.

Note

The torque is displayed only for a straight or contra-angle handpiece with a transmission ratio of 27 : 1.

Note

To allow for proper recognition, the contacts for recognition on the motor and instrument slider must always be bright. They may need to be wiped with a cloth soaked in disinfection agent, and then wiped dry.



Remove the straight or contra-angle handpiece

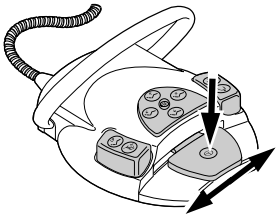
- Remove the coolant hose from the handpiece or angle piece.
- Twist the handpiece or angle piece slightly while pulling it off the motor.

4.11.6 Start-up the motor

⚠ CAUTION

Incorrect input values.
Injury hazard.

- The input values must be checked before each use.



- Press the foot pedal and change the speed by moving it the side.
  Left stop: Minimum speed
  Right stop: Maximum speed

4.11.7 Use the surgical motor in "Free application" mode

Note

The user should always check if the displayed transfer ratio is correct before turning on the device.

⚠ CAUTION

The torque control (display and control) is available only with the KaVo contra-angle handpiece 27:1 (CL09) with corresponding head (CL3). If other contra-angle handpieces are used, torque-controlled application is not feasible.
Use without torque control is a hazard for both patient and user.

- In order to ensure that torque control (display and control) is available, use only the KaVo contra-angle handpiece 27:1 (CL09) with corresponding head (CL3).

The automatic recognition function of the INTRA CL straight and contra-angle handpieces allows the hand- and angle-specific parameters to be recognised and taken up automatically by the device in the "Free application" mode.
If a new instrument is recognised and taken-up, a beep is emitted.

⚠ CAUTION

Incorrect input values.
Injury hazard.

- The input values must be checked before each use.

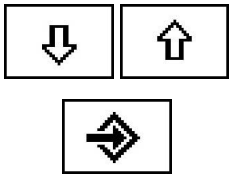
Setting the parameters

The following parameters can be changed:
- Maximal speed
- Maximal torque
- Direction of rotation
- Coolant pump On/Off (can be saved)
- Transmission ratio

Changing and saving parameters

- Press "Select parameter" button in order to select the desired parameter.

  An arrow (▸) flashes next to the parameter that can be changed.



- Press "Up" or "Down" button to change the selected parameter.
- Press "Enter" button to save the parameters.

  The set values are activated.

Note

The settings are not saved upon exiting from the surgery mode, "Free application". The settings of the "Free application" mode are saved when switching from the "Free application" surgery mode to the "Programmed application" mode.

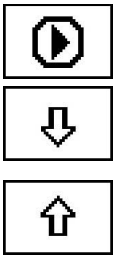
Setting the maximal torque

Note

The torque is displayed only for a straight or contra-angle handpiece with a transmission ratio of 27 : 1.

Note

The torque values are only for KaVo handpieces and angle pieces that operate properly.

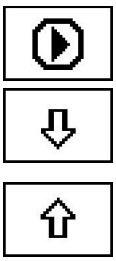


- Press "Select parameter" button until the arrow next to the torque value flashes.
- Press the "Down" button to reduce the maximal torque.

or

- Press the "Up" button to increase the maximal torque.

Set the maximum speed

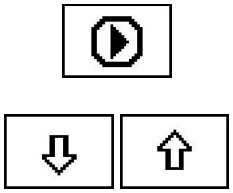


- Press "Select parameter" button until the arrow next to the speed value flashes.
- Press the "Down" button to reduce the maximal speed.

or

- Press the "Up" button to increase the maximal speed.

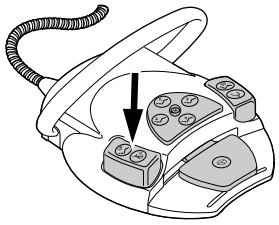
Setting the coolant



- Press "Select parameter" button until the arrow next to the coolant pump parameter flashes.
- Press the "Up" or "Down" button to turn the coolant pump on or off.

  0: Pump is off
  1: Pump is on

The coolant pump can also be turned on and off using the foot control.

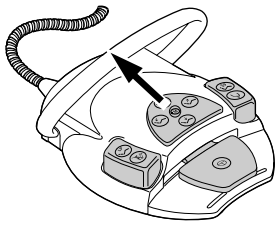


- Select "Preselect spray" foot button to turn coolant on or off.

Setting the transmission factor

The transfer ratio is recognised by the automatic recognition function of the handpiece and angle pieces, and automatically accepted.
The transfer factor is 1:1 for handpieces or contra-angle handpieces that do not have an automatic recognition function.

Setting the direction of motor rotation



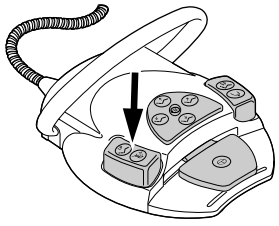
- Slide the cross switch upward.

  The rotational direction of the motor is advanced each time the cross-switch is activated: Clockwise rotation and counterclockwise rotation of the motor.
  When the direction of rotation is changed to counterclockwise, a tone sounds.

A tone sounds when the motor is started.

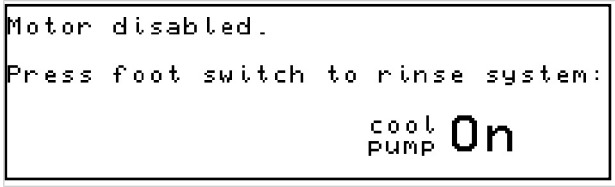
Activating the rinse function

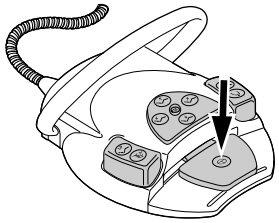
This function can be selected from each step, but it cannot be saved.



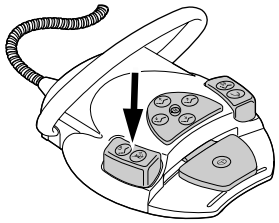
- Press the "Spray selection" footswitch for 4 seconds to select the rinsing function.

  The rinsing function is shown in the display.



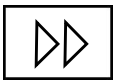


- Press the footswitch to start to the coolant withdrawal.



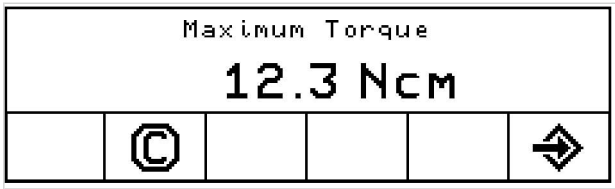
- Press the "Spray selection" footswitich to stop the rinsing function.

Inquiring about maximal torque



- After the motor stops, press the "Next" key.

  The maximum torque of the last motor operation is displayed in Ncm.



The maximum torque is overwritten when the motor is restarted.

4.11.8 Use the surgical motor in "Program" mode

Note
The user should always check if the displayed transfer ratio is correct before turning on the device.

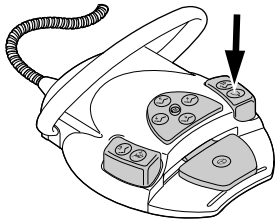
⚠ CAUTION

The torque control (display and control) is available only with the KaVo contra-angle handpiece 27:1 (CL09) with corresponding head (CL3). If other contra-angle handpieces are used, torque-controlled application is not feasible.
Use without torque control is a hazard for both patient and user.

- In order to ensure that torque control (display and control) is available, use only the KaVo contra-angle handpiece 27:1 (CL09) with corresponding head (CL3).

Six working steps can be programmed in the "Programme" mode. The current working step is shown on the display.

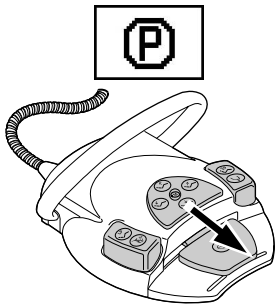
- Press the "Programme" button to switch to the "Programme" mode.



or

- Press the "Blown air" foot button.

The most recently used programme step is called up.

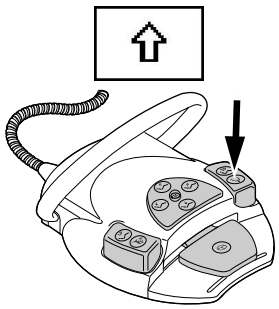


- Press the "Programme" button again to switch from the "Programme" mode to the "Free application" mode.

or

- Push 4-way button down.

Select working step

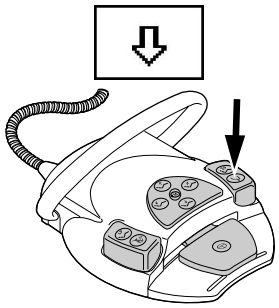


- Press the "Up" key to advance a step.

or

- Briefly press the "Blown air" footswitch.

The signal sounds.



- Press the "Down" key to go back a step.

or

- Hold down the "Blown air" footswitch for a while.

The signal sounds.

Setting and saving parameters

- ▸ Selecting the working step to be changed.

See also: Setting the parameters, Page 98

The following parameters can be changed:
- Maximal speed
- Maximal torque
- Direction of rotation
- Coolant pump On/Off (can be saved)
- Transmission ratio

- ▸ The parameters are set in the same manner as in "Free use" mode.

The values shown for a step are default values that you can use to start work immediately. They can all be changed and can hence be adapted to the your individual approach.
Changed values can be saved and are then available for the next use.

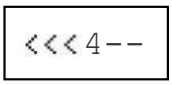
Note
The saved values are saved permanently, even after exiting from the surgery mode.

⚠ CAUTION

Improper use
Injury hazard.
- ▸ Always check the values for use.

Limiting the number of working steps

Example: The number of steps should be limited to four.



- ▸ Select working step 4.

See also: Select working step, Page 102

- ▸ Press the "Programme" button for 2 seconds until a beep is heard.

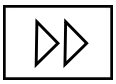
Now, only the first four working steps can be selected.

Remove restriction:

- ▸ Select the last step (4 in this example).
- ▸ Press the "Program" key for 2 seconds until you hear a signal.

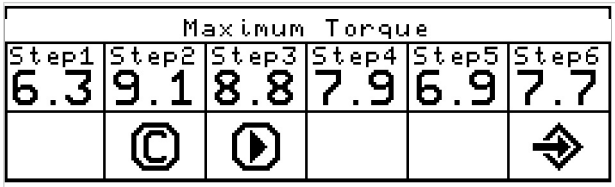
The restriction is lifted.

Inquiring about maximal torque



- After the motor stops, press the "Next" key.

  The maximum torque of all steps is shown in Ncm.



- Press the "Enter" key to leave the display.

When the motor is started in the next step, the highest torque is always saved.

Press the "Clear" key to delete the values.

Recommended programming when placing multiple implants consecutively

Mode of operation:
Perform all tasks for drilling an implant in Free use mode. Screw in the respective implant in PRG steps (max. 6). At the end of the task, the torque screw-in value can be requested and manually documented for evaluating primary stability (in the form of the following table, for example).

Note

Default values for the respective transfer ratios can be selected with the "Up" or Down" keys.

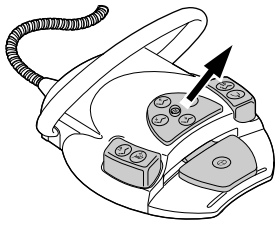
Step	Instrument	Speed (rpm)	Torque (Ncm)	Motor rotational direction	Explanation
1	27:1	11 - 1500	55	→	Drilling the cavity
2	27:1	11 - 50	40	→	Cutting thread
3	27:1	11 - 800	40	→	Remove the cutting instrument
4	27:1	11 - 50	40	→	Set the implant
5	27:1	11 - 50	55	←	Remove the insertion post
6	27:1	11 - 50	10	→	Screw in the sealing screw

Note

The listed indications are only examples. To prevent unnecessary risk, observe the guideline speeds given by the manufacturer of the rotating instruments.

4.11.9 Preselecting the light

Spot light

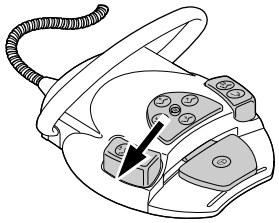


- Push 4-way button to the right in order to turn on the light (without motor and pump running)

  The light is on only while the 4-way button is being actuated (spotlight function).

Note
The instrument light can be turned on as a spotlight even without an instrument being attached. This function is used for checking the high-pressure lamp.

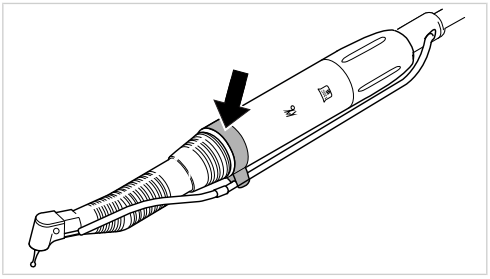
Turning the light On / Off



- Push 4-way button to the left in order to turn the light on or off (with motor running).

This turns the light on or off.
When the light is on, the display shows: LUX on
When the light is off, the display shows: LUX off
The display shows no writing if the instrument has no light function.
The light is on for another 10 seconds after the motor stops running.

Note
The motor can only operate with the retention ring.



4.11.10 Monitoring

Note

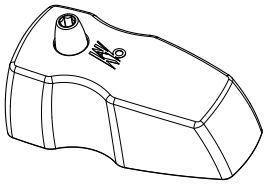
The calibration tool must be checked annually.

- ▸ If the calibration tool shows technical defects or if the expiry date of the calibration tool has expired, the calibration tool must be replaced by the user.

4.11.11 Calibration

Note

The calibration sets the device to a certain motor-instrument combination. Therefore, if a different motor-instrument combination is used, compliance with the permissible torque variations cannot be guaranteed. However, a single motor can be used on two or more units that have been calibrated for the motor.



The influence of the efficiency of the instruments is taken into account when testing the torque display.
The calibration tool should be stored at 15°C to 30°C to ensure precise calibration. The calibration value refers to the temperature of 23°C. If this temperature is not maintained, the value needs to be corrected according to table. For example: Calibration at 20°C (read 15.2) results in a corrected value (+0.3) of 15.5.

Temperature	15°C	16°C	17°C	18°C	19°C	20°C	21°C	22°C	23°C	24°C	25°C	26°C	27°C	28°C	29°C	30°C
correction	+0.8	+0.7	+0.6	+0.5	+0.4	+0.3	+0.2	+0.1	0	-0.1	-0.2	-0.3	-0.4	-0.5	-0.6	-0.7

The calibration can also done with a sterile instrument. to prevent contamination, make sure to catch pin is sterile.

Note

The INTRAsurg Calibration system can be disinfected.

- ▸ Pre-position cleaned and set up angle piece 27:1 and calibration device **Mat. no. 1.005.7707** .

Note

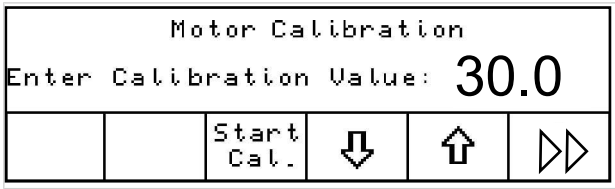
The calibration and torque test can only be performed with the KaVo contra-angle handpiece 27:1 (CL09) with the associated head (CL3).

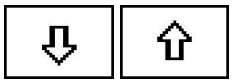
Requirement

- The surgical motor is connected.
- No instrument has been removed from the supports.
- KaVo contra-angle handpiece 27:1 (CL 03-09) must be attached.

- ▸ Press the "Additional motor drives" button.

The display switches to the "Calibration" mode.





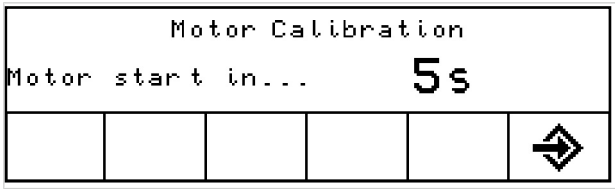
- Read the calibration value shown on the bottom side of the calibration device (e.g. "29.5 Ncm") and enter the value using the "Up" and "Down" buttons.

Note

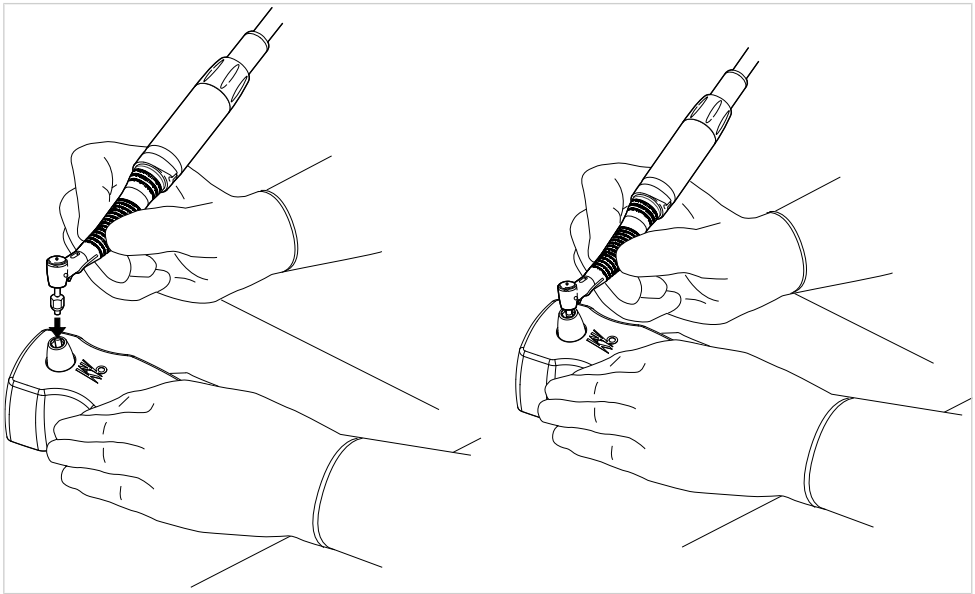
The calibration value must be adapted to the surrounding temperature. See also: Table above

- Plug catch pin into the calibration facility.
- Place the calibration facility on a solid support and hold it firm.
- Press "Start cal." button.

Countdown proceeds. The motor starts in 5 seconds.



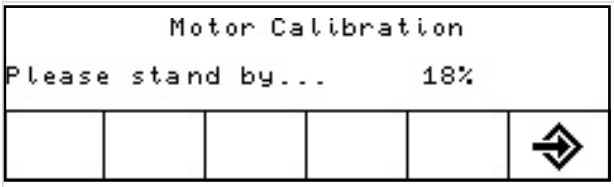
A short spin-up phase occurs before the motor starts.



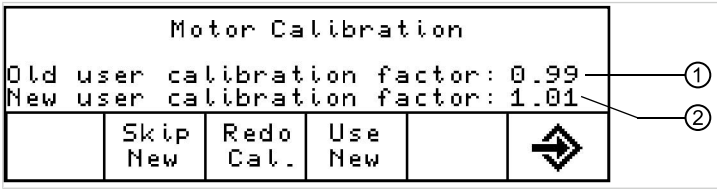
Note

Do not apply any pressure.
The motor may not experience any additional load.

The motor starts. The progress is shown on the display.



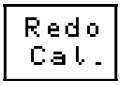
After calibration, the following appear on the display:



① Previous correction value ② New correction value

- Press the 4-way button to discard the value.

or

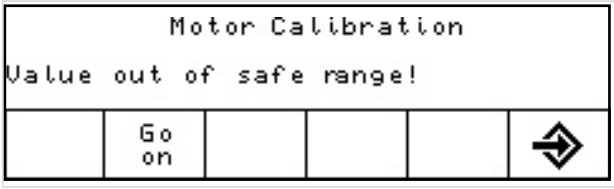


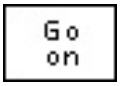
- Press the "New cal." button in order to repeat the calibration process.

or

- Press the button showing a check mark to use the measured value.

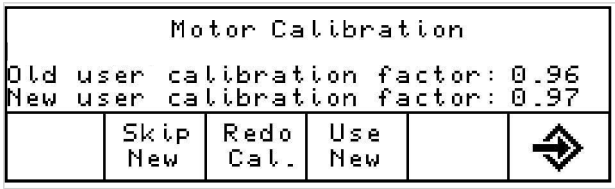
If the new measured value deviates strongly from the ideal value, the following appears on the display:





- Press the "Next" key.

The display of a successful calibration on the display.



Note

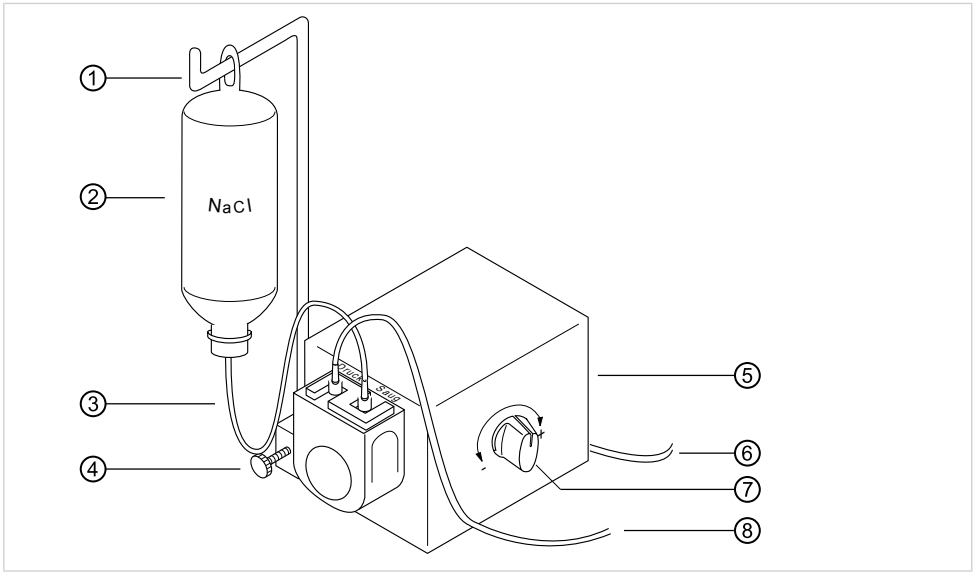
The output values are retained in case of interruption or error.

4.11.12 Exit surgery mode

- Press the "Motorised auxiliary drives" button

4.12 Use pump for physiological saline (optional accessory)

4.12.1 General



Overview of saline pump

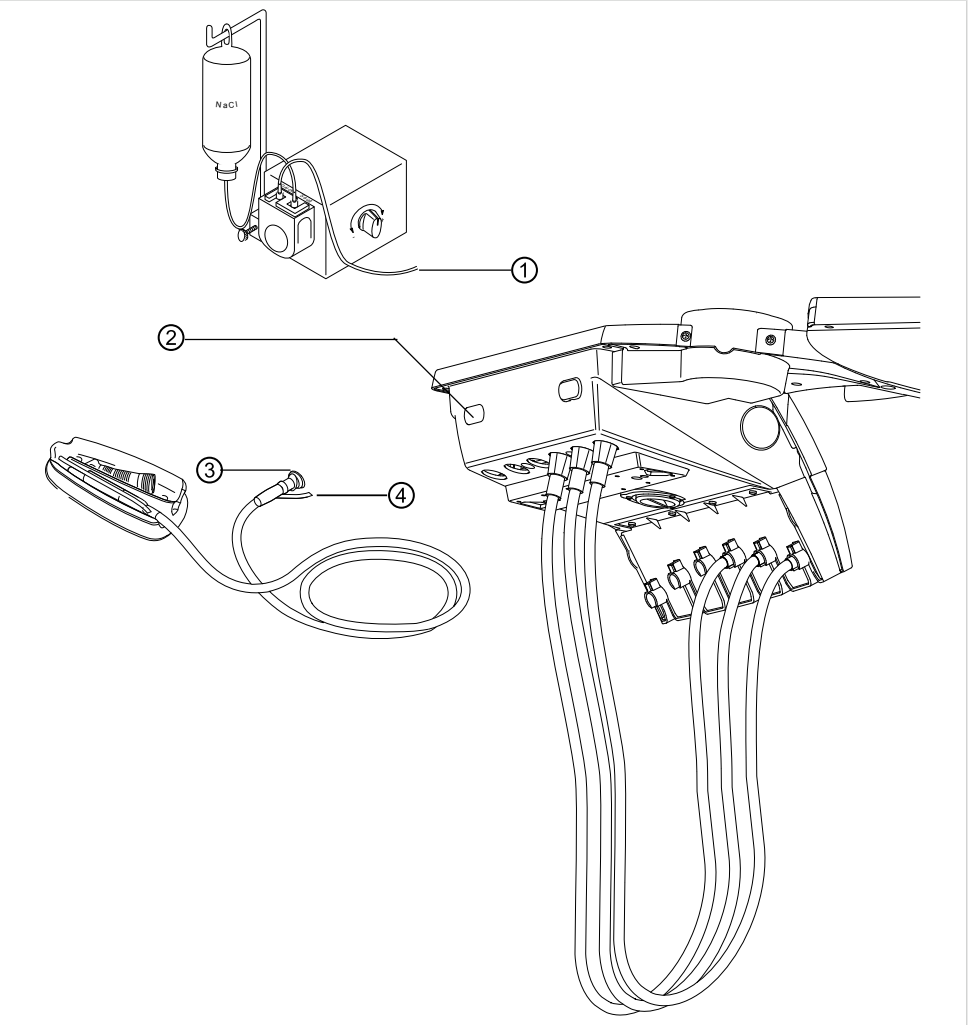
① Holder
② Salt bag
③ Suction hose
④ Knurled screw
⑤ Pump
⑥ Electrical lead
⑦ Metering head
⑧ Pressure hose

4.12.2 Connect coolant

Note
All liquid-conducting parts are not sterile. They must be sterilised before the first treatment. All parts conducting liquids must be kept sterile.

See also: ESTETICA E80 Care instructions

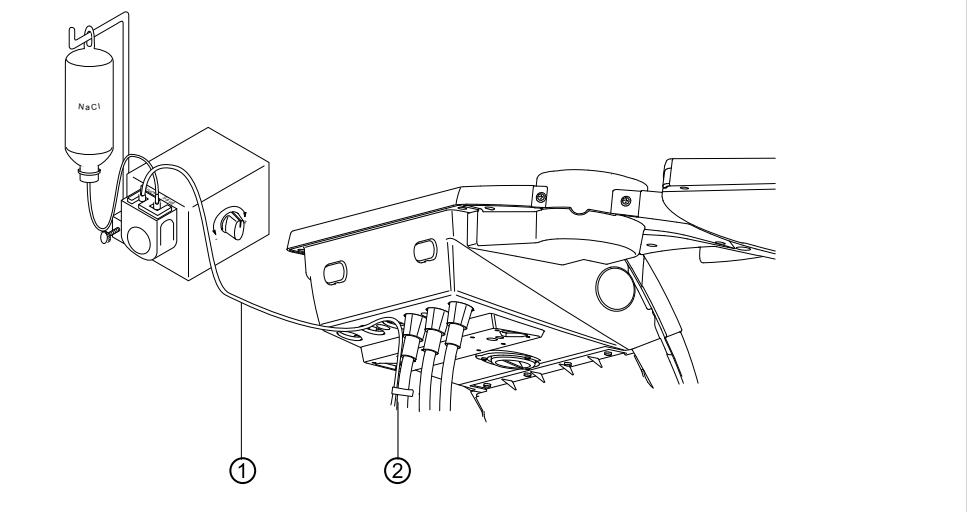
Connect the coolants to the surgical motor SL 550



Note
The coolant hose is integrated in the surgical motor hose.

- Connect the coupling of the surgical motor hose ③ to the connection ② of the dentist element.
- Shove on the coolant hose ④ of the surgical motor hose onto the plug-in nipple ① of the pump pressure hose.

Connect the coolant with the standard instrument hose



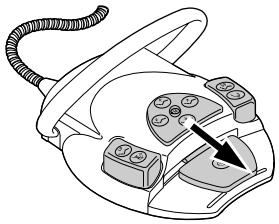
- Attach the pressure line ① to the motor hose with the provided hose clips ②.

Note
The distance from the motor to the first hose clip must be at least 80 mm.

4.12.3 Turn on and adjust the pump

Requirement
Treatment unit is turned on. The instrument is connected to the pump via the pressure line.

- Remove the instrument.

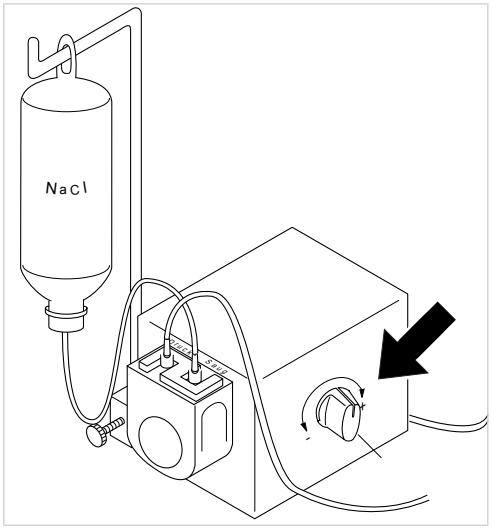


- Press the cross-switch of the foot control for 4 seconds until you hear the signal.

  After activation, you can select the "NaCl" cooling.

Note
The first time the pump is turned on, it takes approximately 10 seconds until saline solution exits from the instrument.
The pump does not have any back suction.

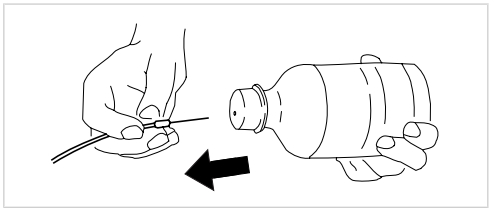
- Gradually adjust the amount of saline solution using the metering head.
  Turn in the + direction. The amount is increased
  Turn in the - direction. The amount is decreased



- Move the cross switch down for four seconds until the signal sounds to turn off the saline pump.

4.12.4 Replace NaCl bag

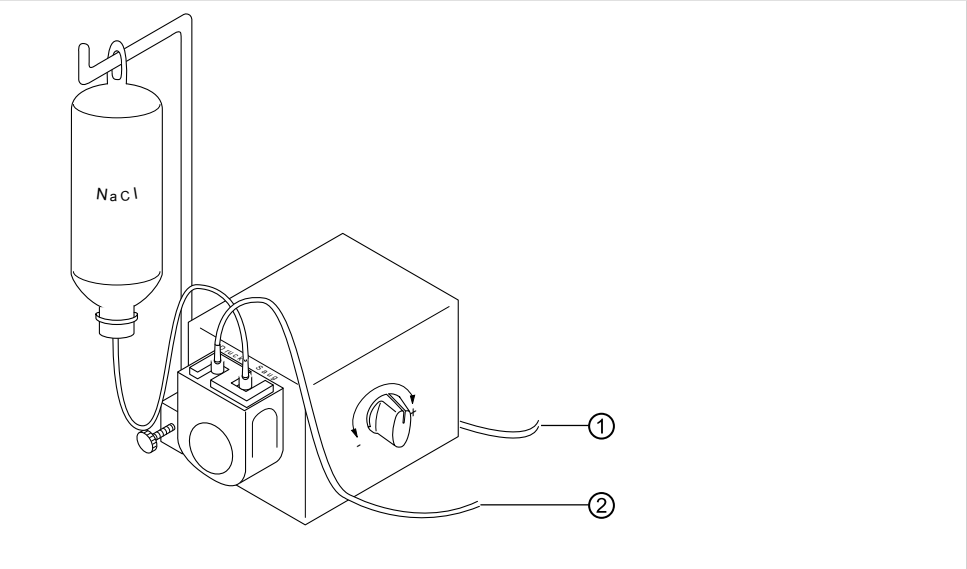
- Pull the hose with its tip out of the empty salt bag and replace with a new one.



4.12.5 Attaching and detaching the pump

Detaching the pump

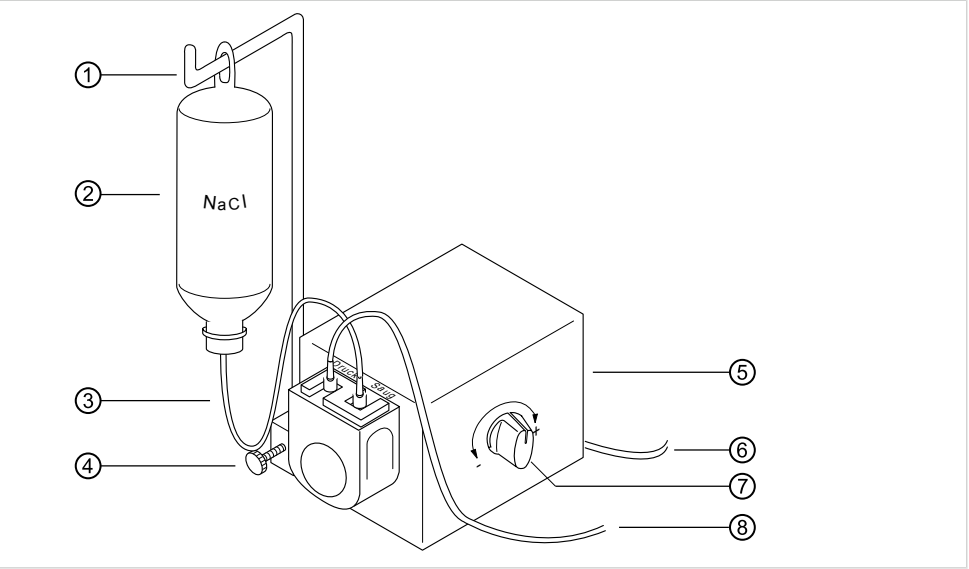
If there is no need for cooling with saline solution for a long period,the pump can be removed.



- Turn off the treatment unit.
- Remove pressure hose ②.
- Unplug electrical line ①.
- Unscrew the knurled screw under the pump.
- Removed pump and store it.

Attaching the pump

Note
Make sure that the pump is mounted insulated with the plastic plate on the table housing or holder.



- Affix the pump ⑤ to the treatment unit with the knurled screw.
- Insert the electrical lead ⑥ in the rear of the dentist element.
- Insert the bottle holder ① and secure with the knurled screw ④.

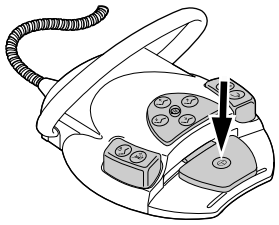
Note
Due to the weight and the provided tools, the 0.5 l NaCl bag should be used. Do not use glass bottles!

- Suspend the NaCl bag ② on the bottle holder ①.
- Insert the tip of suction hose ③ into the NaCl bag ② and connect the other end of the suction hose ③ to the pump outlet, "Intake".
- Connect the pump hose ⑧ to the pump output, "Pressure", and the other end of the pressure hose to the instrument line.

See also: 4.12.2 Connect coolant, Page 110

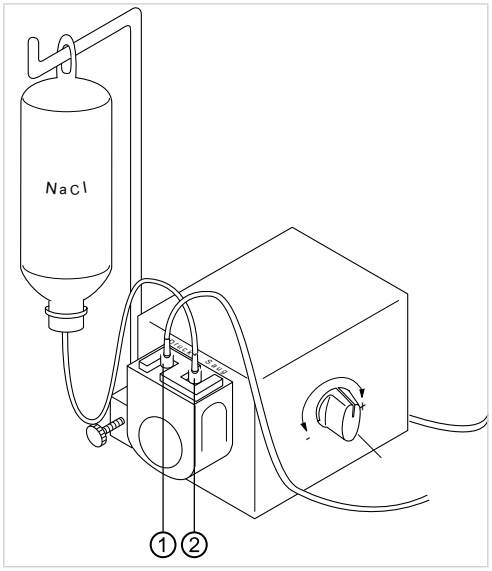
4.12.6 Replacing the pump hose

- Make sure that all hoses for saline solution are empty.
- If the hoses are not empty yet, remove the suction hose from the NaCl bag.

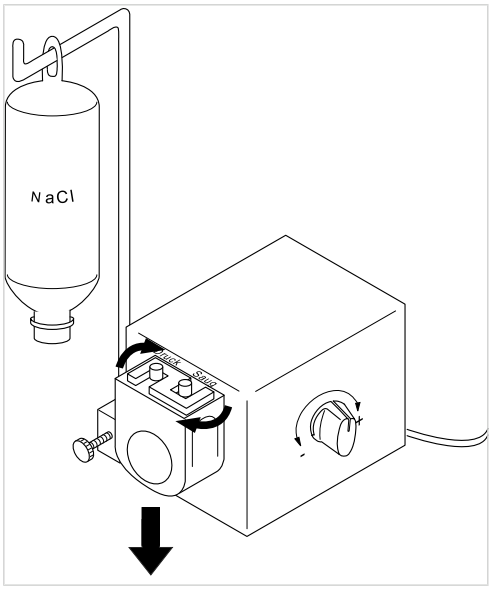


- Press down the foot pedal until the hoses are free of saline solution.

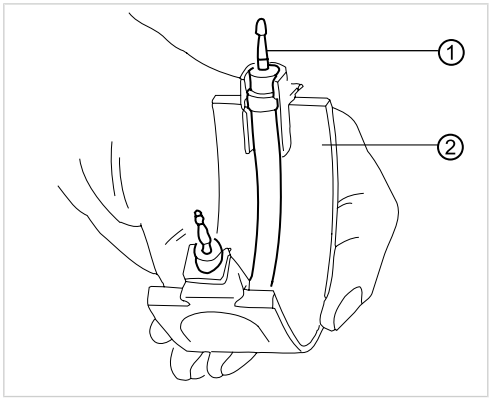
- Remove the suction hose and pressure hose from the plug-in nipples for pressure ① and suction ②.Remove the suction hose and pressure hose from the plug-in nipples for pressure 1 and suction 2.

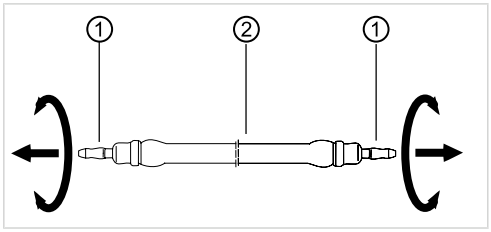


- Unlock the pump lock by turning it to the right, and remove the hose holder proceeding in downward direction.

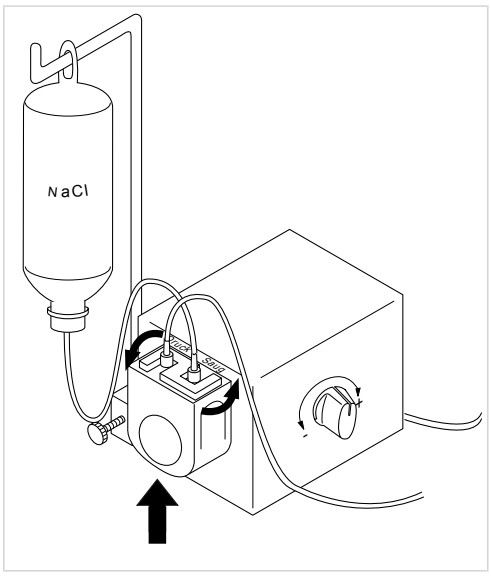


- Remove the pump hose (**Mat. no. 0.065.5789**) ① to be replaced from the hose holder (**Mat. no. 0.236.2288**) ② and replace it with a new one.





- Insert the new pump hose into the hose holder.
- Make sure that the flexing system is horizontal (turn manually if necessary).
- Insert the hose holder from below, and turn the pump hose locking to the right.

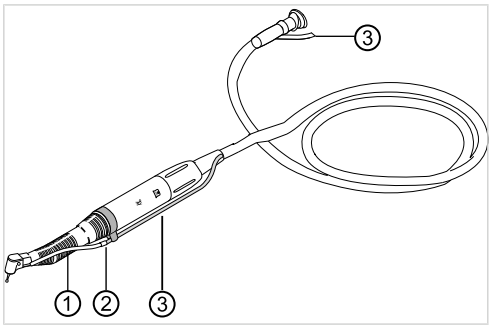


Ordering information:

- Pump hose: obtainable as a cut section (**Mat. no. 0.065.5789**); must be cut to 13 cm before installation.

4.12.7 Replacing the coolant hose of the surgical motor hose

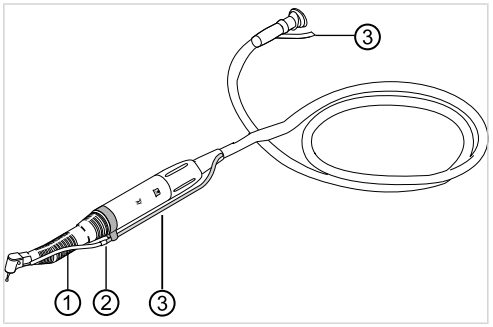
The coolant hose comes in two parts which are connected by a coupling.



① Short coolant hose (**Mat. no. 1.001.3436**)
② Coupling (**Mat. no. 1.001.6462**)
③ Long coolant hose **Mat. no. 0.065.5279**)

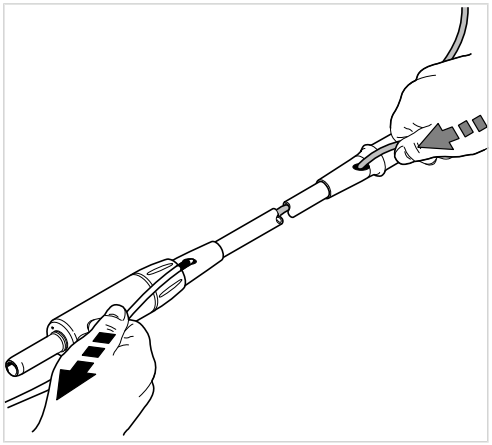
Ordering information:
- Long coolant hose ③: approx. 2.3 m long and obtainable in cut sections under **Mat. no. 0.065.5279**.
- Short coolant hose ①: approx. 150 mm long (**Mat. no. 0.593.0252**) and obtainable as a cut section (**Mat. no. 0.065.5188**).

Exchange the long coupling house

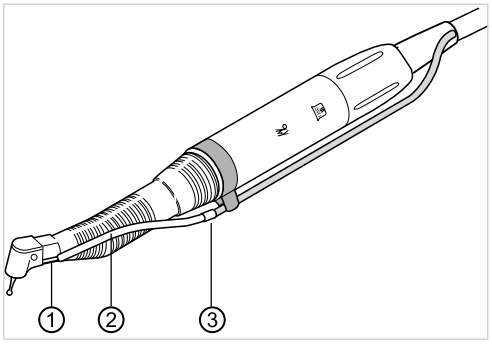


- ▸ Remove long coolant hose ③ from the saline pump pressure hose and from the coupling②.
- ▸ Connect the new coolant hose and the old coolant hose to the coupling ②.

- Carefully remove the old hose from the motor-side end and simultaneously shove on the new one until the coupling piece is



Exchange the short coupling house



- Pull off the coolant hose ② from the coupling ③ and the handpiece or angle piece ①, and replace it with a new coolant hose.

4.13 Use the COMFORTdrive 200 XD/COMFORTbase 404L (optional accessory)

4.13.1 General use

	⚠ CAUTION **Failure to comply with the Instructions for Use of the COMFORTdrive 200 XD** Injury to persons or property damage ▸ The use of the COMFORTdrive 200 XD is described in separate Instructions for Use. These must be read before starting up the COMFORTdrive 200 XD and COMFORTbase.

The KaVo COMFORTdrive 200 XD is a dental instrument for the high speed range up to 200,000 rpm. It can be attached only to the KaVo COMFORTbase coupling.

The hose of the KaVo COMFORTbase is part of the coupling and cannot be removed!

Operation and changing the settings via the control element is identical to the INTRA LUX motor KL 702.

See also: 4.7.4 Changing the settings for the INTRA LUX Motor KL 702, Page 49

4.13.2 Install motor hose on dentist's element

- Connect the motor hose of the COMFORTbase 404L to the connector for the motors and pneumatic instruments.

4.13.3 Replace the high-pressure lamp of the COMFORTbase 404L

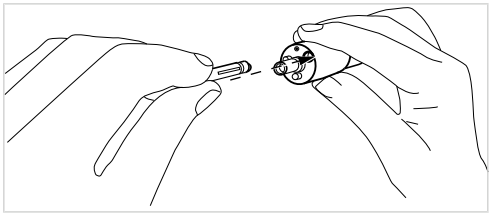
⚠ CAUTION

Danger of injury from hot high-pressure bulb
Burn hazard

- Turn off the main switch.
- Le the COMFORTbase cool down after a long period of use.

Requirement
The COMFORTdrive is pulled off of the COMFORTbase coupling.

- Shove the included lamp changer (**Mat. no. 1.005.1773**) lamp, and pull the lamp out axially.



- Insert the new lamp **Mat. no. 1.002.2928**into the lamp changer, and introduce it into the coupling. Carefully shove the lamp into the socket by twisting slightly.
- Remove the lamp changer by quickly twisting it and simultaneously pulling it out in an axial direction.

4.13.4 Replace O-rings

⚠ CAUTION

Missing or damaged O-rings.
Malfunctions and premature failure.

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

Number of available O-rings: 3

- 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 (**Mat. no. 1.005.0327**) into the grooves.

Note

The O-ring on the COMFORTbase may only be lubricated with cotton ball wet with KAVOspray.

5 Preparation methods DIN EN ISO 17664

Note

The preparation methods can be found in the care instructions.

6 Additional equipment and assembly kits

Note

The USB interfaces of the system may only be connected to IT devices approved by KaVo.

Note

When connecting an IT device to the the medial electrical system, observe *EN 60601-1-1* .

Note

Only those accessories may be used that are approved for the device.

Note

The instructions fur use, servicing, and assembly for additional equipment and kits such as lights, the ERGOcom, etc. are included in the packaging.

6.1 Device

Designation	Description
Monitor holder	The monitor holder is either affixed to the lamp mount pole or a Centro 1540.
ERGOcom	The ERGOcom device is supplied including the appropriate mount pole.
Display	LCD Display.
Service table	It can be mounted on a device stand (cart version).
CENTRO	The central organization and support system directly on the treatment unit.
1410 C	Operating light

6.2 Assistant unit

Designation	Description
Hydrocolloid	The hydrocolloid kit can be optionally mounted on the left or right side on the holder of the assistant element.
3F- or multifunction syringe	The assistant element can optionally be equipped with a three-function or multifunctional syringe.
Second saliva ejector	The second saliva ejector kit is mounted on the sieve housing that comes as basic equipment.
LED polymerisation lamp	The assistant element can be equipped with an LED polymerisation light.

6.3 Dentist unit

Designation	Description
Radiograph viewer Röbi 1440 or 5x5	The radiograph viewer can be attached to the dentist element.
Physiological saline	For aseptic bur cooling during surgical work, an assembly kit for physiological saline is available.

Designation	Description
HF surgery	An HF surgery module can be attached for electrosurgical interventions.
Motors	Assembly kit INTRA LUX motor K 200 (collector motor with light) or assembly kit INTRA LUX Motor KL 702 (brushless motor with light)
LED polymerisation lamp	The dentist element can be fitted with an LED polymerisation lamp.
KaVo COMFORTdrive 200 XD; KaVo COMFORTbase 404L	The KaVo COMFORTdrive 200 XD is a dental instrument for the high-speed range up to 200,000 rpm. It can be attached only to the KaVo COMFORTbase 404L coupling.

7 Do safety checks

Note

Follow the instructions in the instructions for use and installation.

According to VDE 0751-1

- Check every two years
- According to device type II a, for devices without HF surgery
- According to device type II b, for devices with HF surgery
- The device is firmly connected
- Type BF comment 2
- Measurement of EUL/EPL

KaVo offers a medical device book for keeping an inventory and recording essential master data on the medical device. The medical device book is only required in Germany and is therefore only in German (**Mat. no. 0.789.0480**).

The following measurements must be documented, for example in the medical device book.

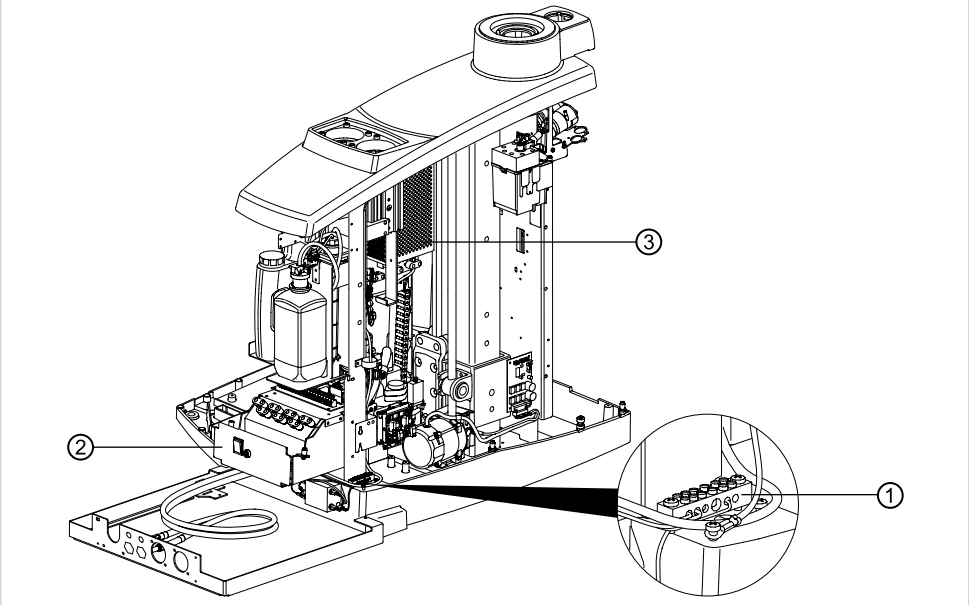
- Check the ratings of fuses that are accessible from outside.
- Visually inspect the medical device and accessories
- Protective conductor test according to VDE 0751-1
- Leakage current measurement according to VDE 0751-1
- Medical device function test with reference to accompanying documentation

Note

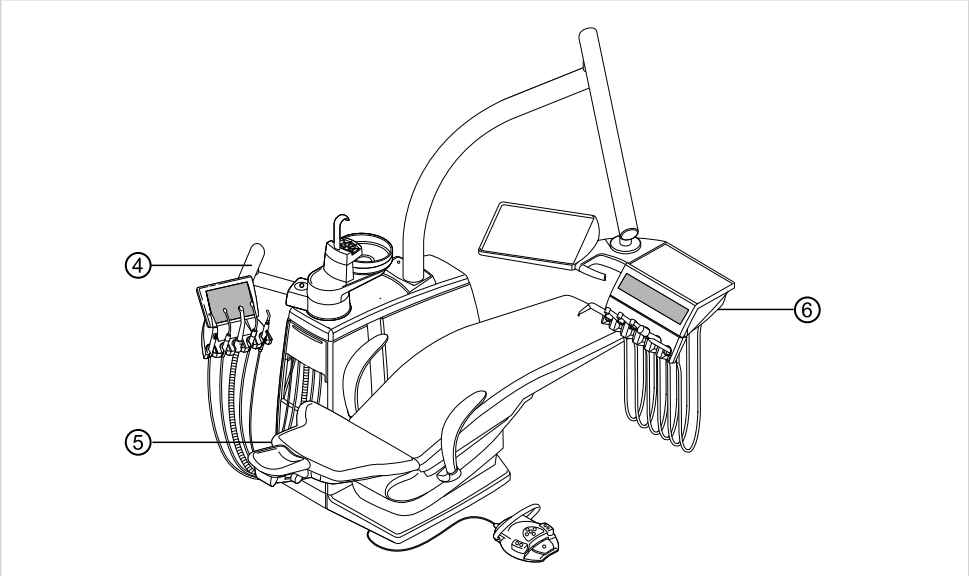
The main switch of the device system must be turned on during measurement.
Measuring assistance: KaVo test cable (**Mat. no. 0.411.8811**)

Measuring the protective conductor resistance

- Scan the following positions with the test tip.

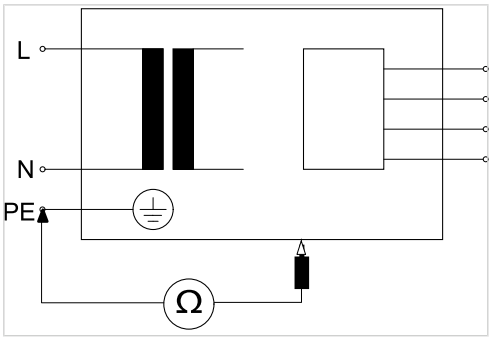


① Surroundings of the protective conductor terminal
② Main switch plate
③ Switched-mode power supply



④ Assistant unit arm
⑤ Backrest
⑥ Dentist unit table bottom

Threshold: < 0.3 Ω

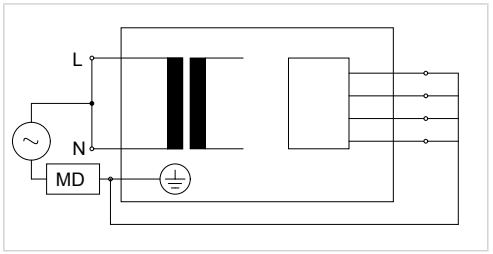


Note

Take into account the additional measuring points of additional equipment such as connection to equipment by a different manufacturer, treatment lamps, multimedia system, etc.

See also: 8 Annex - Additional protective conductor measuring points, Page 130

Measuring EUL (equivalent unit leakage current) threshold: < 10 mA

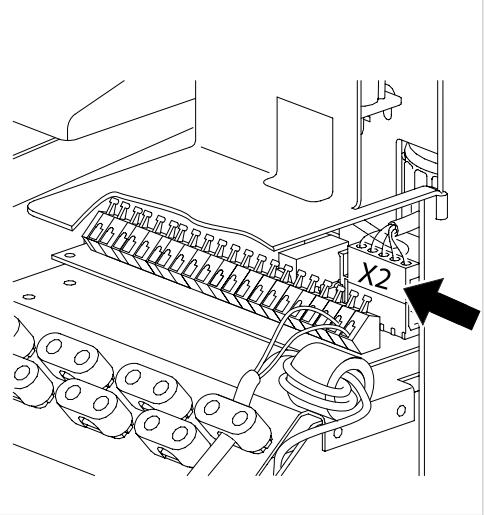


Requirement

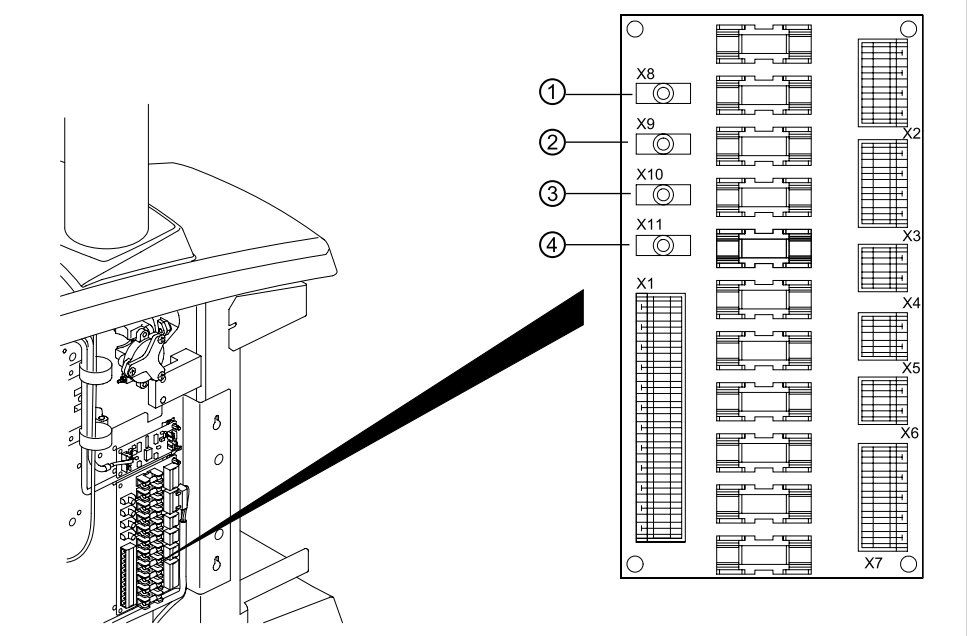
The main switch of the device system must be turned on during measurement.
Measuring assistance: KaVo test cable (**Mat. no. 0.411.8811**)

- ▸ Disconnect L + N device-side from the mains.
- ▸ Connect the test specimen to the tester.

- Connect the KaVo measuring line (**Mat. no. 0.411.8811**) to the X 2 (power supply board).



- Connect the patient part ①-④ + X to the tester.

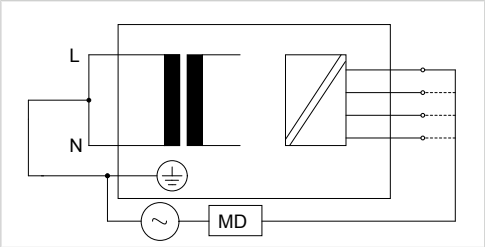


Note

Take into account the additional measuring points of additional equipment such as X connection to equipment by a different manufacturer, X treatment lamps, X multimedia system, etc.

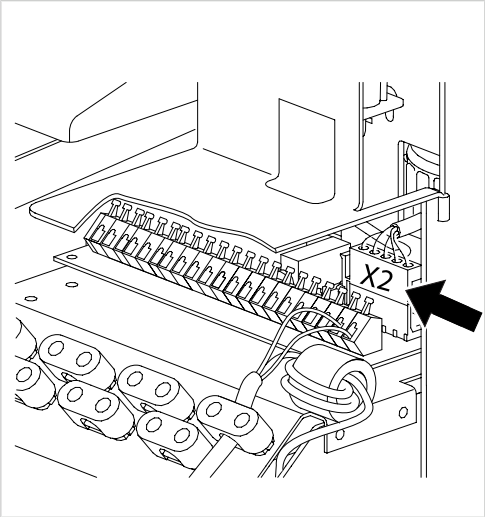
See also: 8 Annex - Additional protective conductor measuring points, Page 130

Measurement of EPA (equivalent patient leakage current) threshold: < 5 mA

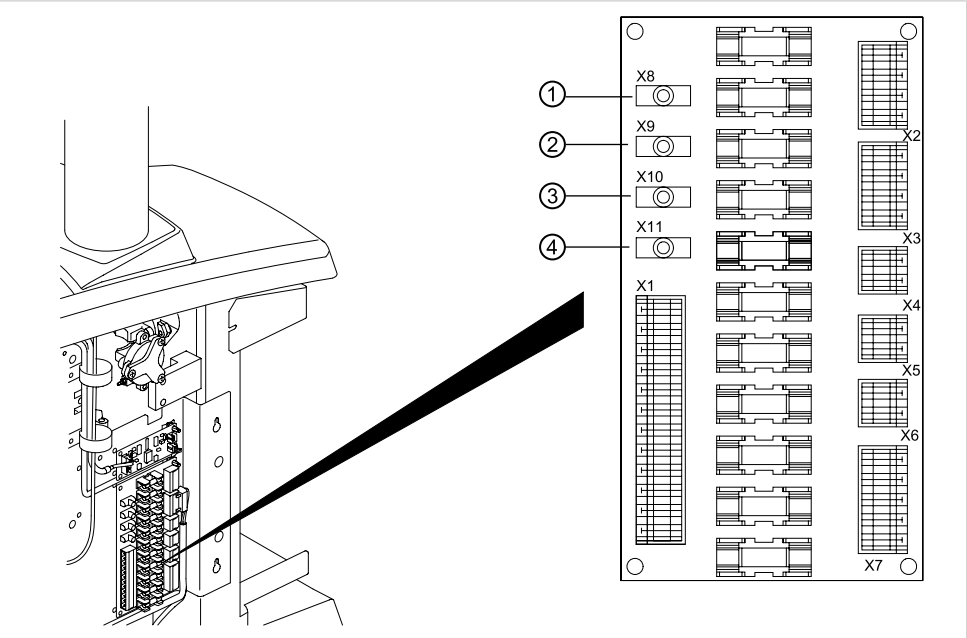


Requirement
The main switch of the device system must be turned on during measurement.
Measuring assistance: KaVo test cable (**Mat. no. 0.411.8811**)

- Disconnect L + N device-side from the mains.
- Connect the test specimen to the tester.
- Connect the KaVo measuring line (**Mat. no. 0.411.8811**) to the X 2 (power supply board).



- Connect the patient part ①-④ + X to the tester.

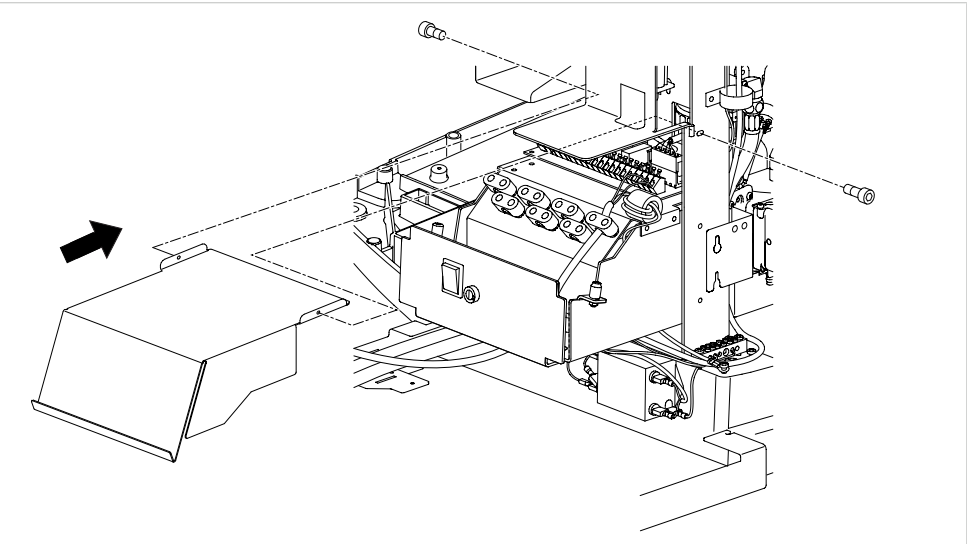


Note

Take into account the additional measuring points of additional equipment such as X connection to equipment by a different manufacturer, X treatment lamps, X multimedia system, etc.

See also: 8 Annex - Additional protective conductor measuring points, Page 130

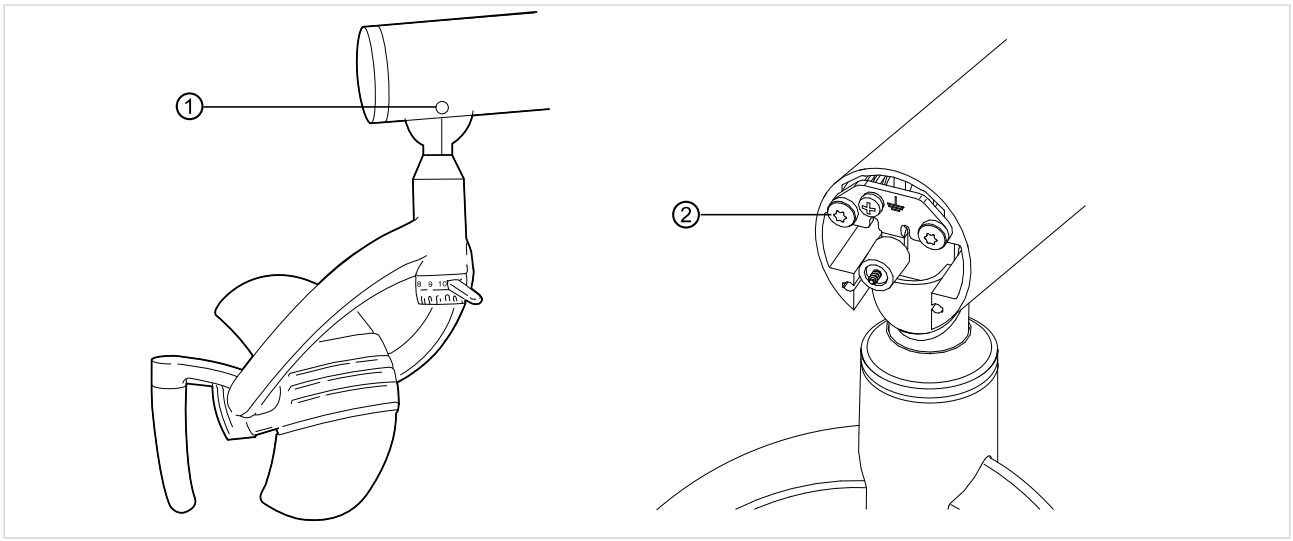
- Replace the cover.



8 Annex - Additional protective conductor measuring points

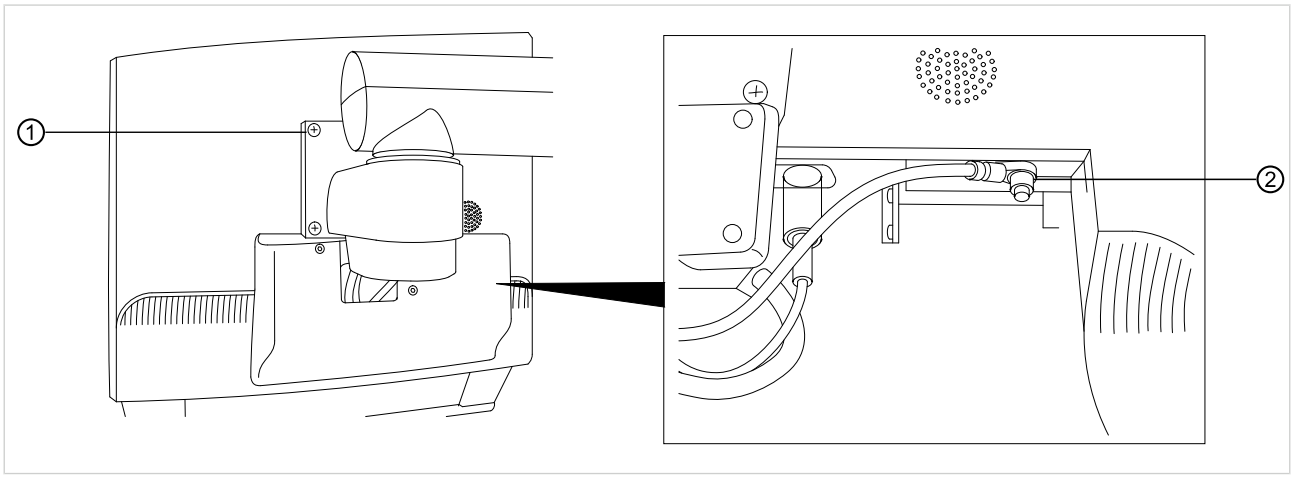
Additional measuring points for replacement device leakage current/equivalent patient leakage current of KaVo additional equipment:

1410 B/C treatment light



- Remove the test tip from the axis ① or the cover, and place it on the screw ②.

Multimedia: Monitor



- Scan the measuring point ① with the test tip.

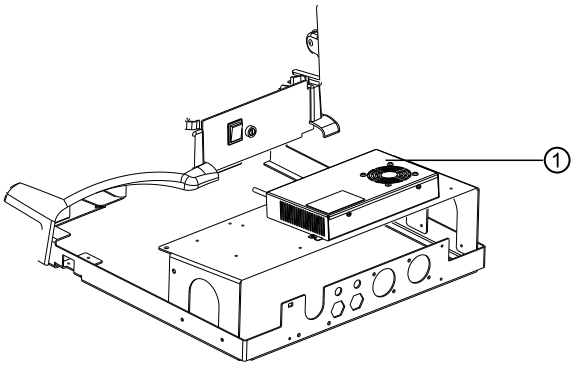
or

- Sample the measuring point ② after removing the display cover.

Note

Follow the instructions for use of the KaVo 17“ and 20“ display for a complete safety check.

Multimedia: ERGOcom light



- Place the test tip on the ERGOcom Box ①.

Note

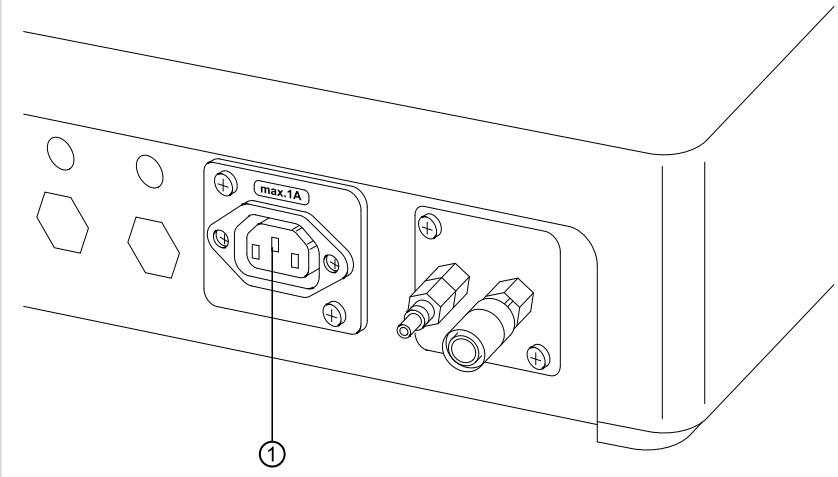
Follow the instructions for use of the KaVo ERGOcam light for a complete safety check.

Multimedia: ERGOcom 4

Note

Follow the instructions for use of the KaVo ERGOcam 4 for a complete safety check.

KaVo connections to equipment by a different manufacturer



- Place the test tip on the middle contact ①.

AUTOsurge

Note
Follow the instructions for use of the KaVo AUTOsurge for a complete safety check.

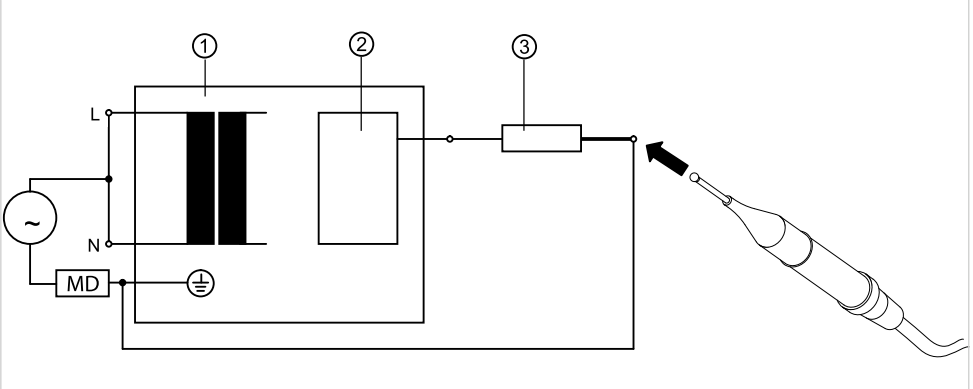
Measurement of replacement device leakage current:

Note
The switch on the handpiece must be actuated while measuring the equivalent unit leakage current

- Check replacement device leakage current.

  Threshold: < 10 mA

Measuring point for the patient unit: Terminal on the handpiece electrode.



① Dental device

② HF module

③ Handpiece with electrode (ball electrode)

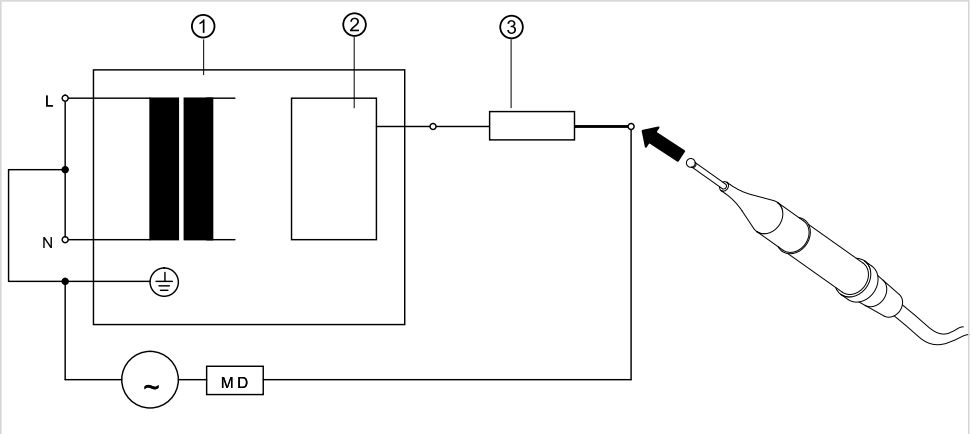
Measuring equivalent patient leakage current:

Note
The switch on the handpiece must be actuated while measuring the equivalent patient leakage current

- Check the equivalent patient leakage current.

  Threshold: < 5 mA

Measuring point for the patient unit: Terminal on the handpiece electrode.



① Dental device

② HF module

③ Handpiece with electrode (ball electrode)

9 Eliminating disturbances

Note

In case of malfunctions, consult the separate instructions for the use and care of the individual instruments (such as the turbine, motor, camera, Satelec Mini LED, etc.).

Malfunction	Cause	Remedy
Nothing works.	Main switch is off.	▸ Turn on main switch.
Nothing works.	The main fuse is tripped.	▸ Unplug the unit from the mains. ▸ Check and replace, if required, the main service fuse. The main service fuse is situated next to the master switch. ▸ For this purpose, open the bayonet closure with a screwdriver and replace the fine-wire fuse. (220,230,240V AC: T 6,3 H **Mat. no. 0.223.2783**); (100,110,120,130V AC: T10A **Mat. no. 1.007.2529**). ▸ The re-close the bayonet closure with the screwdriver.
No cold light in the instruments.	The high-pressure lamp in the instrument is defective.	▸ Replace the high-pressure lamp.
	Cold light not preselected.	▸ Preselect cold light.
No spray in the instruments.	No spray preselected.	▸ Preselect spray.
	Open the spray regulation in the instrument is closed.	▸ Open the spray regulation in the instrument.
	The main water valve in the office is closed.	▸ Open the main water valve in the office.
	The compressor is not turned on.	▸ Turn on the compressor.
Water in the return air filter.	The O-rings of the MULTIflex coupling are damaged.	▸ Replace all the O-rings on the MULTIflex coupling.
The suction hoses do not have any suction.	The suction machine is not turned on or is defective.	▸ Turn on the suction machine or eliminate the defect.
	The slide valves in the conical sections of the suction hoses are closed.	▸ Open the slide valve.
	The sieves in the selective valves are plugged.	▸ Exchange the sieve.

Malfunction	Cause	Remedy
	The base switch is actuated.	▸ Stop actuating the base switch.
The patient chair does not move.	The safety shutoff is activated. Foot control is activated.	▸ Check the safety shutoffs and eliminate the reason for the shutoff.
The treatment unit is not connected to the wireless foot control. The treatment unit emits a tone.	The wireless foot control is turned off.	▸ Check the on/off switch on the foot control and turn it on if necessary.
	The wireless foot control is out of range.	▸ Move the wireless foot control into the range of the treatment unit.
	Malfunction or low battery	▸ Check the status display of the foot control. Yellow: low battery No display: malfunction ▸ Charge battery.
The wireless foot control does not return to centre position.		▸ Charge battery.

Additional warning messages

Malfunction	Cause	Remedy
A beep is issued every ten seconds and the "Intensive disinfection" LED (green) flashes.	The Oxygenal container is empty.	▸ Refill the Oxygenal container. **See also:** Care instructions
A beep sounds ten times.	The Oxygenal container is too full.	▸ Stop filling the Oxygenal container.
A melody sounds.	The amalgam separator CAS1 s 95% full.	▸ Exchange the amalgam container.
	The CAS1 amalgam separator is defective.	**See also:** Instructions for use for the CAS 1 or ▸ Call a Service technician.
LED on "HYDROclean" button (red) flashes.	Malfunction in the amalgam separator.	▸ Call a technician. ▸ Note the amalgam separator warning notice. **See also:** Operating instructions of the amalgam separator.
	Emergency shut off of the bowl valve (only when external suction is installed)	▸ Call a technician.

Error message on the MEMOdent control element

Malfunction	Cause	Remedy
Display: "Unit Controller not recognised" Error 001	Cable or electronics problem.	▸ Turn the device off and on. If the problem still exists, contact a service technician.
Display: "Dentist Controller not recognised" Error 002	Cable or electronics problem.	▸ Turn the device off and on. If the problem still exists, contact a service technician.
Display: "Operating device controller not recognised" Error 003	Cable or electronics problem.	▸ Turn the device off and on. If the problem still exists, contact a service technician.
Display: "Dentist operating device not recognised" Error 004	Cable or electronics problem.	▸ Turn the device off and on. If the problem still exists, contact a service technician.
Display: "Chair A1 error (lift motor)" Error 005	Cable or electronics problem.	▸ Turn the device off and on. If the problem still exists, contact a service technician.
Display: "Chair A2 error (backrest)" Error 006	Cable or electronics problem.	▸ Turn the device off and on. If the problem still exists, contact a service technician.
Display: "Chair A3 error (horizontal displacement)" Error 007	Cable or electronics problem.	▸ Turn the device off and on. If the problem still exists, contact a service technician.
Display: "Chair A4A5 error (neck support)" Error 008	Cable or electronics problem.	▸ Turn the device off and on. If the problem still exists, contact a service technician.
Display: "Chair A6 error (seat up)" Error 009	Cable or electronics problem.	▸ Turn the device off and on. If the problem still exists, contact a service technician.
Display: "Foot control not recognised" Error 010	Wireless foot control is out of reach.	▸ Place wireless foot control within reach.
	Cable or electronics problem.	▸ Turn the device off and on. If the problem still exists, contact a service technician.
Display: "I2C water block does not respond" Error 011	Cable or electronics problem.	▸ Turn the device off and on. If the problem still exists, contact a service technician.

Malfunction	Cause	Remedy
Display: "Assist. operating device is not responding" Error 012	Cable or electronics problem.	▸ Turn the device off and on. If the problem still exists, contact a service technician.
Display: "Leakage water S7 is active" Error 013	Water in unit base.	▸ Open the service flap and remove the water.
Display: "P valve error" Error 014	Cable or electronics problem.	▸ Turn the device off and on. If the problem still exists, contact a service technician.
Display: "Dentist operating device is not responding" Error 015	Cable or electronics problem.	▸ Turn the device off and on. If the problem still exists, contact a service technician.
Display: "Instrument control is not responding" Error 016	Cable or electronics problem.	▸ Turn the device off and on. If the problem still exists, contact a service technician.
Display: "KL is not responding" Error 017	Cable or electronics problem.	▸ Turn the device off and on. If the problem still exists, contact a service technician.
Display: "Unit 12C error" Error 018	Cable or electronics problem.	▸ Turn the device off and on. If the problem still exists, contact a service technician.
Display: "Dentist 12C error" Error 019	Cable or electronics problem.	▸ Turn the device off and on. If the problem still exists, contact a service technician.
Display: "Foot control battery" Error 020	Rechargeable battery in foot control is empty.	▸ Charge battery.
Display: "Oxygenal empty"		▸ Insert new Oxygenal bottle.
Display: "Oxygenal bottle"		▸ Insert new Oxygenal bottle.
Display: "Oxygenal level is low"		▸ Insert new Oxygenal bottle.
Display: "Dekaseptol empty"		▸ Fill Dekaseptol.
Display: "Request service"		▸ Notify service technician.
Display: "Request intensive disinfection"		▸ Start intensive disinfection
Display: "Emergency shutoff of bowl suction"	No vacuum.	▸ Check the functioning of the vacuum exhauster.

Malfunction	Cause	Remedy
Display: "Amalgam separator error"		▸ See Instructions for use for the amalgam separator.

10 Information about electromagnetic compatibility in accordance with EN 60601-1-2

10.1 Electromagnetic Transmissions

The ESTETICA E80 treatment unit is for use in an environment like the one cited below. The customer or user of the ESTETICA E80 should ensure that it is used in the correct environment.

Measurements of emitted interference	Conformance	Electromagnetic environment - Guidelines
HF emissions according to CISPR 11	Group 1	TheESTETICA E80 uses HF energy for its internal functions exclusively. Therefore, its HF emission is very low and interference with adjacent electronic devices is unlikely.
HF emissions according to CISPR 11	Class B	TheESTETICA E80 is suitable for use in all facilities including residential ones, and facilities that are directly connected to a public power supply that also supplies residential buildings.
Emission of harmonics according to IEC 61000-3-2	Class A	TheESTETICA E80 is suitable for use in all facilities including residential ones, and facilities that are directly connected to a public power supply that also supplies residential buildings.
Emission of voltage fluctuations / flicker according to IEC 61000-3-3	Conforms	TheESTETICA E80 is suitable for use in all facilities including residential ones, and facilities that are directly connected to a public power supply that also supplies residential buildings.

10.2 Resistance to electromagnetic interference

The ESTETICA E80 treatment unit is for use in an environment like the one cited below. The customer or user of the ESTETICA E80 should ensure that it is used in the correct environment.

Immunity tests	IEC 60601 test level	Conformance level	Electromagnetic environment - guidelines
Electrostatic discharge (ESD) according to IEC 61000-4-2	± 6 kV contact discharge ± 8 kV atmospheric discharge	± 2/4/6 kV contact discharge ± 2/4/8 kV atmospheric discharge	Floors should be made of wood or concrete or have ceramic tiles. When the floor is made of synthetic material, the relative humidity must be at least 30%.
Fast transient electrical disturbances/ Bursts according to IEC 61000-4-4	± 2 kV for power lines ± 1 kV for input and output lines	± 2 kV for power lines	The quality of the supply voltage should correspond to that of a typical business or hospital environment.

Immunity tests	IEC 60601 test level	Conformance level	Electromagnetic environment - guidelines
Surges according to IEC 61000-4-5	± 1 kV Push-pull voltage ± 2 kV common mode voltage	± 1 kV Push-pull voltage ± 2 kV common mode voltage	The quality of the supply voltage should correspond to that of a typical business or hospital environment.
Voltage interruptions, short-term interruptions and fluctuations of the supply voltage according to IEC 61000-4-11	< 5% U_T (>95% interruption) for 1/2 period 40 % U_T (60% interruption) for 5 periods 70 % U_T (30% interruption) for 25 periods < 5% U_T (>95% interruption) for 5 s (250 periods)	< 5% U_T (>95% interruption) for 1/2 period 40 % U_T (60% interruption) for 5 periods 70 % U_T (30% interruption) for 25 periods < 5% U_T (>95% interruption) for 5 s (250 periods)	The quality of the supply voltage should correspond to that of a typical business or hospital environment. When the user of the ESTETICA E80 needs continued operation even when the power supply is interrupted, it is recommended to supply the ESTETICA E80 from an uninterrupted power supply or a battery.
Magnetic field with a supply frequency (50/60 Hz) according to IEC 61000-4-8	3 A/m	3 A/m	Magnetic fields at the mains frequency should correspond to typical values in a business and hospital environment.

NOTE: V_T is the alternating mains voltage before the test level is used.

10.3 Immunity to electromagnetic interference

The treatment unitESTETICA E80 is designed for operation in an environment as specified below. The customer or the user of theESTETICA E80 should ensure that the device is operated in an environment of this type.

Interference immunity tests	IEC 60601 test levels	Compliance level	Electromagnetic environment - Guidelines
Wire-based HF interference according to IEC 61000-4-6 Wire-less HF interference according to IEC 61000-4-3	3 V_{eff} 150 kHz to 80 MHz outside the ISM bands[a] 3 V/m 80 MHz to 2.5 GHz	3 V_{eff} 3 V/m	Handheld and mobile wireless devices should not be used at a shorter distance from theESTETICA E80 including cables than the recommended safe clearance calculated with the appropriate equation for the emission frequency. Recommended safe clearance: $d = 1.17\sqrt{P}$ $d = 1.17\sqrt{P}$ for 80 MHz to 800 MHz $d = 2.33\sqrt{P}$ for 800 MHz to 2.5 GHz where P is the nominal power of the transmitter in watts (W) as specified by the manufacturer and d is the recommended safe clearance in meters (m). [b]The field strength of stationary wireless radio transmitters as measured locally[c]should be lower than the conformance level at all frequencies. [d]Interference is possible in the vicinity of devices bearing the following icon.

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

[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.

[b]The compliance levels in the ISM frequency bands between 150 kHz and 80 MHz and in the frequency range from 80 MHz and 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 frequencies ranges.

[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 measured strength at the site, at which theESTETICA E80 is used, exceeds the compliance levels shown above, the ESTETICA E80 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 ESTETICA E80.

[d]In the frequency range from 150 kHz to 80 MHz, the field strength should not exceed $3V_{eff}$ V/m.

10.4 Recommended safe distance between portable and mobile HF telecommunications equipment and the ESTETICA E80

DasESTETICA E80 is intended for use in an electromagnetic environment in which the HF interference parameters are controlled. The customer or the user of theESTETICA E80 can help prevent electromagnetic interference by maintaining the minimum distance between portable and mobile HF telecommunications devices (transmitters) and the ESTETICA E80 depending on the output of the communication device as indicated below.

Safe distance depending on the transmission frequency:

Rated power of the transmitter in W	150 kHz to 80 MHz $d=1.17\sqrt{P}$ m	80 MHz to 800 MHz $d=1.17\sqrt{P}$ m	800 MHz to 2.5 GHz $d=2.33\sqrt{P}$ m
0.01	0.1	0.1	0.2
0.1	0.4	0.4	0.7
1	1.2	1.2	2.3
10	3.7	3.7	7.4
100	11.7	11.7	23.3

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

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