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Teneo

Operating Instructions (not valid for USA)

English



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1 General information

1.1 Dear Customer,

We are pleased that you have equipped your practice with the Dentsply Sirona Teneo treatment center.

Our aim is to identify our customers' needs early and create innovative solutions. Together with your trade partner, you have configured the treatment center most suitable for you. The new hub of your treatment room has been tailored to your personal needs.

You have chosen a Teneo treatment center that features easy operation, innovative comfort, and high-quality design. With Teneo, we have enhanced proven functions and turned customer requirements into innovations. The proven sliding track concept in combination with the EasyTouch user interface makes treatment even more pleasant and efficient.

These operating instructions are designed to assist you prior to initial use and whenever you require information later on.

We wish you a great deal of success and pleasure with Teneo.

Your Teneo team

1.2 Contact information

Customer Service Center

In the event of technical queries, please use our online contact form at the following address:

<http://srvcontact.sirona.com>

Manufacturer's address



Sirona Dental Systems GmbH
Fabrikstrasse 31
64625 Bensheim
Germany

Tel.: +49 (0) 6251/16-0

Fax: +49 (0) 6251/16-2591

e-Mail: contact@dentsplysirona.com

www.dentsplysirona.com

1.3 Scope of these Operating Instructions

Equipment options

This document describes the full version of your system. It may therefore cover components that are not included in the system you purchased.

Firmware

This document is valid for systems with software versions from:

Version 8.0

The current software version is displayed in the setup, see "Opening Setup programs" [→ 205].

1.4 Other valid documents

Your treatment center can be equipped with additional components that are described in separate instructions for use. The instructions as well as all warning and safety notices they contain must also be followed.

There is a separate set of instructions for use for each of the following components:

- Treatment instruments
- Satalec Acteon curing light Mini L.E.D.
- LEDview Plus operating light
- 22" monitor DC model 2017
- Acquisition system CEREC AI
- Heliodent Plus X-ray tube unit
- Hugo, Theo, Carl and Paul dental working stools

The document "Installation Requirements" is also available. It contains detailed technical specifications, dimension sheets, and information about operating the treatment center with regard to electromagnetic compatibility.

1.5 Warranty and liability

Maintenance

Maintenance must be performed at scheduled intervals to ensure the operational and functional reliability of your product and to protect the safety and health of patients, users and other persons. For more information, please refer to "Maintenance by the service engineer" [→ 294].

The owner is responsible for making sure that all maintenance activities are performed.

As manufacturers of medical electrical equipment, we can assume responsibility for the safety properties of the unit only if maintenance and repairs on the unit are performed either by us or by agencies which we have expressly authorized and if components of the unit are replaced by original spare parts in case of failure.

Exclusion of liability

In the event that the system owner fails to fulfill its obligation to perform maintenance activities or ignores error messages, Dentsply Sirona or your authorized dealer cannot assume any liability for any damage thus incurred.

1.6 Intended use

This dental treatment center is intended for use on humans in the area of dentistry and may only be used by trained dental professionals.

Contraindications for the use of the treatment center, if any, are listed in the individual chapters, e.g. Treatment instruments.

This unit is not intended for operation in areas subject to explosion hazards.

This unit is permanently installed. Operation is not permitted in mobile vehicles.

Intended use also includes compliance with these operating instructions.

1.7 Obligation to notify authorities

In the European Union, the operator or user must report all serious events related to the product to the competent authority of the Member State in which he or she is established.

1.8 Formats and symbols used

The formats and symbols used in this document have the following meaning:

✓ Prerequisite 1. First action step 2. Second action step or ➤ Alternative action ↔ Result ➤ Individual action step	Requests you to do something.
See "Formats and symbols used [→ 14]"	Identifies a reference to another text passage and specifies its page number.
• List	Designates a list.
"Command / menu item"	Indicates commands / menu items or quotations.

2 Safety information

2.1 Identification of the danger levels

To prevent personal injury and material damage, please observe the warning and safety information provided in these instructions for use. Such information is highlighted as follows:

DANGER

An imminent danger that could result in serious bodily injury or death.

WARNING

A possibly dangerous situation that could result in serious bodily injury or death.

CAUTION

A possibly dangerous situation that could result in slight bodily injury.

NOTE

A possibly harmful situation which could lead to damage of the product or an object in its environment.

IMPORTANT

Application instructions and other important information.

Tip: Information for simplifying work.

2.2 Information on the unit

Accompanying documents



This symbol can be found next to the rating plate on the unit.

Meaning: Observe the Operating Instructions when operating the unit.

This symbol can be found on the rating plate on the unit.

Meaning: The accompanying documents are available on the manufacturer's homepage.

Electrostatic discharge (ESD)



Connector pins or sockets bearing ESD warning labels must not be touched or interconnected without ESD protective measures. See also "Electrostatic discharge" [→ 20] and "Electromagnetic compatibility" [→ 19].

2.3 On-site installation

The on-site installation must have been performed according to our requirements. The details are described in the document "Installation Requirements".

2.4 Installation of the treatment center

Installation must be carried out by authorized personnel according to the installation instructions.

2.5 Media quality

The air and water supplies must meet the requirements specified in the installation requirements.

To ensure compliance with the medical and national legal requirements for water from treatment centers, the treatment center must be equipped with a disinfection system.

As the operator of the treatment center, you are generally responsible for the water quality.

The bacterial count must comply with the national regulations for drinking water and must not exceed 500 CFU/ml under any circumstances (CFU: colony forming unit).

If the bacterial count is too high, the building water system must be checked and the cause of contamination eliminated. It may be necessary to install an external system for self-sufficient water supply or reprocessing of the process water. Alternatively, the empty disinfectant tank can be used as a water container for a self-sufficient water supply.

Before installation of the treatment center, an acceptable microbiological water quality for the domestic water supply must be ensured and documented in the form of the bacterial count. Sampling and bacterial counts should be performed by a competent laboratory.

Test the water quality from the treatment center at regular intervals and after it has not been used for >1 week, see "Microbiological water test" [→ 220]. Please contact your specialized dealer or your dental association for the respective national requirements and measures.

Highly immunosuppressed patients or patients with specific pulmonary diseases should not come in contact with the water of the treatment unit. The use of sterile solutions is recommended.

2.6 Connection to the public drinking water system

The treatment center complies with the requirements of EN 1717 (free discharge with an isolation distance ≥ 20 mm) and the DVGW German Gas and Water Association). It is intrinsically safe according to the W540 worksheet and thus also complies with W270 and KTW (Guideline on the use of plastics in contact with drinking water). It can be connected directly to the public drinking water system.



The treatment center has the "DVGW" label next to the rating plate.

Please always adhere to the national requirements with regard to connecting treatment centers to the public drinking water supply.

2.7 Maintenance and repair

Authorized technical personnel and spare parts

As manufacturers of dental medical units and in the interest of the operational safety of your system, we stress the importance of having maintenance and repair of this unit performed only by ourselves or by agencies expressly authorized by us. Furthermore, faulty components must always be replaced with original spare parts.

We suggest that you request a certificate showing the nature and extent of the work performed from those who carry out such work; it must contain any changes in rated parameters or working ranges (if applicable), as well as the date, the name of the company and a signature.

Maintenance intervals

Despite the outstanding quality of your treatment center and regular care by the practice team, in the interest of operational safety, it is essential to have preventive maintenance performed at scheduled intervals.

In order to ensure the operational safety and reliability of your treatment center and to avoid damage due to natural wear, as the system owner you must have your system checked regularly by an authorized service technician from your dental depot. Furthermore, safety checks must be performed. Please contact your dental depot to obtain a maintenance offer. For more information, please refer to "Maintenance by the service engineer" [-> 294].

2.8 Trouble-free operation

This unit may only be used in proper working condition. If trouble-free operation cannot be ensured, e.g., due to malfunctions, noticeable or different noises, or damage, the unit must be taken out of service, checked by authorized technicians for malfunctions and, if necessary, repaired or replaced.

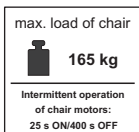
2.9 Vacuum system

The suction removal of aluminum and other metal oxides from blasting devices via the amalgam separator and the automatic separator installed in the treatment center is prohibited! This would result in extreme wear and clogging of the vacuum and drain lines.

A separate vacuum system must be used in connection with metal oxide blasting devices. Treatment centers equipped with a central standard wet suction are generally suitable for suction removal of the above material. However, make sure to observe the instructions provided by the manufacturer of your vacuum system.

No restrictions apply when using salt blasting devices in connection with Dentsply Sirona treatment centers. However, in such cases, make sure that the system is subsequently flushed with an adequate amount of water.

2.10 Patient chair

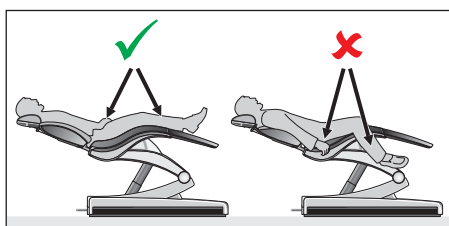


Please observe the maximum load capacity of 165 kg (363.8 lbs) for the patient chair.

The permissible maximum load capacity is indicated on a plate next to the rating plate of the treatment center.

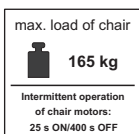
The weight distribution complies with ISO 6875. The mechanical stability is tested with a multiple safety factor acc. to IEC 60601-1.

The maximum permissible weight of accessories mounted on the patient chair is 5 kg (11 lbs)



The patient's arms and legs must be resting on the upholstery of the chair.

2.11 Intermittent operation



The motors of the treatment center and of the treatment instruments are designed for intermittent operation corresponding to the dental mode of treatment.

Drive motors for patient chair and backrest: max. 6% duty cycle (max. 25 s "ON" / 400 s "OFF")

Other motors: max. 6% duty cycle, (max. 15 s "ON" / 3 min "OFF")

2.12 Ventilation slots

Under no circumstances may the ventilation slots on the unit be covered, since otherwise the air circulation will be obstructed. This can cause the unit to overheat.

Do not spray liquids such as disinfectants into the ventilation slots. This may lead to malfunctions. Use wipe disinfection only in the vicinity of the ventilation slots.



2.13 Touchscreen

The monitor of the dentist element is equipped with touch-sensitive control technology.

The touchscreen must not be operated with pointed objects such as ball-point pens, pencils, etc. Such objects could damage or scratch its surface. Always operate the touchscreen by pressing it gently with your fingertip.

2.14 Care, cleaning, and disinfecting agents

Unsuitable care and cleaning agents or disinfectants may corrode the surface of the unit or impair its functioning.

Therefore, use only care and cleaning agents and disinfectants which have been approved by the manufacturer. For more information, see the chapter "Care, cleaning, and disinfecting agents" [→ 220].

2.15 Care and cleaning instructions for the practice team

Inappropriate care and cleaning of the device can result in failure or damage. Technical personnel must be trained in the handling of medical devices.

2.16 Modifications and extensions of the system

For reasons of product safety, this product may be operated only with original Dentsply Sirona parts or third-party parts expressly approved by Dentsply Sirona. In the event of changes which were not foreseen, Dentsply Sirona is not liable for resulting damages.

All units connected to this product must comply with the applicable standards:

- IEC 60601-1, Medical electrical equipment
- IEC 60950-1, Information technology equipment
- IEC 62368-1, Audio/video, information and communication technology equipment

2.17 Electromagnetic compatibility



Medical electrical devices are subject to special precautionary measures with regard to electromagnetic compatibility (EMC). They must be installed and operated as specified in the document "Installation Requirements".

Portable HF communication equipment, including accessories, should not be used in the vicinity of the device. Non-observance can impair the performance of the device.

Operating an HF surgical device

Treatment with HF surgical devices creates strong electromagnetic fields, which may affect other electronic devices. Do not place external HF surgical devices on the work surfaces of the treatment center and do not guide the HF handpiece cable over it. Electromagnetic interference can often be reduced by operating the external HF surgical device with a neutral electrode.

Sivision Digital and USB interface

The presence of electromagnetic interference in the vicinity of the treatment center may cause image degradation and interruptions in the data transmission via the USB interface to the PC. In such cases, repeat the image recording or other operations.

In the event of strong interference, it may be necessary to restart the PC and treatment center. Do not use the PC for controlling other devices that perform essential tasks.

Wireless foot control

The wireless foot control may interfere with other devices in the same frequency band (2.4 GHz) or receive interfering signals from them. The safe condition of the treatment center is guaranteed even if the wireless transmission is compromised.

2.18 Electrostatic discharge

Protective measures

Electrostatic discharge (abbreviated: ESD – ElectroStatic Discharge)

Electrostatic discharge from people can damage electronic components when the components are touched. Damaged components usually have to be replaced. Repairs must be performed by qualified personnel.

Measures to protect against ESD include:

- Procedures to avoid electrostatic charging via
 - air conditioning
 - air humidification
 - conductive floor coverings
 - non-synthetic clothing
- Discharging the electrostatic charges from your own body through contact with
 - a metallic unit casing
 - a larger metallic object
 - any other metal part grounded with the protective earth
- Wearing an antistatic band that creates a connection between the body and a protective ground wire.

Areas at risk are indicated on the unit with the ESD warning label:

We recommend that all persons working with this system are made aware of the significance of the ESD warning label. A training course should also be held to inform users about the physics of electrostatic charges.

Physics of electrostatic charges

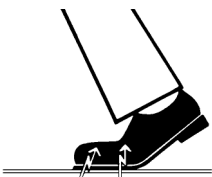
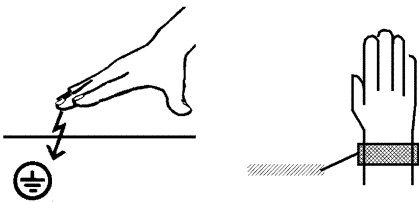
An electrostatic discharge requires prior electrostatic charging.

There is a danger of electrostatic charges building up whenever two bodies rub against each other, e.g. when:

- walking (soles of shoes against the floor) or
- moving (chair casters against floor).

The amount of charge depends on several factors: The charge is:

- higher at low air humidity than at high air humidity, and
- higher with synthetic materials than with natural materials (clothing, floor coverings).



The following rule of thumb can be applied to assess the transient voltages resulting from an electrostatic discharge.

An electrostatic discharge is:

- perceptible at 3,000 V or higher
- audible at 5,000 V or higher (cracking, crackling)
- visible at 10,000 V or higher (arc-over)

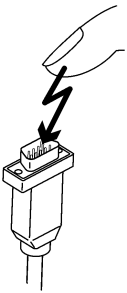
The transient currents resulting from these discharges have a magnitude of over 10 amps. They are not hazardous for humans because they last for only several nanoseconds.

Tip: 1 nanosecond= 1/1,000,000,000 second= 1 billionth of a second

Voltage differentials exceeding 30,000 volts per centimeter may lead to a charge transfer (electrostatic discharge, lightning, spark-over).

Integrated circuits (logical circuits and microprocessors) are used in order to implement a wide variety of functions in a device. The circuits must be miniaturized to a very high degree in order to include as many functions as possible on these chips. This leads to structure thicknesses as low as a few ten thousandths of a millimeter. Integrated circuits that are connected to wires leading externally are therefore particularly at risk from electrostatic discharge.

Even voltages that are imperceptible to the user can cause breakdown of the structures, thus leading to a discharge current that melts the chip in the affected areas. Damage to individual integrated circuits may cause malfunction or failure of the unit.



2.19 Dismantling/Installation

When dismantling and reinstalling the unit, proceed according to the installation instructions for new installation in order to guarantee its functioning, stability and safety.

2.20 Operating environment

The treatment center is not suitable for use in the presence of anesthetics that are flammable when in contact with air, oxygen or nitrous oxide (laughing gas).

3 Unit description

3.1 Standards/Approvals

The Teneo treatment center complies with the following standards:

- IEC 60601-1 (electrical, mechanical, and software safety)
- IEC 60601-1-2 (electromagnetic compatibility)
- IEC 60601-1-6 / IEC 62366 (usability)
- IEC 62304 (software process)
- IEC 60601-2-2 (HF surgery)
- ISO 6875 (patient chair)
- ISO 7494-1 (dental treatment units)
- ISO 7494-2 (dental treatment units, water and air supply)
- ISO 9680 (operating light)
- ISO 11143 (amalgam separator), see also below (provided amalgam separator option is available)
- EN 1717 (connection to the drinking water system), see also below and chapter "Connection to the public drinking water supply" [→ 16]

Original language of the present document: German



This product bears the CE marking in accordance with the provisions of Council Directive 93/42/EEC of June 14, 1993 concerning medical devices.

The treatment center complies with the requirements of the RoHS Directive 2011/65/EU.



The treatment center meets the requirements of the Canadian Standards Association (CSA) according to CAN/CSA-C22.2 No. 60601-1 and AAMI/ANSI ES 60601-1.



The amalgam separator achieves a separation efficiency of > 95%. The unit thus fulfills the requirements of ISO 11143.

Separating procedure type 1: Centrifuge system

The amalgam separator is approved by the German Institute for Building Technology (DIBt).



The treatment center complies with the technical regulations and requirements on safety and hygiene for connection to the public drinking water supply. The unit is certified according to the requirements of the German Technical and Scientific Association for Gas and Water (DVGW). It is intrinsically safe in accordance with worksheet W540. The unit thus also meets the requirements of standard EN 1717; see also the chapter entitled "Connection to the public drinking water system" [→ 16].



This unit meets the requirements of BELGAQUA and may therefore be connected to the public drinking water supply in Belgium.



This unit meets the requirements of ATS and may therefore be connected to the public drinking water supply in Australia.



The wireless modules in the wireless foot control and in the treatment center meet the requirements of the RED Directive 2014/53/EU.

Standards:

- EN 60950-1, EN 62311
- EN 301489-1, EN 301489-17, EN 300328



The modules meet the requirements of the Federal Communications Commission (Part 15 of the FCC Rules).



FCC ID: RFRMS

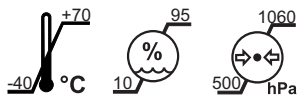
Industry Canada

The modules meet the requirements of Industry Canada (RSS210).

IC: 4957A-MS

3.2 Technical data

Model designation:	Teneo
Power connection:	100 – 230 V AC \pm 10% 50/60 Hz
Rated current:	4.8 A at 230 V 9.6 A at 115 V 11 A at 100 V also max. 6 A for external devices
Type of ground connection:	TN-C-S system or TN-S system (acc. to IEC 60364-1)
Overvoltage category:	2 acc. to IEC 60664-1
Average power consumption (for dimensioning an air conditioning system):	0.35 kW
Power consumption in the Standby mode:	3 W (without internal mini PC)
Main building fuse:	Type B automatic circuit breaker 100 - 115 VAC: 20 A medium-blow 220 – 240 V AC: 16 A medium-blow
Protection class:	Class I equipment
Device class in accordance with Directive 93/42/EEC:	Class IIb equipment
Degree of protection against electrical shock:	 Type B applied parts Except for the Sirotom electrosurgical handpiece and the SiroCam AF+ intraoral camera. These are:
	 Type BF applied parts
Degree of protection against ingress of water:	Ordinary equipment (without protection against ingress of water) The foot control meets the IP X1 drip-proof standard.
Mode of operation:	Continuous operation with intermittent loading corresponding to the dental mode of working. [→ 18] Drive motors for patient chair and backrest: max. 25s on and 400s off Other motors: max. 15s on and 3min off Permanently connected unit. Operation is not permitted in mobile vehicles.

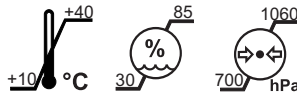


Transport and storage conditions:

Temperature: -40°C – +70°C
(-40°F – 158°F)

Relative humidity: 10% – 95%

Air pressure: 500 hPa – 1060 hPa



Operating conditions:

Ambient temperature: 10°C – 40°C
(50°F – 104°F)

Relative humidity: 30% – 85%
without condensation

Air pressure: 700 hPa – 1060 hPa

Installation location:

≤ 3000 m above sea level

This treatment center is not suitable for operation in areas subject to explosion hazards.

Pollution degree:

2 acc. to IEC 60664-1

Tests/Approvals:

See "Standards/Approvals" [→ 22].

Date of manufacture:



20yy-mm-dd

(on the rating plate)

USB port:

corresponds to USB 2.0 standard

Foot switch wireless interface

Model designation: BlueMod+S

Frequency: 2.4 GHz – 2,480 GHz

Transmitting power: < 2 mW (short-range device)

Modulation type: GFSK

Range: approx. 10 m

Approval: See "Standards/Approvals" [→ 22].

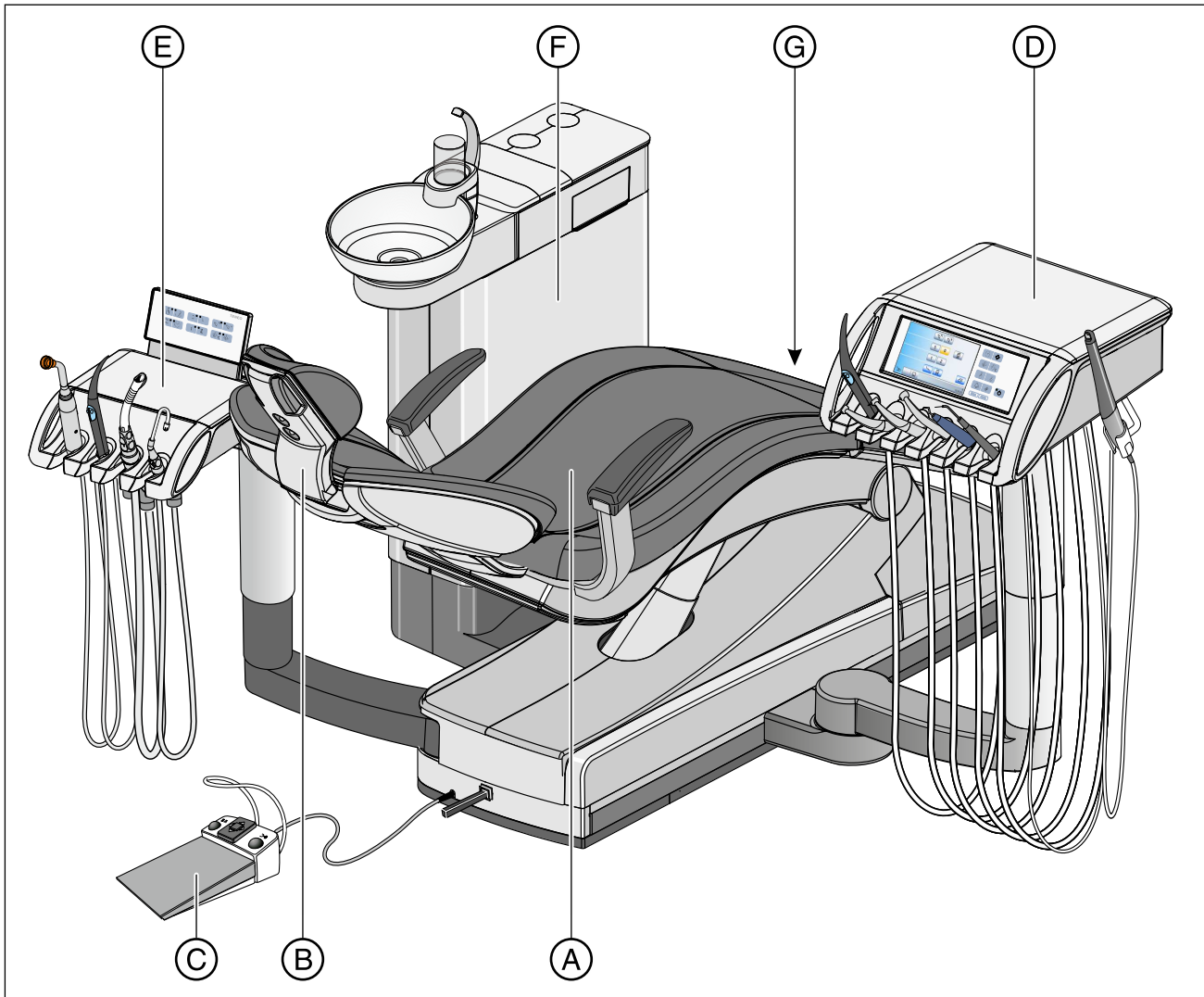
IMPORTANT

Minimum requirements for the PC

See document "Installation instructions and system requirements for PC configuration," (REF 61 94 075) Sivision Digital.

3.3 System overview

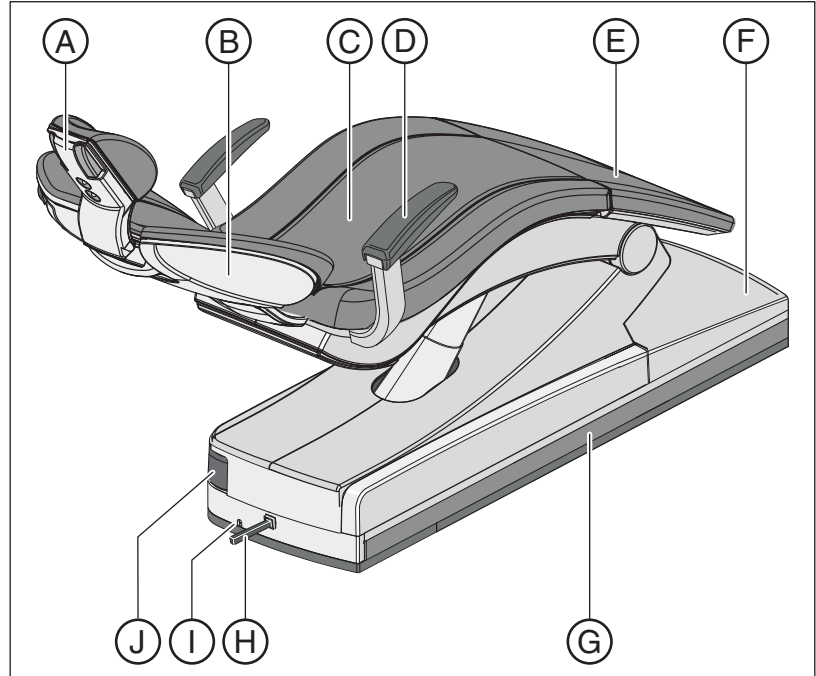
The treatment center comprises the following main components:



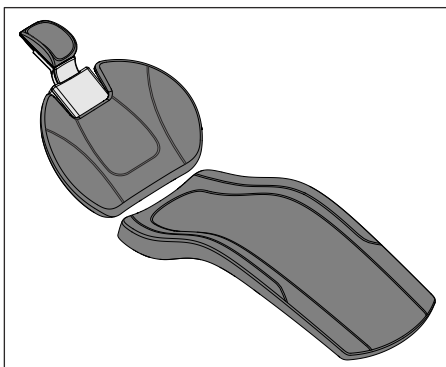
A	Patient chair [→ 27]
B	Motor-driven headrest [→ 28]
C	Foot control [→ 29] (with cable or wireless link)
D	Dentist element [→ 30]
E	Assistant element [→ 35]
F	Water unit [→ 38]
G	External device connection [→ 40] and power switch [→ 42]

3.4 Patient chair

The patient chair features a variety of motor adjustment options to optimally adapt the patient's position to the given treatment.



A	Motor-driven headrest
B	Backrest
C	Seat
D	Armrest
E	Footrest
F	Chair base
G	Travel track for dentist element
H	4-way foot switch
I	Foot control cable port
J	Rotary joint for assistant element

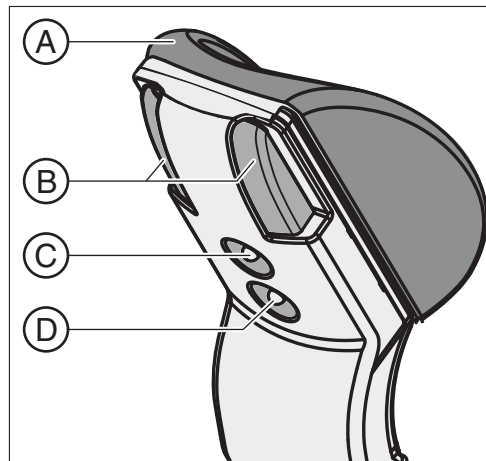


The patient chair can be equipped with lounge upholstery which offers enhanced comfort when lying down and has double-stitched seams. The lounge upholstery does not have a footrest. The entire reclining surface is upholstered.

3.5 Motor-driven headrest

The headrest allows for the following adjustment options:

- Motor-driven extension/retraction to adapt to the patient's stature
- Motor-driven tilting for maxillary/mandibular treatment
- Manual tilting via quick mechanical adjustment
- Shifting/rotation of the head support via the magnetic holder



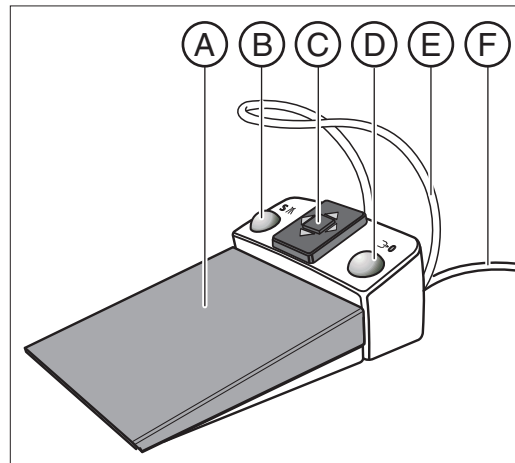
A	Removable head pad with magnetic holder
B	Quick mechanical adjustment of headrest tilt
C	Upper 4-way switch for headrest functions
D	Lower 4-way switch for chair functions

With Sidexis 4, the last set height of the motorized headrest can be saved and then automatically reset when the patient is logged in again.

For details, see "Adjusting the motor-driven headrest" [-> 62].

3.6 Foot control

The foot control enables hand-free control of the treatment instruments. Via the integrated cursor control, virtually all functions of the treatment center can be controlled via the foot control as an alternative to hand control.

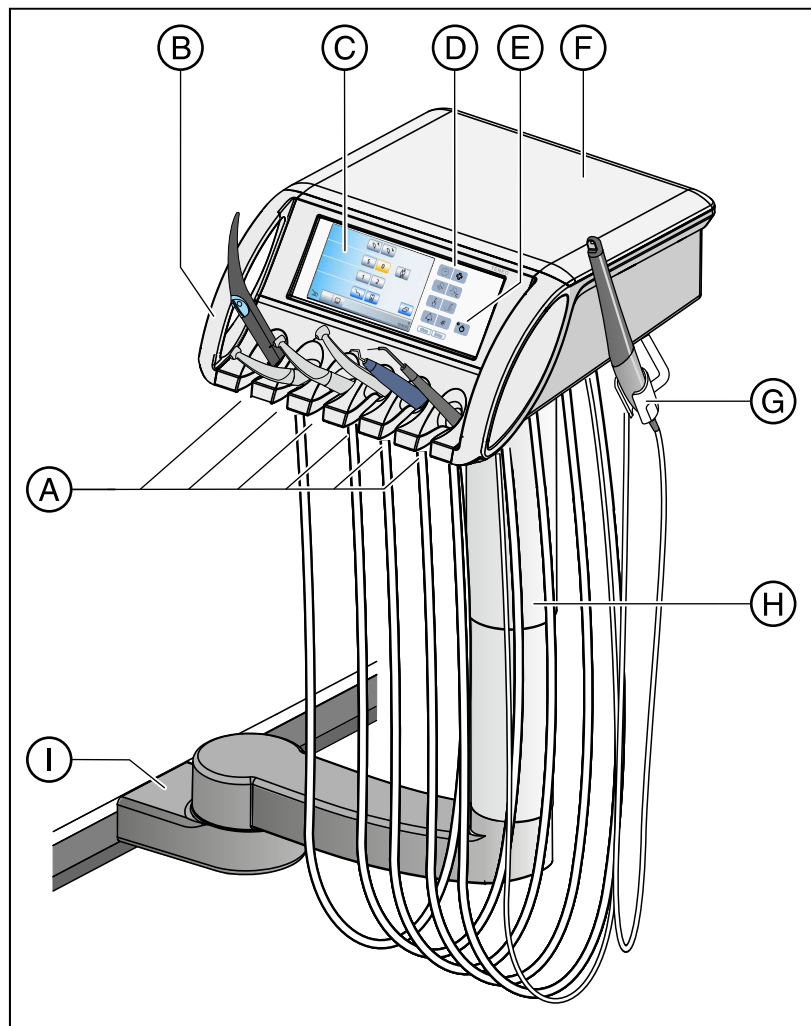


A	Foot pedal as speed foot control or direct starter
B	Left button (program key S or spray)
C	4-way foot control plate for cursor control
D	Right button (program key 0 or chip blower)
E	Positioning bar
F	Connecting cable

The foot control is also available with wireless transmission. The connecting cable has been omitted for the wireless foot control. The power supply is provided by a battery, see "Changing the battery of the wireless foot control" [→ 291].

3.7 Dentist element

All functions of the treatment center can be controlled via the EasyTouch control panel on the dentist element. The dentist element is moved via a motor-driven travel track.



A	Removable instrument holder (max. 6 instruments)
B	Removable handles (left/right)
C	Touchscreen for display and operation
D	Fixed keys
E	Standby switch
F	Skid-proof silicone mat
G	Additional holder for intraoral camera
H	Support arm, height-adjustable
I	Slide of motor-driven sliding track

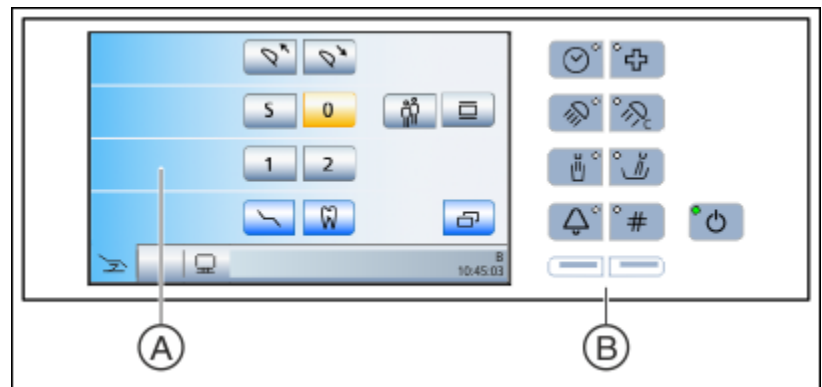
3.7.1 Instrument positions

The following instrument positions are available:

Holder 1	Holder 2	Holder 3	Holder 4	Holder 5	Holder 6	Additional holder
Multifunctional syringe Sprayvit M	Motor: • BL • BL ISO C • BL Implant	Motor: • BL • BL ISO C • BL Implant	Motor: • BL • BL ISO C • BL Implant	Motors • BL • BL ISO C • BL Implant	SiroSonic TL ¹ scaler	SiroCam AF+ ¹ intraoral camera
	Turbine	Turbine	Turbine	Turbine	Sirotom HF electrosurgical handpiece	
				SiroSonic TL ¹ scaler	SiroCam AF+ ¹ intraoral camera	

¹ A maximum of one SiroSonic TL scaler and one intraoral camera can be connected.

3.7.2 EasyTouch user interface



A	Touchscreen (pressure-sensitive user interface)
B	Fixed keys (membrane keyboard)

3.7.3 Touchscreen

The touchscreen displays virtual function keys according to the program selected. A list of all function keys is provided in the Appendix of this document, see "Overview of all function keys" [→ 304].

Some programs are divided into main programs and sub-screens. The main programs are briefly introduced below:

Start program

The Start program can be displayed in the following operating modes: *Simple Start program*, *Advanced Start program* or *EasyMode Start program*. For further details on the operating modes, see "Operating modes of the Start program" [→ 46].



Simple Start program (left), Advanced Start program (center), EasyMode Start program (right)

Instrument program

The *Simple Start program* and *Advanced Start program* operating modes display the instrument program for the removed instrument. The instrument programs can be displayed either with the fixed quick adjustment keys, programmable quick adjustment keys, or via the function levels. For details, see "Quick setting keys and function levels." [→ 82]



Motor screen with fixed quick setting keys (left), programmable quick setting keys (center) and function levels (right)

Sivision program

The Sivision program enables certain computer programs running on the PC to be controlled directly from the treatment center. For details, see "Operation with a PC" [→ 198].



Sivision program for Sidexis 4 (left) und Sidexis XG (right)

3.7.4 Fixed keys on the dentist element

For a more detailed description of the fixed key functions, see "Fixed keys on the dentist element" [→ 77].



Standby switch

Switches the treatment center on/off.

To switch off the treatment center, press and hold the key until an acoustic signal sounds. Then release the key.

IMPORTANT

Power switch

The treatment center also features a power switch on the base of the chair that separates the treatment center from the power supply, see "Switching the treatment center on/off" [→ 42].



Timer function

Opens the *Timer Function* screen by activating one of the six preset timers. The elapsed time is displayed in the status bar of the touchscreen.

If the *Timer function* key is pressed (> 2 s), the settings dialog appears.



Shock positioning

Immediately moves the patient chair to a position for shock positioning of the patient.



Operating light

Switches the operating light on/off.

If the *Operating light* key is pressed for > 2 s, the settings screen appears.



Composite function

Switches the composite function for the operating light on/off.

This function can delay the curing of composite materials.



Tumbler filling

Starts or stops the tumbler filling function.

When the *Tumbler filling* key is pressed (> 2 s), the filling time and water heating settings screen appears.



Flushing

Starts or stops cuspidor flushing.

When the *Flushing* key is pressed (> 2 s), the *Flushing Time* settings screen appears.



Freely selectable function

e.g., call key

Freely available relay 230 VAC, 6 A
(connected by the service engineer).

This function can be preset as a button or as a switch in the Setup program.



Freely selectable function

Freely available relay 230 VAC, 6 A
(connected by the service engineer).

This function can be preset as a button or as a switch in the Setup program.



Clean key

Pressing this key deactivates the complete user interface of the dentist element with the exception of the standby switch. Pressing the key again > 3 s or stepping on the foot control pedal reactivates the user interface.

This is used to make sure that no unwanted functions can be accidentally triggered while cleaning the surface.

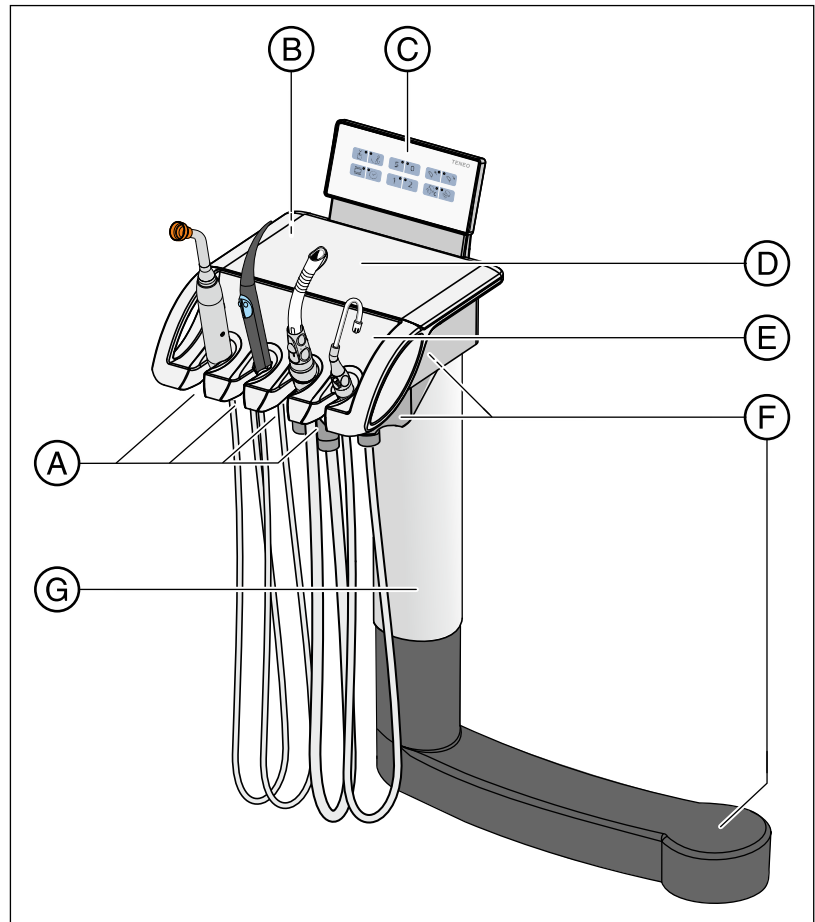


Setup key

Used for individual configuration of the treatment center by the user and for reading out messages by the service technician, see "Configuration of the treatment center (Setup)" [→ 205].

3.8 Assistant element

The functional scope of the assistant element is adapted to the dental assistant's field of activity. It can, however, also be positioned so as to enable unassisted treatment by the dentist.



A	Holders 1 to 4 (from left to right) for instruments
B	Position of the hydrocolloid connection (concealed, under the assistant element)
C	User interface
D	Skid-proof silicone mat
E	Removable instrument holder
F	3 rotary joints for flexible positioning (partially concealed)
G	Support arm, height adjustable by service engineer

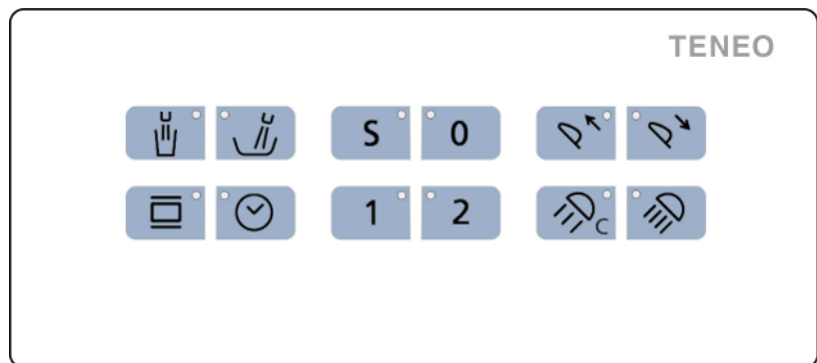
3.8.1 Instrument positions

The following instrument positions are available:

Holder 1	Holder 2	Holder 3	Holder 4
Mini L.E.D. curing light	Multifunctional syringe Sprayvit M	Spray aspirator	Saliva ejector
Surgical suction			

If the assistant element is equipped with a hydrocolloid connection, the surgical suction device cannot be installed.

3.8.2 User interface



3.8.3 Fixed keys on the assistant element

For a more detailed description of the fixed key functions, see "Fixed keys on the assistant element" [-> 166].



Tumbler filling

On/Off



Flushing the cuspidor

On/Off



X-ray image viewer

On/Off

Also white screen on Sivation monitor for Sivation Digital or, if set accordingly, activation of the bell or hash (#) relay



Timer function

Triggers the time lapse of the first timer. The timer is set on the dentist element.



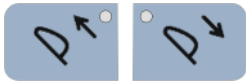
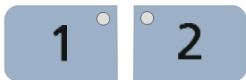
Chair program S

Mouth rinsing position with last-position memory function (programmable)



Chair program 0

Entry/exit position (programmable)



Chair programs 1 and 2

(programmable)

Headrest

Moves the motor-driven headrest out/in for size adjustment.

Composite function

Switches the composite function for the operating light on/off.

The composite function delays the curing of composite materials.

Operating light

On/Off

3.9 Water unit

The water unit is equipped with a disinfection system. In normal operation, this will automatically inoculate the water that comes in contact with the patient (also called treatment water) with an agent to disinfect the water paths. This leads to a decrease in bacterial growth and to the reduction of the bacteria in the water. Furthermore, the disinfection system can also be used to disinfect the water paths, see "Interactive sanitizing of the treatment center" [→ 278].

WARNING

Microorganisms can multiply in the water.

These microorganisms can increase the risk of damage to one's health.

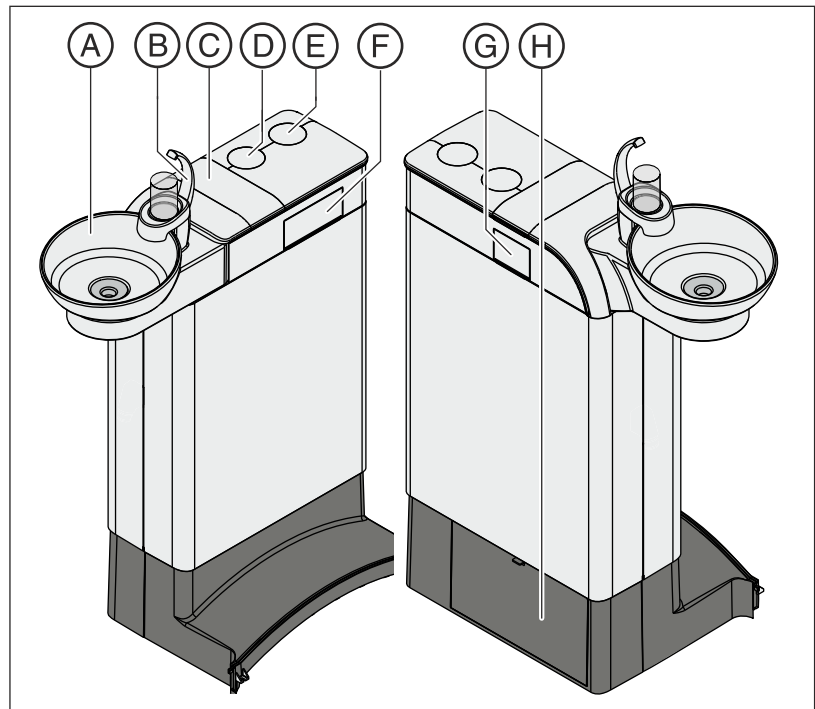
- Never operate the treatment center without the disinfectant for the water paths.

If the water unit is equipped with a disinfection system, it can be switched to operation with a self-sufficient water supply. After switching, distilled water must be mixed with the disinfectant for the water paths in a ratio of 100:1 (1 liter of water, 10 ml of the agent) and filled into the storage tank of the water unit, see "Self-sufficient water supply" [→ 179].

The water unit can be optionally equipped with an automatic separator (separation of suction air and waste water) combined with an amalgam separator/sediment container or with a standard wet suction.

The top cover of the water unit has integrated cleaning adapters for water-carrying instruments and suction hoses. The dentist element and assistant element instruments are plugged in with these adapters on both sides of the water unit. The openings are covered with flaps. The adapters are needed for sanitizing the treatment center, automatically purging the water paths (AutoPurge), and cleaning the suction hoses.

The suction system can be cleaned by pumping water into a tank behind the receptacle of the suction hoses and extracting it from there. A cleaning agent is automatically added to the water if the dental treatment center is equipped with the chemical suction hose cleaning option. For more information, see "Cleaning the suction hoses" [→ 257].



A	Swiveling cuspidor
B	Tumbler filler (depicted) or tumbler filler with automatic sensor control for automatic filling of the tumbler
C	Cover of the storage tank for the disinfectant for the water paths or for the self-sufficient water supply
D	Mount for support arm of operating light and monitor
E	Tray support arm mount
F	Mount for water-carrying instruments of the dentist element for conducting sanitization and autopurge
G	Holder for the Sprayvit M of the assistant element and suction hoses used for suction hose cleaning
H	Maintenance flap for accessing the cleaning agent tank for chemical suction hose cleaning, the flushing valve, the potentiometer of the automatic sensor control, the amalgam separator or sediment container, or filter insert for standard wet suction

3.10 External device connection

External medical additional devices can be connected to the external device connection. They must comply with the requirements of IEC 60601-1.

NOTE

While adding water to the disinfectant, additional devices are exposed to a hydrogen peroxide concentration (H₂O₂) of 0.1‰-0.2‰ at the external device connection.

If the additional devices are not suitable for the specified hydrogen peroxide concentration, they may be damaged.

- > Before connecting any additional devices, check to make sure that they can be exposed to the above hydrogen peroxide concentration. Contact the manufacturer of the relevant additional device, if necessary.
- > Prior to sanitation, additional devices must be unplugged from the external device connection (water connection), see "Sanitizing the treatment center" [→ 278].

IMPORTANT

DVGW approval

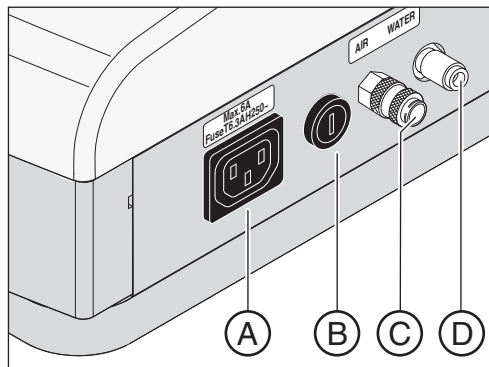
Due to the design of the treatment center according to EN 1717 (DVGW requirements), the connected additional devices also fulfill the requirements of the above standards, see "Standards and Approvals" [→ 22].

IMPORTANT

Self-contained power supply

The IEC socket remains live when the power switch is turned off. The connected external devices therefore must have their own power switch.

However, the air and water connections are switched off.



A	IEC outlet socket with power supply (max. 6 A)
B	Fuse for IEC outlet socket (6.3 A slow-blow)
C	Quick coupling for air
D	Quick coupling for water

	Print	Flow rate
Water	2.2 ± 0.2 bar	max. 300 ml/min
Air	4.4 ± 0.5 bar	max. 70 NI/min

IMPORTANT

The removal of media at the external device connection can reduce the performance of integrated consumers, e.g., the filling quantity of the tumbler or the highspeed handpiece.

4 Operation

4.1 Starting up the treatment center

4.1.1 Initial startup

Sanitizing the water paths

Sanitization must be performed prior to initial startup of your treatment center.

For sanitizing, the water-carrying lines are filled with the undiluted disinfectant for the water paths in order to reduce the bacterial load in the water paths.

If the service engineer skipped the sanitization procedure after installing your treatment center based on an agreement with you or sanitization has not been performed for more than one week, please conduct sanitization yourself. Refer to "Interactively guided sanitization of the treatment center" [→ 278] for more information.

Sanitization takes at least 24 hours.

Care and disinfection

Care, disinfect and sterilize the treatment center in accordance with the instructions in the section "Care, cleaning and maintenance by the practice team" [→ 218] prior to initial startup and after longer periods of disuse.

4.1.2 Switching the treatment center on/off

The treatment center is equipped with a standby system for enhanced convenience when switching it on and off at the dentist element.

The treatment center therefore has a power switch at the base of the chair and a standby switch at the dentist element.

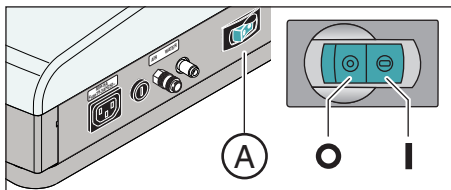
4.1.2.1 Power switch

The power switch connects the treatment center to the power supply. During longer periods of disuse, the treatment center should be disconnected from the power supply. It then no longer consumes any energy.

The power switch contains an automatic device fuse.

Connecting the treatment center to the power supply

- ✓ The treatment center is installed by authorized technical personnel according to the "Installation Instructions".
- Turn on power switch **A**.
- ⚡ The treatment center is connected to the power supply.



Disconnecting the treatment center from the power supply

- ✓ The treatment center is shut down, see "Switching the treatment center off" (below).
- > Turn power switch **A** off.
- ✎ The treatment center is disconnected from the power supply.

4.1.2.2 Standby switch

Switching the treatment center on

The standby switch switches the treatment center from standby mode to operational readiness.

Following switch-on, the operating system is booted and an automatic self-test is performed.

- ✓ The power switch is turned on.
- > Press the standby switch on the dentist element.
- ✎ The LED of the standby switch lights up on the dentist element.
- ✎ The treatment center powers up and establishes operational readiness.

If the next maintenance call is due in less than 42 days or the maintenance deadline has already been exceeded, a message appears on the touchscreen. For more information, please refer to "Inspection and maintenance" [→ 294].

Switching the treatment center to the Standby mode

At the end of the working day, the treatment center should be switched off via the standby switch on the dentist element to reduce energy consumption and for safety reasons. Air and water supply and all electronic components are switched by activating the standby switch. Only the Standby circuit is still supplied with voltage. If no other devices are operating using the external device connection and the treatment center is not equipped with an internal PC, the power consumption in Standby mode is approximately 3 W.

- > Press the standby switch on the dentist element until a signal tone is heard. Then release the key.
- ✎ The treatment center will power down and switch into Standby mode.
- ✎ The LED of the standby switch goes out.



4.1.3 Selecting a user profile

The treatment center allows up to six user profiles to be managed. This allows multiple users to operate the treatment center without losing their own individual settings for treatment and operation.

The following is stored in the user profiles:

- Programming of chair programs, see "Programming chair programs and shock positioning" [→ 71]
- Configurations in the Setup programs, see "Configuration of the treatment center (Setup)" [→ 205]
- Settings in the Instrument programs, see "Saving the instrument settings" [→ 84]
- Configuration of the Sivation program for PC control. The configuration is saved in the PC application Siucom Plus installed on the PC.

When the user profile is selected, the preset configurations and settings become available.

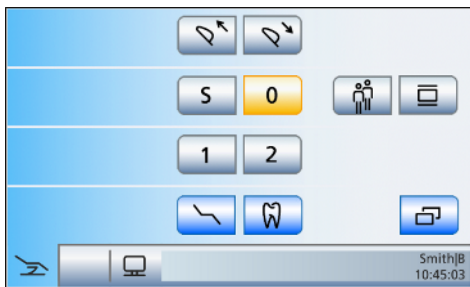
If any of the user profiles are not required, their number can be limited, see "Preselect the number of user profiles." [→ 209]



The user profiles **A** are distinguished with the letters A to F. The active user profile, in this case B, is displayed in the status bar on the touchscreen. If only one user profile is preselected, no display is shown. The user profile used last is automatically loaded when the treatment center is switched on.



In Sidexis 4, a user code can be displayed before the initials of the user profile indicated. This requires that the Sidexis 4 and dental unit plugins are installed on the PC. A user profile can be assigned to the treatment unit using the plugin software. The code can be selected freely. For details, please see the "Dental Unit Plugins" user manual.



- ✓ The Start program is displayed on the touchscreen in the *Simple Start program* (shown here), *Advanced Start program* or *EasyMode Start program* mode, see "Start program operating mode" [→ 46].



- Select the desired user profile. Touch the *User profile* key as often as necessary.
 - ↳ The user profile that is displayed in the status bar is active.

Tip: The individual user settings can be read out by the service engineer and transferred to other Teneo treatment centers. In this case, the user profiles only have to be set once.

4.2 Operating concept of the touchscreen

4.2.1 Virtual function keys

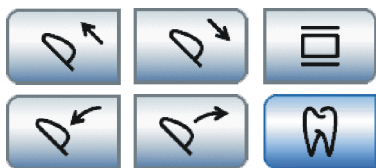
The touchscreen displays virtual function keys according to the program selected. Required functions can be activated either by touching the function keys with your finger or via the cursor with the foot switch.

Missing function keys

The adjacent illustration shows the touchscreen of a treatment center as supplied to the customer and maximally equipped.



Function keys for functions not included with the treatment center are not displayed on the touchscreen. Moreover, the touchscreen user interface may vary due to individual setup settings, see "Configuration of the treatment center (Setup)" [→ 205].



In the *Start program* this includes function keys for the following **equipment options**:

- Motor-driven headrest *
- X-ray viewer
- Treatment (endodontics and implantology)*

The keys marked with an asterisk (*) are not displayed in the *EasyMode Start program*. However, the equipment options may be available, see "Start program operating modes" [→ 46].



Furthermore, the screens may vary due to individual **setup settings**. The following configurations may influence the *Start program*, see:

- "Show/hide" chair programs 3 and 4" [→ 208]
- "Show/hide the fine adjustment key" [→ 209]
- "Preselecting the number of user profiles"
- "Show/hide key for white screen on Sivision monitor" [→ 211]

Key background color

General functions are represented by gray keys. If the corresponding function is switched on or active, the key is displayed in orange.



Keys that initiate a dialog change or lead to sub-screens and settings dialogs are displayed blue.



As long as a key remains activated, its active state is marked by a bold black border.



4.2.2 Start program operating modes

After the treatment center is switched on, the *Start program* automatically appears.

The Start program can run in the following three operating modes:

- Simple Start program
- Advanced Start program
- EasyMode Start program

In the operating mode *Simple Start program* and *Advanced Start program*, the functions of the patient chair and instruments are each shown on separate screens. In the *EasyMode Start program* operating mode, the patient chair and instrument functions that are most important for the treatment are shown together on the same screen.

You can set the operating mode that you want to work with in the treatment center setup, see "Select Start program operating mode" [→ 208]. The operating modes are described in detail below:

Simple Start program

In the *Simple Start program* operating mode, only the chair program function keys and, if present, the *Move headrest in/out* function keys are displayed on the screen. The full range of functions of the treatment center can be used in this operating mode.



Simple Start program operating mode



All other chair functions are listed separately on the *Manual Chair Adjustment* screen. This can be accessed via the *Manual Chair Adjustment* key.



Manual Chair Adjustment screen (for Simple Start program mode only)

Advanced Start program

In the *Advanced Start program* mode, all function keys related to operation of the patient chair are displayed together on a single screen. The full range of functions of the treatment center can also be used in this operating mode.



Advanced Start program operating mode

EasyMode Start program

The *EasyMode Start program* displays the function keys for the patient chair programs and manual chair adjustment, as well as the quick setting keys for adjusting the intensity of the instruments on the same screen. The most important function keys for the treatment are therefore always displayed on the touchscreen. It is not necessary to switch between the Start and Instrument programs. The operation of the Teneo dental treatment center is thus similar to other Dentsply Sirona treatment centers that are operated without a touchscreen.



EasyMode Start program, no instrument is removed from holder

When an instrument is removed, the *EasyMode Start program* displays the chosen speed and intensity settings on the upper left of the touchscreen. The value can be set using the quick setting keys (1%, 25%, 50%, 75%, 100%). The quick setting keys with intensity values are also displayed on the motor screen and the ultrasonic screen when the endodontics function is activated. The relevant information is displayed during the activation of a preselected coolant and for an activated counterclockwise rotation.



EasyMode Start program with instrument functions of the motor

The functional scope of the treatment center in the *EasyMode Start program* operating mode has the following limitations:

- the motor-driven headrest can only be operated via the 4-way switch
- The patient chair can only be tilted via the *ErgoMotion* function; the *OrthoMotion* function is not available
- The function *Patient Chair with Fine Adjustment* is not available
- The dental unit plugin "Patient-specific chair programs" cannot be used
- The speed and intensity values of the instruments can only be set using the quick setting keys (1%, 25%, 50%, 75%, 100%); programmable quick setting keys and the function levels are not available
- the switch coolant on/off function, clockwise/counterclockwise rotation function and the boost function for the ultrasonic handpiece must be operated via foot control
- The instrument settings can only be saved with the SaveMode; the *Memory* key is shown in the sub-screen of the instrument taken
- The modulation type of the HF current (Mod 0 to 4) has to be set in the *Electrosurgery* sub-screen
- the hands-free touchscreen and fixed key operation via the 4-way foot control plate of the foot control (cursor control) is not available
- the ApexLocator can only be used for manual measurements using the file clamp in the *Start* sub-screen
- The treatment functions for implantology and endodontic treatments are not available.

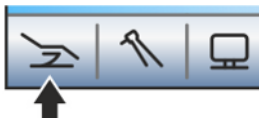
The *EasyMode Start program* is intended for users who would like to retain the familiar operating concept of other Dentsply Sirona treatment centers and who can do without the functions listed above.

Opening the Start program

After the treatment center is switched on, the *Start program* automatically appears in the selected operating mode.

If the treatment center is already in operation and the *Start program* is not displayed, proceed as follows:

- > Touch the *Start program* change key in the status bar of the touchscreen.
If the *EasyMode Start program* is set, briefly remove an instrument from the holder.
- ↳ The *Start program* is displayed in the selected operating mode.



4.2.3 Sub-screens and settings screens

Sub-screens



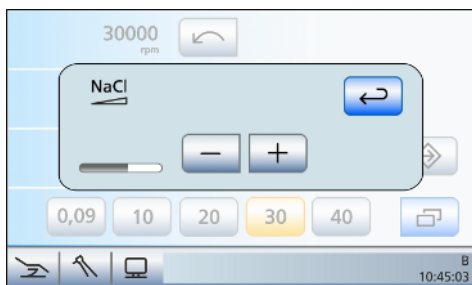
Some programs are divided into a main program and sub-screens.

The function keys for the basic functions are displayed in the main programs. The *Sub-screen* key (two rectangles) leads to further setting possibilities.



Sub-screens usually are automatically hidden after a certain period has elapsed. The *Return* key (return arrow) closes the opened sub-screen immediately.

Settings screens



In many cases, functions not only can be switched on or off, but also can be set. If a function key is pressed and held (> 2 s), the corresponding settings screen appears. This screen superimposes the current screen. The screen located in the background has a semitransparent appearance and is temporarily disabled for inputs.



Settings screens usually are automatically hidden after a certain period has elapsed. The *Return* key (return arrow) closes the opened settings screen immediately.

4.2.4 Status bar



In the operating modes *Simple/Advanced Start program*, the three program change keys at the bottom left edge of the touchscreen can be used to switch between the following main programs:

- Start program
- Instrument program
- Sivation program

The selected program is indicated in blue.



If a symbol of a program change key is hidden, the corresponding main program cannot be selected in the current operating state. It is not possible:

- To change to the Instrument program if no instrument has been removed from its holder
- To switch to the Sivation program when the PC connection is turned off or has not been configured



In the sub-screens or setting programs, all main programs are shaded gray in the status bar. Touch one of the three keys to switch from the sub-screen or setting program to a main program.



In the operating mode *EasyMode Start program*, only the *Sivation program* can be called up with the program change keys. There is no switching between the Start and Instrument program. To switch from the Sivation program to the Start program, an instrument must be briefly removed from the holder.



The status bar is at the right of the program change keys. If multiple user profiles **A** are preselected, the active user profile A to F is displayed, with the current time including seconds below.



In addition, status messages are displayed to indicate, for example, change the amalgam separator, add water sanitizing agent, charge the battery of the wireless foot control, error messages, number of days until the next maintenance call and sanitization run, or refill the cleaning agent for chemical treatment of the suction hoses.



If the treatment function is switched on, the selected treatment and the assigned bur drive are also displayed here.

4.3 Foot control

The treatment center can be operated using a wireless foot control or a foot control with a cable connection.

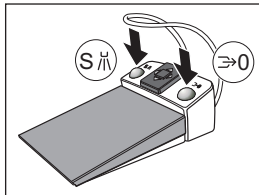
4.3.1 Wireless foot control

Technical data of the wireless module, see Foot control radio interface" [→ 25].

4.3.1.1 Setting the wireless foot control on the treatment center

The wireless foot control must be assigned to the treatment center via by registering it. This prevents malfunctions caused by neighboring wireless foot controls.

- ✓ The treatment center and wireless foot switch are ready for operation.
- ✓ All instruments are in their holders.



1. Simultaneously press and hold the left and right buttons of the foot control (> 2 s).
 - ↳ A beep sounds. The following message appears on the touch screen:
 - ↳ The dialog box closes automatically after a certain period of time if no key is activated. The wireless foot control will not be registered.
2. Confirm that this wireless foot control is to be used on the treatment center by pressing the *OK* key. The registration process can be interrupted with the *Esc* key.
 - ↳ The message is hidden. The wireless foot control is assigned to the treatment center.



4.3.1.2 Battery voltage message



The wireless foot control is powered by a battery. An almost empty battery is detected by the system and displayed in the status bar. In this case, the battery should be replaced within a week.

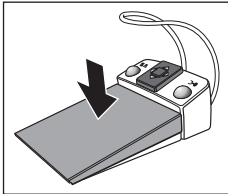
When the battery is completely empty, an error code is output, see "Error messages" [→ 296]. The symbol of the wireless foot control is now displayed flashing. Replace the battery as soon as possible to prevent system failure.

The battery can be changed by the user, see "Changing the battery of the wireless foot control" [→ 291].

4.3.2 Operating the foot control

The foot control operating elements are assigned different functions, depending on whether the instruments are all in place or an instrument is removed from its holder.

Foot pedal

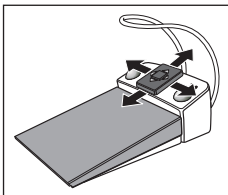


- ✓ All instruments are **in place**.
- Step on the foot pedal.
 - ↪ The dentist element moves toward the operator as long as the foot control pedal is actuated.
- ✓ An instrument is **removed**.
- Step on the foot pedal.
 - ↪ The instrument is activated. The intensity is regulated according to the pedal movement if necessary (if the speed foot control is set, see "General instrument functions" [→ 87]). When the intraoral camera is removed from the holder, the camera image focuses and the display switches to the still or live image.

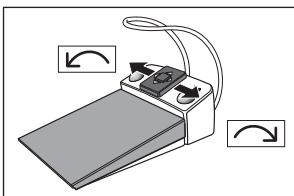
4-way foot control plate

If the cursor control is **switched on**, it is operated via the 4-way foot control plate, see "Using the cursor control" [→ 54].

If the cursor control is **switched off**, then:



- ✓ All instruments are **in place**.
- Move the 4-way foot control plate in any direction.
 - ↪ The dentist element moves toward the foot end as long as the pedal is actuated.



- ✓ An electric motor is **removed**.
- Slide the 4-way foot control plate to the right or left.
 - ↪ The clockwise/counterclockwise rotation of the electric motor is activated.

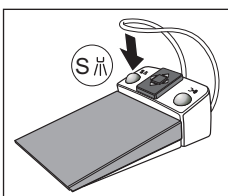
IMPORTANT

Allocation of functions during active treatment

The allocation of functions may differ when the Treatment function is active.

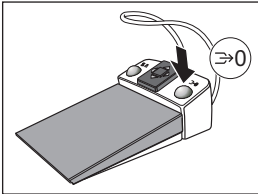
- Note the position of the orange and blue cursor, see "Using the cursor control" [→ 54].

Left button



- ✓ All instruments are **in their holders**.
- Press the left button.
 - ↪ The chair moves to mouth rinsing position S.
- ✓ An instrument (motor, high-speed handpiece, SiroSonic TL) is **removed from its holder**.
- Press the left button.

- ↪ The cooling system (spray, air, or NaCl) is switched on/off. The previous modulation type is selected for HF surgery. If the intraoral camera is removed, the video still image is saved in Sidexis; the live image is displayed in the next quadrant in SI Video.



Right button

- ✓ All instruments are **in their holders**.
- Press the right button.
 - ↪ The chair moves to entry/exit position 0.
- ✓ An instrument (motor, high-speed handpiece) is **taken from the holder**.
- Press the right button.
 - ↪ The chip blower remains switched on as long as the button is pressed. In HF surgery mode, the system selects the next modulation type; in ultrasound mode, the boost function is selected; if the intraoral camera is removed, the program switches from single to quad image in SI Video.

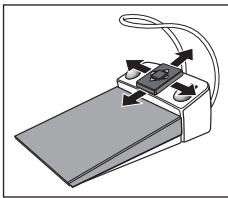
4.3.3 Using the cursor control

The cursor control cannot be used in the *EasyMode start screen* operating mode.

4.3.3.1 Functionality

Cursor control as an alternative mode of operation

The touchscreen and the fixed keys of the dentist element can also be operated hands-free via the foot control. This method of operation optimally supports hygiene, especially in connection with sterile treatment work.



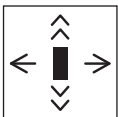
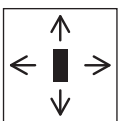
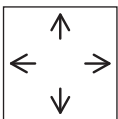
For cursor control, the foot control features a 4-way foot control plate that can be moved in four directions.

The cursor position is optically displayed on the touchscreen or on the fixed keys.

The cursor control is reserved for the Start and Instrument programs. The Sivation programs cannot be controlled via the cursor.

Cursor control setting options

Note that different settings can be made for the cursor control in the Setup program. The functions assigned to the 4-way foot control plate vary according to its setting. The adjacent symbols for setting the cursor are used in the Setup program.



- **Cursor control switched off:**
The dentist element moves away from the user when the 4-way foot control plate is pressed upward. Counterclockwise or clockwise instrument motor rotation can be selected by sliding the 4-way foot control plate to the left or right.
- **Cursor control switched on, without program change:**
The cursor can be moved along the cursor path by holding or repeating upward or downward actuation of the 4-way foot control plate.
- **Cursor control switched on, with program change:**
The cursor can be moved along the cursor path by holding or repeating upward or downward actuation of the 4-way foot control plate. If the cursor is located at the end of the cursor path, it can be toggled between the Start program and the Instrument program.

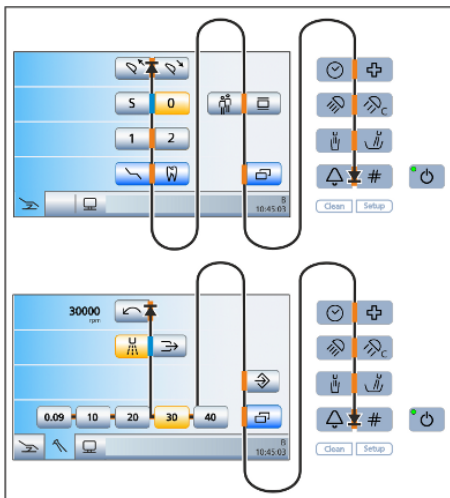
Please also note the information on "orange and blue bars," see below.

To set the cursor control to the mode you prefer, refer to "Setting the cursor control" [→ 209].

Current cursor position

If the cursor control is activated, the current position of the cursor is displayed by an orange bar located between the pairs of keys on the touchscreen or between the fixed keys on the EasyTouch control panel.





Cursor path

The cursor path runs between the pairs of keys, moving from top to bottom and from left to right, usually in multiple loops. The cursor path can be traversed between the starting and end points either in a forward or a reverse direction.

If no further cursor position is available on the touchscreen, the cursor jumps out of the touchscreen. The cursor path is then continued between the fixed keys on the EasyTouch control panel.

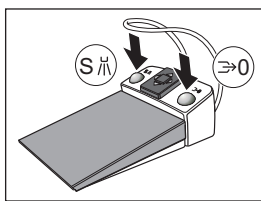
In instrument screens, all quick setting keys are selected simultaneously. This is indicated by a horizontal orange bar located behind the quick setting keys. The speed or intensity is then set by actuating the 4-way foot control plate to the left or right briefly (values on quick setting keys) or for a longer time (intermediate values), see "Operating the cursor control" [→ 55].

The *Clean* key, *Setup* routine and standby switch cannot be accessed via the cursor control.

Orange and blue bars

A blue bar indicates which functions are assigned to the left or right button of the foot switch. For example, in the start program, the chair program "rinsing position" (S) and entry/exit position (0) are assigned to the buttons, but in the instrument program spray or chip blower.

If the cursor control **without** screen change is activated, the blue bars also can be selected with the cursor. If the cursor control **with** program change is activated, the blue bars are skipped for faster navigation.



Cursor return

Once a function is activated with the cursor control, the orange cursor typically returns to the starting position of the program, for instance after switching on the X-ray viewer, the operating light, or cuspidor flushing. The cursor position does not change for functions that are operated by permanent shifting of the 4-way foot control plate, e.g., manual chair adjustment.

Chip blower key in the Instrument program

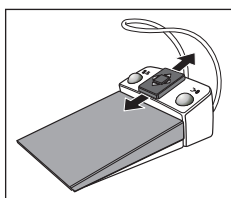
When the cursor control is activated, the motor and turbine program will display the *Chip blower* key.

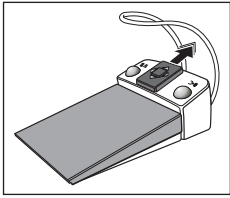


4.3.3.2 Operating the cursor control

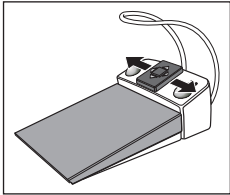
Moving the cursor

- > Briefly slide the 4-way foot control plate upward or downward.
 - ↕ The orange cursor moves forward or back one cursor position.





- Slide and hold the 4-way foot control plate up or down (auto cursor).
 - ↳ The orange cursor slowly moves from one cursor position to the next.

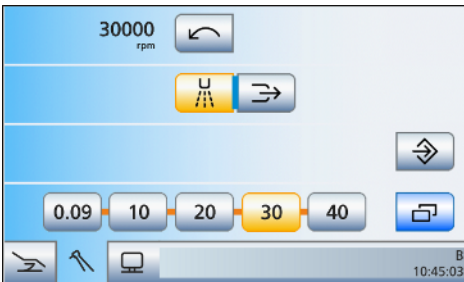


Activating a function or fixed key

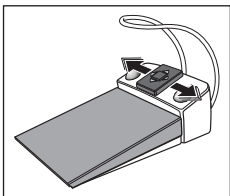
- Activate the left key: Slide the 4-way foot control plate to the left.
Activate the right key: Slide the 4-way foot control plate to the right.
 - ↳ The selected key is highlighted orange on the touchscreen (if switched on) or is displayed in gray or blue (if switched off). The LED of the selected fixed key lights up or goes out on the control panel of the dentist element.
 - ↳ The orange cursor usually returns to the starting position of the program after activation.

Activating a quick setting key and setting intermediate values

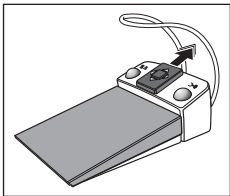
Operation of the cursor control for screens with quick setting keys is illustrated based on the example of the Motor program.



- ✓ The cursor control is switched on.
- 1. Move the cursor to the quick setting keys.
 - ↳ The quick setting keys are highlighted with an orange bar.



- 2. Setting the values of the quick setting keys: Move the 4-way foot control plate briefly to the left or right.
Setting intermediate values: Move the 4-way foot control plate to the left or right and hold this position.
 - ↳ The motor speed is displayed in the first line. If the motor is set to a value corresponding to one of the quick setting keys, it is highlighted orange.

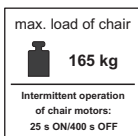
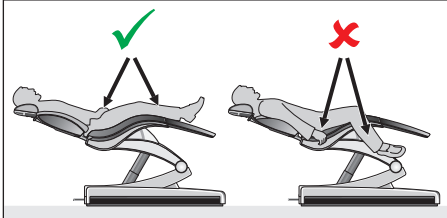


Changing programs

- ✓ Cursor control with program change is switched on.
- ✓ An instrument is removed from its holder.
- 1. Position the cursor at the starting point of the cursor path.
- 2. Move the cursor past the start position. Hold the 4-way foot control plate in the upward position.
 - ↳ The touchscreen display changes to the Start or Instrument program.

4.4 Patient chair

4.4.1 Safety instructions



⚠ CAUTION

The free space under the patient couch and up to the water unit can be decreased due to chair movements.

Parts of the patient's or user's body may be pinched or crushed.

- Do not allow any limbs to stick out in the space between the chair upholstery, armrests and chair base. Please make sure that the patient's arms and legs rest on the upholstery of the chair.
- Do not place any objects on the base of the chair.

⚠ CAUTION

The maximum load capacity of the patient chair is 165 kg (363.8 lbs) defined in ISO 6875 (tested with multiple safety according to IEC 60601-1).

If the maximum load capacity is exceeded, there is a risk of damage to the treatment chair and injury to the patient.

- Never allow any persons who weigh more than 160 kg (352.7 lbs) to sit on the patient chair. The maximum permitted load capacity is indicated on a label next to the rating plate of the treatment center.
- The maximum additional weight of accessories mounted on the patient chair is 5 kg (11 lbs).

⚠ CAUTION

Objects may protrude into the movement range of the chair.

There is a risk of crushing the patient and damaging the objects.

- Make sure that no objects such as e.g. windows, drawers or other devices protrude into the movement range of the treatment chair.

IMPORTANT

Chair interlock

As long as a treatment instrument is activated, all functions for moving the patient chair are disabled for safety reasons.

If chair movement is permanently blocked, please contact your service technician.

4.4.2 Safety stop

The treatment center is equipped with various safety stops to prevent crushing and damage. The cutoff trigger points are shown in the following illustration:



Display of triggered safety switches (all shown on one illustration)

2	Cuspidor bowl
3	Rear housing, rear lift frame, front lift frame right/left in each case. The three safety switches are jointly displayed on the touchscreen.
4	Assistant element support arm and CEREC AI camera holder
5	Manual switching strip front/rear, right/left
6	Footrest
7	Backrest
8	Armrest, right

The following occurs when one or more safety switches are triggered:

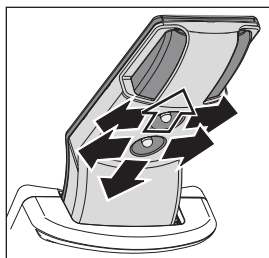
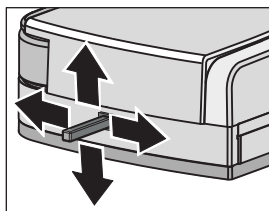
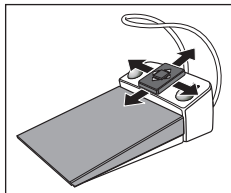
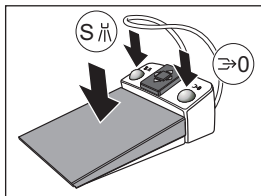
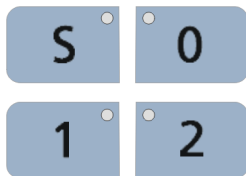
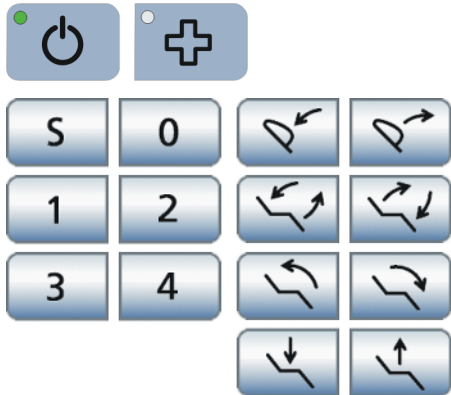
- An acoustic signal sounds (if the movement is interrupted)
- All chair movements assigned to the safety switch stop immediately
- The triggered safety switches are displayed on the touchscreen.
- A correction movement in the opposite direction is executed for approx. two seconds for movements of the patient chair (but not for movements of the assistant element or the swiveling cuspidor bowl) insofar as this clearly leads to a reduction of the hazard.

As long as a safety switch is activated, the operation of the treatment center is restricted!

If a safety switch is permanently blocked, please contact your service technician.

4.4.3 Triggering an immediate movement stop

You can stop the movement of the chair to a programmed position as follows:



- > Press the standby switch or the *Shock positioning* fixed key on the dentist element.
- > Press a key relating to the patient chair on the touchscreen or a key to tilt the motor-driven headrest.
- > Press one of the patient chair keys on the control panel of the assistant element.
- > When all instruments are in place, press the pedal or the left or right key of the foot control.
- > With an instrument removed, press the pedal of the foot control.
- > With the cursor control switched off, actuate the 4-way control plate on the foot control in any direction.
- > With the cursor control switched on, move the cursor to any of the keys relating to the patient chair.
- > Move the 4-way foot switch in any direction.
- > Actuate one of the 4-way switches on the motor-driven headrest in any direction. Exception: The upper 4-way switch up/down, see note below.
- ⚡ All movements of the treatment center are stopped immediately.

IMPORTANT

The function keys and switches for adjusting the headrest to the height of the patient can be used during the program run. This does not trigger a movement stop.

4.4.4 Armrests

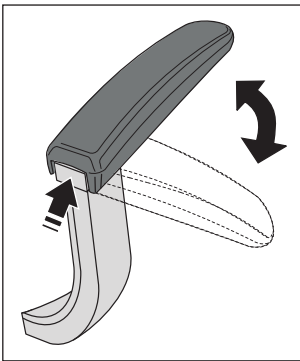
The patient chair can be equipped with armrests on both sides.

CAUTION

The clearance between the left armrest and the water unit is confined.

The patient's hand can be caught between the left armrest and the housing of the water unit during chair travel.

- Make sure that the patient's hand always remains outside of the collision area.



Swiveling the armrest

The armrest on the side of the dentist element can be swiveled out 90° for easier entry and exit.

1. Press and hold the locking button behind the armrest.
 - ↳ The armrest is unlocked.
2. Swivel the armrest toward the rear or toward the front.
 - ↳ The armrest automatically engages in both end positions.

Removing/attaching the armrest

The right armrest is equipped with a safety switch that stops chair movement immediately when the armrest is swiveled outward (risk of collision with the dentist element)

If the armrest is removed, the supplied cover must be inserted in the mount on the patient chair instead of the armrest in order to bypass the safety switch. If the safety switch is not bypassed with the cover when the armrest is removed, the treatment center will be disabled by the triggered safety switch, see also "Safety stop" [→ 58].

1. Press and hold the release button on the bottom side of the armrest and pull out the armrest.
2. Insert the cover instead of the armrest.
 - ↳ The cover automatically locks in place. The safety switch of the armrest is bypassed.

Proceed in reverse order when installing the armrest. Press the tab of the cover with one finger to release it from the side of the chair.

NOTE

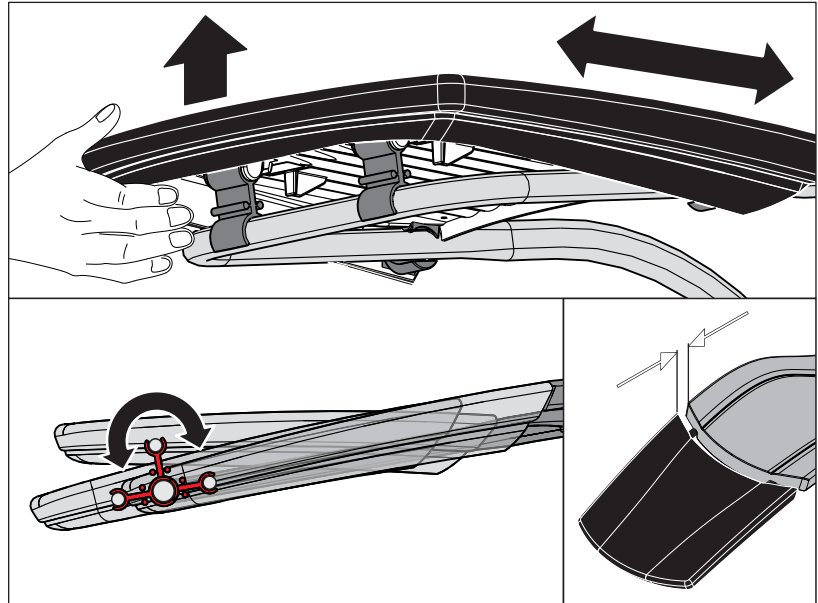
A swiveling armrest does not have an end stop that would prevent a collision when fitted in the left-hand position.

Fitting a swiveling armrest in the left-hand position can lead to collisions with the tumbler during certain chair movements.

- Only use the swiveling armrest on the right-hand side of the treatment center.

4.4.5 Vario footrest

The footrest can be folded forward by approximately 10 cm to adjust it to the patient's height.



- > Lift the foot end and pivot the footrest forward or backwards.

CAUTION

Make sure while adjusting that the footrest is locked securely in place of the corresponding end position.

Make sure to avoid trapping fingers while adjusting.

If the patient chair features lounge upholstery, there is no footrest. The entire reclining surface is upholstered.

4.4.6 Adjusting the motor-driven headrest

The motor-driven headrest can be adjusted via the touchscreen or directly on the headrest.

CAUTION

Fine objects can enter the mechanism of the motor-driven headrest through the gap.

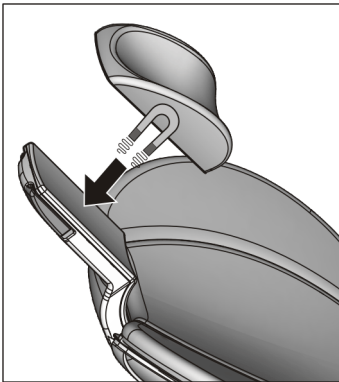
- Long hair, dangling jewelry or loosely fitting clothing can be pulled in.
- > Place the patient such that hair or other objects cannot be pulled in while the head rest is in motion.

WARNING

The head pad contains a strong magnet on its bottom side.

The magnet could affect any active implant located nearby. Furthermore, direct contact of the head pad with magnetic cards can delete data stored on the cards.

- > Therefore, make sure that the magnet is never located in the immediate vicinity of any patients, users or technical personnel with an active implant. If necessary remove the head pad from the headrest.
- > Make sure that no magnetic cards or any other data storage media are located in the immediate vicinity of the head pad.



4.4.6.1 Moving the headrest in/out

The treatment chair is adjusted to the patient's stature by moving the headrest in or out.

Via touchscreen

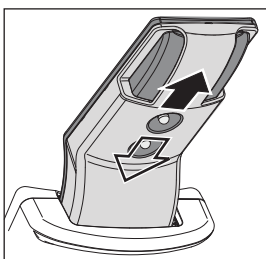
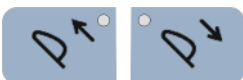
- ✓ The *Simple/Advanced Start program* or the *Manual Chair Adjustment program* is displayed on the touchscreen.
- > Touch the *Headrest in/out* keys.

Via the assistant element

- > Press the *Headrest in/out* fixed keys.

Via the 4-way switch

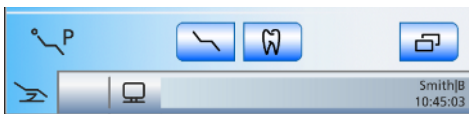
- > Slide the upper 4-way switch upward or downward.



Dental unit plugin "Automatic headrest adjustment"



With Sidexis 4, the last set height of the motorized headrest can be saved and then automatically reset when the patient is logged in again. For this, Sidexis 4 and the Sirona Dental Unit plugins must be installed on the PC .



When a patient is registered in Sidexis 4, his or her last name appears in the touchscreen start program. If the last name is too long for the display, a symbol is shown instead.

For more details, refer to the "Dental unit plug-ins" user manual.

4.4.6.2 Inclining the headrest

The headrest can be tilted either via motor drive or manually (quick mechanical adjustment).

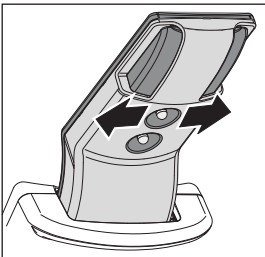
Via touchscreen

- ✓ The *Manual Chair Adjustment* program or the *Advanced Start program* is displayed on the touchscreen.
- > Touch the *Tilt headrest* keys.



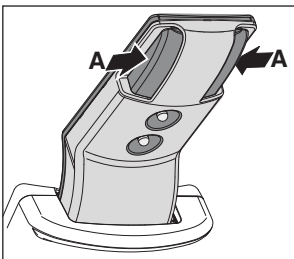
Via the 4-way switch

- > Slide the upper 4-way switch to the left or right.



Via quick mechanical adjustment

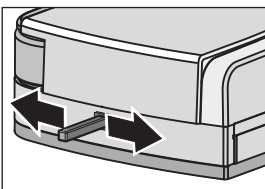
1. Hold the headrest securely in place before unlocking it.
2. Press buttons **A** together.
 - ↳ The headrest is thus disconnected from the motor drive and can be tilted manually.



Via the 4-way foot control

It can be set so that the tilt of the headrest can be adjusted using the 4-way foot control at the base of the chair; see "Linking headrest tilt to the 4-way foot control" [→ 213].

- > Actuate the 4-way foot switch to the left or right.



4.4.7 Moving the patient chair via chair programs

The chair programs can be selected via the touchscreen or via the control keys of the assistant element. The entry/exit and mouth rinsing positions can also be selected via the foot control.

You can individually re-program the factory preset chair programs to suit your own requirements, see "Creating chair programs and shock positioning" [→ 71].

You can select the chair program during which the dentist element is to approach the treatment center; see "Linking dentist element movement to chair programs" [→ 210].

IMPORTANT

The cuspidor bowl automatically swivels back to its starting position

The cuspidor bowl automatically returns beforehand to ensure that the patient does not collide with it during chair movements. This return travel is dependent on the chair movement and is executed only if a collision hazard exists.

4.4.7.1 Moving the patient chair to the entry/exit position

The following functions are triggered for simple patient entry and exit in the entry/exit position:

- The patient chair moves to an upright position
- The dentist element moves to the foot end
- The operating light switches off
- The cuspidor bowl swivels out

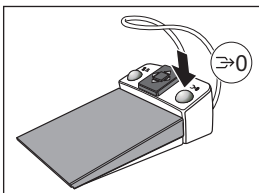
The tumbler heater can be set so that it automatically switches off when the entry/exit position (0) chair program is activated; see "Linking the tumbler heater to the entry/exit position" [→ 210].

! WARNING

The patient's feet may get caught in the instrument hoses of the dentist element when they enter or leave the patient chair.

The patient may trip or fall.

- > Turn the dentist element outward before the patient enters or leaves it.



Via touchscreen

- ✓ The *Start dialog* is displayed on the touchscreen.
- > Touch the 0 key briefly (< 2 s).

Via foot control

- ✓ All instruments are in their holders.
- > Press the right button of the foot switch.

Via the assistant element



- > Press the 0 key on the assistant element briefly (< 2 s).

4.4.7.2 Moving the patient chair to the mouth rinsing position

The following functions are triggered in the mouth rinsing position:

- The operating light switches off
- The chair moves the patient to an upright position

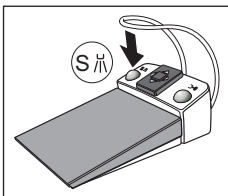
This can be used to set the cuspidor bowl so that it automatically moves inward when the mouth rinsing position (S) chair program is selected; see "Linking the movement of the cuspidor bowl to the mouth rinsing position" [→ 210].

Via touchscreen



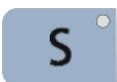
- ✓ The *Start program* is displayed on the touchscreen.
- > Touch the S key briefly (< 2 s).

Via foot control



- ✓ All instruments are in place.
- > Press the left button of the foot control.

Via the assistant element

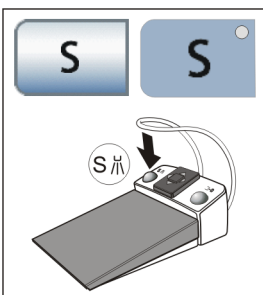


- > Press the S key on the assistant element briefly (< 2 s).

4.4.7.3 Using the last position memory function

The last chair position is stored before the patient chair moves to mouth rinsing position S. When mouth rinsing position key S is pressed again, the treatment center returns to the previously set treatment position.

- ✓ The patient chair can be in any treatment position.
1. Press the S key on the touchscreen, or press the S key on the user interface of the assistant element, or press the left button of the foot control (with all instruments in place in their holders).
 - ↳ The treatment center moves to the mouth rinsing position.
 2. Press the button S again.
 - ↳ The treatment center automatically returns to the position where the patient chair was located prior to the mouth rinsing position.



4.4.7.4 Activating other chair programs

The number of chair programs can be extended to 4 or limited to 2; see "Showing/hiding chair programs 3 and 4" [→ 208].

Via touchscreen

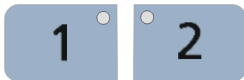
- ✓ The *Start program* is displayed on the touchscreen.
- > Touch key 1, 2 or, if required, 3, 4 briefly (< 2 s).



Via the assistant element

Chair programs 3 and 4 cannot be selected on the assistant element.

- > Press key 1 key or 2 on the assistant element briefly (< 2 s).



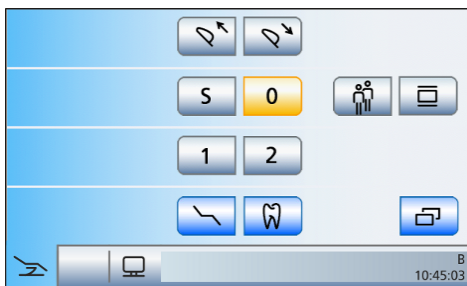
4.4.8 Moving the chair manually

IMPORTANT

The cuspidor bowl automatically swivels back to its starting position

The cuspidor bowl automatically returns beforehand to ensure that the patient does not collide with it during chair movements. This return travel is dependent on the chair movement and is executed only if a collision hazard exists.

4.4.8.1 Manual Chair Adjustment screen (for Simple Start program mode only)



- ✓ The *Start program* is displayed on the touchscreen with the *Simple Start program* operating mode.



1. Touch the *Manual Chair Adjustment* key.



- ✎ The *Manual Chair Adjustment* screen is displayed.
2. Perform the settings described in the following sections.

4.4.8.2 ErgoMotion – Tilting the patient couch and inclining the backrest

Compensated motion of the seat and backrest without any compression or stretching effects for the patient

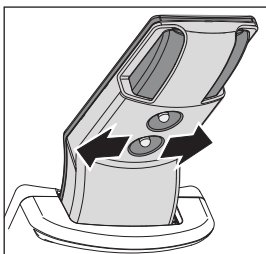
Via touchscreen

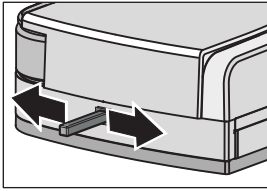
- ✓ The *Manual Chair Adjustment* screen, the *Advanced Start program* or *EasyMode Start program* is displayed on the touchscreen.
- > Touch the *ErgoMotion* keys.



Via the 4-way switch

- > Slide the 4-way switch to the left or right.





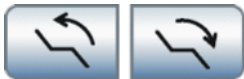
Via the 4-way foot switch

- ✓ In the *Setup program*, control of the ErgoMotion function via the 4-way foot switch cannot be replaced by control of the headrest tilt function, see "Linking the headrest tilt to the 4-way foot switch" [→ 213].
- ✓ The spray aspirator must be in place when the 4-way foot switch is allocated to the aspirator in the *Setup program*. See "Linking the spray aspirator to the 4-way foot switch" [→ 213].
- Slide the 4-way foot switch to the left or right.

4.4.8.3 OrthoMotion – Tilting the patient chair

Tilting motion of the patient chair without changing the angle between the seat and backrest. This movement is particularly suitable for patients with limited mobility.

This function is not available in the *EasyMode Start program* operating mode.



- ✓ The *Manual Chair Adjustment program* or the *Advanced Start program* is displayed on the touchscreen.
- Touch the *OrthoMotion* keys.

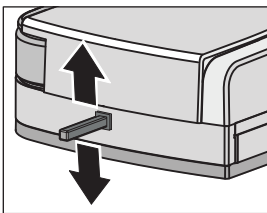
4.4.8.4 Adjusting the chair height

Via touchscreen



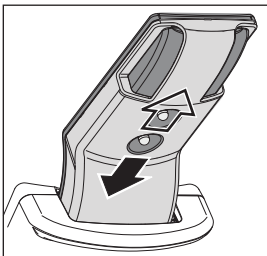
- ✓ The *Manual Chair Adjustment program*, the *Advanced Start program* or the *EasyMode Start program* is displayed on the touchscreen.
- Touch the *Chair Height Adjustment* keys.

Via the 4-way foot switch



- ✓ The 4-way foot switch is not assigned to the suction system of the assistant element via the *Setup program*.
- Slide the 4-way foot switch upward or downward.

Via the 4-way switch



- Slide the lower 4-way switch upward or downward.

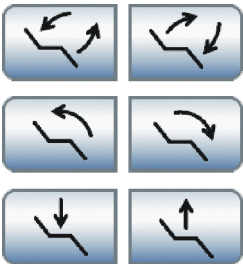
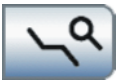
4.4.8.5 Moving the patient chair with the fine adjustment

Depending on the type of treatment, it may be necessary to adjust the patient chair more slowly and more precisely (e.g., for tiny corrections in case of treatment under a microscope). In this case, the *Fine Adjustment* key can be displayed in the *Start program*; see "Show/hide the fine adjustment key" [→ 209].

This function is not available in the *EasyMode Start program* operating mode.

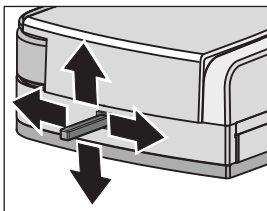
Fine adjustment on/off

- ✓ The *Manual Chair Adjustment* program or the *Advanced Start program* is displayed on the touchscreen.
- ✓ The *Fine Adjustment* key is displayed on the touchscreen.
- Touch the *Fine Adjustment* key.
 - ↳ If the key is highlighted orange, the patient chair travels at reduced speed for the following chair movements:



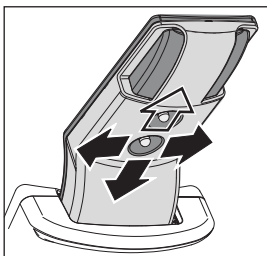
Movement via touchscreen

- Touch the *ErgoMotion*, *OrthoMotion* or *Chair height adjustment* key.



Movement via 4-way foot switch

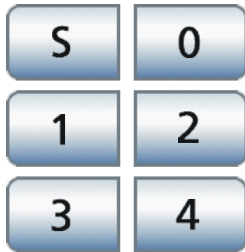
- ✓ The 4-way foot switch is not assigned to the suction system of the assistant element via the *Setup program*.
- Move the 4-way foot switch to the left or right for the *ErgoMotion* or up or down to adjust the chair height.



Movement via 4-way switch

- Move the 4-way switch to the left or right for the *ErgoMotion* or up or down to adjust the chair height.

4.4.9 Creating chair and shock positioning programs



Chair programs

The six chair programs preset at the factory:

- Mouth rinsing position S
- Entry/exit position 0
- 1 and 2
- 3 and 4 if selected

can be individually reprogrammed for each of the six user profiles (A to F).

You can determine whether chair programs 3 and 4 will be displayed in the chair screen; see "Showing/hiding chair programs 3 and 4" [→ 208].

✓ The *Start program* is displayed on the touchscreen.

1. Move the patient chair to the required treatment position; see "Moving the chair manually" [→ 68].
2. If a motor-driven headrest is installed: Tilt the headrest to the required treatment position; see "Inclining the headrest" [→ 64].
3. Switch the operating light on or off (to program the desired state), see "Switching the operating light on/off and adjusting it" [→ 185].
4. Move the dentist element to the required position; see "Moving the dentist element" [→ 76]. You can select the chair programs during which the dentist element is to move; see "Linking dentist element movement to chair programs" [→ 210].
5. Press and hold the desired program key (S, 0, 1, 2 or, if applicable, 3, 4) (> 2 s).
 - ↳ An audible signal sounds. Your settings are now stored under the desired program key.

Tip:Chair programs S, 0, 1, 2 can also be programmed on the assistant element side.

Shock positioning

When the *Shock positioning* key is pressed, the patient chair immediately moves to a position suitable for shock positioning of the patient.

The shock positioning position preset at the factory can be reprogrammed.

1. Move the patient chair to the desired position.
2. Press and hold the *Shock positioning* key (> 2 s).

WARNING

Program this key exclusively for shock positioning the patient, never use as a treatment position.

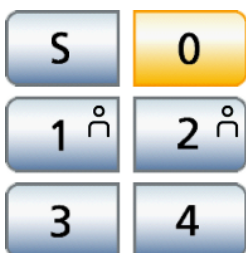
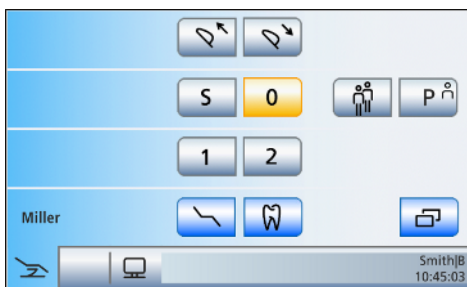


4.4.10 Dental unit plugin "Patient-specific chair programs"

With Sidexis 4, practitioners can save the patient-specific chair positions for each patient using the program keys (S, 0, 1, 2, and if applicable 3, 4). The next time the patient is logged in, the chair positions are available again. For this, Sidexis 4 and the Sirona Dental Unit plugins must be installed on the PC.

Activate and retrieve patient-specific chair programs

- ✓ The dental unit plugin "patient-specific chair programs" is installed on the PC and activated. For more details, refer to the "Dental unit plugins" user manual.
- ✓ A patient is registered in Sidexis 4. The last name of the patient is shown in the start program. If the last name is too long for the display, a symbol is shown instead. If the last name is too long for the display, a symbol is shown instead.
- ✓ The *Start dialog* is displayed on the touchscreen.



1. Touch the *Patient-specific chair programs* briefly (< 2 s).
 - ✦ If the key is orange, the *Patient-specific chair programs* function is activated.
 - ✦ If chair positions are already saved in Sidexis 4 for the registered patient, a patient symbol will be displayed on the respective program keys.
2. Touch key S, 0, 1, 2 or, if applicable, 3, 4 briefly (< 2 s). You can set whether the chair programs 3 and 4 should be displayed in the chair dialogue, see "Show/hide chair programs 3 and 4" [→ 208].
 - ✦ If a patient symbol is shown on the pressed program key, the patient-specific chair program saved in Sidexis 4 will be activated. If there is no symbol on the key, the chair program saved in the active user profile of the treatment center will be activated.
3. Switch the function on/off to switch between the two operating modes.

Save patient-specific chair programs

Patient-specific chair programs are programmed the same way that conventional chair programs are, see section "Program chair programs and shock positioning" [→ 71]. The headrest angle, switching the treatment light on/off, and the position of the dentist element on the motor-driven sliding track are also saved.

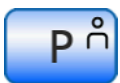
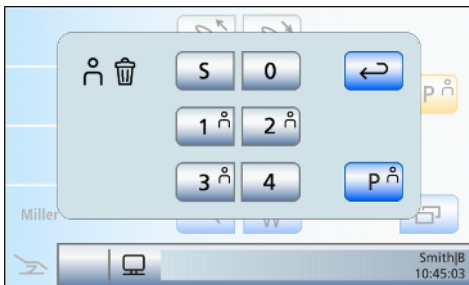
- ✓ The *patient-specific chair programs* function is activated.
- ✓ The patient chair is in the desired position.
- Press and hold the desired program key (S, 0, 1, 2 or, if applicable, 3, 4) (> 2 s).
 - ↳ An acoustic signal sounds. The settings are now stored in the Sidexis 4.

With Sidexis 4, the last height of the motorized headrest that was set can be saved and then automatically activated when the patient is logged in again, see "Dental unit plugin for automatic headrest adjustment".

Delete patient-specific chair programs

The patient-specific chair programs saved in the Sidexis 4 can be overwritten or deleted by reprogramming the program key. After deleting, the patient symbol on the program key will be hidden. When the key is touched, the chair program saved in the active user profile of the treatment center will be activated in both operating modes.

- ✓ The *Start dialog* is displayed on the touchscreen.
- 1. Press and hold the *Patient-specific chair programs* key (> 2 s).
 - ↳ The *Delete patient-specific chair programs* dialogue appears on the touchscreen.
- 2. To delete individual patient-specific chair programs, touch the program keys to be deleted. Then touch the *Back* key to hide the dialogue.
- 3. To delete all patient-specific chair programs for the particular patient, touch the *Delete all patient-specific chair programs* key.
 - ↳ The dialogue is hidden. The patient symbols are removed from the program keys in the start dialogue.

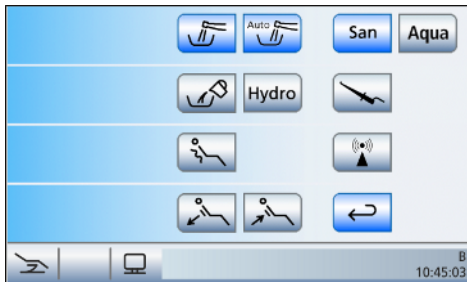


4.4.11 Setting the Massage/Active lumbar support functions

The patient chair can be set to a gentle massage function and/or an active lumbar support function.

Opening Start sub-screen

- ✓ The *Start program* is displayed on the touchscreen.
- > Touch the *Sub-screen* key.



- ↪ The *Start* sub-screen is displayed.

Switching the massage function on/off

- > Touch the *Massage Function* key.
 - ↪ If the key is highlighted orange, the Massage function is activated.



Setting the active lumbar support

- > Adapt the active lumbar support to the patient's spinal curvature. Touch the *Decrease active lumbar support*/*Increase active lumbar support* keys.



IMPORTANT

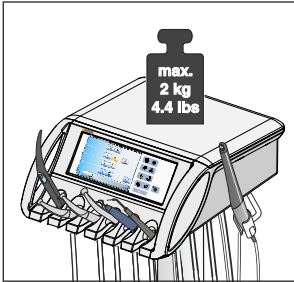
Auto on/off of the massage/active lumbar support function

The massage and active lumbar support functions automatically switch off when the chair approaches the entry/exit position (*O*) or the mouth rinsing position (*S*).

If the *mouth rinsing position S* button is pressed again (Memory function, see "Using the last position memory function" [→ 66]), the massage function is switched back on following the chair movement. The active lumbar support can then be readjusted.

4.5 Dentist element

4.5.1 Maximum load capacity



The maximum load of the dentist element is 2 kg (4.4 lbs).

A silicone mat and an NaCl bottle with the corresponding accessories (weighing approx. 1.0 kg or 2.2 lbs) can also be attached; see "Preparing for use of NaCl saline solution" [→ 90].

4.5.2 Height adjustment

The height of the dentist element can be adjusted to achieve an ergonomic instrument height.

Please contact your service engineer.

4.5.3 Motor-driven travel track

The treatment center is equipped with a motor-driven sliding track for the dentist element. In combination with the rotary joints on the support arm, the dentist element can be optimally adjusted to suit any treatment.

WARNING

The patient's feet may get caught in the instrument hoses of the dentist element when they enter or leave the patient chair.

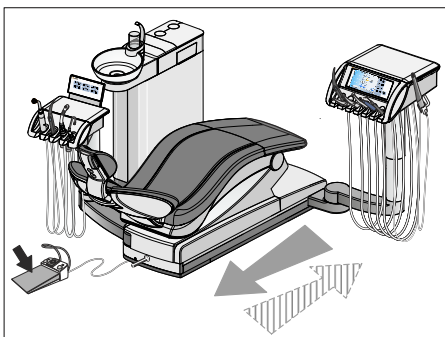
The patient may trip or fall.

- Turn the dentist element outward before the patient enters or leaves it.

NOTE

Sudden movements can cause instruments to fall out of the holder in the dentist element.

- Try to avoid sudden movements of the dentist element.

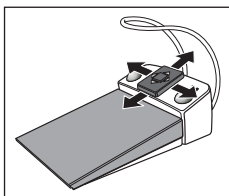


Moving the dentist element toward the user

- ✓ With the exception of the Sprayvit M, all instruments must be in their holders.
- Step on the pedal of the foot control.
 - ↪ The dentist element moves toward the operator as long as the foot control pedal is actuated.

Moving the dentist element toward the foot end

This function is not available with the cursor control switched on. In this case, the dentist element can be moved to the foot end at the end of treatment by pressing the Entry/exit position (0) key, see "Moving the patient chair to the entry/exit position" [→ 65].



- ✓ The cursor control switched off.
- ✓ With the exception of the Sprayvit M, all instruments must be in their holders.
- Move the 4-way foot control plate in any direction.
 - ↪ The dentist element moves toward the foot end as long as the pedal is actuated.

4.5.4 Fixed keys on the dentist element



4.5.4.1 Standby switch



The treatment center is switched on/off with the standby switch.

To switch off, press and hold the key until an acoustic signal sounds. Then release the key.

IMPORTANT

Power switch

The treatment center also features a power switch on the base of the chair that separates the treatment center from the power supply, see "Switching the treatment center on/off" [→ 42].

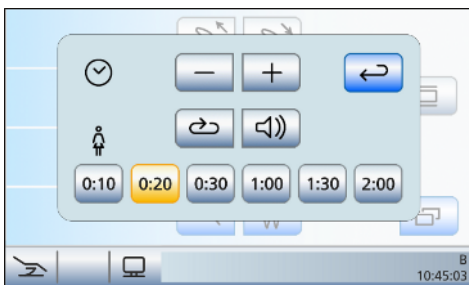
4.5.4.2 Timer function

A set time can be counted down to zero with the timer function. Six timers can be preset. A time loop (automatic restart of the countdown) and an acoustic signal (after expiration of the set time) can be added to each timer.

Presetting the timer

The maximum time setting is 9 minutes and 30 seconds. When making the settings, note that only the timer located at the far left can be triggered with the *Timer* fixed key on the assistant element.

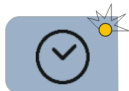
1. Press and hold the *Timer* fixed key on the dentist element (> 2 s).



- ↳ The *Timer Function* setting dialog is displayed on the touchscreen.



2. Select one of the six timers to change its presetting. To do this, touch one of the selection keys along the bottom edge of the settings screen.
 - ↳ The selected timer is highlighted orange.
3. Use the – and + keys to set the required time. Increments:
From 00:05 to 1:00 = 5 s steps



From 1:00 to 3:00 = 10 s steps
From 3:00 to 9:30 = 30 s steps

4. Select whether the time loop and the acoustic signal should be activated/deactivated for the selected timer. Touch the *Time Loop* and/or *Acoustic Signal* key.
 - ↳ If a function is switched on, the corresponding key is highlighted orange.
5. Select another timer for adjustment or close the settings screen with the *Return* key.
 - ↳ All settings are automatically saved when the screen is closed.

Starting the timer

1. Press the *Timer* fixed key briefly.
 - ↳ The last timer used is started immediately. The set and elapsed time are displayed in the status bar. The *Timer function* screen remains visible.
2. If you wish to use a different timer, touch one of the timers at the lower edge of the screen.
 - ↳ If the expired time is less than the new setting of the timer, the new time will be shown in the status bar. The previously started timer will not be reset to zero.
3. Optional: You can switch the time loop and/or acoustic signal on/off while the timer is counting down. Touch the *Time Loop* and/or the *Acoustic Signal* key.
 - ↳ If a function is switched on, the corresponding key is highlighted orange.

Stopping/resetting the timer

When the *Timer function* screen is deactivated, the timer can also be stopped by pressing the *Timer* fixed key. If the screen is activated, the timer will be reset to zero.

4.5.4.3 Shock positioning

Immediately moves the patient chair to a position for shock positioning of the patient.

To program the position of the shock positioning function, see "Creating chair programs and shock positioning" [→ 71]

4.5.4.4 Operating light

Switching the operating light on/off

- > Briefly press the *Operating light* fixed key on the dentist or assistant element.
 - ↳ When the operating light is switched on, the LED of the fixed key lights up on the dentist and assistant elements.

For details, see section "Operating light" [→ 185].

4.5.4.5 Composite function



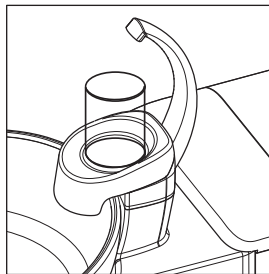
The composite function delays the curing of composite materials.

- > Press the *Composite Function* fixed key.
 - ↳ If the composite function is switched on, the LED of the fixed key lights up on the dentist and assistant elements. The *Operating light* key on the assistant element lights up.

4.5.4.6 Tumbler filling

If the tumbler filling system of your treatment center is equipped with automatic sensor control, see “Tumbler filling with automatic sensor control” [→ 177].

Filling the tumbler



1. Place the tumbler under the tumbler filler.

2. Press the *Tumbler Filling* fixed key.
 - ↳ The tumbler is filled with water for the preset time.

Pressing the *Tumbler Filling* fixed key again stops the filling function immediately.

Opening the settings screen



- > Press and hold the *Tumbler Filling* fixed key (> 2 s).

↳ The *Tumbler Filling* settings screen is displayed.



Linking tumbler filling to the mouth rinsing position and setting the filling time



1. Touch the *Link tumbler filling to mouth rinsing position* key.
 - ↳ If the key is marked orange, the tumbler filling function will automatically be switched on for the duration of the preset filling time when the mouth rinsing position chair program (S) is activated.



2. Use the – and + keys to set the filling time.

Since the setting *Tumbler filling with automatic sensor control* regulates the water volume via the **filling level**, systems with this option do not

allow for setting the **filling time**, see "Tumbler filling with automatic sensor control" [→ 177].

Setting the water tempering



1. Switch the tumbler tempering function on/off. Touch the *Water Tempering* key.
 - ↳ If the key is highlighted orange, the tumbler tempering function is activated. The water tempering keys are displayed.
2. Use the – and + keys to set the water temperature.

4.5.4.7 Flushing of the cuspidor bowl

The flushing function can be used for rough cleaning of the cuspidor during treatment.

Switching the flushing on/off



- > Press the *Flushing* fixed key.
 - ↳ The LED in the key lights up during the flushing function. The flushing function is activated for the preset flushing time.

Setting the flushing time



1. Press and hold the *Flushing* key on the dentist element (> 2 s).
 - ↳ The *Flushing* settings screen appears on the touchscreen.
2. Set the flushing time with the + and – keys.

Link flushing to mouth rinsing position S



- > Touch the *Link flushing to mouth rinsing position S* key.
 - ↳ If the key is marked orange, flushing is automatically activated for the duration of the flushing time set when approaching the mouth rinsing position S.

4.5.4.8 Freely selectable function

Bell



e.g. call key

Freely available relay 230 V, 6 A
(connected by service engineer).

This function can be preset as a pushbutton or as a switch in the Setup program, see "Setting the bell/hash key as a pushbutton or as a switch" [→ 211].

Hash



Freely available relay 230 V, 6 A
(connected by service engineer).

This function can be preset as a pushbutton or as a switch in the Setup program, see "Setting the bell/hash key as a pushbutton or as a switch" [→ 211].

4.5.4.9 Clean

Clean

Pressing this key deactivates the complete user interface of the dentist element with the exception of the standby switch. Pressing the key again > 3 s or stepping on the foot switch reactivates the user interface.

This is used to make sure that no unwanted functions can be accidentally triggered while cleaning the surface, see "Disinfecting the EasyTouch" [→ 224].

4.5.4.10 Setup

Setup

Used for individual configuration of the treatment center by the user and for reading out messages by the service engineer, see "Configuration of the treatment center (Setup)" [→ 205].

4.5.5 Quick setting keys and function levels

Depending on which instrument is taken from the holder, the corresponding instrument program or functions appear in the start program on the touchscreen.

Instrument program in the Simple/Advanced Start program operating mode

In the operating mode *Simple/Advanced Start program*, the instrument settings can be made with either static quick setting keys, programmable quick setting keys or function levels.

Static quick setting keys

The values shown on the quick setting keys can be selected by touching them briefly (< 1 s).



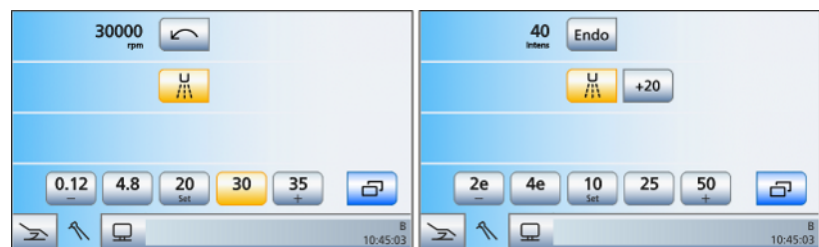
Motor program (speed) and ultrasonic program (intensity) with static quick setting keys

Intermediate values can be set as follows: If you press and hold (> 1 s) a quick setting key whose value is greater than or equal to the speed or intensity value displayed in the first line, the value increases. If you press and hold (> 1 s) a quick setting key whose value is less than the speed or intensity value displayed in the first line, the value decreases. The quick setting keys are shaded gray for intermediate values.

Static quick setting keys are displayed in the motor program with speed values (0.09, 10, 20, 30, 40 x 1000 rpm); in the ultrasonic and electrosurgical programs with intensity values (1%, 25%, 50%, 75%, 100%).

Programmable quick setting keys

The key values can be changed individually with the programmable quick setting keys.



Motor program (speed) and ultrasonic program (intensity) with programmable quick setting keys

The speed/intensity shown in the first line can be increased or decreased by pressing and holding (>1 s) the left or right - or + quick setting key.

The programming mode is activated by holding down the middle quick setting key *Set* (> 2 s). The speed/intensity flashes on the touchscreen and a flashing bar appears behind the quick setting keys. Now press the

quick setting key to which the set value is to be saved. A signal sounds as confirmation. Further settings such as activation of the coolant or Endo mode are also saved on the quick setting key.

The settings can be recalled by touching the respective quick setting key.

Function levels

When using function levels, you have two "storage locations" (E1/E2) at your disposal for saving settings or recalling them at the push of a button. These settings can nevertheless be changed during treatment.



Motor program with function levels

A distinction is made between a coarse and fine adjustment of the settings for speed and intensity. If the – or + key is touched briefly (< 1 s), the increments correspond to the quick setting keys (speed: 0.09, 10, 20, 30, 40; intensity: 1, 25, 50, 75, 100). If the – or + key is held (> 1 s), intermediate values can also be set.

The key is displayed in gray if the values saved in the function level have been changed ("Function level no longer valid").

Preselecting the quick setting key or function level types

You can decide whether you wish to work with static quick setting keys, programmable quick setting keys or the function levels in the setup program, see "Preselecting how instrument settings are to be saved" [→ 215]. The setting applies for each user profile A-F.

EasyMode Start program

In the *EasyMode Start program* the static quick setting keys are used to adjust the values for the speed and intensity (1%, 25% 50%, 75%, 100%). The quick setting keys with the values for intensity are also displayed in the motor and ultrasonic programs when the endodontics function is activated. The operating concept corresponds with other Dentsply Sirona treatment centers that have membrane keys.



The EasyMode Start programs with instrument functions for motor and ultrasonic (active endodontic function)

Intermediate values are set in the same way as in the *Simple/Advanced Start program* operating mode with static quick setting keys, see above.

4.5.6 Saving instrument settings

With static quick setting keys

You can determine whether the *Memory* key should be displayed in the instrument programs with the quick setting keys, see "Preselecting how instrument settings are to be saved" [→ 215].

SaveMode

- SaveMode – The *Memory* key is displayed in the instrument programs:

The settings made in the Instrument program will be saved after the instrument is placed in its holder only if the *Memory* key was pressed and held beforehand (> 2 s).

After an instrument is removed, the previously saved settings are preset again.

- ✓ An instrument is removed from its holder.
- ✓ The instrument program is displayed with static quick setting keys and the *Memory* key.
- ✓ The desired settings are made; see also "General instrument functions" [→ 87].

1. Only in the *EasyMode Start program* operating mode: Touch the *Sub-screen* key.

2. Press and hold down the *Memory* key.

- ↳ An acoustic signal sounds. The settings in the Instrument program and its sub-screen are saved.

- DropMode – *Memory* key hidden in Instrument programs:

When the instrument is deposited, the settings made in the Instrument program are automatically saved.

The DropMode is not available in the *EasyMode Start program* operating mode.



DropMode

With programmable quick setting keys

With programmable quick setting keys, the set speed and intensity values can be saved to and called up from one of the quick setting keys. The settings for selecting and activating the coolant are saved at the same time.

- ✓ An instrument is removed from its holder.
- ✓ The instrument program is displayed on the touchscreen with quick setting keys.
- ✓ The coolant is preselected and, if relevant, activated, see "Preselecting coolant" [→ 87] and "Switching preselected coolant on/off" [→ 87].

1. Keep the middle quick setting key *Set* held down (> 2 s) to save the setting.

- ↳ The programming mode is activated. The speed flashes on the touchscreen and a flashing bar appears behind the quick setting keys.

2. Press one of the quick setting keys. This must be done within 5 seconds otherwise the programming mode is closed.

- ↳ An acoustic signal sounds. The set speed and preselection and activation of the coolant are saved on the quick setting key.



3. Repeat this process for other quick setting keys if necessary.
 - ↳ The settings can be recalled by touching the respective quick setting key.

With function levels

The settings which have been made can be saved to and recalled from two function levels (E1, E2). These settings can nevertheless be changed during treatment.

- ✓ An instrument is removed from its holder.
 - ✓ The instrument program with function levels is displayed on the touchscreen.
 - ✓ All settings are made; see also "General instrument functions" [→ 87].
1. Press and hold key *E1* or *E2* (> 2 s).
 - ↳ An acoustic signal sounds. The settings in the Instrument program and its sub-screen are saved to the corresponding function level.
 2. Repeat this procedure for the second function level.
 - ↳ The settings can be recalled by briefly touching the key (< 2 s).



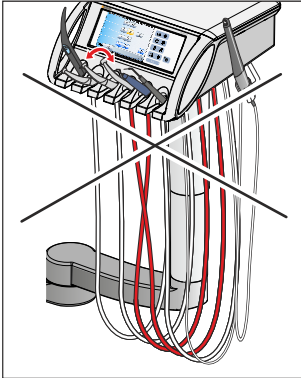
4.5.7 Placing the instruments in their holders

Automatic opening of instrument dialogs

In the *Simple/Advanced Start program* operating modes, the instrument program of the instrument removed is displayed automatically on the touchscreen. In the *EasyMode Start program* the touchscreen will display the speed or intensity values of the removed instrument.

Therefore, always make sure that all instruments are placed in the correct instrument holders. If any instruments are placed in the wrong holders, the wrong instrument dialog will be opened when they are removed from the holders.

If more than one instrument is removed, the screen of the instrument removed first is displayed.

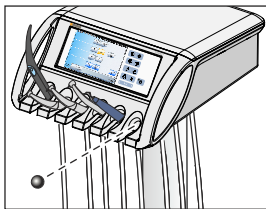


Ball stopper

A ball stopper for an unoccupied instrument holder is attached to the dentist element.

Insert the ball stopper in an unassigned instrument holder. This prevents accidental deposit of an instrument in this holder.

To reorder the ball stopper, see "Spare parts and consumables" [→ 299].



Instrument hoses

NOTE

The instrument hoses contain electrical cables and media pipes.

Over-tensioning or pinching the hoses may cause the electrical cables to break and the media pipes to leak.

- Ensure that you do not pull or bend the instrument hoses too much.

4.5.8 General instrument functions

Settings for the coolant, instrument light, and foot switch can be made in the sub-screen of the instrument removed from the holder.

The sub-screens vary according to the instrument removed. Functions not available for the respective instrument are not displayed in the sub-screen.

4.5.8.1 Opening the sub-screen

- ✓ An instrument is removed from its holder.
- ✓ In the *Simple/Advanced Start program* operating modes, the *Instrument program* of the instrument in use is displayed on the touchscreen. In the *EasyMode Start program*, the values for the speed and intensity of the removed instrument are shown.
- Touch the *Sub-screen* key.
 - ↳ The sub-screen is displayed.



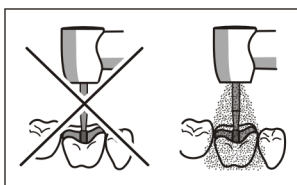
4.5.8.2 Selecting a coolant

Air, spray or NaCl can be preselected as the instrument coolant in the sub-screen. The preselected coolant can then be switched on or off in the Instrument program.

- ✓ The *Sub-screen* of the removed instrument is displayed on the touchscreen.
- Select the coolant required for the instrument removed from the holder. Touch the *Spray, Air or NaCl* key.
 - ↳ The key of the preselected coolant is highlighted orange. The key of the preselected coolant is displayed in the *Instrument program* or *EasyMode Start program*.



4.5.8.3 Switching the preselected coolant on/off



⚠ CAUTION

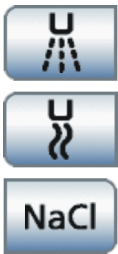
Instrument can be operated without coolant.

Tooth substance can be damaged by frictional heat.

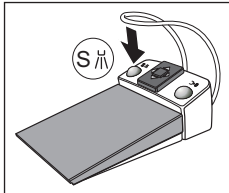
- Always make sure that the treatment area does not overheat whenever you switch the coolant off.

Via touchscreen

The preselected coolant in the *EasyMode Start program* operating mode can only be turned on/off with the foot control buttons, see below.



- ✓ An instrument is taken from the holder and the *Instrument program* is displayed on the touchscreen.
- Touch the key of the preselected coolant (*Spray, Air or NaCl*).
 - ↳ If the key of the preselected coolant is highlighted orange, it will be switched on together with the instrument when the foot pedal is activated. If the key is highlighted gray, the coolant is switched off.



Via foot control

- ✓ An instrument is removed from its holder.
- Press the left button of the foot control.
 - ↳ If the key of the preselected coolant (*Spray, Air or NaCl*) is highlighted orange on the touchscreen, it will be switched on together with the instrument when the foot pedal is activated.

4.5.8.4 Setting the ApexLocator



If your treatment center is equipped with the ApexLocator option, you can adjust this in the *Motor* sub-screen. For more information, refer to the chapter "ApexLocator" [→ 112], section "Endodontic treatments with motor". For more information, refer to the chapter "ApexLocator" [→ 112], section "Implantology/endodontic treatments with motor" [→ 109].

The ApexLocator cannot be used in the *EasyMode Start program* operating mode.

4.5.8.5 Switch instrument light on/off



- ✓ The *sub-screen* of the removed instrument is displayed on the touchscreen.
- Switch the instrument light on or off with the *Instrument light* key.
 - ↳ If the key is highlighted orange, the instrument light can be activated using the foot pedal.

The instrument light of the Sprayvit M multifunctional syringe can be adjusted separately, see "Switching the instrument light on/off and setting the water temperature" [→ 96].

4.5.8.6 Preselecting the instrument light operating voltage

The original Dentsply Sirona halogen and LED lamps are usually operated at 3.6 V. Voltages > 3.8 V destroy the lamp. The operating voltage can be adjusted for lamps made by other manufacturers.

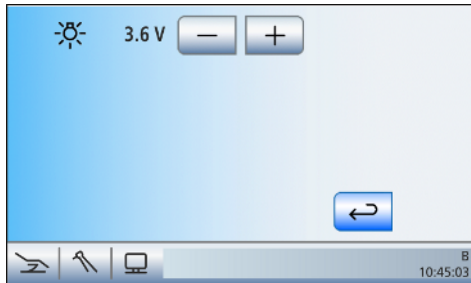
NOTE

The operating voltages of different lamps may vary.

Overvoltages can lead to damage.

- When changing lamps, make sure that the operating voltage is properly set for the new lamp.

Setup



- ✓ In the operating modes *Simple/Advanced program*, the *Turbine*, *Motor* or *Ultrasonic screen* is displayed on the touchscreen. In the operating mode *EasyMode Start program*, the functions of the removed turbine, motor or ultrasonic handpiece are shown.
1. Press and hold the *Setup* fixed key (> 2 s).
 - ↳ The Setup program of the corresponding instrument is displayed.
 2. Use the – and + keys to adjust the maximum operating voltage of the instrument light.

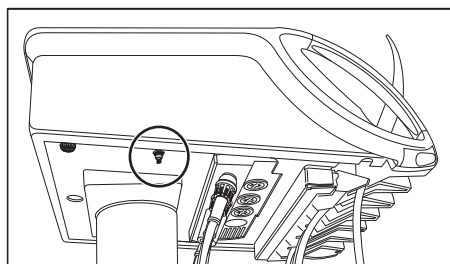
4.5.8.7 Setting the foot control as a direct starter or speed foot control

The foot control can be set as a direct starter or as a speed foot control in a motor or SiroSonic TL scaler sub-screen:

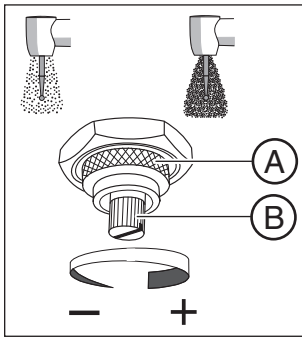
- Direct starter
 - When the foot control is actuated, the instrument is switched on with the set speed and intensity.
 - Control foot control
 - Depending on the setting of the foot control, the instrument controls the speed and intensity continuously up to the maximum value set.
- ✓ The *sub-dialog* of the removed instrument is displayed on the touchscreen.
 - Touch the *Direct starter/control foot control* key.
 - ↳ If the key is highlighted gray, the direct starter function is switched on. If the key is highlighted orange, the speed foot control function is switched on.



4.5.8.8 Setting the spray amount



The spray quantity is preset at the factory. However, it can be adjusted using the regulating screw underneath the dentist element. This setting is then valid for all bur drives.



1. Loosen the ring **A** counterclockwise.
2. Set the spray amount by turning the screw **B**.
3. Check the set spray quantity with a burr drive and correct the setting if necessary.
4. Tighten ring **A** again.

4.5.8.9 Preparing for use of NaCl saline solution

The peristaltic pump prepares a sterile saline solution instead of spray water for cooling.

The peristaltic pump hose is a disposable item. To reorder it, see "Spare parts and consumables" [→ 299].

Two symbols are on the NaCl pump.

Meaning: When operating the unit, observe the instructions for use.



Meaning: Caution, risk for fingers in contact with moving parts

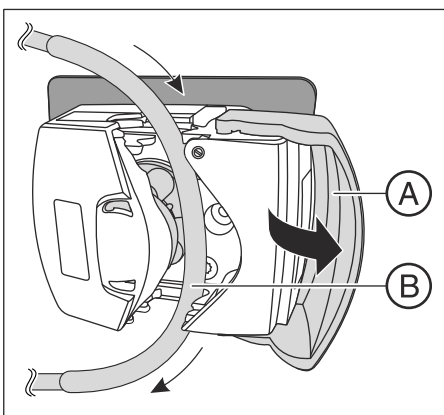
Close cover **A** before operating the NaCl pump.

CAUTION

Fine objects can enter the mechanism of the NaCl pump via openings.

Long hair, dangling jewelry or loosely fitting clothing can be pulled in.

> Only replace the NaCl hose when the pump is at a standstill.



✓ The drive of the peristaltic pump and an NaCl bottle holder are attached to the dentist element. Please contact your local distributor if necessary.

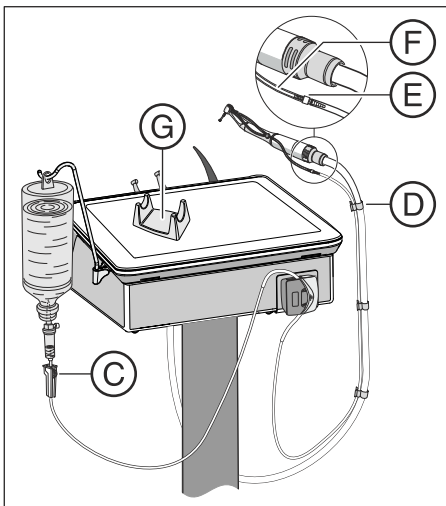
✓ A new peristaltic pump hose is available.

1. Hang the NaCl bottle (max. 1 liter) on the bottle holder of the dentist element.
2. Open cover **A**. Lay the silicone hose **B** without prestress, with the thickened part wrapped around the pump wheel. See the adjacent drawing. Close cover **A**.

IMPORTANT

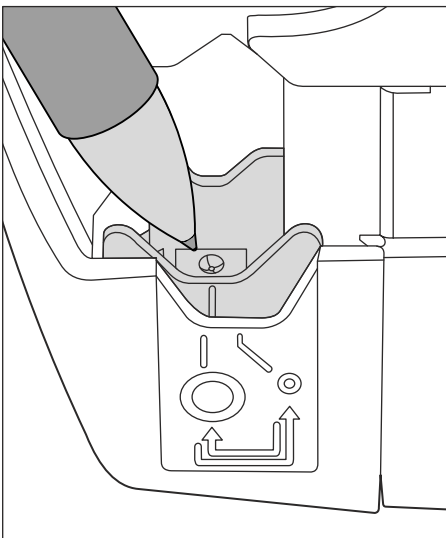
Direction of flow of the peristaltic pump

The shorter end of the hose with the cannula must be at the **top** of the pump, the longer end of the hose that goes to the handpiece at the **bottom**. Compare with the adjoining illustration.



3. Push the short end of the hose with the cannula through the stopper and into the NaCl bottle. The regulator in the hose clip **C** must be completely open (regulating wheel in top position).
4. Run the long end of the hose alongside the corresponding motor hose up to the contra-angle handpiece. Fasten the hose with clips **D**.
5. Attach the coupling **E** to the hose. Connect the thin silicone hose **F** to the coupling **E**.
6. Connect the thin silicone hose **E** to the connectors on the contra-angle handpiece. For details, see the instructions for use of the contra-angle handpiece.
7. Place the contra-angle handpiece on the separate motor holder **G**.

See also the descriptions in section "Preparing the treatment center for sterile operation" [→ 149].



The NaCl pump has two settings for peristaltic pump hoses of different diameters. For the Dentsply Sirona peristaltic pump hoses, the wide setting must be selected. This ensures an optimal supply rate. The NaCl pump is therefore delivered with the wide default factory setting.

The hose setting can be changed when needed by pressing on it with a pen. The setting must always be adjusted on both sides.

4.5.8.10 Setting the NaCl flow rate

- ✓ An instrument is removed from its holder.
 - ✓ In the operating modes *Simple/Advanced Start program*, the *Instrument program* of the removed instrument is displayed on the touchscreen and NaCl is preselected as the coolant, see "Preselect coolant" [→ 87].
In the *EasyMode Start program*, the *sub-screen* of the removed instrument is displayed.
1. In the *Simple/Advanced Start program*, keep the *NaCl* key pressed (> 2 s).
In the *EasyMode Start program*, keep the *Preselect NaCl* key pressed (> 2 s).
↪ The *NaCl* settings screen is displayed.





2. Use the – and + keys to set the flow rate of the NaCl pump.

3. Touch the *Return* key.

- ↪ The *NaCl* settings screen is hidden immediately. The settings are saved. If the *NaCl* key is highlighted orange, the function is activated.

NOTE

Ultrasonic tips of third-party manufacturers in some cases do not have a sufficient flow rate in conjunction with the NaCl function.

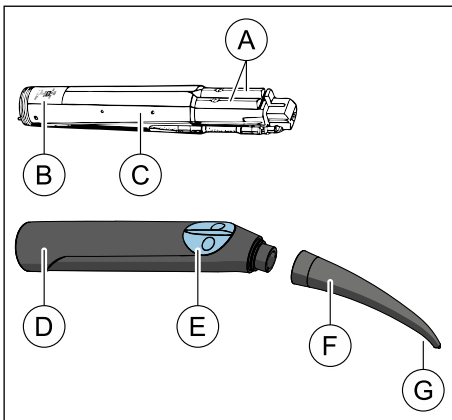
- Use only ultrasonic tips from Dentsply Sirona.



4.5.9 Multifunctional syringe Sprayvit M

The Sprayvit M multifunctional syringe is used for dental treatment with air and heated/unheated water. The Sprayvit M multifunctional syringe is also used to illuminate the preparation field.

The heating cartridge for the water is located in the handpiece.

4.5.9.1 Structure



A	Media lever	
B	 SN xxxxxx	Serial Number
	 20xx	Year of manufacture
C	Valve body	
D	Housing	
E	Keyboard	
F	Nozzle	
G	Light aperture	

4.5.9.2 Product labeling



Can be thermally
disinfected



Sterilizable at
134°C



Date of manufac-
ture



Serial Number



Order number

4.5.9.3 Safety instructions

Protect yourself, the patient and any third parties from danger. To do this, observe the following safety information:

WARNING

A small metal tube protrudes at the tip of the nozzle.

Risk of injury and contamination!

- > Avoid contact with the tip of the nozzle. Do not attempt to handle with the nozzle attached.
- > Remove the nozzle after every patient and sterilize.

IMPORTANT

Air and water must be able to stream out of the nozzle freely. Do **not** place the nozzle against a tooth or other object. Do **not** press the nozzle into the impression material.

The Sprayvit M is equipped with extensive safety monitoring functions. However, please observe the following information.

CAUTION

After changing the Sprayvit M hose, no cooling water for the Sprayvit M heating cartridge flows until the hose is completely filled.

The patient may be scalded by the emission of hot steam. The heating cartridge can overheat and be destroyed.

- > After changing the hose of the Sprayvit M multifunctional syringe, press the *Water* key **briefly** and repeat until there is an ample supply of water in the hose before treating the patient.

IMPORTANT

Heating cartridge switch-on delay

To minimize the risk of scalding, the Sprayvit M water heater is not activated for several seconds after the treatment center is switched on and after a hose change when the *Water* key is initially pressed.

CAUTION

If the flow rate is insufficient, hot water may be emitted by the Sprayvit M.

The patient could thus be scalded.

- > Check the water flow rate prior to use.
- > Check the flow rate at least once a month and whenever you suspect that it may be insufficient as described in the section "Checking the flow rate of the Sprayvit M multifunctional syringe" [→ 243]. Clean the nozzle if required, see "Maintaining cooling nozzle outlet" [→ 242].

IMPORTANT

Electronic flow monitoring

If the electronic flow monitoring system detects low flow, the water heater will be deactivated and the system displays the corresponding error message, see also "Error messages" [→ 296].

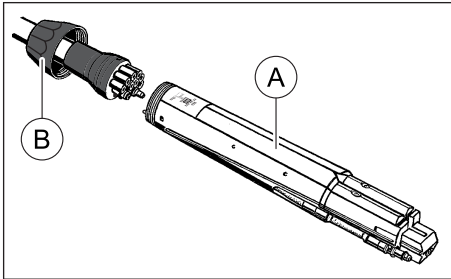
4.5.9.4 Connecting the instrument hose

⚠ CAUTION

There may be exposed voltage!

Risk of electric shock!

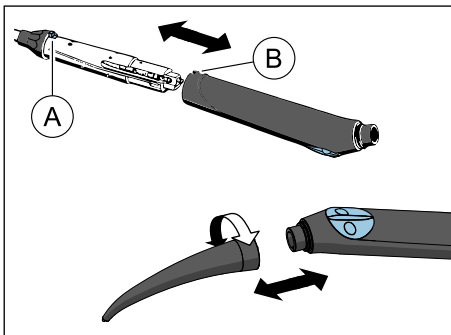
➤ Do not operate the media lever when the housing is removed!



1. Attach the valve body **A** to the supply hose, observing the various tube diameters. The valve body may also remain in the housing.
2. Screw the cap nut **B** onto the valve body and tighten it.

4.5.9.5 Attach/remove the housing and nozzle

Attachment



1. Align knob **A** and recess **B** so they face each other.
2. Attach the housing until it clicks into place.
3. Twist the nozzle onto the housing.
4. Check to make sure the nozzle is firmly attached.

⚠ CAUTION

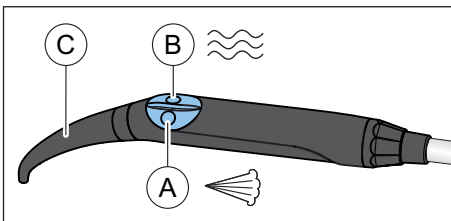
If the nozzle is not locked in place, it can come loose when the Sprayvit M is operated and fall into the patient's throat.

Removal

1. Twist the nozzle to detach it from the housing.
2. Press the lock knob and pull the valve body out of the housing at the cap nut.

4.5.9.6 Applying air, water, or spray

The following instructions apply to the standard version (water on the right) of the Sprayvit M multifunctional syringe. A Sprayvit M with inverted media (water on the left) is available as an option.



- Press the *Air* key **A**.
 - ↳ Air flows out of the instrument tip.
- Press the *Water* key **B**.
 - ↳ Water flows out of the instrument tip.
- Press the *Air* key **A** and the *Water* key **B** simultaneously.
 - ↳ Spray flows out of the instrument tip.
- Twist the nozzle **C** to reach the desired direction of spray.

4.5.9.7 Instrument light on/off and water temperature adjustment

The instrument light of the two Sprayvit M multifunctional syringes on the dentist and assistant elements can be switched on and off independently. The switching on/off refers to the multifunctional syringe that has been removed from the dentist element or the assistant element. If both multifunctional syringes are removed from their holders, the setting applies only to the multifunctional syringe of the dentist element.

If the Sprayvit M multifunctional syringe is not operated for 10 s, the instrument light automatically switches off.

The heating power of the water heater in the water unit is adjustable.

Switching the Sprayvit M instrument light on/off in the Start sub-dialog

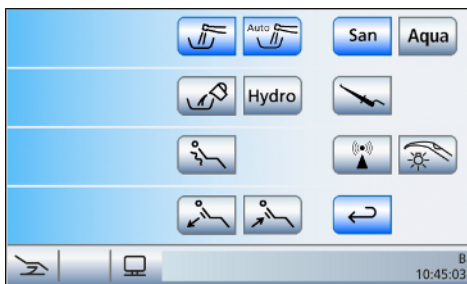
✓ The *Start program* is shown on the touchscreen

1. Touch the *Sub-screen* key.



↪ The *Start* sub-dialog is displayed.

2. Take a Sprayvit M multifunctional syringe from the holder of the dentist or assistant element.



↪ The *Sprayvit M instrument light* key is displayed in the *Start* sub-dialog.

3. Touch the *Sprayvit M instrument light* key.

↪ When the key is highlighted orange, the instrument light at the Sprayvit M multifunctional syringe is turned on if it is the only instrument to have been removed.



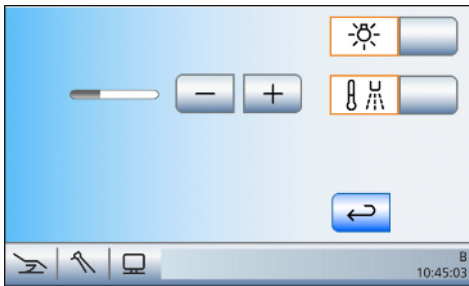
Switching instrument light on/off in the Sprayvit M setup screen

In order to prevent interference with the treatment process, the corresponding screen does not automatically appear on the touchscreen when the Sprayvit M is removed from its holder. It must be opened with the *Setup* key.

✓ The Sprayvit M multifunctional syringe has been removed from its holder on the dentist or assistant element.

1. Press and hold the *Setup* fixed key (> 2 s).





☞ The *Sprayvit M* setup screen is displayed.

2. Touch the *Instrument light* key.

☞ When the key is highlighted orange, the instrument light at the *Sprayvit M* multifunctional syringe is turned on if it is the only instrument to have been removed.

Activating/deactivating and setting the water temperature in the *Sprayvit M* setup screen

The heating power of the water heater in the water unit is adjustable. This accommodates different input temperatures of the supply water (e.g. summer/winter). The setting range is approx. 8 °C.

CAUTION

The heating power can be set too high.

The patient then feels that the water is too warm.

- Adapt the heating power of the water heater to the inlet temperature of the water.
- Before using the *Sprayvit M* multifunctional syringe, check the water temperature, e.g. with the back of your hand.

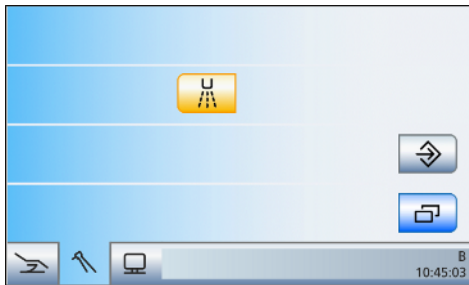


1. Touch the *Water temperature* key.

☞ If the key is highlighted orange, the water tempering function is activated.

2. Use the – and + keys to set the water temperature.

4.5.10 Turbine



IMPORTANT

Also observe the operating instructions for the different high-speed handpieces.

The high-speed handpiece hose is equipped with a standardized coupling according to ISO 9168.

The coolant, i.e. spray, air or NaCl, can be preselected and the instrument light can be switched on/off in the *Turbine* sub-screen; see "General instrument functions" [→ 87].

If your treatment center is equipped with the proportional valve option, the driving air of the high-speed handpiece can be regulated using the foot switch.



In the operating mode *EasyMode Start program*, the quick setting keys are shown. These keys, however, do not work.

4.5.11 Motor

The motor drives rotating and oscillating straight and contra-angle handpieces. Depending on the model, the motor may also be used for endometric measurements.

The motors meet the ISO 14457 standard.

4.5.11.1 Motor and coupling versions

Different brushless motors are available depending on the type of use and the coupling of the handpiece.

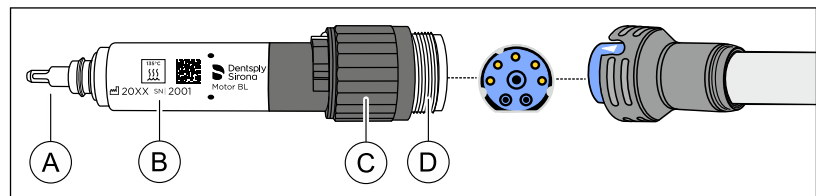
Brushless motors are designed as three-phase motors (without carbon brushes). They feature precise controllability and longevity. The motors can be sterilized.

For information on performing apex measurement using the instrument, refer to the section "Preparing to use the ApexLocator" [→ 112].

Hose coding

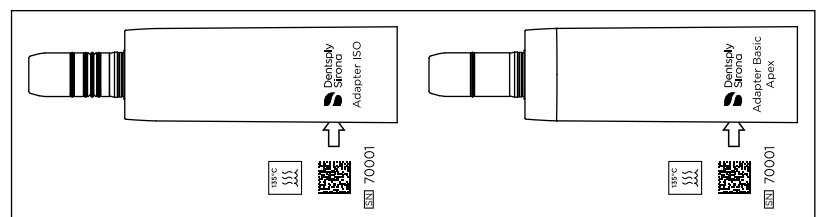
The motors each possess a special instrument hose with electrical coding. The treatment center recognizes the connected motor using this and configures the control system correspondingly. It is not possible mix up the different versions due to mechanical coding on the hose and motor.

BL motor



A	Motor shaft including carrier
B	Product labeling
C	Control ring/lamp ring
D	Coupling connection (blue / 3 guide lugs)

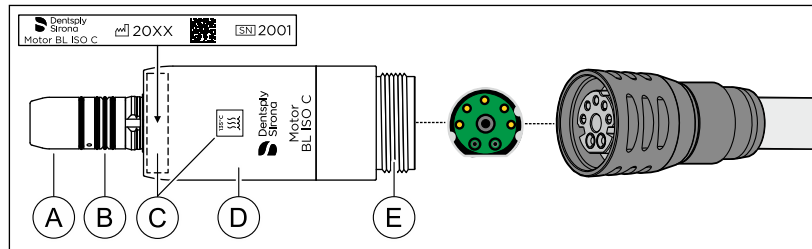
The BL motor is designed for direct operation of T1 Classic handpieces. For example, in order to use the handpieces of the T1 Line, either ISO adapter (no apex measurement, spray) or the Basic Apex adapter (apex measurement, no spray) have to be used as a connector.



ISO adapter (left) and Basic Apex adapter (right)

Their speed range lies between 90 and 40,000 rpm (revolutions per minute).

BL ISO C motors



A	Handpiece holder
B	O-ring 8.4 x 0.7
C	Product labeling
D	Motor sleeve ISO C
E	Coupling connection (green / 3 guide lugs)

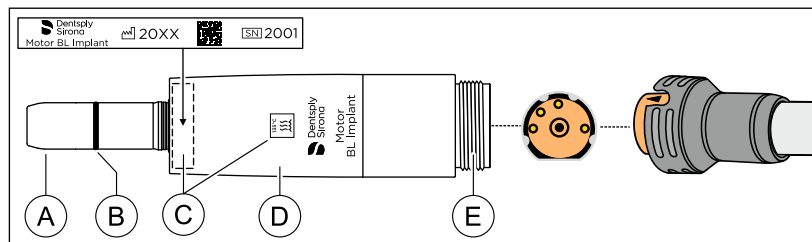
The BL ISO C motor is directly equipped with an ISO coupling. T1 Line handpieces, for example, can thus be used without an adapter.

The motor housing and the ISO interface of the motor is shortened.

The speed range of the BL ISO C motor is 90 to 40,000 rpm.

The BL ISO C motor can be used for endodontic treatment.

BL Implant motor



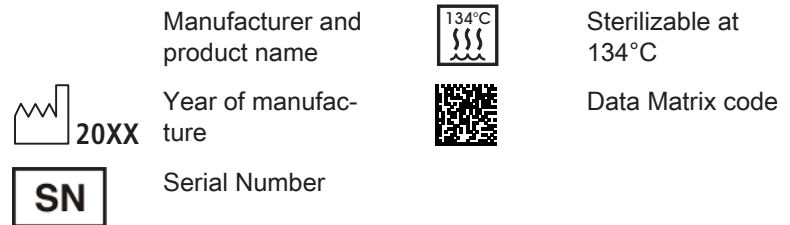
A	Handpiece holder
B	O-ring 8 x 1
C	Product labeling
D	Implant motor sleeve
E	Coupling connection (yellow / 4 guide lugs)

The BL Implant motor has been specially designed for surgical use. The air/water supply (spray) and the instrument light are therefore not present. It has a very high torque.

The speed range lies between 90 and 40,000 rpm.

4.5.11.2 Product labeling

The following information is lasered on the motor or motor sleeve and adapter:



4.5.11.3 Technical Data

Motors

	BL motor	BL ISO C	BL Implant
Length in mm	~ 40	~ 45	~ 61
Max. diameter in mm	~ 16	~ 22	~ 22
Max. speed in rpm	~ 40000	~ 40000	~ 40000
Torque in N/cm	~ 2.4	~ 3.0	~ 5.0
Limiting current in A, short term	~ 7	~ 7	~ 7
Max. power in W	~ 45	~ 61	~ 80
Spray function	x	x	-
Light function	x	x*	-
Apex measurement function	x	x	-
Handpiece holder – ISO 3964	-	x	x

* INTRAmatic Lux[®] interface

Adapter for BL motor

	ISO adapter	Basic Apex adapter
Light function	x	x
Spray function	x	-
Apex measurement function	-	x
Handpiece holder – ISO 3964	x	x

4.5.11.4 Safety instructions

CAUTION

Risk of injury when changing the hose

- Do **not** detach the motor from the instrument hose during operation!

CAUTION

Prevent eye damage

The LED is in risk class 2 according to the IEC 62471:2006 standard. The LED emits optical radiation that is potentially hazardous and may be harmful to the eyes. Potential damage to the retina from the blue light emission.

- Do **not** stare at the LED for longer periods of time while in operation.

NOTE

Protecting the motor shaft/axis

A bent motor shaft on the BL motor causes irregular operating noises or strong vibrations. This can damage instruments.

- Do **not** let the motor drop on the floor.

NOTE

Motor cooling

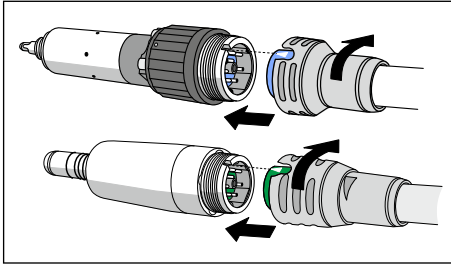
- If the motor overheats under high load, let it cool off by idling at half speed before continuing treatment.
- Never operate the motor without cooling air.

NOTE

Never lubricate electric motors!

- Remove the handpieces from the electric motors at the end of the working day so that no oil can run into the motor overnight.

4.5.11.5 Connecting the instrument hose



- ✓ Colored marks and position of guide lugs on motor and hose coupling of the instrument hose match.
- 1. Slide back the cap nut at the hose coupling.
- 2. Attach the motor onto the hose coupling up to the stop, observing the contact pins and tubes. Make sure the hose coupling does not tilt.
 - ↳ The arrow on the hose coupling and the notch on the motor must face each other.
- 3. Press the cap nut gently onto the thread; then turn it counterclockwise until a faint click is heard.
- 4. Screw the cap nut tightly onto the motor **clockwise**.

Does water leak out between the motor and the hose connection?

1. Remove the motor from the instrument hose.
2. Reconnect the motor to the instrument hose. Make sure it is connected properly.
3. If water still leaks, replace the sealing washer.

4.5.11.6 Replacing the instrument

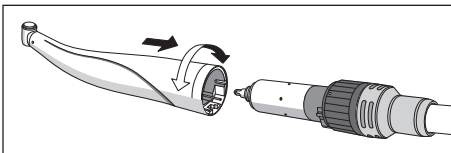
CAUTION

The instrument should only be fitted or removed when the motor is at standstill.

Attaching the instrument / adapter to the BL motor

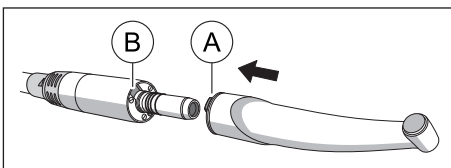
CAUTION

Do not operate the BL motor with exposed motor shafts and carriers (removed instrument / adapter). This may cause injury!



- ✓ The motor is at a standstill.
- > Attach the instrument or adapter. Lock the instrument or adapter into place here by turning.

Attaching instrument to the BL ISO C motor or adapter



- ✓ The motor is at a standstill.
- 1. Align the nib **A** of the instrument with the groove **B** of the motor.
- 2. Insert the instrument until it snaps into place.

Attaching the instrument to the BL Implant motor

- ✓ The motor is at a standstill.
- > Insert the instrument until it snaps into place.

Removing instrument/adapter

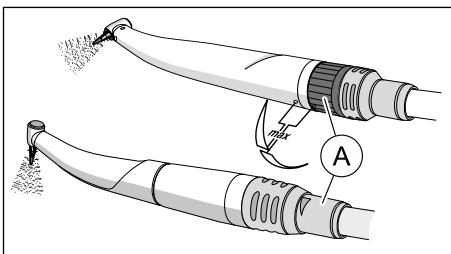
- ✓ The motor is at a standstill.
- > Detach the instrument or adapter. Do not pull on the instrument hose while doing this.

4.5.11.7 Adjusting the cooling spray

CAUTION

The BL Implant motor and basic adapter (Apex) do not provide cooling spray.

- > Ensure sufficient cooling of the preparation site via a sterile external media supply, e.g. NaCl.



- > Adjust the flow rate of the cooling water using the control ring **A** (> 50 ml/min).

Tip: You can measure the amount of cooling water with a measuring cup and watch.

BL motor: The maximum water flow is set when the two marks are facing each other.

BL ISO C motor: The maximum water flow is set when the control ring at the instrument hose is turned in a counterclockwise direction until it reaches the stop.

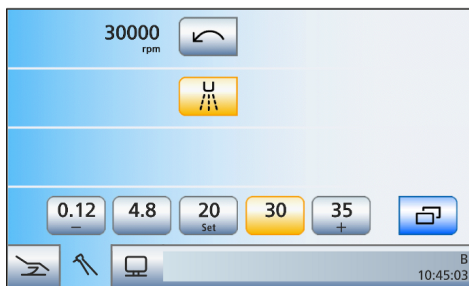
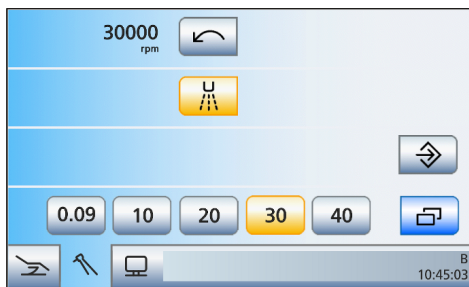
4.5.11.8 Setting the speed

In the *Simple/Advanced Start program* mode settings can be made using the static quick setting keys (with the key values 0.09, 10, 20, 30, 40), with programmable quick setting keys (with changeable key values) or via function levels (E1, E2).

In the *EasyMode Start program*, the speed can only be set using the static quick setting keys. They are displayed with values for the intensity levels (1%, 25%, 50%, 75%, 100%).

Selecting the speed with the quick setting keys

- ✓ The electric motor is removed from its holder.
- ✓ Either the *Motor program* with static or programmable quick setting keys is displayed on the touchscreen or the *EasyMode Start program*.
- Touch one of the quick setting keys in the bottom line briefly (< 1 s).
 - ↳ The quick setting key is highlighted orange. The selected speed is displayed in the first line in rpm (revolutions per minute).



IMPORTANT

Rpm values of quick setting keys

In the *Simple/Advanced Start program* operating modes, the speed of the motor corresponds to the speed value of the key x 1,000.

Key values with static quick setting keys:

The 0.09 key = 90 rpm (for BL, BL ISO C and BL Implant motors)

The 10 key = 10,000 rpm

The 20 key = 20,000 rpm

The 30 key = 30,000 rpm

The 40 key = 40,000 rpm

The keys values may have been changed with programmable quick setting keys.

In the *EasyMode Start program* operating mode, the speed of the motor corresponds to the intensity value of the key in percent (except for key 1).

The 1 key = 90 rpm

The 25 key = 10,000 rpm

The 50 key = 20,000 rpm

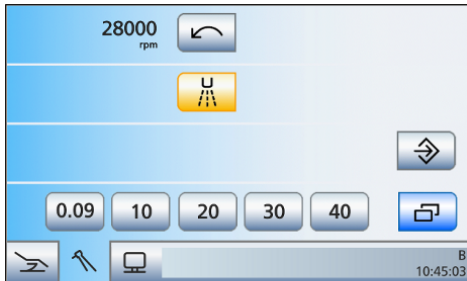
The 75 key = 30,000 rpm

The 100 key = 40,000 rpm

Please note that the speed of the burr depends on the selected straight or contra-angle handpiece.

Setting intermediate speed values with static quick setting keys

- ✓ The electric motor is removed from its holder.
- ✓ The *Motor program* with static quick setting keys or the *EasyMode Start program* is displayed on the touchscreen.
- Increase speed: Hold down a quick setting key, which has a speed value that is greater than or equal to the one displayed in the first line (> 1 s).
Decrease speed: Hold down a quick setting key, which has a speed value that is less than the one displayed in the first line (> 1 s).
 - ↳ The selected speed is displayed in the first line in rpm (revolutions per minute). The quick setting keys are shaded gray for intermediate values.



IMPORTANT

Increments

The size of the increments depends on the speed range setting.

For BL, BL ISO C and BL Implant motors:

From 90 to 400 rpm = 10 rpm increments

From 400 to 5,000 rpm = 200 rpm increments

From 5,000 to 40,000 rpm = 1,000 rpm increments

Please note that the speed of the burr depends on the selected straight or contra-angle handpiece.

Setting intermediate speed values with programmable quick setting keys

- ✓ The electric motor is removed from its holder.
- ✓ The *Motor program* is displayed on the touchscreen with programmable quick setting keys.
- Press and hold the left or right quick setting key – or + (> 1 s).
 - ↳ The speed is increased or reduced.

For increments see "Setting intermediate speed values with static quick setting keys" (above).

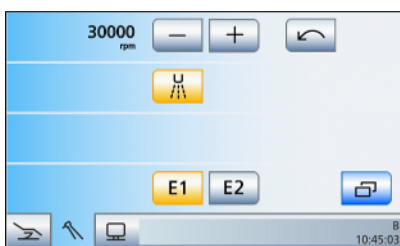


Setting the speed with function levels and saving on a level

- ✓ The electric motor is removed from its holder.
- ✓ The *Motor program* with function levels is displayed on the touchscreen.
- Set the speed using the – and + keys.
 - < 1 s coarse adjustment, > 1 s fine adjustment
 - ↳ The selected speed is displayed in the first line in rpm (revolutions per minute).

For increments for coarse adjustment, see "Selecting the speed with the quick setting keys" (above).

For increments for fine adjustment, see "Setting intermediate speed values with static quick setting keys" (above).

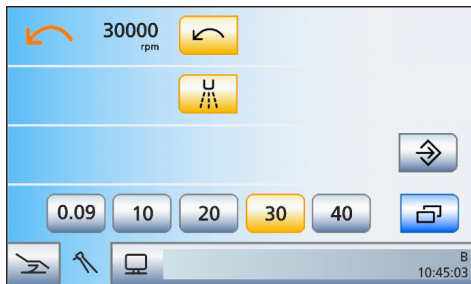


4.5.11.9 Setting the direction of rotation

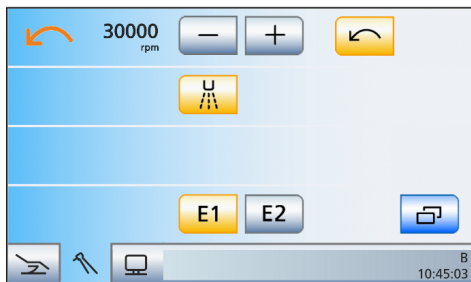
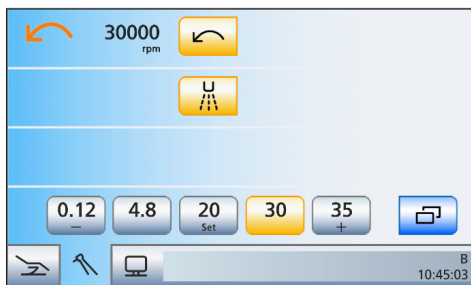
The direction of rotation can be changed only when the motor is at a standstill.

In the *EasyMode Start program* operating mode, the direction of rotation can only be set by using the foot control.

Via touchscreen



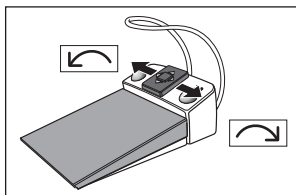
- ✓ The *Simple* or *Advanced Start program* operating mode is set.
- ✓ An electric motor is removed from its holder.
- ✓ The *Motor dialog* is displayed on the touchscreen.
- Touch the *Counterclockwise rotation* key on the touchscreen.
 - ↳ For counterclockwise rotation: The key is highlighted orange and an orange counterclockwise rotation arrow appears.
 - ↳ For clockwise rotation: The key is displayed in gray and the orange counterclockwise arrow is hidden.



Via foot control

When the cursor control is switched off, the rotational direction of the motor can also be set via the 4-way foot control plate of the foot control. In the *EasyMode Start program* operating mode, the direction of rotation must be set via the foot control.

- ✓ An electric motor is removed from its holder.
- ✓ The *Motor program* or *EasyMode Start program* is displayed on the touchscreen.
- For counterclockwise rotation: Move the 4-way control plate to the left.
 - ↳ For clockwise rotation: Move the 4-way control plate to the right.
 - ↳ In the *Simple/Advanced Start program*:
 - ↳ If the counterclockwise rotation is selected, the *CCW Rotation* key is highlighted orange and an orange counterclockwise arrow appears. If the motor is running in a clockwise direction,





the *CCW Rotation* key is displayed in gray and the orange counterclockwise arrow is hidden.

- In the *EasyMode Start program*:
If counterclockwise rotation is selected, an orange counterclockwise arrow appears. The counterclockwise arrow disappears when clockwise rotation is selected.

Tip: After starting the electric motor with the foot switch, an audible warning signal sounds 6 times if counterclockwise rotation is activated.

4.5.11.10 Implantology/endodontics treatments with motor

4.5.11.10.1 Electronic torque limitation

If your treatment center is equipped with the implantology/endodontics software option, please observe the instructions provided in the chapter "Implantology and endodontic treatments" [→ 137]. If your treatment center is not equipped with this option, please note that you do not have the option of electronic torque limitation.

⚠ CAUTION

No electronic torque limitation is available in the Motor program.

Root canal files can easily break during operation without torque limitation.

- Never perform endodontic treatments without torque limitation. Use an endodontic handpiece with mechanical torque limitation, e.g. SiroNiTi from Dentsply Sirona.

4.5.11.10.2 Endodontic treatments with the ApexLocator in the motor screen

If your treatment center is equipped with the ApexLocator option but does not have the treatment function, the Apex function in the Motor program can be used for endodontic treatments.

Please note that the ApexLocator can only be accessed in the *Motor screen* in the *Simple/Advanced Start program* operating modes.

IMPORTANT

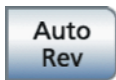
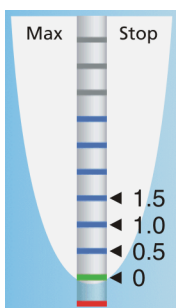
SiroNiTi Apex

Only Dentsply Sirona SiroNiTi Apex must be used to perform apex measurement using a torque-limiting handpiece! The electrical conductivity can be ensured only using this handpiece.

The SiroNiTi handpiece can also be used to perform endodontic treatments without the ApexLocator.

- ✓ The treatment center is prepared for apex measurements using the instrument, see section "Preparing to use the ApexLocator" [→ 112].
 - ✓ The *Motor dialog* is displayed on the touchscreen.
1. Set the appropriate motor speed according to the handpiece and the root canal file used, see "Setting the speed" [→ 105].
 2. You can make a setting to ensure that the motor stops automatically at a preset distance from the apex. If you want to use the automatic motor stop, this can be preset in the *Motor* sub-dialog. To do this touch the *Sub-dialog* key.
 - ↪ The *Motor* sub-dialog is displayed.

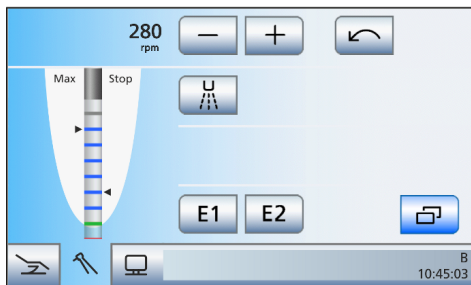
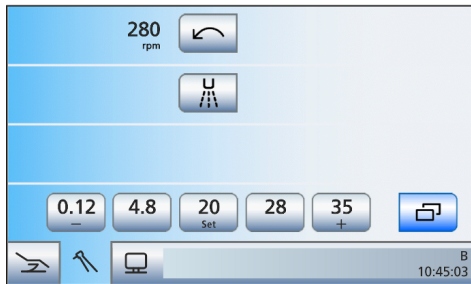
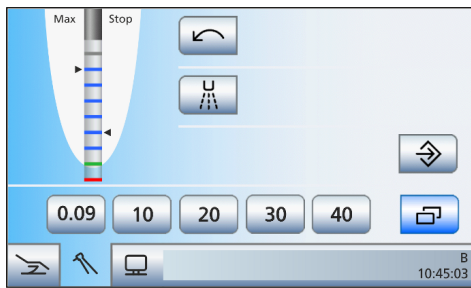




3. Touch the *Apex stop* key.
 - ↳ If the key is highlighted orange, the motor stops automatically when the physiological apex is reached. The – and + keys and the *AutoReverse* key are displayed.
4. Use the – and + keys to set the required apex distance from 1.5 to 0. If the distance is 0, the motor does not stop until it reaches the physiological apex. Please note that the distance values are not a metric length measurement!

↳ The set distance is displayed to the left of the – and + keys. The preset motor stop position is displayed in the *Motor dialog* as a black triangle to the right of the distance display under the text "Stop".

5. To combine the automatic motor stop with the automatic switching to counterclockwise rotation, press the *AutoReverse* key.
 - ↳ If the button is orange, the motor automatically switches to counterclockwise rotation following the motor stop the next time the foot pedal is operated. When the file is withdrawn, the bur drive automatically switches back to clockwise rotation.
6. To switch on the apex acoustic signals, press the *Apex acoustic signals* key.
 - ↳ If the key is colored orange, an acoustic signal is issued when the apex or the set motor stop position is reached. If the *AutoReverse* function is activated, three acoustic signals are issued when the motor switches to counterclockwise rotation.
7. To switch on the distance signal tones, press the *Apex distance signal tones* key.
 - ↳ If the key is colored orange, distance acoustic signals will be issued in addition to the distance display diagram. If the automatic motor stop is switched off, the intervals between the acoustic signals vary according to the measured distance from the physiological apex. If this function is switched on, the acoustic signals vary depending on the measured distance to the preset motor stop position. For more information on the acoustic signals during apex measurement, see the section "Acoustic signals" [→ 118].
8. Touch the *Return* key.



↪ The Motor screen is displayed.

⚠ CAUTION

Preventing incorrect measurements

When performing the apex measurement, wear non-conductive gloves to avoid measurement errors caused by unwanted leakage current.

During the measurement, the instrument must not come into contact with the patient's mucosa or the mucosal electrode. It is recommended to pull the silicone isolation sleeve over the handpiece and perform the treatment using a cofferdam.

9. Attach the required root canal file to the handpiece.
10. Short the electrical measurement system. Plug in the files and hold them directly against the mucosal electrode. This cancels out any inaccuracies caused by jumps in impedance in the measurement setup (standardization).
 - ↪ If a short signal is heard and the distance display appears with no bars, the standardization was successful. If not, check the electrical connections for signs of damage.
11. Place the mucosal electrode in the patient's mouth and perform the treatment. Activate the bur using the foot pedal.
 - ↪ The measured root canal depth is displayed by a colored bar in the distance display. The maximum root canal depth reached is displayed by a black triangle to the left of the distance display. If the motor stop function is activated, the distance of the motor stop preset in the *Motor* sub-screen is displayed to the right of the distance display. For more information, please refer to "Distance display" [→ 115].

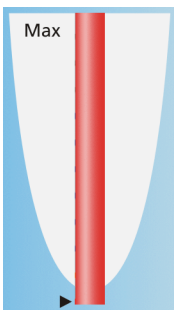
4.5.12 ApexLocator

The ApexLocator can be used to measure the working length of the root canal file in endodontic treatments using electrical impedance.

The ApexLocator can be used as follows:

- For manual measurement using a file clamp [→ 119]
- For measurement during treatment with the motor, without electronic torque limitation [→ 109]
- For measurement during treatment with the motor and using the "Endodontic Treatment" option with electronic torque limitation [→ 156]

With the *EasyMode Start* program operating mode, the ApexLocator can only be used for manual measurements with a file clamp.



⚠ CAUTION

The ApexLocator can be influenced by electromagnetic fields.

This may lead to measurement errors. Strong interference is indicated by a flashing red bar in the distance display. A warning signal sounds.

- Ensure that there are no sources of electromagnetic interference close to the treatment center.

If the ApexLocator detects a defect, the distance display and apex operating keys are not shown on the touchscreen, and an error message appears in the status bar, see "Error Messages." [→ 296]

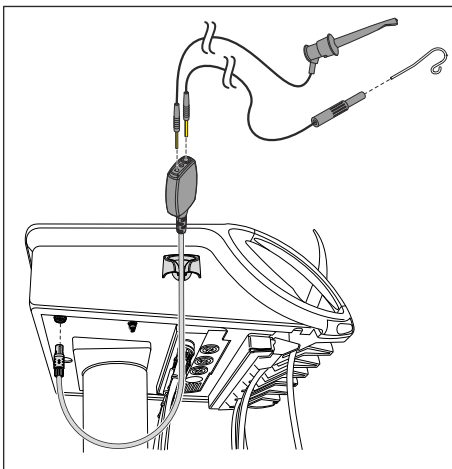
For more information about the distance display, see "Distance display." [→ 115]

4.5.12.1 Preparing to use the ApexLocator

Apex adapter, mucosal electrode and file clamp

The mucosal electrode and the file clamp are connected to the socket below the dentist element using the apex adapter.

1. Insert the apex adapter at the dentist element.
The apex adapter must be stored in the apex mounting during the treatment.
2. Insert the connector of the mucosal electrode into the large socket of the apex adapter.
3. For manual measurement: Insert the connector of the file clamp into the small socket of the apex adapter.



⚠ CAUTION

Following treatment with the ApexLocator, the Apex adapter must be disconnected from the dentist element.

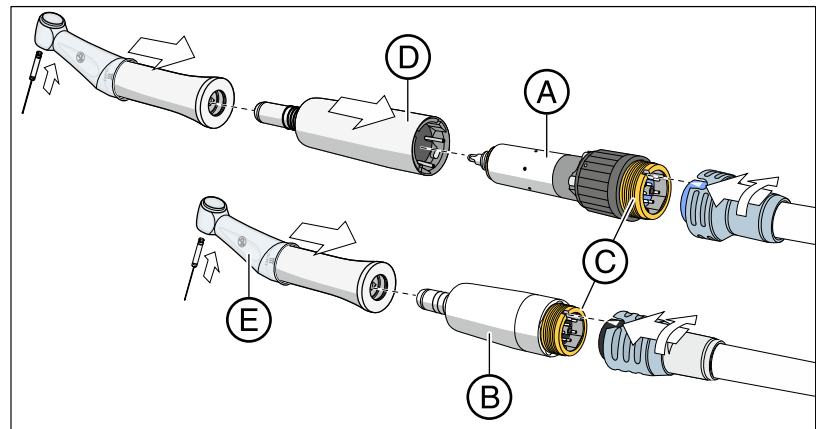
If the apex adapter is placed in the holder during treatment, the file clamp and mucosal electrode must be removed or placed under sterile conditions.

Care and cleaning of the ApexLocator components is described in the chapter "Care and cleaning instructions for the practice team", see "Cleaning and disinfecting/sterilizing the components of the ApexLocator" [→ 247].

Apex measurement via the instrument

The apex is measured by means of an impedance measurement between the root canal file and mucosal electrode. The Apex measurement signal is as follows:

- Apex cable in the instrument hose
- Metal housing of the motor
- Metal housing of the ISO adapter, if applicable
- Endodontic handpiece
- Root canal file
- Mucosal electrode
- Apex adapter



The Dentsply Sirona Endo 6:1 contra-angle handpiece (from SN 6407 onwards / July 2010) or Endo 6 L handpiece is required for use in endodontic treatments with the ApexLocator. When using the ApexLocator in the motor program (without electronic torque limitation), the Dentsply Sirona SiroNiTi Apex handpiece is required.

For each of the motors BL **A** and BL ISO **B**, one apex instrument hose is available, which carries the apex cable. The connecting threads of these motors **C** have gold-plated contact surfaces (in BL motors with serial number 6,000 or higher). The gold-plating ensures the electrical conductivity.

When using the BL motor, the (Apex) basic adapter **D** must be used as an intermediate piece. This is also provided with a gold contact.

The motor end of the Apex instrument hoses is identified by a blue connecting nut.

Pull the silicone insulation sleeve **E** over the contra-angle handpiece and wear insulating gloves to prevent faulty measurements due to leakage current. During the measurement, the instrument must not come into contact with the patient's mucosa or the mucosal electrode. We recommend the use of a cofferdam for treatment.

WARNING

The silicone isolation sleeve is a disposable item and must be sterilized before use.

Details can be found in the section "Cleaning and disinfecting/sterilizing the components of the ApexLocator" [→ 247].

Standardization of the measuring system

Before starting the apex measurement, a functional check or standardization of the measuring system can be performed by shorting the electrodes. This cancels out any inaccuracies caused by skips in impedance in the measurement setup.

- > Short the electrical measurement system. Plug in the files and hold them directly against the mucosal electrode.
 - ↳ If a short signal is heard and the distance display appears with no bars, standardization was successful. If not, check the electrical connections for signs of damage.

4.5.12.2 Distance display

The measured root canal depth is shown in the distance display on the touchscreen. A bar with 11 display levels shows the distance from the root canal file to the physiological apex (apical constriction). The root canal is divided into four colored sections in the distance display.

CAUTION

The distance display is not a metric specification of length.

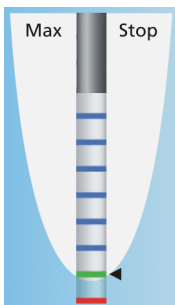
The ApexLocator should be used as an additional aid to supplement the usual root canal treatment measures. It is not intended to replace the radiological determination of the working length.

- > To determine the exact length, also prepare the relevant X-ray images.

Automatically show and hide the distance display

For measurement during the treatment using the instrument, the distance display is automatically displayed on the touchscreen in the *motor screen* and in the *Advanced Endodontics Program*. This appears as soon as the measurement begins, i.e. when electric current flows between the root canal file and the mucosal electrode. After the measurement, the distance display disappears again after a certain time, so that any hidden setting values are visible again. The distance display can be displayed again by standardizing the measuring system.

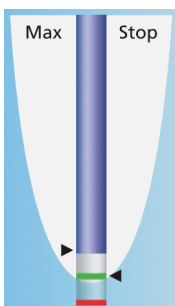
For manual measurements using the file clamp in the *Start* subscreen, the distance display can be shown/hidden by pressing the *Apex measurement with file clamp* button.



Colored regions of the distance display

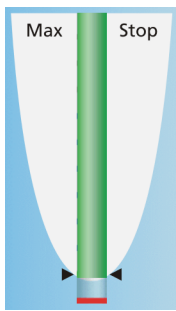
Gray region

The tip of the root canal file is in the middle region of the root canal.



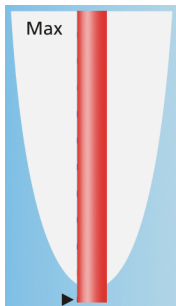
Blue region

The tip of the root canal file is near the apex.



Green region

The tip of the root canal file has reached the physiological apex.



Red region

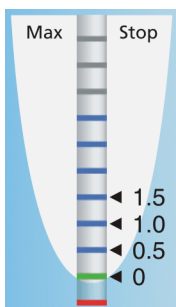
The tip of the root canal file has pierced the physiological apex. The instrument overshoot is displayed.

In the event of electromagnetic interference, the red bar flashes.

Maximum root canal depth reached

The maximum root canal depth reached is displayed as a black triangle to the left of the distance display under the text "Max". The triangle is displayed as soon as the gray region is exceeded.

After standardization of the measuring system by shorting the mucosal electrode and root canal file, the position of the triangle is automatically reset. In the *Simple/Advanced Endodontics program*, this also occurs after you have selected a new file.



Automatic motor stop for a preset apex distance

You can make a setting to ensure that the motor stops automatically at a preset distance from the apex. The preset distance is displayed as a black triangle to the right of the distance display under the text "Stop".

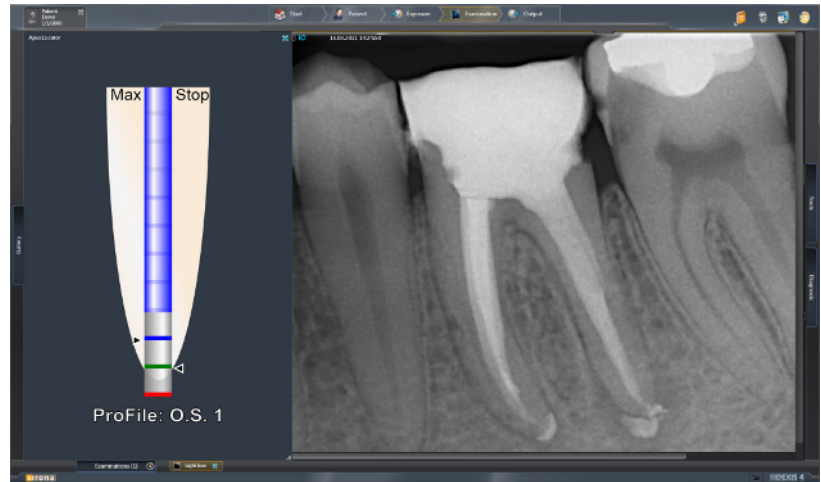
The motor stop can be combined with the *AutoReverse* function. Following the motor stop, the next time the foot control is operated, the motor switches to counterclockwise rotation. When the root canal file is withdrawn, the burr drive automatically switches back to clockwise rotation.

The automatic motor stop can be switched off or set to four different levels, for more information see the section "Implantology/endodontics treatments with motor" [→ 109] and the the "Endodontics" chapter, section "Setting the automatic motor stop of the ApexLocator" [→ 158]. If the distance is 0, the motor does not stop until it reaches the physiological apex. Please note that the distance values are not a metric length measurement!

Dental unit plugin "ApexLocator distance display"

The distance display on the touchscreen can also be shown on the Sivation monitor. For this, the Sidexis 4 and dental unit plugins must be installed on the PC. In Sidexis 4, this is displayed/hidden on the touchscreen by touching the distance display.

For more details, refer to the "Dental unit plugins" user manual.



4.5.12.3 Beeps

In addition to the graphical distance display on the touchscreen, the position of the file in the root canal can also be indicated as an acoustic signal.

Apex signal tones



If the *Apex signal tones* button is highlighted in orange the following signal tones are issued:

- If the motor stop function is deactivated, a beep is issued when the physiological apex is reached.
- A beep is issued when the motor stops automatically once it has reached the preset motor stop position (stop marking).
- Three beeps are issued when the motor switches to counterclockwise rotation if the Auto-Reverse function is activated and the foot pedal is operated.

If the treatment function is activated, this button is also used to switch the torque signal on/off.

Apex distance signal tones



If the automatic motor stop is switched off, the intervals between the beeps vary according to the measured distance from the apex. If this function is switched on, the beeps vary depending on the measured distance to the preset motor stop position.

If the *Apex distance signal tones* button is highlighted in orange the following signal tones are issued:

- No signal tone is issued if the file is at least five display levels (on the distance display) away from the apex or motor stop.
- Beeps with long intervals are issued if the file is three or four display levels away from the apex or motor stop.
- Beeps with short intervals are issued if the file is one or two display levels away from the apex or motor stop.
- A constant signal is issued when the file has reached or passed the apex or motor stop.

For manual measurements using the file clamp in the *Start* sub-screen, only the distance signal tones can be activated.

If both types of acoustic signal are switched on simultaneously, the continuous signal sounds when the motor reaches the apex and automatically stops with the motor stop function activated. The three beeps that are issued following activation of the auto-reverse function continue to sound.

4.5.12.4 Performing manual measurements with the file clamp

For endodontic examination, a manual measurement can be performed using the file clamp and a root canal file.

- ✓ The treatment center is prepared for manual measurements using the file clamp, see section "Preparing to use the ApexLocator" [→ 112].
 - ✓ The *Start* sub-screen is displayed on the touchscreen.
1. Touch the *Manual Measurement with File Clamp* key.



✎ If this function is activated, the *Manual measurement with file clamp* key is highlighted in orange. The distance display is shown on the touchscreen.

2. If the distance to the apex is to be indicated with an acoustic signal, press the *Apex distance signal tones* button.
 - ✎ If the button is colored orange, acoustic signals will be played in addition to the distance display diagram. The intervals between the acoustic signals vary according to the measured distance to the apex.

⚠ CAUTION

Preventing incorrect measurements

When performing the apex measurement, wear non-conductive gloves to avoid measurement errors caused by unwanted leakage current.

During the measurement, the root canal file must not come into contact with the patient's mucosa, metallic tooth restorations, or the mucosal electrode. It is recommended to use a cofferdam when measuring.

3. Attach a root canal file to the file clamp.
4. Short the electrical measurement system. Hold the clamped files directly against the mucosal electrode. This cancels out any inaccuracies caused by skips in impedance in the measurement setup (standardization).
 - ✎ If a short signal is heard and the distance display appears with no bars, the standardization was successful. If not, check the electrical connections for signs of damage.
5. Place the mucosal electrode in the patient's mouth and perform the measurement.
 - ✎ The measured root canal depth is displayed by a colored bar in the distance display. The maximum root canal depth reached is displayed by a black triangle next to the distance display. For more information, please refer to "Distance display" [→ 115].

The manual measurement in the *Start* sub-screen is ended automatically if you exit the program or display another program.

For information on apex measurements during treatment, refer to the section "Implantology/endodontic treatments with motor" [→ 109], and the section "Using the ApexLocator" [→ 156] in the "Endodontics" chapter.

4.5.13 SiroSonic TL scaler

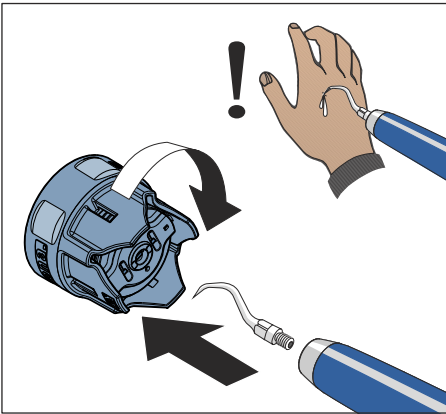
The SiroSonic TL scaler is used for removing plaque and for endodontic treatments.

IMPORTANT

See also the SiroSonic TL instructions for use.

4.5.13.1 Safety instructions

The torque wrench is used as a tool for screwing in instrument tips and, at the same time, to protect against injury.



⚠ CAUTION

Ultrasonic tips are very sharp.

There is a risk of injuring the hand when the ultrasonic handpiece is in the holder.

- Always attach the torque wrench to the ultrasonic handpiece for protection as soon as you deposit the handpiece.

⚠ CAUTION

Ultrasonic tips from other manufacturers do not guarantee safe operation.

- Use only ultrasonic tips from Dentsply Sirona.

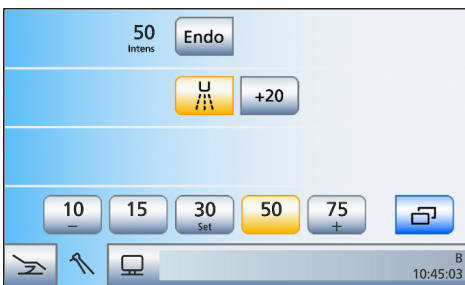
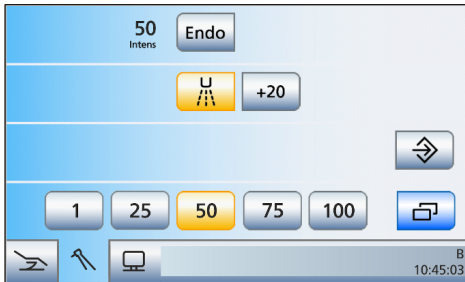
4.5.13.2 Setting the intensity

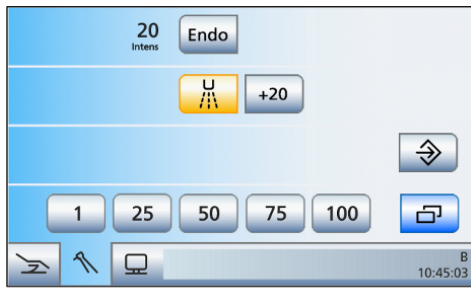
In the *Simple/Advanced Start program* mode, settings can be made using the static quick setting keys (with the key values 1, 25, 50, 75, 100), with programmable quick setting keys (with changeable key values) or via function levels (E1, E2).

In the *EasyMode Start program*, the intensity can be set only using the static quick setting keys.

Selecting the intensity with the quick setting keys

- ✓ The SiroSonic TL scaler is removed from its holder.
- ✓ Either the *Ultrasonic program* with static or programmable quick setting keys or the *EasyMode Start program* is displayed on the touchscreen.
- > Touch one of the quick setting keys in the bottom line briefly (<1 s).
 - ✎ The quick setting key is highlighted orange. The selected intensity is displayed in percent in the first line.

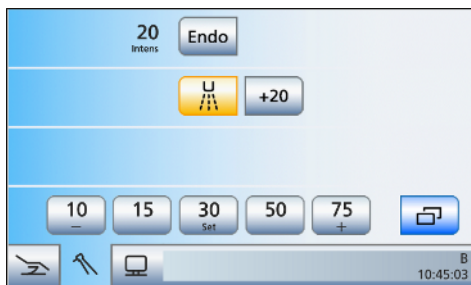




Setting intermediate intensity values with static quick setting keys

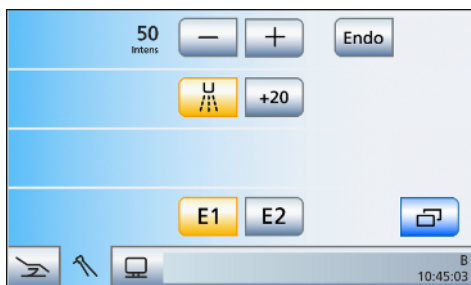
- ✓ The SiroSonic TL scaler is removed from its holder.
- ✓ The *Ultrasonic program* with static quick setting keys or the *EasyMode Start program* is displayed on the touchscreen.
- Increase intensity: Hold down a quick setting key, which has an intensity value that is greater than or equal to the one displayed in the first line (> 1 s).
Decrease intensity: Hold down a quick setting key, which has an intensity value that is lower than the one displayed in the first line (> 1 s).
 - ↳ The selected intensity is displayed in the first line. The intensity changes in increments of 1. The quick setting keys are shaded gray for intermediate values.

Setting intermediate intensity values with programmable quick setting keys



- ✓ The SiroSonic TL scaler is removed from its holder.
- ✓ The *Ultrasonic program* with programmable quick setting keys is displayed on the touchscreen.
- Press and hold the left or right quick setting key – or + (> 1 s).
 - ↳ The intensity is increased or reduced.

Setting the intensity with function levels



- ✓ The SiroSonic TL scaler is removed from its holder.
- ✓ The *Ultrasonic program* with function levels is displayed on the touchscreen.
- Set the intensity using the – and + keys.
< 1 s coarse adjustment, > 1 s fine adjustment
 - ↳ The selected intensity is displayed in the first line.

IMPORTANT

Increments

The coarse adjustment increments are 1, 25, 50, 75, 100.
For fine adjustment, the intensity changes in increments of 1.

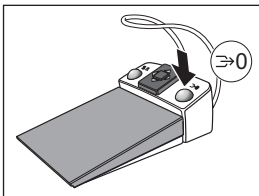
Increasing the intensity by increments of 20 (boost function)

The boost function allows for a 20-step increase of the intensity during treatment in relation to the final value. From an intensity of 80, the maximum value of 100 is the maximum that can be selected.

In the *EasyMode Start program* operating mode, this function can only be set by using the right key of the foot control. Activation of the boost function is only seen on the user interface if the intensity is increased on the display. The **+20** key is not available.

- ✓ The SiroSonic TL scaler is removed from its holder.
- ✓ The *Ultrasonic program* is displayed on the touchscreen either with static or programmable quick setting keys or with function levels.

1. Touch the **+20** key on the touchscreen.



or

- Press the right button of the foot control.

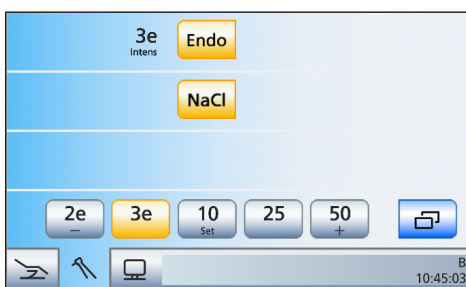
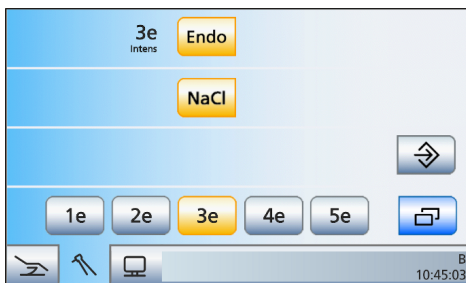
↳ The key is highlighted orange. The Boost function is activated.

Switching on the endodontics function

The intensity of the endodontics function is limited for safety reasons, e.g., in order to prevent broken needles.

If the instrument programs are displayed in the *Simple/Advanced Start program* operating mode with static quick setting keys, they are assigned values 1e to 5e when the endodontics function is activated. With the programmable quick setting keys, the values 1e to 5e are saved to the keys.

In the *EasyMode Start program* operating mode, the endodontics function must be switched on using the sub-screen.



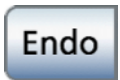
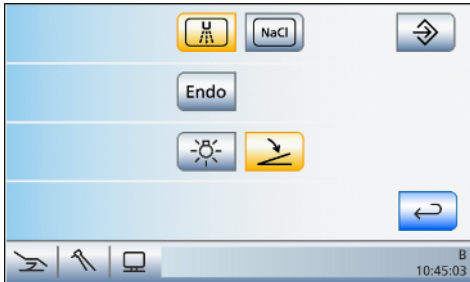
IMPORTANT

Endo intensity values

The intensity can be adjusted from 1e to 5e. Please note that the endodontics intensity values of 1e to 5e do not match the values of 1 to 5 in the scaler mode.

Always use the Endo mode for endodontics!

- ✓ The SiroSonic TL scaler is removed from its holder.
- ✓ The *Ultrasonic dialog* is displayed on the touchscreen.



1. Only with the *EasyMode Start program* operating mode: Touch the *Sub-screen* key.

↳ The *Ultrasonic* sub-screen is displayed.

2. Touch the *Endo* key.

↳ The key is highlighted orange. Instead of the ultrasonic intensity values, the touchscreen displays the endodontic intensity values (1e to 5e).

4.5.14 HF electrosurgery Sirotom

The Sirotom electrosurgical handpiece is used for electrotomy (cutting), coagulation and desiccation in biterminal technique, i.e. using a neutral electrode.

4.5.14.1 Safety instructions

Improper operation and failure to observe precautions can cause serious accidents when working with the electrosurgical unit.

WARNING

High frequency currents and fields may influence active implants, e.g., cardiac pacemakers.

The functioning and mode of the active implant may be impaired.

- We recommend not using the electrosurgical handpiece for patients with active implants.

Additional warnings concerning treatment with the electrosurgical unit:

- Use only original Dentsply Sirona accessories (instrument hose, handpiece, electrode set, neutral electrode).
- Patient lines should be placed in such a way that contact with the patient or other lines is avoided as far as possible.
- The patient should not come into contact with metallic parts which are grounded or have substantial capacitance to ground.
- Skin-on-skin contact, e.g., between the arms and the body of the patient, should be avoided.
- If HF surgical devices and physiological monitoring devices are used simultaneously on a patient, the monitoring electrodes should be attached as far as possible from the surgical electrode. The use of needle electrodes is not recommended for monitoring.
It is recommended to always use monitoring systems that include devices for limiting the high-frequency current.
- There is a risk of neuromuscular disorders.
- The power output should be set to the lowest possible value for the relevant purpose.
- If the surgical unit appears to supply little power or does not work properly in its normal setting, this may be caused by a poor contact in the supply cable (connector) or poor contact with the neutral electrode.
- Do not use the HF surgical unit longer than 10 minutes at a time, observing the specified active time. Then allow the HF surgical unit to cool down for at least 10 minutes.
- Do not use any ignitable or flammable gases, such as laughing gas. Combustible substances that are used, e.g. as cleaning or disinfecting agents, should have evaporated before surgery. Cotton wool can ignite. Endogenous gases can ignite.
- Contact between the HF handpiece and metal implants or supraconstructions must be avoided.
- The active electrosurgical function can impair the function of other electronic devices.
- Check the electrode cable regularly for possible damage to the insulation.

- If a line voltage fade occurs, the HF electronics switch off automatically. Deposit the handpiece briefly. Then you can continue working as usual.
- On removing the electrosurgical handpiece from the instrument holder, the Sivation monitor switches off automatically to protect against interference.
- See also chapter "Safety tests for systems with HF surgical equipment" [→ 295].

⚠ CAUTION

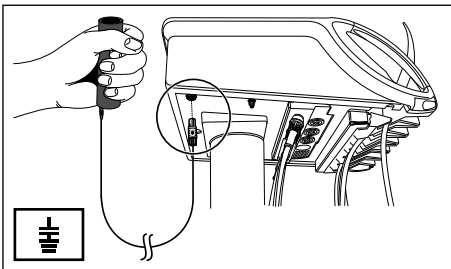
When using the Teneo HF surgical device or an external HF surgical device, always unplug the cable of the apex adapter from the dentist element in order to prevent electromagnetic interference.

4.5.14.2 Connecting the neutral electrode

The neutral electrode should always be used during treatment with the electrosurgical unit. It connects the patient to ground via a defined capacitance (capacitor). Reproducible high frequency currents are thus ensured.

The neutral electrode is not intended for use with patients under full anesthesia.

- > Plug in the connector of the neutral electrode on the bottom of the dentist element.



⚠ CAUTION

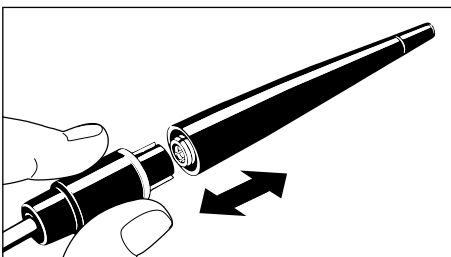
The patient must always hold the neutral electrode in his hand during treatment.

For HF surgery, only use the original neutral electrode supplied by Dentsply Sirona.

4.5.14.3 Connecting and disconnecting the handpiece

- > Fit the handpiece onto the cable adapter until it snaps into place.

The handpiece can be detached from the cable again after overcoming a slight resistance.



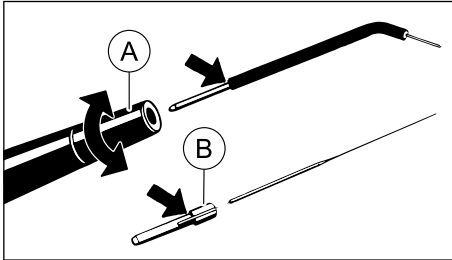
NOTE

Pulling too hard may damage the highly flexible cable.

- > Always pull on the adapter, never pull on the cable when removing the handpiece.

4.5.14.4 Clamping active electrodes

Only the active electrodes described in Section "Active electrodes" [→ 128] may be used.



⚠ CAUTION

Open metal contact (even with damaged electrodes) can result in arc-over, thus causing burns.

➤ It is essential to insert the electrode up to the stop (arrow) in the handpiece.

➤ Rotate the nut **A** to clamp the active electrode.

⚠ CAUTION

➤ Check to see whether the electrode is firmly clamped in by pulling on the active electrode before every patient.

Use the collet intermediate piece **B** for Miller needles.

➤ First insert the needle into the intermediate piece. Then insert both of them in the handpiece chuck and clamp them tight.

4.5.14.5 Active electrodes

Electrode set no. 1 – 8



No. 1

REF 24 78 071

Needle electrode, straight
(Electrotomy and desiccation)



No. 2

REF 24 25 684

Needle electrode, 45° offset
(Electrotomy and desiccation)



No. 3

REF 24 25 692

Wire-sling electrode,
elongated, 45° offset (electrotomy)



No. 4

REF 24 77 867

Wire-sling electrode,
rhomboid, 45° offset (electrotomy)



No. 5

REF 24 25 676

Coagulation electrode,
90° offset



No. 6

REF 24 25 650

Wire-sling electrode,
circular, 45° offset (electrotomy)



No. 7

REF 24 77 982

Ball electrode 3 mm Ø,
45° offset (coagulation)



No. 8

REF 24 25 700

Ball electrode 1.7 mm Ø,
45° offset (coagulation)



Intermediate piece
for Miller needles

REF 24 78 030

Special electrodes

(must be ordered separately)



No. 9
Hook electrode 45° offset

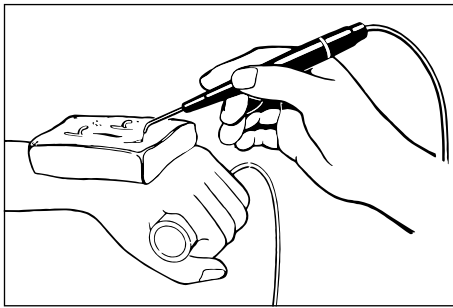
REF 24 77 909



No. 10
Coagulation electrode 45° offset

REF 24 77 883

4.5.14.6 Preliminary tests on the meat phantom



Electrosurgery requires proper application and a command of all treatment techniques.

You should therefore practice on the meat phantom before using it on the patient.

Familiarize yourself with the operation of the unit. Obtain a piece of raw beef that is as lean as possible. Coagulation effects can be recognized on it very well due to the resulting white discoloration. The adjacent drawing shows the test arrangement. The electrical conditions on the phantom here roughly correspond to those on the patient.

Now try to systematically test the effect of the dose and the type of incision using the different electrodes.

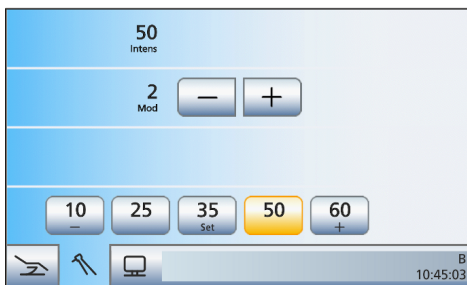
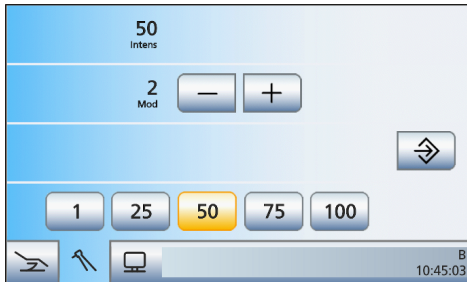
4.5.14.7 Setting the intensity

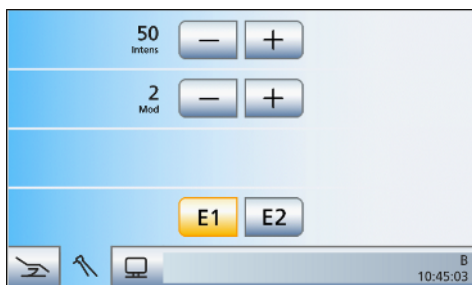
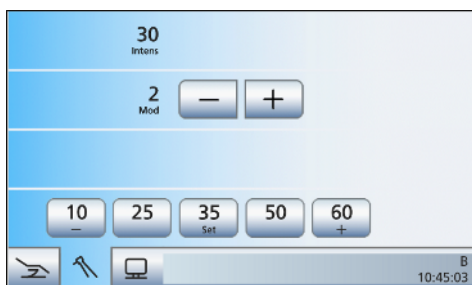
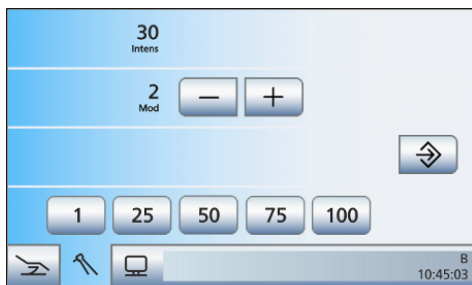
In the *Simple/Advanced Start program* mode, settings can be made using the static quick setting keys (with the key values 1, 25, 50, 75, 100), with programmable quick setting keys (with changeable key values) or via function levels (E1, E2).

In the *EasyMode Start program*, the intensity can be set only using the static quick setting keys.

Selecting the intensity with the quick setting keys

- ✓ The Sirotom HF electro-surgical handpiece is removed from its holder.
- ✓ Either the *Electrosurgery program* with static or programmable quick setting keys is displayed on the touchscreen or the *EasyMode Start program*.
- > Touch one of the quick setting keys in the bottom line briefly (< 1 s).
 - ✎ The quick setting key is highlighted orange. The selected intensity is displayed in percent in the first line (Intens).





Setting intermediate intensity values with static quick setting keys

- ✓ The Sirotom HF electrosurgical handpiece is removed from its holder.
- ✓ The *Electrosurgery program* with static quick setting keys is displayed on the touchscreen or the *EasyMode Start program*.
- Increase intensity: Hold down a quick setting key, which has an intensity value that is greater than or equal to the one displayed in the first line (> 1 s).
Decrease intensity: Hold down the quick setting key, which has an intensity value that is lower than the one displayed in the first line (> 1 s).
- ↳ The selected intensity is displayed in percent in the first line (Intens). The quick setting keys are shaded gray for intermediate values.

IMPORTANT

Increments

The size of the increments depends on the intensity range setting.
From 1 to 10: Increments of 1
From 10 to 100: increments of 5

Setting intermediate intensity values with programmable quick setting keys

- ✓ The Sirotom HF electrosurgical handpiece is removed from its holder.
 - ✓ The *Electrosurgery program* with programmable quick setting keys is displayed on the touchscreen.
 - Press and hold the left or right quick setting key – or + (> 1 s).
↳ The intensity is increased or reduced.
- The increments correspond to the static quick setting keys, see above.

Selecting the intensity with function levels

- ✓ The Sirotom HF electrosurgical handpiece is removed from its holder.
- ✓ The *Electrosurgery program* with function levels is displayed on the touchscreen.
- Set the intensity using the – and + keys.
< 1 s coarse adjustment, > 1 s fine adjustment
↳ The selected intensity is displayed in percent in the first line (Intens).

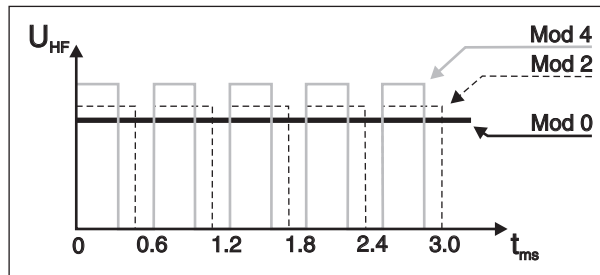
IMPORTANT

Increments

The coarse adjustment increments are 1, 25, 50, 75, 100.
The size of the increments for fine adjustment depends on the intensity range setting.
From 1 to 10: Increments of 1
From 10 to 100: increments of 5

4.5.14.8 Setting the modulation type

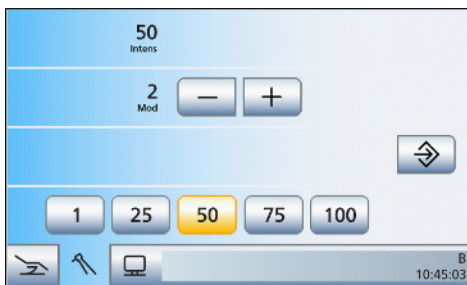
In modulation type 0 (Mod 0), the HF output voltage (U_{HF}) is constant. In Mod 1 to Mod 4 the output voltage is increased further and pulsed. The maximum output power remains limited to 50 W for all modulation types.



IMPORTANT

Selection of modulation type

Dentsply Sirona recommends the setting "Mod 0" for electrotomy. For coagulation, select modulated current type Mod 1 to 4 for the depth of crust based on experience.



- ✓ The Sirotom HF electrosurgical handpiece is removed from its holder.
- ✓ The *Electrosurgery program* (figure shows the static quick setting keys) is displayed on the touchscreen.
- 1. Use the – and + keys to set the modulation type of the HF current to (Mod) 0 to 4.

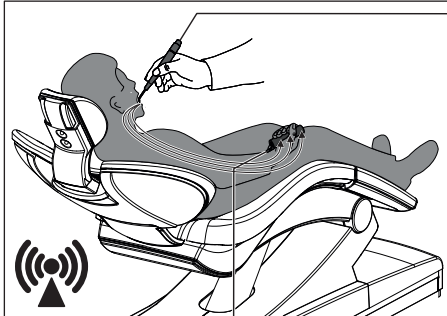
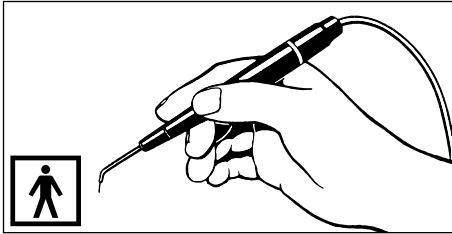
or

- > Press the left and right button of the foot control.
 - ✎ The selected modulation type is displayed in the second line (Mod).



In the *EasyMode Start program* operating mode, the display and setting of the modulation type is done on the *Electrosurgery* sub-screen.

4.5.14.9 Operating the Sirotom HF electrosurgical handpiece



The electrosurgical handpiece is used for electrotomy (cutting), coagulation, and desiccation in monoterminial technique. Different electrodes are available for this purpose.

The Sirotom handpiece is a type BF applied part (degree of protection against electric shock).

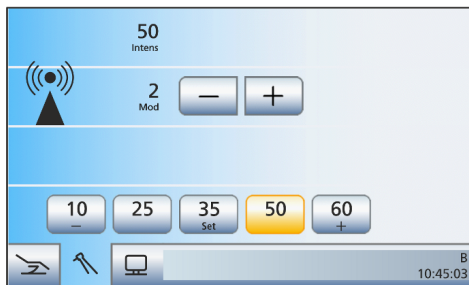
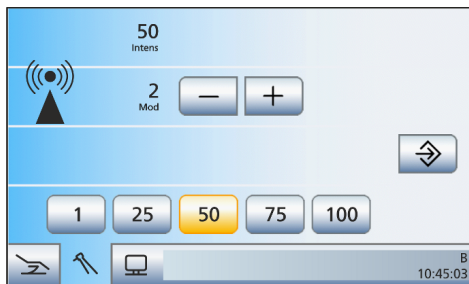
✓ The neutral electrode is plugged into the connection socket on the underside of the dentist element.

1. Instruct the patient to hold the neutral electrode firmly in one hand throughout the treatment.
2. Remove the electrosurgical handpiece from its holder.
 - ↳ The *Electrosurgery* program is displayed on the touchscreen.

NOTE

Automatic cutoff of the Sivision monitor

The monitor switches off as soon as the HF handpiece is removed from its holder.



3. Select the intensity.
4. Select the modulation type based on your experience.
5. Actuate the foot control.

↳ The HF electrosurgical handpiece is switched on. The symbol for non-ionizing electromagnetic radiation is displayed on the left side of the touchscreen (illustration with quick setting keys). An intermittent acoustic signal sounds (the volume can be adjusted by the service engineer).

NOTE

Unit switches off automatically

For interference suppression reasons, the handpiece may be used only for a few seconds at a time.

If the foot control is pressed for more than one minute, the HF power is interrupted. Step on the foot control again to switch it back on.

6. Carry out treatment.
7. Release the foot control.

↳ The power of the electrosurgical handpiece is switched off.

Release the foot control before you deposit the HF instrument. The programmed values of the previously selected user level appear again the next time the handpiece is removed.

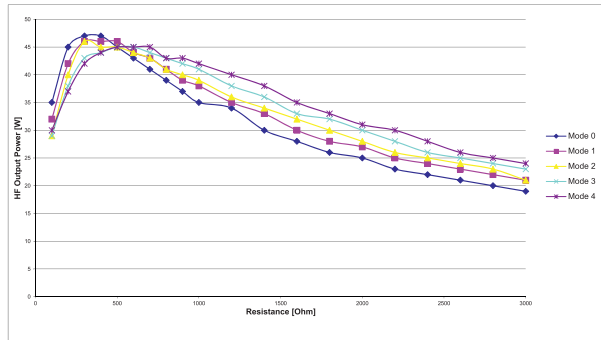
4.5.14.10 Technical data

Power characteristics

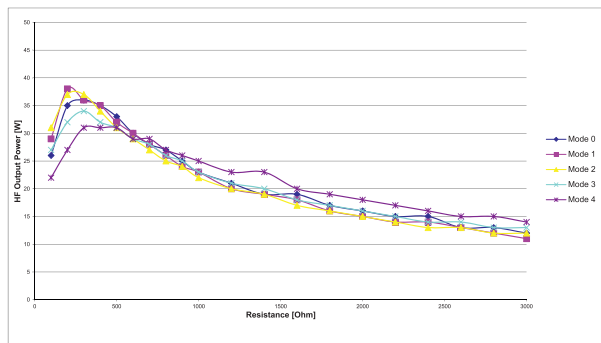
for cutting and coagulation

Power measured between handpiece and protective ground wire.

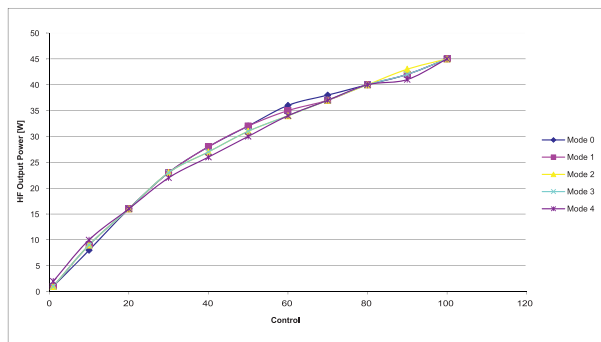
Intensity = 100



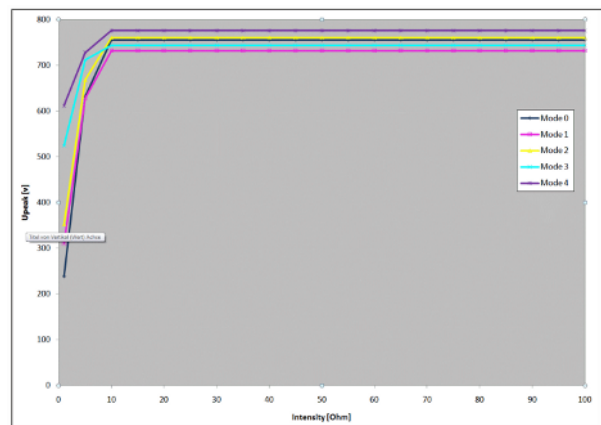
Intensity = 50



Power curve



Output voltage





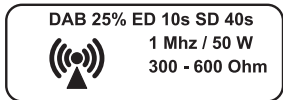

Technical information

Maximum output voltage, peak between active electrode and neutral electrode:	Mode 0: 756 V Mode 1: 732 V Mode 2: 760 V Mode 3: 744 V Mode 4: 776 V
Modulation frequency:	1667 Hz
Frequency of operating and alarm tone:	1200 Hz
Output power max. 50W across:	300 ohms at Coag 0 350 ohms at Coag 1 400 ohms at Coag 2 500 ohms at Coag 3 600 ohms at Coag 4

All accessories must be suitable for the voltages indicated above.

The neutral electrode is connected to the protective ground wire through a capacitor.

Explanation of the symbols and labels used

	Neutral electrode connection Neutral electrode with high frequency referenced to earth
	HF electro-surgical handpiece Sirotom applied part of type BF (degree of protection against electric shock)
	Intermittent operation 25% Duty cycle 10s Cycle time 40s HF frequency 1MHz
	Symbol for non-ionizing radiation

4.5.14.11 Safety checks

In Germany, medical devices are subject to the provisions of the Ordinance on the Installation, Operation and Use of Medical Devices (Medizinprodukte-Betreiberverordnung – MPBetreibV). Safety checks must be performed and a medical product log must be kept.

For more information, refer to "Safety tests for systems with HF surgical equipment" [→ 295].

4.5.14.12 Using the external HF surgery unit

External HF surgical devices may interfere with the treatment center and Sivation monitor. The treatment center should therefore be protected against interference caused by the external HF surgical unit whenever it is used.

As long as the suction removal system is required with the external HF surgery unit during the treatment, the suction handpiece must be removed from the holder before blocking the treatment center. The suction system remains switched on until the block is removed and the suction handpiece is returned to its holder.

- ✓ The *Start* sub-screen is displayed on the touchscreen.
- ✓ The *External HF surgical unit* key is displayed on the sub-screen. This can be set in the Setup program, see "Showing/hiding the external HF unit key." [→ 215]



1. Touch the *External HF surgical unit* key.

↪ If the function is switched on, a corresponding message will appear and stay on the touchscreen. The treatment center is blocked for data input. The instruments of the dentist and assistant elements can no longer be activated. The Sivation monitor and the camera are switched off.

2. You can now start using the external HF surgical unit. Touch the *Return* key following the application.

↪ The message is hidden. The treatment center is once again enabled.

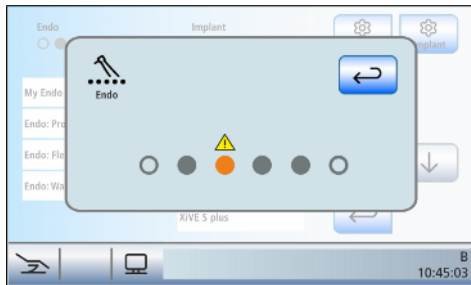
Electromagnetic disturbances can often be reduced by operating the external HF surgery unit with a neutral electrode.

4.5.15 Implantological and endodontic treatments

The treatment functions support implantology and endodontic treatments. The speed and torque of the rotating instrument can be precisely adjusted and saved for later reference, if desired. A selection of the most popular file systems with the speed and torque values recommended by the manufacturer is stored in a library. Users can set the selection and order of files.

If the treatment center is equipped with the ApexLocator option, it can be used for endodontic treatments.

The treatment center enables up to five implantology and endodontic treatments to be managed for each user profile.



The treatment functions can be used only in conjunction with the precisely adjustable brushless motors. If the adjacent display appears when the treatment function is switched on (see below), the software has detected that the burr drives marked with a warning triangle are not suitable for treatment purposes. In this case, please contact your dental depot.

In order to supply the burr drive with a sterile saline solution during implantology treatments, a peristaltic pump must be attached to the dentist element; see "Preparing for use of NaCl saline solution" [→ 90].

The Treatment function can only be accessed in the *Standard Start program* operating mode.

4.5.15.1 Treatment selection

Switching the function on and selecting the treatment

In the *Treatment selection* program, the treatment types Endodontics and Implantology are specified in two separate lists. The required treatment is selected from these lists.



IMPORTANT

Pencil symbol

Endodontic treatments that were created or edited by the user are marked with a pencil symbol. Please note that changes to the file settings may have been made during these treatment sessions. E.g. external files may have been added to or existing files may have been removed from the sequence or the values recommended by the manufacturer may have been altered.

Implantology treatments that were created by the user are marked with the pencil symbol.



If endodontic treatments for reciprocating rotating files are marked by a lock symbol in the treatment list, the treatment center does not have the reciprocating option. Contact your dental depot to activate the function.



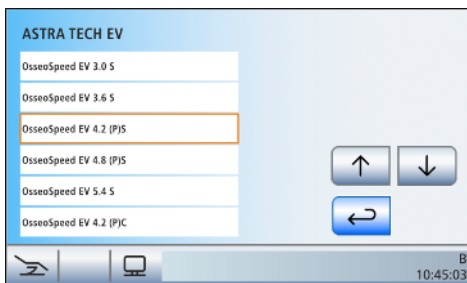
✓ The *Start dialog* is displayed on the touchscreen.

1. Touch the *Treatment* key.

↳ The *Treatment selection* screen is displayed.



2. Touch the field for the desired endodontic (left) or implantology (right) treatment.



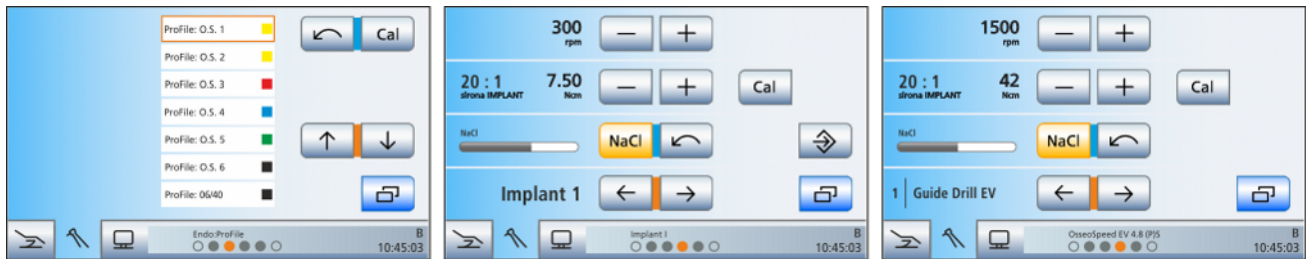
3. If you have selected an implantology treatment stored in the library, the *Implant selection* program is displayed. The example shows implants from various manufacturers. Touch the field for an implant. You can scroll in the list with the ↑ and ↓ keys.



↳ The *Simple/Advanced Start program* is displayed or, if an instrument has already been taken out, the system will switch to the *Instrument program*. The *Treatment* key is marked orange. The bur drive that corresponds to the treatment is displayed in the status bar with an orange dot. Please refer to the section "Assigning bur drives" for information on the significance of the empty or filled dots.

4. Remove the bur drive that is marked with an orange dot in the status bar from the instrument holder.

↳ Depending on the type of treatment selected, the *Simple endodontics program* or the *Implantology program* is displayed on the touchscreen.



Simple endodontics program (left), implantology program with user-defined treatment (center), and implantology program with an implant from the library (right).

When a bur drive is assigned, the name of the individually created endodontic treatment or selected file system is displayed, see "Managing endodontic treatment" [→ 161]. For implantology treatments, Implant I, Implant II, or the name of an implant from the library is displayed, see "Managing implantology treatment" [→ 147].

IMPORTANT

Display of the blue and orange cursor

In the *Implantology* and *Endodontics* treatment programs, the key assignment of the foot control is indicated by blue and orange cursor bars even when cursor control is switched off. The orange cursor can only be moved with the 4-way foot switch plate when cursor control is switched on. For more information on the cursor control, please refer to "Using the cursor control" [→ 54].

Assigning the bur drive

A specific bur drive must be assigned to each treatment type, i.e. endodontics and implantology.



The *Treatment Selection* screen indicates which bur drive is assigned to the treatment type and which one could be used alternatively:

- Empty, gray circle
Instrument cannot be used for the selected treatment type
- Solid gray circle
Bur drive can be assigned to the selected treatment type
- Solid orange circle
Bur drive is assigned to the selected treatment type

If you would like to use a different burr drive for the selected treatment, you can change this setting.

- ✓ The *Treatment selection* program is displayed on the touchscreen.
- 1. Before selecting the treatment, touch the *Managing endodontic treatment* button (left) or *Managing implantology treatment* (right).
 - ↳ Treatment management for endodontics or implantology will be displayed.





2. Touch the *Assign bur drive* key.

- ↳ The next usable bur drive is marked by the orange dot. The required bur drive is assigned to endodontics or implantology treatment.

Switching the treatment function off

When the treatment function is activated, the *Implantology program* or the *Endodontics program* is displayed on the touchscreen instead of the *Motor program* when the bur drive assigned to the selected treatment is removed from its holder. In order for the *Motor program* to be displayed again the next time the bur drive is removed, the treatment function must be switched off beforehand.

> Touch the *Treatment* key again.

- ↳ If the key is highlighted blue, the treatment function is deactivated. The *Motor program* is activated when a bur drive is removed from its holder.



4.5.15.2 Implantology

CAUTION

Only the Dentsply Sirona contra-angle handpiece Implant 20:1 may be used for the Implantology function.

Instruments from other manufacturers can lead to malfunctions. Third-party instruments may be improperly calibrated for implantology.

- > Use only the Dentsply Sirona Implant 20:1 contra-angle handpiece from Sirona for implantology.
- > Check whether the transmission ratio on the touchscreen agrees with the value specified on the contra-angle handpiece being used.

4.5.15.2.1 Calibrating the burr drive

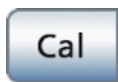
Calibration is required at the start of treatment, every time the contra-angle handpiece is changed and every time the contra-angle handpiece is lubricated.

The contra-angle handpiece is automatically checked during calibration. This includes a measurement of motor current at different speeds to assess the properties of the system.

CAUTION

To ensure proper calibration, use only Dentsply Sirona instruments.

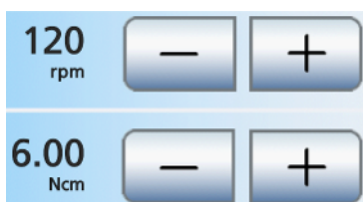
- ✓ The *Implantology program* is displayed on the touchscreen.
- 1. Attach the contra-angle handpiece that you would like to use for the implantology treatment to the electric motor.
- 2. Insert the tool in the contra-angle handpiece. This is thus also taken into account by the measurement.
- 3. Touch the *Cal*key on the touchscreen.
 - ↳ The button flashes orange.
- 4. Hold down the foot pedal throughout the duration of the calibration.
 - ↳ The *Cal*key continues to flash. If the burr drive is calibrated, the key permanently remains highlighted orange. Calibration is then completed.



4.5.15.2.2 Setting the speed and torque

In the Implantology function, the speed and torque values of the contra-angle handpiece, and not those of the motor, are specified. The control electronics of the burr drive calculate the motor control based on the specified gear reduction and the speed and torque values.

- ✓ The *Implantology program* is displayed on the touchscreen.
- > Use the – and + keys to set the speed and torque of the contra-angle handpiece. You can also hold down the keys for this purpose.
 - ↳ The selected speed is displayed in the first line in rpm (revolutions per minute). The torque is displayed in the second line in Ncm (newton centimeters).



IMPORTANT

Torque adjustment

The maximum adjustable torque depends on the system motor and the speed settings.

CAUTION

Improperly selected speeds and torque values endanger the patient.

Treatment errors, e.g. jaw damage, may result from incorrect settings.

- > Observe the manufacturer's instructions regarding tools and implants.

4.5.15.2.3 Setting the direction of rotation

The direction of rotation can only be changed when the motor is idle.

Counterclockwise rotation is performed without torque limitation. The torque setting keys are hidden when counterclockwise rotation is selected.

- ✓ The *Implantology program* is displayed on the touchscreen.

1. Touch the *Counterclockwise rotation* key on the touchscreen.

or

- > Press the right button of the foot control.

- ✎ For counterclockwise rotation: The key *Counterclockwise rotation* is highlighted orange and an orange counterclockwise rotation arrow appears.

For clockwise rotation: The key *Counterclockwise rotation* is displayed in gray and the orange counterclockwise arrow is hidden.

Tip: After starting the electric motor with the foot switch, an audible warning signal sounds 6 times if counterclockwise rotation is activated.

4.5.15.2.4 Activating/deactivating and setting the NaCl flow

In order to supply the burr drive with a sterile saline solution during implantological treatments, a peristaltic pump must be attached to the dentist element; see "Preparing for use of NaCl saline solution" [→ 90].

The peristaltic pump can be switched on/off by touching the *NaCl* key. If the key is highlighted orange, the pump can be activated by stepping on the foot control.

The NaCl flow rate set of the peristaltic pump is permanently displayed by a bar in the third line of the touchscreen in the *Implantology* program.

The flow rate can be set by pressing and holding the *NaCl* key (for more than 2 seconds). For details, see "Setting the NaCl flow rate" [→ 91].

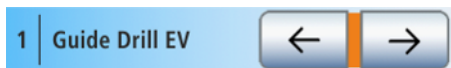


4.5.15.2.5 Selecting a work step

Individual settings can be made and saved for each implantology work step, e.g. predrilling, final drilling, tapping, etc. For treatment Implant I and Implant II, they can also be saved, see "Saving settings" [→ 145]. At the end of each work step, the required settings can be accessed immediately by selecting the next step.

The number of work steps can be set for the treatments Implant I and Implant II, see "Setting the number of work steps" [→ 145].

- ✓ The *Implantology program* is displayed on the touchscreen.
- > Select the required implantology work step. Touch the *previous step* or *next step* key.
 - ↳ The selected work step is displayed on the touchscreen. The settings saved in the work step are preset.

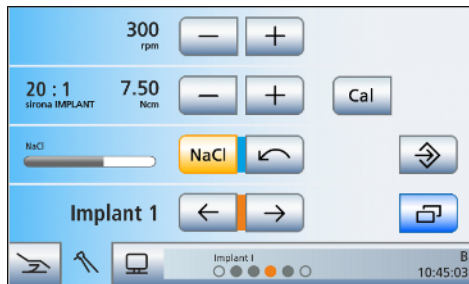


For implantology treatments from the library, the name of the bur instrument is displayed.

If NaCl rinsing was selected in the *Implantology* sub-screen, the *CCW rotation* key is displayed instead of the *Previous step* key. The implantology steps can then be run only forward in a loop. See "Preselecting NaCl rinsing, setting the flow rate, and activating the rinse function" [→ 144].

4.5.15.2.6 Sub-screen functions

Opening the implantology sub-screen



- ✓ The *Implantology program* is displayed on the touchscreen.



- > Touch the *Sub-screen* key.



- ✎ The *Implantology* sub-screen is displayed.

Preselecting NaCl rinsing, setting the flow rate, and activating the rinse function

The NaCl rinsing function can be used to activate an NaCl jet to rinse the treatment area when the bur instrument is not running.

Preselecting the NaCl rinsing key

A setting can be made to show or hide the *NaCl rinsing* key in the *Implantology Program*. If the show function is selected, the *NaCl*, *NaCl Rinsing* and *CCW Rotation* keys are all displayed adjacent to one other. The implantology steps can then be run only forward in a loop.



- ✓ The *Implantology* sub-screen is displayed on the touchscreen.



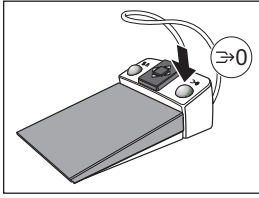
- > Touch the *Preselect NaCl rinsing* key.
 - ✎ If the key is highlighted orange, the NaCl rinsing keys are shown in the sub-screen and the *NaCl rinsing* is displayed in the *Implantology program*.

Setting the flow rate for NaCl rinsing

The flow rate of the peristaltic pump for NaCl rinsing can be set separately.



- ✓ The *Preselect NaCl rinsing* key is marked orange in the sub-screen. The setting keys for the NaCl rinsing are now displayed.
- > Use the – and + keys to set the flow rate for NaCl rinsing.



Activating NaCl rinsing via button on foot control

- ✓ The *NaCl rinsing* key is displayed in the *Implantology* program.
- > Press the right button of the foot switch.
 - ↳ The NaCl rinsing function remains active as long as the button is pressed.



Switching the torque signal on/off

This can be used to set the acoustic signal that sounds whenever 75% of the currently set torque value is exceeded.

- > Touch the *Acoustic Signal* key.
 - ↳ If the key is highlighted orange, the torque acoustic signal is activated.



Setting the foot control as a direct starter or speed foot control

The foot control can be set as a direct starter (key highlighted gray) or as a speed (key highlighted orange) foot control.

For details, see "Setting the foot control as a direct starter or speed foot control" [→ 89].

Setting the number of work steps

The number of work steps such as predrilling, final drilling, tapping, etc. can be set for the treatments Implant I and Implant II. Up to eight work steps can be preset.

- > Use the – and + keys to set the number of work steps.
 - ↳ The number of work steps is displayed on the left side: Implant 1... X.

Implant 1 ... 8



Saving settings

For Implant I and Implant II treatments, the following settings can be saved for the selected work step in the *Implantology* program:

- Speed and torque [→ 141]
- NaCl cooling and NaCl cooling quantity [→ 142]

In addition, the system will save the following settings that apply to the entire treatment:

- Number of work steps [→ 145]
- Presetting of NaCl rinsing and NaCl rinsing quantity [→ 144]
- Foot control as a direct starter or speed foot control [→ 145]
- Torque signal [→ 145]

IMPORTANT

The system will always save the entire treatment, including the step-independent settings of the treatment and the specific settings of all treatment steps, not just those of the current work step.

- ✓ The corresponding settings are made.
- ✓ The *Implantology* program for Implant I or Implant II treatment is displayed.



- Press and hold the *Memory* key (> 2 s).
 - ↳ An acoustic signal sounds. The settings you have made will be saved for every work step and the entire treatment session.

4.5.15.2.7 Managing implantology treatments

Up to five implantology treatments can be added to the treatment list on the right of the *Treatment selection* program.

Individual implantology treatments

In the Implant I and Implant II treatments (with the pencil symbol), individual speed and torque values can be preset and saved for up to eight work steps.

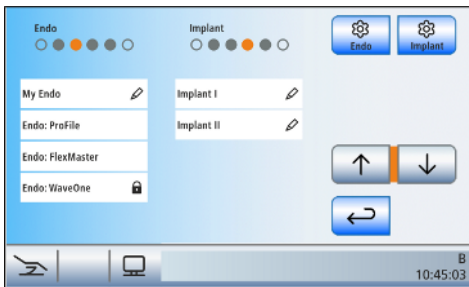
Implantology treatments from the library

In the software for the treatment center, a selection of the most common implant systems with the speed and torque values recommended by the manufacturer for each work step are stored in the library. The implant systems can be added to the implantology treatment list from a selection list. The predefined settings can be changed. However, when the implantology treatment is started again, the values saved in the library are preset again.

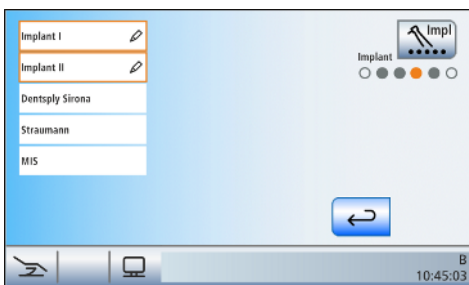
Opening the implantology management program

✓ The *Start program* is displayed on the touchscreen.

1. Touch the *Treatment* key.



☞ The *Treatment selection* program is displayed.

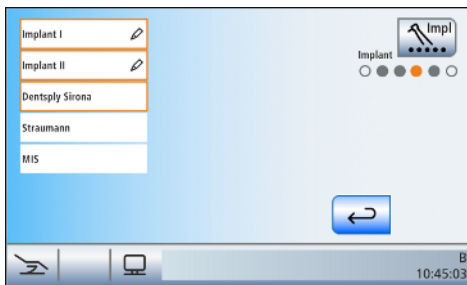


2. Before selecting a treatment, touch the *Implantology management* key.

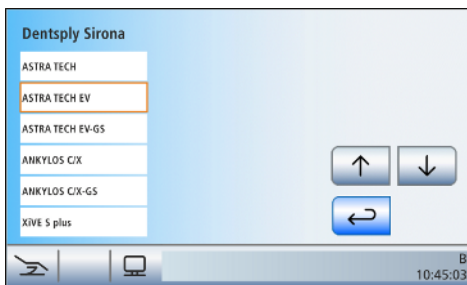
☞ The *Implantology management* program is displayed.

Adding or removing an implant system in the treatment list

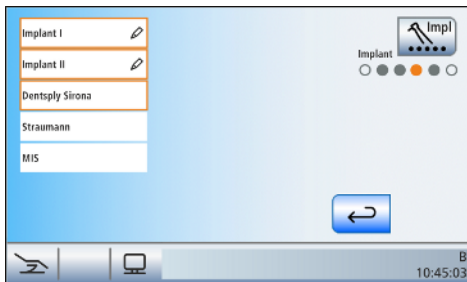
✓ The *Implantology management* program is displayed.



1. Touch the field for an implant manufacturer.
 - ✎ A list with the implant system from the selected manufacturer is displayed.



2. Select an implant system. You can scroll in the list with the ↑ and ↓ keys. Fields already highlighted orange can be deselected by touching them again.



✎ The *Implantology management* program is displayed again. The field of the selected implant manufacturer is highlighted orange.

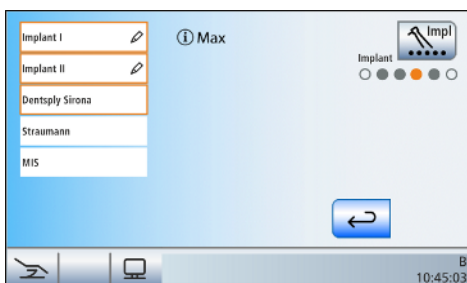
3. Repeat the process if you want to select additional implant systems.



4. Touch the *Return* key.



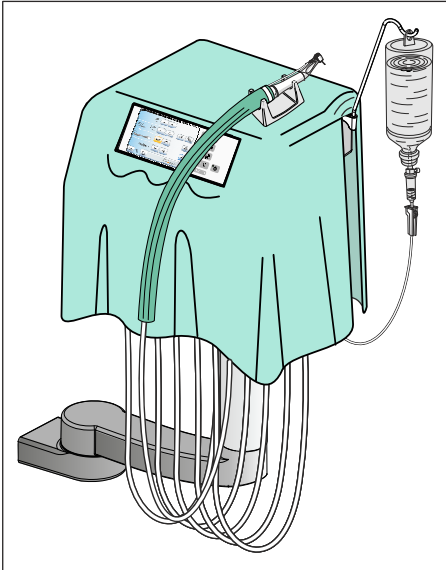
✎ The *Treatment selection* screen is displayed. The selected implant systems are displayed in the implantology treatment list, see "Treatment selection" [→ 138].



The treatment center enables you to add up to five implantology treatments to the treatment list. When the fifth implantology treatment is selected, a symbol appears on the touchscreen. This symbol indicates that the maximum number (total number of user-defined treatments and treatments selected from the library) has been reached.

If you do not need the Implant I and Implant II treatments, you can deselect them by touching the orange highlighted field. They are then no longer displayed in the implantology treatment list. This allows other implantology systems from the library to be added to the treatment list.

4.5.15.2.8 Preparing the treatment center for sterile operation



The requirements for sterile operation must be met for surgical procedures. Work only with the cursor control to avoid touching the user interface.

Covering the dentist element with a sterile drape

The dentist element can be covered with a surgical drape to allow for sterile operation. A rectangle must be cut out of the drape to allow for operation and visibility of the EasyTouch.

Use of separate motor holder

Since the instrument holder of the dentist element is inaccessible due to the surgical drape, the bur drive being used can be deposited in a separate motor holder. This separate holder is placed on top of the dentist element.

The motor holder can be sterilized.

To reorder the motor holder, see "Spare parts and consumables" [→ 299].

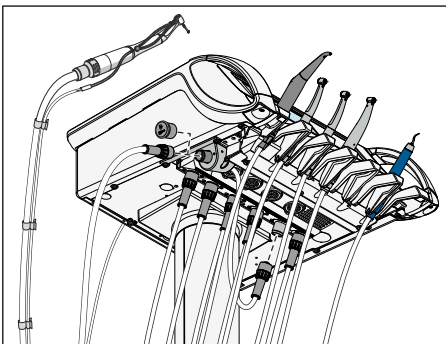
The Implant motor becomes the active instrument as soon as the hose of the implantology instrument is connected to the dentist element.

Attaching the instrument hose cover

The instrument hoses cannot be sterilized. Therefore, the instrument hose of the bur drive used must be covered with a sterile paper sleeve. The instrument hose sleeves can be ordered from a specialist dealer.

Using the lateral motor connection

To facilitate connecting the sterile motor hose, a lateral motor connection can be retrofitted on the left or right side of the dentist element. It is installed by the service technician. In this case, contact your dental depot. To protect against contamination, a sealing cap is enclosed with the lateral motor connection.



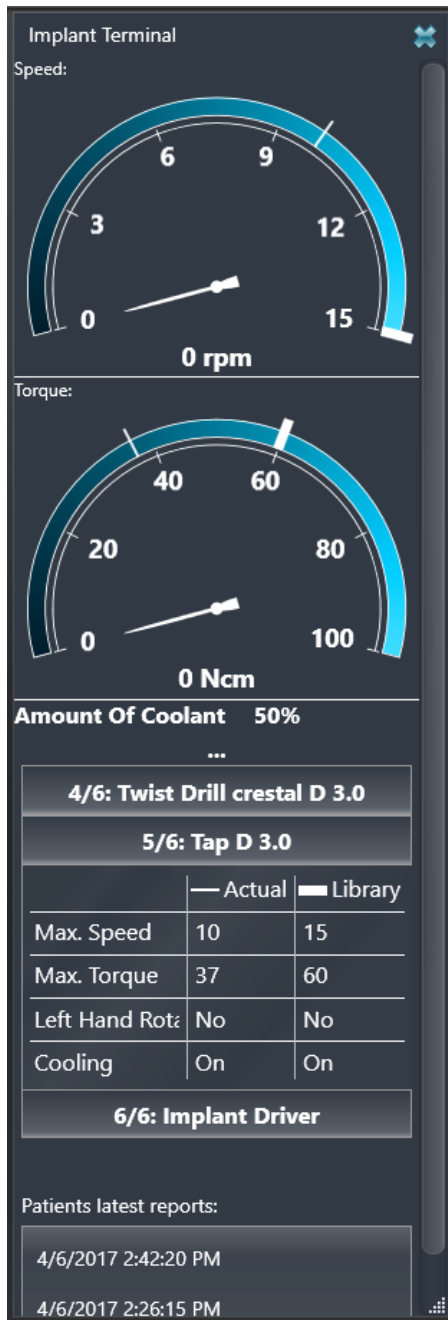
⚠ WARNING

The lateral motor connection is equipped with a water path.

Microorganisms can multiply in the water.

- The lateral motor connection must always be integrated into the purge, auto-purge, and sanitization process. This is necessary even if only instruments that carry no water are attached to the lateral motor connection.

4.5.15.2.9 Dental unit plugin "Implant terminal"



The most important parameters for implant treatment can also be displayed on the Sivation monitor. The speed and torque values measured by the control electronics are also sent to the monitor. Based on the treatment settings and the measured values, a report of the treatment can be compiled. Sidexis 4 and the dental unit plugins must be installed on the PC.

For more details, refer to the "Dental unit plugins" user manual.

4.5.15.3 Endodontics

⚠ CAUTION

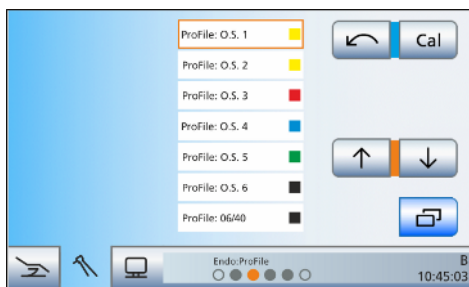
For the endodontics function, only Dentsply Sirona Endo 6:1 (SN 6407 and above / July 2010) and Endo 6 L contra-angle handpieces may be used.

Instruments from other manufacturers can lead to malfunctions. Third-party instruments may be improperly calibrated for endodontics.

- > For endodontics, use Dentsply Sirona Endo 6:1 (SN 6407 and above / July 2010) or Endo 6 L contra-angle handpieces.
- > Check whether the transmission ratio on the touchscreen agrees with the value specified on the contra-angle handpiece being used.

4.5.15.3.1 File selection

In the Simple Endodontics program



A list of the files available for this endodontic treatment is displayed over the full height of the touchscreen in the *Simple endodontics program*. Seven files can thus be displayed simultaneously.

The speed and torque values preset or set for the selected files are automatically used.

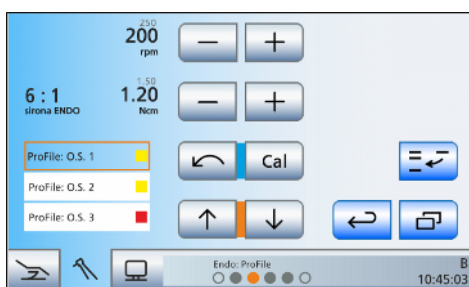
- ✓ An endodontic treatment is selected.
 - ✓ The *Simple Endodontics program* is displayed on the touchscreen.
1. Use the ↑ and ↓ keys to select the file that you would like to use.
or
 - > Select the endo file directly by touching the corresponding list entry.
↳ The selected file is highlighted orange.

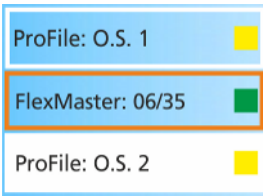
In the Advanced Endodontics program

A maximum of three files is displayed in the *Advanced Endodontics program*.

Speed and torque values can be modified individually, see "Setting the speed and torque" [→ 155].

- ✓ The *Simple Endodontics program* is displayed on the touchscreen.
1. Touch the *Sub-screen* key.
↳ The *Advanced Endodontics program* is displayed.
 2. Use the ↑ and ↓ keys to select the file that you would like to use.
or
 - > Select the endo file directly by touching the corresponding list entry.
↳ The selected file is highlighted orange. In the case of endodontic treatment **from the library**, the speed and torque value display the **values recommended by the file manufacturer**, while in **user-defined** endodontic treatments, the **values modified and saved by the user** for the selected file are shown in fine gray print.





Tip: The four keys that are marked with cursor positions (blue/orange) can also be operated with the foot control, even when the cursor control is not active.

IMPORTANT

Background shading of files

Files are displayed on the touchscreen with or without a white background. Files which were subsequently inserted in the file sequence by the user or for which the speed or torque were changed, are marked with a transparent background.

For file systems with only one endo file, the name of the file system is displayed in the list of files.

CAUTION

Root canal files are subject to material fatigue

Fatigued files may break during treatment.

- > Use files only for the service life specified by the manufacturer.

CAUTION

The parameters of the filing systems can be changed by the respective manufacturer. Therefore, please make sure to always check the specifications of the respective manufacturer prior to use.

4.5.15.3.2 Inserting a file in the sequence

Individual files from other popular file systems can be inserted in a treatment session for endodontic treatment. The file is then inserted according to the position of the file list selected.

Individual files can also be removed from the endodontic treatment; see "Removing a file from the sequence" [→ 160].

IMPORTANT

Only file systems that were added to the treatment list can be selected in the *Insert file* program, see also "Adding a file system to the treatment list" [→ 163].

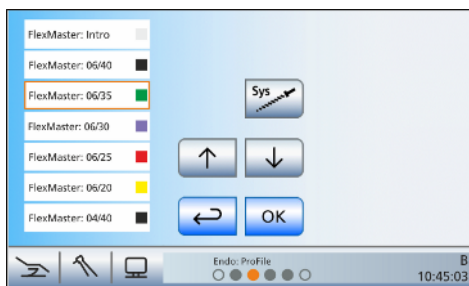
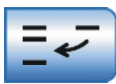
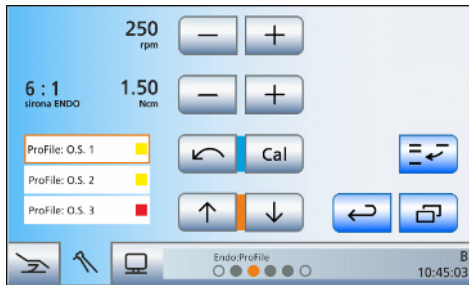
IMPORTANT

Automatic file system reset

When the treatment function is completed, the files removed from the file system are inserted again, the added files are deleted, and changed speed and torque values are reset according to recommendations of the file manufacturers.

Only newly created or copied treatments retain changes to file systems after the treatment function is exited, provided that the changes were saved previously. See "Creating a new endodontic treatment" [→ 161]. User-created treatments are marked with a pencil symbol in the *Treatment selection* program.

The ApexLocator settings, the auto-reverse function and the acoustic signals are always saved automatically when the treatment function is exited.



- ✓ The *Simple Endodontics program* is displayed on the touchscreen.
1. Touch the *Sub-screen* key.

- ↳ The *Advanced Endodontics program* is displayed.
2. Select the position in the file sequence below which an additional file is to be inserted. Touch the ↑ and ↓ keys.

or

- > Touch the position in the file list.
- ↳ The selected position is highlighted orange.

3. Touch the *Insert file* key.

- ↳ The *Insert File* screen is displayed.

4. Select the file system from which you would like to insert a file in the file sequence. Touch the *File System* key.

- ↳ Each time the key is touched, the next file system is displayed on the left side of the touchscreen.

5. Select the file you would like to insert at the previously specified position from the list. Touch the ↑ and ↓ keys. Then confirm with the *OK* key.

or

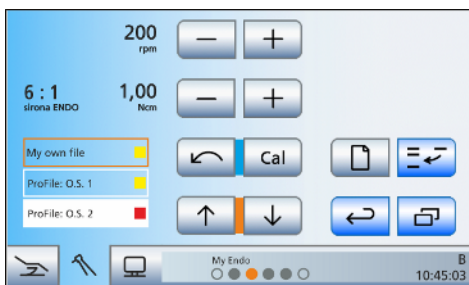
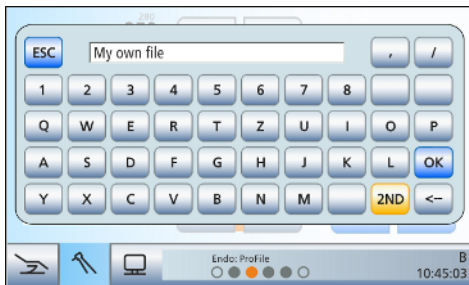
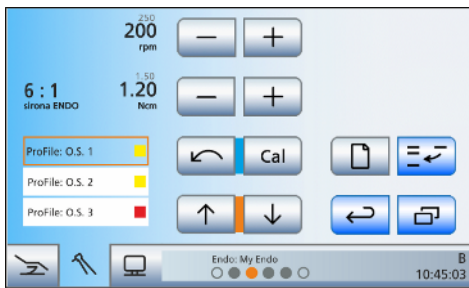
- > Touch the file in the file list.
- ↳ The *Insert File* screen is hidden. The selected file was inserted at the desired position.

Use the *Back* key to close the *Insert file* sub-screen without inserting a file.

4.5.15.3.3 Creating user-defined files

In order to enable the use of a new or nonexistent file system, the *Advanced endodontics program* offers the the possibility of creating user-defined files. Once a name has been entered, the standard speed and torque values of the new file must be set according to the manufacturer's specifications.

You can create user-defined files only in user-created or copied endodontic treatments. The *Create user-defined file* key is hidden for treatments from the library.



- ✓ The *Advanced endodontics program* is displayed on the touchscreen.
- 1. Select the position in the file sequence where another file is to be added. Touch the ↑ and ↓ keys.
- or
- > Touch the position in the file list.
 - ↳ The selected position is highlighted orange.
- 2. Touch the *Create user-defined file* key.
 - ↳ A keyboard then appears.
- 3. Enter the designation of the new file. Confirm your entry with the *OK* key.
 - ↳ The keyboard is hidden. The new file is displayed in the file list with the designation you entered.
- 4. Use the – and + keys to set the speed and torque of the new file according to the manufacturer's specifications. The values set after creating the file are default values.
- 5. Save the settings in the *Endodontics* sub-screen if necessary. User-defined files are not automatically saved.

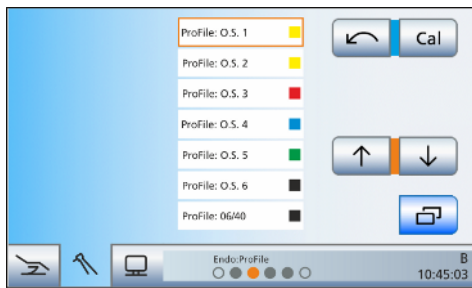
4.5.15.3.4 Calibrating the burr drive

Calibration must be performed each time you start treatment, each time you change or lubricate the contra-angle handpieces. Recalibration is not necessary when a file is changed.

The contra-angle handpiece is automatically checked during calibration. This includes a measurement of motor current at different speeds to assess the properties of the system.

CAUTION

To ensure proper calibration, use only Dentsply Sirona instruments.



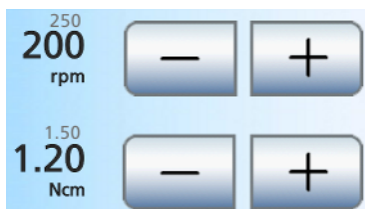
- ✓ The *Simple Endodontics program* (shown here) or the *Advanced Endodontics program* is displayed on the touchscreen. The *Advanced Endodontics program* can be opened by touching the *Sub-screen* key (two cascaded rectangles).
- 1. Attach the contra-angle handpiece that you would like to use for the treatment to the electric motor.
- 2. Insert a file in the contra-angle handpiece. This ensures that the file is taken into account in the measurement.
- 3. Touch the *Cal*key on the touchscreen.
or
> Press the right button of the foot control.
↳ The button flashes orange.
- 4. Hold down the foot pedal throughout the duration of the calibration.
↳ The *Cal*key continues to flash. During calibration, increasing speeds are set on the motor. If the burr drive is calibrated, the key permanently remains highlighted orange. Calibration is then completed.

4.5.15.3.5 Setting the speed and torque

If you do not wish to work with the standard parameters of the file, you can set them yourself.

In the Endodontics function, the speed and torque values of the contra-angle handpiece, not those of the motor, are specified. The control electronics of the bur drive calculate the motor control based on the specified gear reduction and the speed and torque settings.

- ✓ The *Advanced Endodontics program* is displayed on the touchscreen.
- ✓ A file is selected.
- > Use the – and + keys to set the speed and torque of the contra-angle handpiece. You can also hold down the keys for this purpose.
↳ The selected speed is displayed in the first line in rpm (revolutions per minute); the second line indicates the speed in Ncm (Newton centimeters).



For endodontics, the saved speed and torque moment values are displayed in fine gray print. In the case of endodontic treatments from the library, these are the values specified by the file manufacturer; in the case of user-defined treatments, these are the values saved/modified by the user.

IMPORTANT

Torque adjustment

The maximum adjustable torque depends on the system motor and the speed settings.

⚠ CAUTION

Improperly selected speeds and torque values endanger the patient.

Treatment errors, e.g. breaking of a file, may result from incorrect settings.

- > Observe the manufacturer's instructions regarding file systems.

4.5.15.3.6 Setting the direction of rotation

The direction of rotation can be changed only with the motor stopped.

Counterclockwise rotation is performed without torque limitation. The torque setting keys are hidden when counterclockwise rotation is selected.

✓ The *Simple/Advanced Endodontics program* is displayed on the touchscreen.

1. Touch the *CCW Rotation* key on the touchscreen.

or

➤ Press the left button of the foot control.

↳ For counterclockwise rotation: The *CCW Rotation* key is highlighted orange and an orange CCW arrow appears.

For clockwise rotation: The *CCW Rotation* key is displayed gray and the orange CCW arrow disappears.

After you start the electric motor with the foot control, an audible warning signal sounds 6 times if counterclockwise rotation is activated.

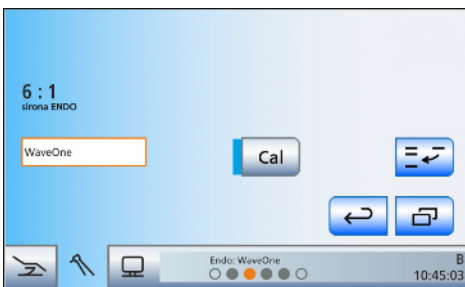


4.5.15.3.7 Using reciprocal rotating files

For endodontic treatment with reciprocating rotating files, the sequence of the files and the preset values recommended by the manufacturer cannot be changed.

When switching to the *expanded endodontic dialogue* the keys for setting the speed and torque and the counterclockwise key are hidden.

If the treatment center is equipped with the ApexLocator option, it can also be used with reciprocating rotating files.



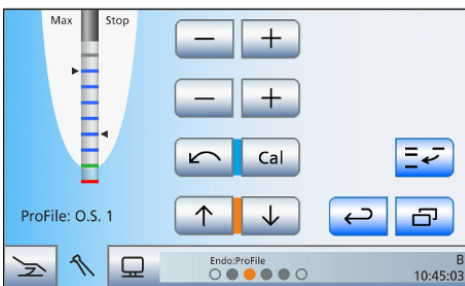
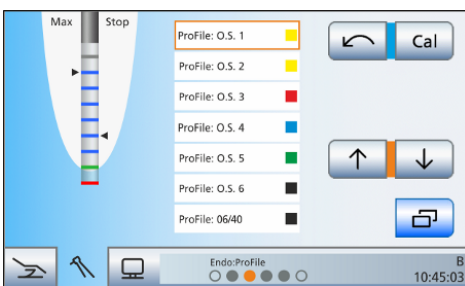
4.5.15.3.8 Using the ApexLocator

✓ The treatment center is prepared for apex measurements using the instrument, see section "Preparing to use the ApexLocator" [→ 112].

✓ The *Simple/Advanced Endodontics program* is displayed on the touchscreen.

1. Select a file, see "Selecting a file" [→ 151]. If necessary, change the preset speed and torque, see "Setting the speed and torque" [→ 155].

2. You can set the motor to stop automatically at a preset distance from the apex. If you want to use the automatic motor stop, this can be preset in the *Endodontics* sub-screen. The automatic motor stop can be combined with the *Auto-reverse* function, see "Setting the automatic motor stop of the ApexLocator" [→ 158].



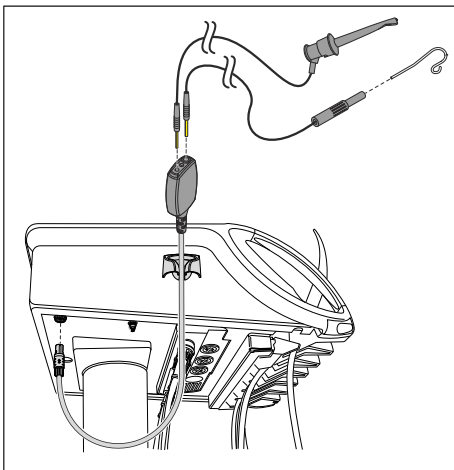
IMPORTANT

Preventing incorrect measurements

When performing the apex measurement, wear non-conductive gloves to avoid measurement errors caused by unwanted leakage current.

During the measurement, the instrument must not come into contact with the patient's mucosa, metallic tooth restorations, or the mucosal electrode. It is recommended to pull the silicone isolation sleeve over the handpiece and perform the treatment using a cofferdam.

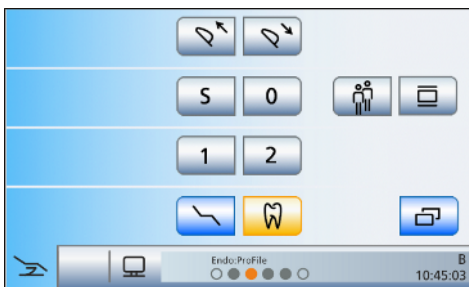
3. Attach the previously selected file to the handpiece.
4. Short the electrical measurement system. Plug in the files and hold them directly against the mucosal electrode. This cancels out any inaccuracies caused by jumps in impedance in the measurement setup (standardization).
 - ↳ If a short signal is heard and the distance display appears with no bars, standardization was successful. If not, check the electrical connections for signs of damage.
5. Place the mucosal electrode in the patient's mouth and perform the treatment. Activate the bur using the foot pedal.
 - ↳ The measured root canal depth is displayed by a colored bar in the distance display. The maximum root canal depth reached is displayed by a black triangle to the left of the distance display. To the right, the distance of the motor stop set in the *Endodontics* program is displayed. For more information, please refer to "Distance display" [→ 115].



For manual measurement using the file clamp, you can change directly from the *Endodontics* program to the *Start* sub-screen.

- ✓ Endodontics treatment is activated.

1. Return the endo handpiece to the instrument holder.



- ↳ The *Start* program is displayed with the treatment function activated.

2. Conduct a manual measurement using the file clamp.



- ↳ When a signal is detected via the file clamp, the *Start* sub-screen appears automatically with manual measurement activated. The function cannot be switched off.

3. Remove the endo handpiece from the holder again.

- ↳ The display switches back to the *Endodontics* program. Apex measurement is again done via the handpiece.

4.5.15.3.9 Functions in the sub-screen

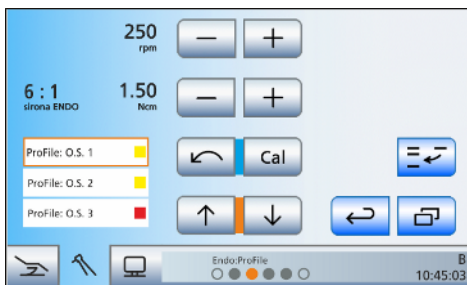
Opening the endodontics sub-screen

After the start of a treatment, the *Simple Endodontics program* is shown by default. After setting down the instruments and retrieving them again, the last active program, i.e., the *Simple* or the *Advanced Endodontics* program is displayed.

- ✓ The *Simple Endodontics program* is displayed on the touchscreen.



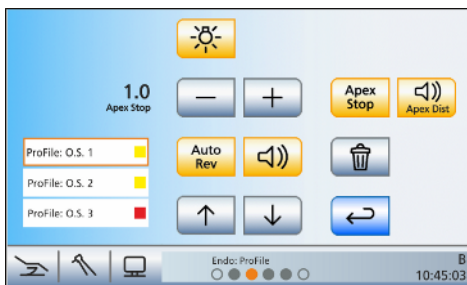
1. Touch the *Sub-screen* key.



- ↪ The *Advanced Endodontics program* is displayed.



2. Touch the *Sub-screen* key again.



- ↪ The *Endodontics* sub-screen is displayed.

For endodontic treatments, the settings are made individually for each file.

1. Use the ↑ and ↓ keys to select the file whose settings you would like to change.
 - ↪ The selected file is highlighted orange.
2. Perform the settings as described in the following sections:

Switch instrument light on/off

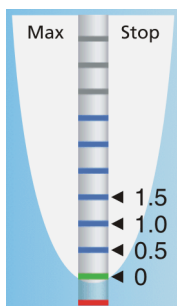
The Dentsply Sirona Endo 6L handpiece is equipped with a light guide.

- Switch the instrument light on or off with the *Instrument light* key.
 - ↪ If the key is highlighted orange, the instrument light can be activated using the foot pedal.



Setting the automatic motor stop of the ApexLocator

If your treatment center is equipped with the ApexLocator option, the motor can be set to stop automatically at a preset distance from the apex. The motor stop can be combined with the *AutoReverse* function, see “Switching the AutoReverse function on/off” [→ 159].



1. Touch the *Apex stop* key.
 - ↳ If the key is highlighted orange, the automatic motor stop is activated. The – and + keys are displayed.
2. Use the – and + keys to set the required apex distance from 1.5 to 0. If the distance is 0, the motor does not stop until it reaches the physiological apex. Please note that the distance values are not a metric length measurement!
 - ↳ The set distance is displayed to the left of the – and + keys. The preset motor stop position is displayed in the *Simple/Advanced Endodontics program* screen as a black triangle to the right of the distance display under the text "Stop".

Apex settings are stored automatically when the treatment is completed.

Switching the apex distance signal tones on/off

If your treatment center is equipped with the ApexLocator option, you can adjust a setting so that distance signal tones are emitted in addition to the graphical distance display. If the automatic motor stop is switched off, the intervals between the acoustic signals vary according to the measured distance from the physiological apex. If this function is switched on, the acoustic signals vary depending on the measured distance to the preset motor stop position. For more information on the acoustic signals during apex measurement, see the section "Acoustic signals" [→ 118].



- > Press the *Apex distance acoustic signals* key.
 - ↳ If the key is highlighted orange, the apex distance acoustic signal is activated.

Switching the torque signal and apex signal tones on/off

This can be used to set the acoustic signal that sounds whenever 75% of the currently set torque value is exceeded.

If your treatment center is equipped with the ApexLocator option, this button also switches the apex signal tones on or off. An acoustic signal sounds when the apex or a set motor stop position is reached. If the AutoReverse function is activated, three acoustic signals are emitted when the motor switches to counterclockwise rotation. For more information on the acoustic signals during apex measurement, see the section "Acoustic signals" [→ 118].

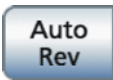


- > Press the *Torque signal and apex acoustic signals* key.
 - ↳ If the key is highlighted orange, the torque signal and the apex acoustic signals are switched on.

Switching AutoReverse ON/OFF

A setting can be made so that the bur drive automatically switches to counterclockwise rotation when the preset torque value is reached.

If your treatment center is equipped with the ApexLocator option, you can determine that the bur drive stops automatically at a preset distance from the apex. For more information, see "Setting the automatic motor stop of the ApexLocator" [→ 158]. If the AutoReverse function is switched on, the next time the foot pedal is activated following a motor stop, the motor is switched to counterclockwise rotation. When the file is withdrawn, the bur drive automatically switches back to clockwise rotation.



- > Touch the *AutoRev* key.
 - ↳ If the key is highlighted orange, the AutoReverse function is activated.

Remove file from sequence

Individual files can be removed from the sequence.

IMPORTANT

Automatic file system reset

When the treatment function is completed, the files removed from the file system are inserted again, the added files are deleted, and changed speed and torque values are reset according to recommendations of the file manufacturers.

Only newly created or copied treatments retain changes to file systems after the treatment function is exited, provided that the changes were saved previously. See "Creating a new endodontic treatment" [→ 161]. User-created treatments are marked with a pencil symbol in the *Treatment selection* program.

The ApexLocator settings, the auto-reverse function and the acoustic signals are always saved automatically when the treatment function is exited.

1. Select a file from the file list of the *Endodontics program* to remove it from the sequence. Touch the ↑ and ↓ keys.

or

- > Touch the file in the file list.
 - ↳ The selected position is highlighted orange.
- 2. Switch to the *Endodontics* sub-screen and touch the *Delete* key > 2 s.
 - ↳ The selected file is removed from the sequence.

Speed foot control

The use of the speed foot control is not available in the *Endodontics program!*



4.5.15.3.10 Endodontic treatment administration

Up to five endodontic treatments can be added to the treatment list at the left of the *Treatment selection* program. The following functions are for managing the endodontic treatment list:

- Create, copy, rename and, if necessary, delete endodontic treatments
- Adding specified file systems to the endodontic treatment list

Endodontic treatments using reciprocal rotating files cannot be changed.

Opening the endodontic management program

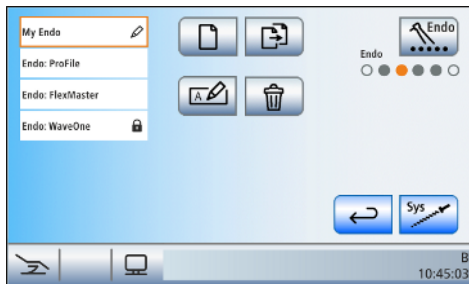
✓ The *Start program* is displayed on the touchscreen.

1. Touch the *Treatment* key.



↪ The *Treatment selection* program is displayed.

2. Before selecting a treatment, touch the *Endodontic management* key.



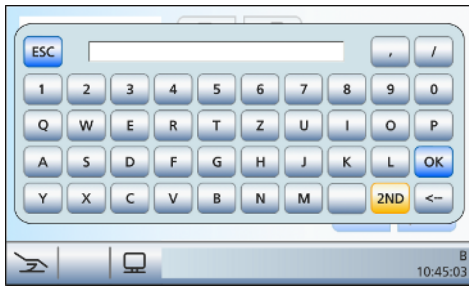
↪ The *Endodontic management* program is displayed.

Creating a new endodontic treatment

The treatment center enables you to create up to five endodontic treatments. In the fifth endodontic treatment, the keys *Create New Endodontic Treatment* and *Copy Endodontic Treatment* are hidden.

1. Touch the *Create new endodontic treatment* key.
 - ↪ A keyboard then appears. The text box is empty.





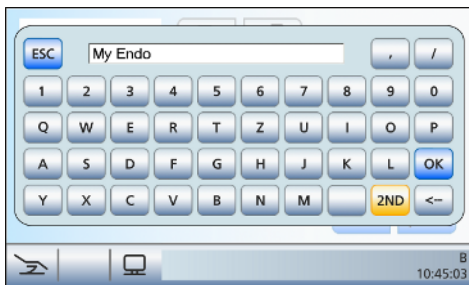
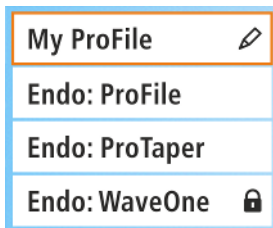
2. Enter the designation of the endodontic treatment you would like to create. Confirm your entry with the *OK* key.
 - ↳ The keyboard is hidden. The new endodontic treatment is displayed in the treatment list with the designation you entered.

Copying an existing endodontic treatment

To reduce the amount of setting work required, you can copy a similar treatment and resave it in the treatment list under a different name instead of creating a new endodontic treatment. Then the settings can be changed.

This procedure allows for making changes to factory-preset endodontic treatments (without a pencil symbol).

The treatment center enables you to create up to five endodontic treatments. In the fifth endodontic treatment, the keys *Create New Endodontic Treatment* and *Copy Endodontic Treatment* are hidden.



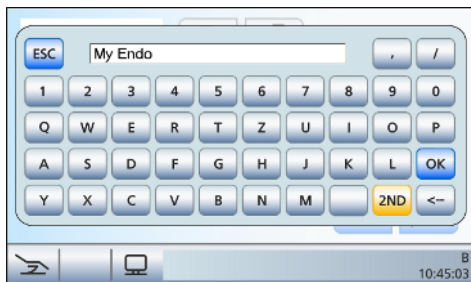
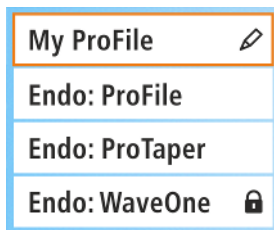
1. Touch the button of an endodontic treatment that you would like to copy.
 - ↳ The selected button is highlighted orange.
2. Touch the *Copy endodontic treatment* key.
 - ↳ A keyboard is displayed. The name of the endodontic treatment to be copied is displayed in the text box.
3. Enter the name of the copy. Confirm your entry with the *OK* key.
 - ↳ The keyboard is hidden. The new endodontic treatment is displayed in the treatment list with the designation you entered.

Rename endodontic treatment

When creating and copying endodontic treatments, the user must name them accordingly. They also can be renamed later on to facilitate corrections and editing.

IMPORTANT

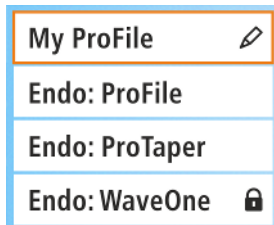
Factory specified endodontic treatments cannot be renamed. If an endodontic treatment without a pencil symbol is selected, the *Rename endodontic treatment* key is hidden.



1. Touch the button of an endodontic treatment that you would like to rename.
↳ The selected button is highlighted orange.
2. Touch the *Rename endodontic treatment* key.
↳ A keyboard is displayed.
3. Rename the endodontic treatment. Confirm your entry with the *OK* key.
↳ The keyboard is hidden. The designation of the endodontic treatment is changed in the treatment list.

Deleting an endodontic treatment from the list

If user-created endodontic treatments are no longer required or must be replaced, they can be deleted from the treatment list. Endodontic treatments that were preset by factory default can only be removed by deselecting the corresponding file system, see "Adding a file system to the treatment list" [→ 163].



1. Touch the button of an endodontic treatment that you would like to delete.
↳ The selected button is highlighted orange.
2. Touch the *Delete endodontic treatment* key for more than 2 seconds.
↳ The selected endodontic treatment is deleted. It is no longer displayed in the treatment list.

Adding a file system to the treatment list

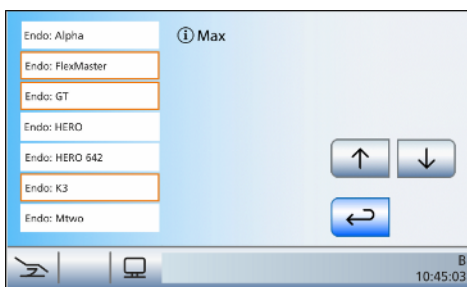
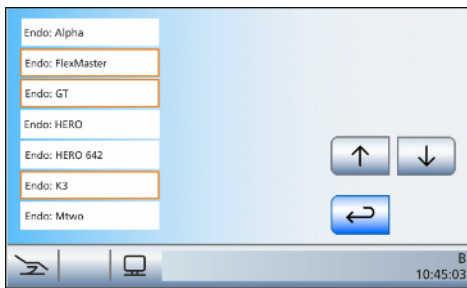
The treatment center software contains the most popular endodontic file systems with the speed and torque values recommended by the manufacturer in a library. The required file systems can be added to the endodontic treatment list via a pick list.

IMPORTANT

Only file systems that were added to the treatment list can be selected in the *Insert file* program, see also "Inserting a file in the sequence" [→ 152]



1. Touch the *Add file system* key.
↳ A list of the most popular file systems is displayed.



2. Select the file system that you would like to add to the endodontic treatment list. You can scroll in the list with the ↑ and ↓ keys. Touch the button of the desired file system (multiple file systems can also be selected).

↵ The selected buttons are highlighted orange.

3. Touch the *Return* key.

↵ The *Treatment administration* screen is displayed. The selected file systems are displayed in the endodontic treatment list of the *Treatment selection* screen.

The treatment center enables you to add up to five endodontic treatments to the treatment list. When the fifth endodontic treatment is selected, a symbol appears on the touchscreen. This symbol indicates that the maximum number (total number of user-defined treatments and treatments selected from the library) has been reached.

IMPORTANT

Expanding a file system via a software update

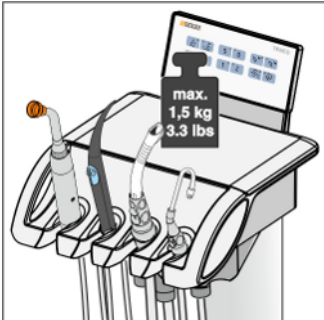
File systems previously added to the treatment list are not automatically adjusted during a software update. As a consequence, new files are not immediately displayed in the *Insert file* program.

- Deselect and then immediately re-activate the file system concerned in the *Select file system* program, see "Inserting a file in the sequence" [→ 152].

↵ The added files now appear in the *Insert file* program.

4.6 Assistant element

4.6.1 Maximum load capacity



The maximum load of the assistant element is 1.5 kg (3.3 lbs). A skid-proof silicone mat can also be used.

⚠ CAUTION

To prevent injuries caused by falling objects, never place anything on the support arm of the assistant element.

4.6.2 Height adjustment

The height of the assistant element can be set during installation or while being serviced by the service technician.

4.6.3 Positioning

⚠ CAUTION

The assistant element can be positioned above or below the patient chair.

The patient could be pinched during chair movements or the chair could be damaged.

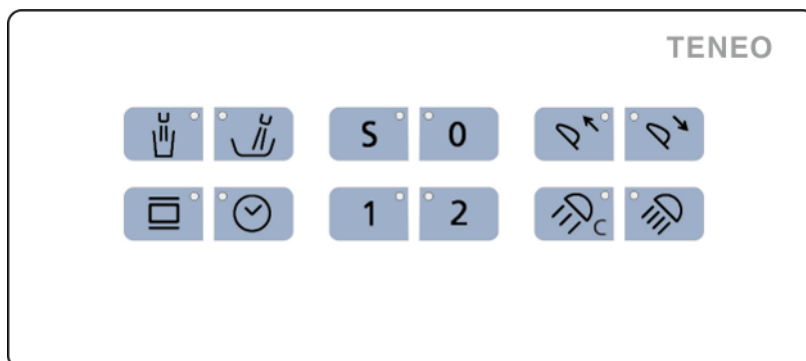
- Move the assistant element out of the collision zone before moving the patient chair.

IMPORTANT

Safety stop

In case of collision, a safety system in the support arm stops the chair movement.

4.6.4 Fixed keys on the assistant element

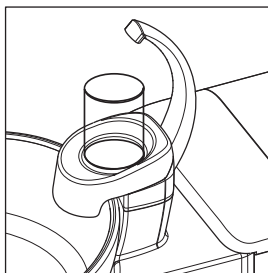


The functions assigned to the keys can be switched on/off on the assistant element. The settings screens can be opened only on the touchscreen of the dentist element. To make settings, see "Fixed keys on the dentist element" [→ 77].

4.6.4.1 Tumbler filling

If the your treatment center is equipped with the Tumbler filling option with automatic sensor control, see "Tumbler filling with automatic sensor control" [→ 177].

1. Place the tumbler under the tumbler filler.



2. Press the *Tumbler Filling* fixed key.
 - ↳ The tumbler is filled with water for the preset time. The LED in the key lights up during the tumbler filling process.

Pressing the *Tumbler Filling* fixed key again stops the filling function immediately.

4.6.4.2 Flushing of the cuspidor bowl

The flushing function can be used for rough cleaning of the cuspidor during treatment.

- Press the *Cuspidor flushing* fixed key.
 - ↳ The cuspidor flushing will be switched on for the pre-set flushing time. The LED for the key lights up during the flushing process.



4.6.4.3 X-ray viewer

If the treatment center has no X-ray viewer but is equipped with a Sivision monitor, the Sivision monitor can be switched to the white screen mode; see "Key for showing/hiding white screen on Sivision monitor" [→ 211].

Alternatively, the *X-ray viewer* key on the assistant element can also be used to activate the bell or hash key, e.g. if neither an X-ray viewer or a



Sivision monitor is available. See also "Setting the x-ray viewer key on the assistant element" [-> 211].

- > Press the *X-ray viewer* key.
 - ↳ If the *X-ray viewer* key is set to the white screen function on the Sivision monitor, the LED in the key is not lit when the white screen is switched on. It is lit only when the X-ray viewer is switched on. The *white screen* key is also not highlighted orange in the *Start* program.
 - If the X-ray viewer key on the assistant element is set to activate the bell or hash key relay, the LED on the key is lit up when the function is activated.

4.6.4.4 Timer function

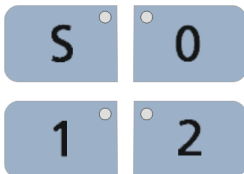
The treatment center features six timers which can be preset on the dentist element; see "Timer function." [-> 77] Only the first timer can be triggered on the assistant element.



1. Press the *Timer* fixed key on the assistant element.
 - ↳ Timer 1 is started. The preset and elapsed times are displayed in the status bar on the touchscreen.
2. Press the *Timer* fixed key again.
 - ↳ The previously timer stops and is reset to zero.

4.6.4.5 Chair programs

The following chair programs can be selected and programmed on the assistant element:

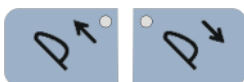


- Mouth rinsing position (S)
- Entry/exit position (0)
- Chair programs 1 and 2

For details, see "Moving the patient chair via chair programs" [-> 65].

Chair programs can also be programmed from the assistant element side; see "Programming chair programs and shock positioning" [-> 71].

4.6.4.6 Headrest



The treatment chair is adjusted to the patient's stature by moving the headrest in or out.

4.6.4.7 Composite function

The composite function delays the curing of composite materials.



- > Press the *Composite Function* fixed key.
 - ↳ If the composite function is switched on, the LED on the fixed key lights up on the assistant and dentist elements.

4.6.4.8 Operating light

The operating light is always switched on at the set brightness level.

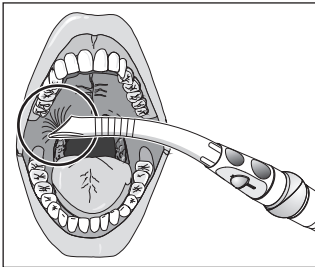


- > Press the *Operating Light* fixed key.
 - ↳ If the operating light is switched on, the LED on the fixed key lights up on the dentist and assistant elements.

4.6.5 Suction handpieces

The assistant element can be equipped with a maximum of three suction handpieces.

The suction flow cannot be controlled with the standard suction handpieces. The suction system can be optionally equipped with suction handpieces with which the suction flow can be controlled and stopped using a slide or rotary control.



⚠ CAUTION

The tip attaches itself to the oral mucosa.

The patient's oral mucosa can be irritated by the vacuum.

- Make sure that you hold the suction tip in such a way that the opening cannot accidentally attach to the oral mucosa. Dentsply Sirona recommends using spray aspirator cannulas with additional air intake, see "Spare parts, Consumables" [→ 299].

NOTE

Suction removal of metal oxides from blasting devices

Observe the safety information on the "Vacuum system" [→ 17].

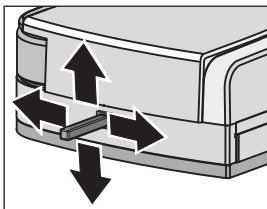
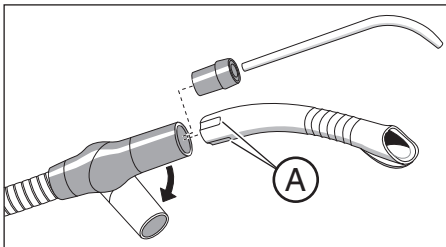
Tip: The factory-set suction power can be adjusted in the water unit by a service engineer.

Spray aspirator

You can angle the suction handpiece by turning it.

To prevent completely interrupting the suction flow when the cannulae attach to the oral mucosa, spray aspirator cannulae with lateral air intakes **A** should be used. This prevents backflow from the hose into the oral cavity if the cannula becomes attached.

The thick suction hose can be used for surgical suction. To insert a surgical cannula, please attach the adapter supplied.



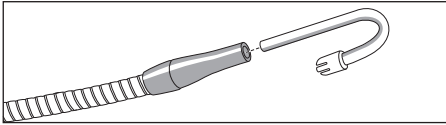
It can be adjusted so that the suction flow of the spray aspirator can be interrupted or reactivated by pressing the 4-way foot control at the base of the chair in any direction; see "Linking the spray aspirator to the 4-way foot control" [→ 213].

⚠ CAUTION

The spray aspirator can be switched off with the 4-way foot switch.

Due to the lack of suction flow, fluid may run back out of the spray aspirator and into the patient's mouth.

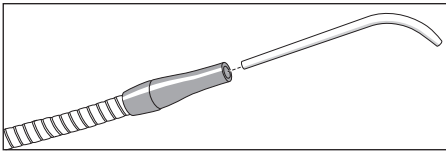
- It must be ensured that there is a suction flow before holding the spray aspirator in the mouth.
- Always remove the spray aspirator from the patient's mouth before switching it off.



Saliva ejector

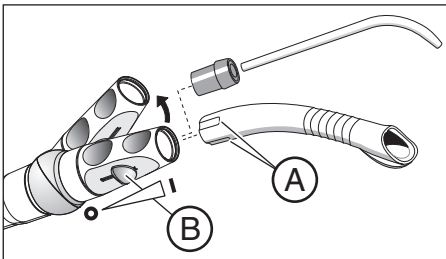
A curved cannula that can be placed in the corner of the mouth is provided for saliva ejection.

The curved cannula is a disposable item.



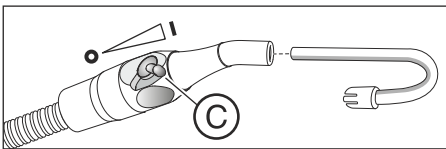
Surgical suction

The surgical cannula can be inserted directly into the saliva ejector handpiece.



Optionally controllable spray aspirator and saliva ejector

The suction flow from the spray aspirator can be stopped and regulated using the slide **B**.



The suction flow of the saliva ejector can be stopped and regulated using the **C** rotating knob.

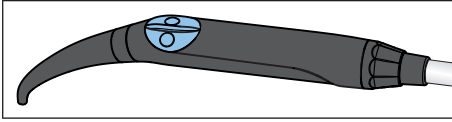
⚠ CAUTION

Suction handpieces that can be regulated can be closed using the slide or rotating knob.

If the slide or rotating knob is closed, fluid can flow back into the mouth due to the lack of suction flow.

- When using the spray aspirator with slide, interruption of the suction flow with the 4-way foot switch must not be configured.
- It must be ensured that there is a suction flow before holding the aspirator in the mouth.
- Always remove the aspirator from the mouth before closing the slide or rotating knob.
- Always place the aspirator open in the holder.

4.6.6 Multifunctional syringe Sprayvit M



The functionality is described in the section on the dentist element, see "Sprayvit M multifunctional syringe" [-> 93].

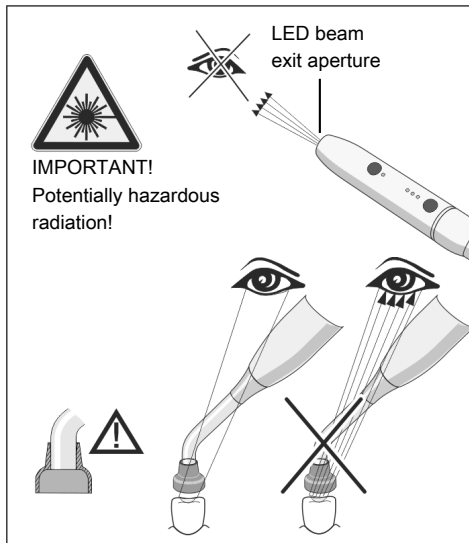
4.6.7 Mini LED curing light

The curing light is used to cure composite material with short-wave light.

IMPORTANT

Observe the operating instructions Mini L.E.D. of the Satelec Acteon manufacturer.

4.6.7.1 Safety instructions



CAUTION

The curing light contains powerful LEDs. In accordance with IEC 62471, they are classified in risk group 2 with the light bar removed.

- Do not stare into the beam path for longer periods, as this can damage your eyes.
- Do not observe the light aperture with optical instruments which can decrease the beam cross-section (e.g. magnifying lenses).
- Do not under any circumstances stare into the beam path when the glass rod is removed.
- Never aim the laser beam at the user's or the patient's eyes, even if he or she is wearing protective goggles.
- Never work without the glare shield.
- Never look into the light reflected by the tooth surface.
- Aim the light only at the treatment area in the oral cavity.

Any condensation forming in the handpiece of the Mini L.E.D. may cause impairment (e.g. fogging of the LED). When moving the handpiece from a cool environment to a warm room, always wait for it to reach room temperature before using it.

Curing lights must not be used on persons who are suffering from or have in the past been afflicted by photobiological reactions (including solar urticaria and erythropoetic porphyria). Nor should they be used on persons currently being treated with any medications which increase one's sensitivity to light (including methoxsalene and chlorotetracycline).

Persons who had diseases of the retina or lens in the past or have had eye surgery, especially for cataracts, must consult their ophthalmologist prior to treatment with the Mini L.E.D. Even if the patient consents, caution is required because the light intensity can cause accidents.

It is especially advisable to always wear appropriate protective goggles. For the frequency range of the light, refer to "Technical data" [-> 174].

4.6.7.2 Symbols on the mini LED

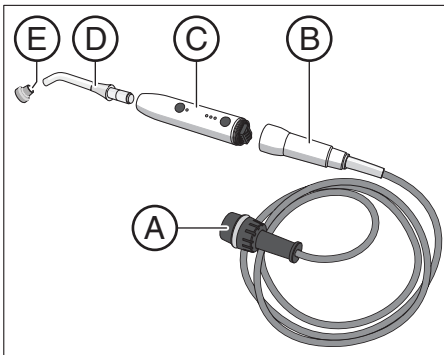
These symbols are on the Mini L.E.D. They have the following meanings:

Follow the instructions for use



Wear eye protection

4.6.7.3 Connecting the Mini L.E.D.

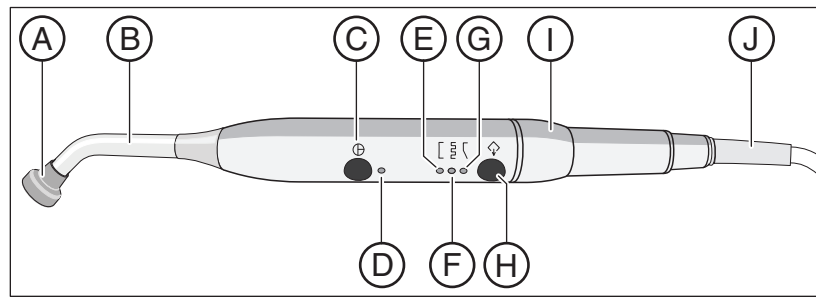


The Mini L.E.D. is connected to the assistant element in holder 1.

1. Connect the supply cable **A** to the treatment center.
2. Screw hose coupling **B** onto the Mini L.E.D. **C**.
3. Screw the sterilized light guide **D** onto the Mini L.E.D. **C**. Make sure to insert the fiber optic correctly.
 - ↳ The fiber optic clicks into place audibly.
4. Slip the glare shield **E** onto the light guide **D**.
 - ↳ The glare shield protects your eyes against reflecting curing light.

4.6.7.4 Functional description

Operational Elements



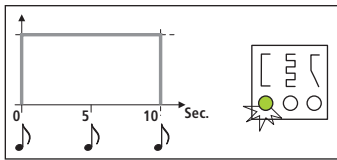
A	Glare shield	F	Pulse curing mode light
B	Fiber	G	"Soft start" mode lamp
C	On/off button	H	Mode button
D	Status control lamp	I	Handpiece
E	Quick curing mode light	J	Supply cable

Status control lamp

The status control lamp **D** signals the following states:

Status control lamp	Mode
OFF	Instrument in holder
Green	Normal mode
Red flashing	Overheat protection

The Mini L.E.D. has three operating modes, which you can select with the *Mode H* key:



Quick curing mode

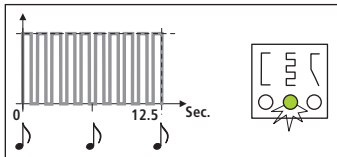
In the quick curing mode, the Mini L.E.D. operates at full power for 10 seconds.

In this mode, the light intensity output is as follows:

- 1250 mW/cm² (± 10%) with the standard light guide, dia. 7.5 mm
- 2000 mW/cm² (± 10%) with the booster light guide, dia. 5.5 mm

Pulsed curing mode

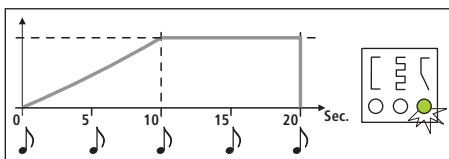
In the pulsed curing mode, the Mini L.E.D. radiates in 10 consecutive light pulses of 1 s each. There is a 250 ms break between the individual pulses.



"Soft start" mode

The "soft start" mode features:

- A 10-second "soft start" from 0 to 1250 mW/cm², or from 0 to 2000 mW/cm² with the "booster light guide," dia. 5.5 mm.
- Full power for 10 seconds.



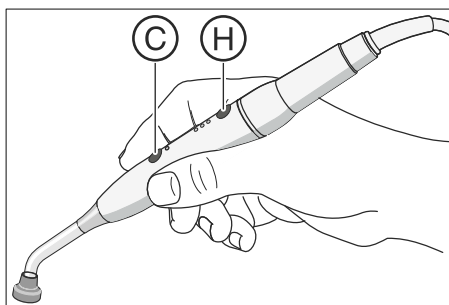
4.6.7.5 Operating the Mini LED

IMPORTANT

Contact with the material to be cured

Make sure that the light guide never touches the material to be cured, as this may cause damage to the light guide and reduce its effectiveness.

When the Mini L.E.D. is removed from its holder, the operating mode last used before it was deposited is selected.



1. Use the *Mode* key **H** to select the quick curing, pulse curing or "soft start" mode.

↳ The corresponding lamp shows which mode is selected. The Mini L.E.D. is ready for operation.

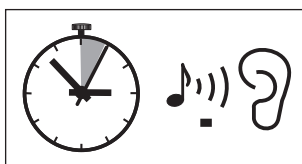
2. Hold the light guide as close as possible to the composite material surface you want to photopolymerize.

3. Start the curing cycle. Press the on/off button **C** briefly.

↳ An acoustic signal sounds. The curing cycle is started.

↳ The acoustic signal sounds every 5 seconds.

↳ The end of the curing cycle is also indicated by an audible signal.



You can interrupt the curing cycle immediately by pressing the on/off button **C**.

For care and cleaning, see "Disinfecting and sterilizing the Mini L.E.D. curing light" [→ 251].

4.6.7.6 Technical data

General Technical Data on Mini L.E.D.

Model:	Mini L.E.D.
Weight of handpiece without hose:	105 g
Dimensions:	Dia. 23mm x 240mm
Current consumption of handpiece:	5 V DC / 0.65 A
Thermal safety:	Overheat protection

Optical specification of Mini L.E.D.

Wavelength: Max. intensity:	420 nm – 480 nm ¹ at 450 nm
Light power dia. 7.5 mm (standard version):	1250mW/cm ²
Light power dia. 5.5 mm (available from Satelec):	2000 mW/cm ²
Light power:	450 mW – 500 mW
Classification acc. to IEC 62471	Risk group 2 with light bar removed

¹ Only composite materials can be cured which react to the stated wavelength. The Mini L.E.D. is not suitable, e.g. for Lucirin® (absorption maximum 380 nm).

Hazard distance (HD) and exposure hazard value (EHV) according to IEC 62471

	HD	EHV
Blue light Free group	907 mm	20.6
Blue light Risk group 1	323 mm	2.6
Blue light Risk group 2	–	0.01
Thermal hazard to the cornea Free group	–	0.97

4.6.8 Hydrocolloid

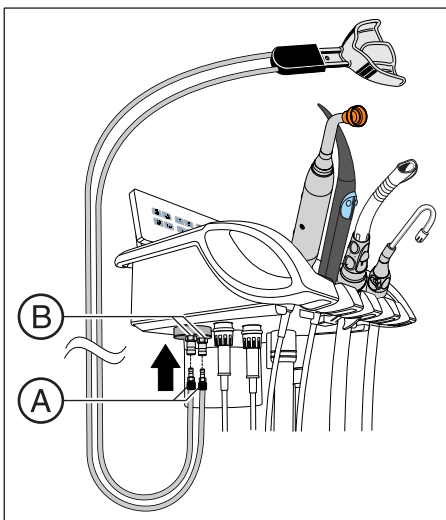
Hydrocolloid impressions of the upper and lower jaw can be made using the coolable impression tray. The molding compound hardens quickly due to the cooling.

4.6.8.1 Connecting/removing the hydrocolloid

The scope of delivery also includes two quick-release couplings. The hoses (diameter 4 mm), hose adapter, and impression tray can be ordered from a specialized dealer.

Connecting the hydrocolloid

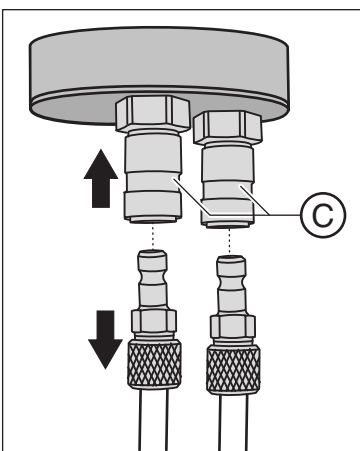
The hydrocolloid is connected to the bottom of the assistant element with two quick couplings.



- ✓ The assistant element is equipped with a hydrocolloid connection.
- Plug the two fast couplings **A** of the impression tray into the sockets **B** on the bottom of the assistant element in any order.
- ↩ Both quick couplings are engaged in the sockets.

Removing the hydrocolloid

- Hold the hose with one hand while you slide the snap-on ring **C** upward with the other.
- ↩ The hose is released and can be removed downward.



4.6.8.2 Setting the hydrocolloid and switching it on/off

Opening Start sub-screen

- ✓ The *Start program* is displayed on the touchscreen.
- Touch the *Sub-screen* key.



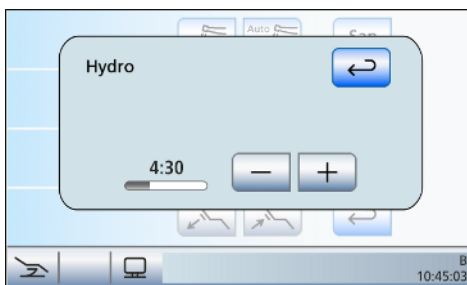
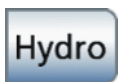
- ↪ The *Start* sub-screen is displayed.

Setting the water flow time

Different cooling times are required, depending on the molding compound.

- ✓ Both hydrocolloid connections are plugged into the bottom of the assistant element.

1. Press and hold the *Hydro* key (> 2 s).
 - ↪ The *Hydrocolloid* settings screen is displayed.
2. Use the – and + keys to set the flow time.



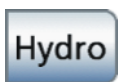
3. Touch the *Return* key.
 - ↪ The *Hydrocolloid* settings screen is hidden immediately.



Switching the hydrocolloid on/off

- ✓ Both hydrocolloid connections are plugged into the bottom of the assistant element.

- Touch the *Hydro* key briefly (< 2 s).
 - ↪ If the key is highlighted orange, the impression tray water cooling is activated. When the set flow time has elapsed, an acoustic signal sounds and the water flow stops.



IMPORTANT

The flow of the water pump is limited.

The flow and cooling are insufficient when hydrocolloid and accessories with water consumption are used at the same time.

- No additional accessories with water consumption may be used during hydrocolloid operation.

4.7 Water unit

4.7.1 Swiveling the cuspidor bowl

The cuspidor on the water unit can be manually swiveled approx. 110 mm toward the patient chair.

A setting can be made that causes the cuspidor bowl to automatically move inward when the mouth rinsing position chair program (S) is selected; see "Linking the movement of the cuspidor bowl to the mouth rinsing position" [→ 210].

IMPORTANT

The cuspidor bowl automatically swivels back to its starting position

The cuspidor bowl automatically returns beforehand to ensure that the patient does not collide with it during chair movements. This return travel is dependent on the chair movement and is executed only if a collision hazard exists.

4.7.2 Tumbler filling with automatic sensor control

The automatic sensor control is not available in all countries.

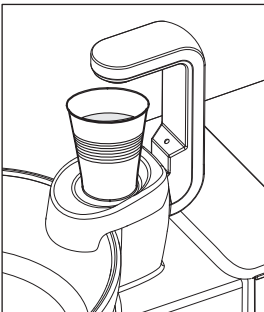
With this tumbler filler, the sensor control automatically detects the filling level of the tumbler.

If the tumbler is removed before the preset filling level has been reached, the water flow stops immediately.

Filling the tumbler

- ✓ The tumbler must not be transparent.
- ✓ The tumbler must always be placed in the center of the area provided for it.
- Place the tumbler under the tumbler filler.
- ⚡ The tumbler is filled automatically.
- ⚡ After the preset filling level has been reached, the water flow stops automatically.

If necessary, the tumbler can be filled manually with the *Tumbler filling* key, see "Tumbler filling" [→ 79].



IMPORTANT

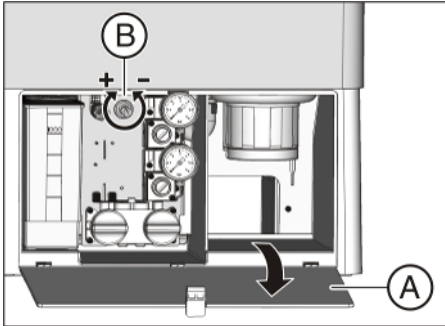
Tumbler filling after switch-on

If an empty tumbler is standing below the tumbler filler when the treatment center is switched on, the tumbler will not be filled automatically. To activate automatic tumbler filling, remove the tumbler briefly and then put it back again.

Setting the filling level

The tumbler filling level can be preset.

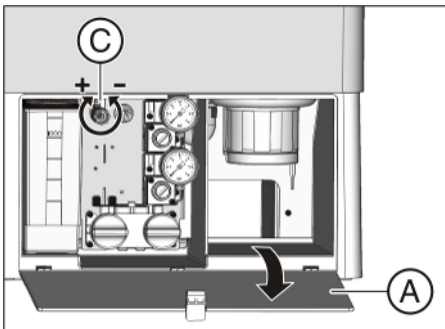
1. Open the maintenance flap **A** on the base of the water unit.
2. Set the filling level with control knob **B**.



4.7.3 Adjusting the water amount for flushing

The water quantity and water pressure for flushing can be set using a valve.

1. Open the maintenance flap **A** on the base of the water unit.
2. Adjust the water amount with the control knob **C**.



4.7.4 Self-sufficient water supply

If the water quality of the public drinking water supply is not suitable for treating patients, the treatment center can be operated with a self-sufficient water supply.

In this case, food-grade water is mixed with the disinfectant for the water paths in a ratio of 100:1 (1 liter of water, 10 ml of the agent) and filled into the disinfectant tank of the water unit. The disinfectant reduces bacterial growth in the water paths.

The self-sufficient water supply should be a temporary operating condition only if public drinking water supply is contaminated, not a permanent operating condition.

The cuspidor is still flushed using the public drinking water supply.

CAUTION

Microorganisms can multiply in the water.

These microorganisms could increase the risk of damage to one's health.

- > Mix fresh water for the self-sufficient water supply every day. At the end of the work day, the remaining water must be flushed out of the disinfectant tank using the tumbler filling function.
- > Check the bacteria count in the water of the treatment center at regular intervals, in particular if no disinfectant can be used for disinfecting the water paths. See "Microbiological water test" [→ 220].

CAUTION

If the self-sufficient water supply takes more than 28 days, in exceptional cases, the treatment center must be manually sanitized.

Please follow the sanitization procedure for operation with self-sufficient water supply described in the section "Sanitizing the treatment center manually" [→ 286].

Ensure that the "*Days to next sanitization*" display does **not** appear on the touchscreen status bar when operating with a self-sufficient water supply.

NOTE

Always fill food-grade distilled water (< 100 colony forming units/ml), never drinking water, e.g. from beverage bottles, due to the minerals it contains.

Aqua purificata or aqua destillata can be used as distilled water.

The desired mode of operation is set using the touchscreen.

Opening Start sub-screen

- ✓ The *Start program* is displayed on the touchscreen.
- > Touch the *Sub-screen* key.





➤ The *Start* sub-screen is displayed.

Changing disinfection system to self-sufficient water supply

If the *Aqua* key is displayed gray in the *Start* sub-screen, the treatment center obtains water from the public drinking water supply. If the key is highlighted orange, the treatment center is switched to self-sufficient water supply. To change the mode of operation, proceed as follows:

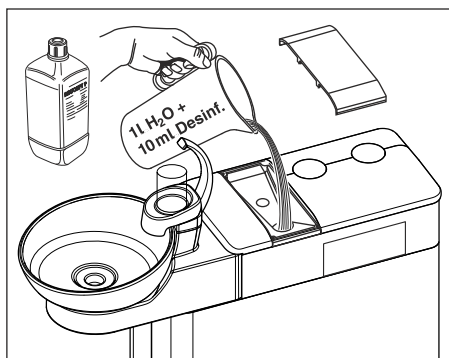
1. Press and hold the *Aqua* key (> 2 s).



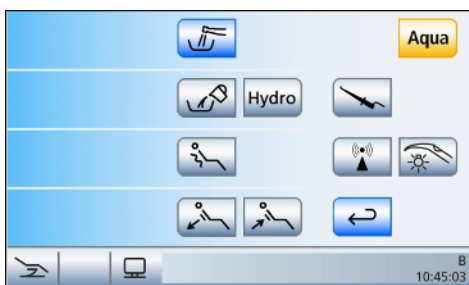
➤ The *Aqua* key flashes orange until the disinfectant tank is emptied. The *Changing to self-sufficient water supply* display appears on the left side.



➤ If there is still undiluted disinfectant for the water paths in the tank, it is rinsed down the drain. This can take up to 6 minutes. The *Refill water* display then appears on the touchscreen.



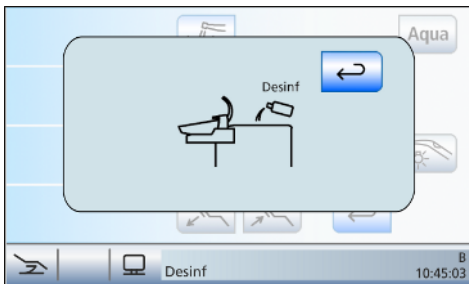
2. Mix distilled water with the agent for disinfecting the water paths at a ratio of 100:1 (1 liter of water, 10 ml of the disinfectant) and fill this into the disinfectant tank of the water unit. The tank has a capacity of approx. 1.3 liters. It is full when the water surface is visible on the filter of the filling funnel.



➤ In the *Start* sub-screen, the *Aqua* key is highlighted in orange. The disinfection system is now changed to the self-sufficient water supply.

If the treatment center is changed to self-sufficient water supply, in the *Start* sub-program, the *Sanitizing* and *Autopurge* keys are hidden. Without disinfectant for the water paths, it is not possible to sanitize the water paths interactively. The treatment center must be sanitized manually, see "Sanitizing the treatment center manually" [→ 286]. The purge function must be used to rinse the instruments, see "Purging water paths" [→ 231].

Resetting the disinfection system to operation with public drinking water and the disinfectant for the water paths



Resetting the disinfection system to public drinking water is performed in the same manner as changing to self-sufficient water supply. Instead of the *Refill water* display, the *Refill disinfectant for the water paths* display appears on the touchscreen.

- > Sanitize the water paths after switching to the public drinking water supply, see "Interactive sanitization of the treatment center" [→ 278].

Level control

If the *Refill water* or *Refill disinfectant for the water paths* display appears during the treatment, the reservoir is almost empty (< 400 ml). By pressing the *Return* key, the display can be hidden and the treatment can be continued. Refill the tank as soon as possible.

IMPORTANT

400 ml are approximately sufficient for:

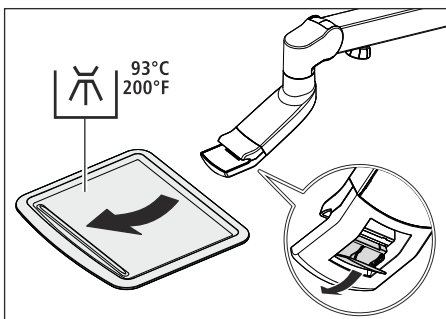
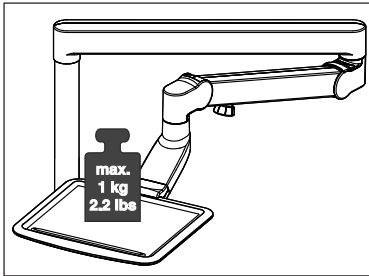
- > 6.5 min. spray operation (motor, high-speed handpiece, scaler) or
- > 2.5 min. Sprayvit Moperation or
- > 5 x tumbler fillings

The actual values depend on the instrument types and settings used.

4.8 Tray

Maximum load capacity

The maximum load is 1 kg (2.2 lbs).



Removing the tray

1. Hold the tray tightly.
2. Open the lock by swiveling the lever downwards.
3. Remove the tray.
4. Let the lever fall back into its original position.

To insert the tray, simply guide it into the mount. The mechanism locks automatically.

CAUTION

If the tray is not locked in place, it can disengage from the tray holder.

- After installing the tray, make sure it is securely attached to the tray holder.

Adjusting the height of the tray

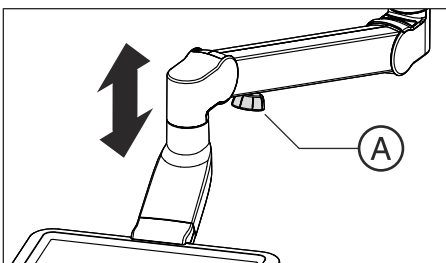
The tray is supported to rotate on a height-adjustable support arm.

NOTE

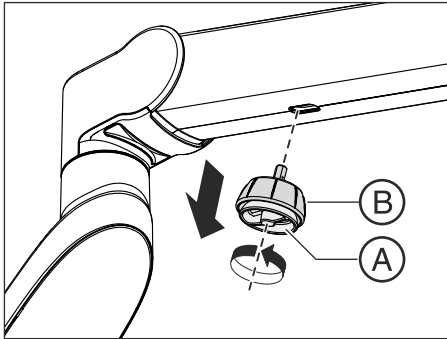
A locking brake blocks the height adjustment.

The support arm may be damaged if you adjust the height with the locking brake applied.

- Never, under any circumstances, try to adjust the support arm with the locking brake securely tightened. Release the locking brake first.



1. Loosen the brake knob **A** slightly.
2. Set the tray to the desired position.
3. Retighten the brake knob slightly.
 - The tray can thus be subjected to different loads within limits without lowering its position.



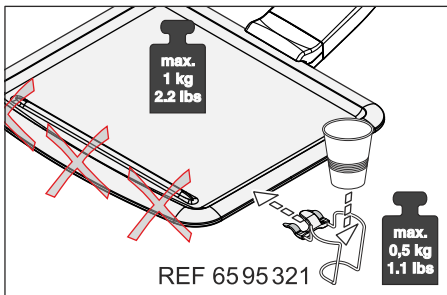
Removing the brake knob

The brake knob of the support arm can be removed if it is found to be disturbing.

1. Loosen the brake knob at the safety screw **A**.
2. Remove the brake knob **B**.

To reattach it, insert the hexagonal pin of the brake knob **B** in the connector on the support arm. Tighten the safety screw **A**.

4.9 Cup holder



A cup holder can be attached to the tray to collect waste. It is suitable for disposable 0.2-liter cups.

The cup holder may not be attached to the front edge of the tray.

The maximum load of the cup holder is 0.5 kg (1.1 lbs). The load on the tray and the cup holder may not exceed a total of 1 kg (2.2 lbs).

The cup holder can be ordered from a specialized dealer.

4.10 X-ray viewer or white screen on the Sivision monitor

If the treatment center has no X-ray viewer but is equipped with a Sivision monitor, the *X-ray viewer* key can be used to set the Sivision monitor to the white screen mode; see "Key for switching the X-ray viewer to white screen on the Sivision monitor" [→ 211].

WARNING

Misdiagnoses of X-ray images are possible

Use the white screen of the Sivision monitor **not for diagnosis** of X-ray images. The light intensity of the monitor is not sufficient.

Via touchscreen

- ✓ The *Start program* is displayed on the touchscreen.
- > Touch the *X-ray viewer* key or the *White screen* key.
 - ↳ If the key is highlighted orange, the X-ray viewer is switched on or the Sivision monitor is switched to white screen.



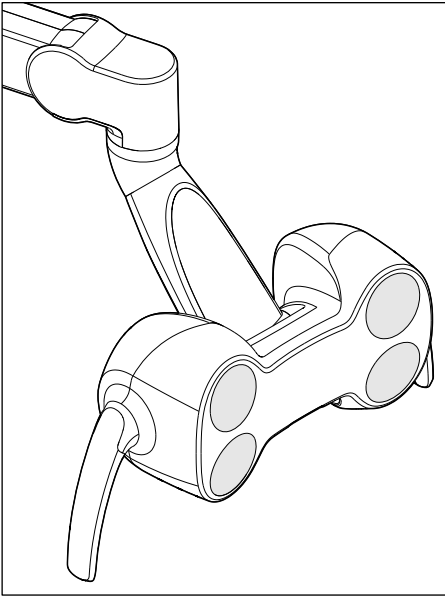
Via the assistant element

Alternatively, the *X-ray viewer* key on the assistant element can also be used to activate the bell or hash key relay, e.g. if neither an X-ray viewer nor a Sivision monitor is available. See also "Setting the X-ray viewer key on the assistant element" [→ 211].

- > Press the *X-ray viewer* key.
 - ↳ If the *X-ray viewer* key is set to the white screen function on the Sivision monitor, the LED in the key is not lit when the white screen is switched on. It is lit only when the X-ray viewer is switched on. The *white screen* key is also not highlighted orange in the *Start program*.
If the X-ray viewer key on the assistant element is set to activate the bell or hash key relay, the LED on the key is lit up when the function is activated.



4.11 Operating light



The operating light is mounted on a multi-joint support arm. It can be easily adjusted to the operating field using the handles. Brakes in the support arm hold the operating light in the position to which it has been adjusted.

The clearly defined light field illuminates the treatment area without blinding the patient.

Tip: The ideal working distance between the light and the patient's mouth is 70 cm/27.5 inches.

NOTE

Also observe the instructions for use of your operating light.

4.11.1 Switching the operating light on/off



- > Briefly press the *Operating light* fixed key on the dentist or assistant element.
 - ↳ If the operating light is switched on, the LED of the fixed key lights up on the dentist and assistant elements.

The operating light is always switched on at the programmed brightness. The setting is programmed on the user interface of the dentist element (see below).

A non-touch sensor is installed beneath the operating light. It can be used to switch the operating light on and off or to the composite function with a hand movement. The sensor control can be switched on and off via the treatment center touchscreen. Additionally, it is possible to set the distance at which the non-touch sensor should react to movement.

4.11.2 Setting the brightness, color temperature, and sensor control



1. Press and hold the *Operating Light* fixed key on the dentist element (> 2 s).

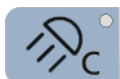
↳ The settings screen of the operating light is displayed on the touchscreen.

2. Use the – and + keys to set the desired brightness of the operating light (7 levels). The – key decreases the brightness and the + key increases it.
3. Use the – and + keys to set the desired light temperature of the operating light (3 levels). The – key decreases the light temperature and the + key increases it.
4. Touch the *Sensor control* key.

↳ If the key is highlighted in orange, the operating light can be controlled with the contactless sensor. The keys for adjusting the operating distance are displayed.

5. Use the – and + keys to set the desired operating distance of the contactless sensor (5 levels). The – key decreases the operating distance and the + key increases it. You can try out the setting directly on the operating light without leaving the setting program. The setting should be selected so that the contactless sensor cannot be operated unintentionally.
6. Touch the *Sensor control* key again to switch off the sensor control.
 - ↳ The key is no longer highlighted in orange and the keys for adjusting the operating distance are hidden.

4.11.3 Switching the composite function on/off

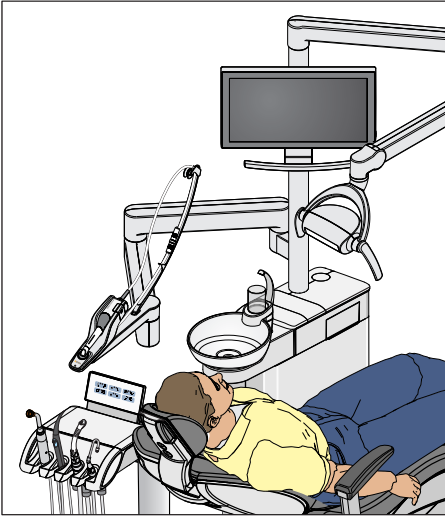


The composite function delays the curing of composite materials.

- > Press the *Composite function* fixed key on the dentist or assistant element.

↳ If the composite function is switched on, the LED of the *Composite function* fixed key lights up on the dentist and assistant elements.

4.12 CEREC AI



The treatment center can be equipped with the CEREC AI acquisition system.

The CEREC AI is attached to the lamp post of the treatment center via the multi-jointed support arm and, as such, it is variable in length.

The Omnicam cable is guided via a swivel arm and has a connector. This allows the camera to be used with other Teneo treatment centers.

The camera shelf has a heater plate to prewarm the sapphire disc. A green LED indicates that the Omnicam is ready for operation.

If the camera holder is lifted in the case of a collision, the chair movement stops immediately, see "Safety shutdown" [-> 58].

IMPORTANT

Also observe the "CEREC AF, CEREC AI" operating instructions. CEREC AI is designed for ambient temperatures of maximum 35 °C.

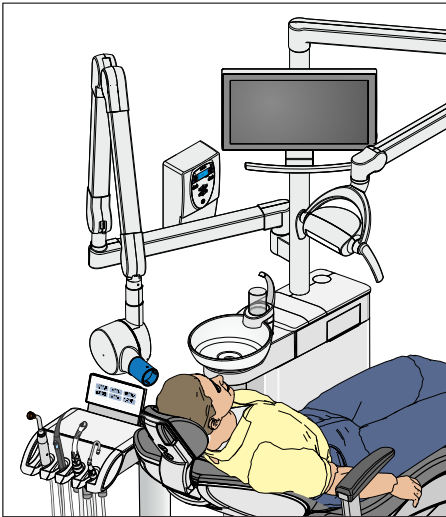
NOTE

The CEREC AI support arm can collide with the tumbler filler and tumbler.

The tumbler filler may be damaged, a filled tumbler can be knocked over.

- Pay attention to tumbler filling when positioning the CEREC AI support arm.

4.13 X-ray tube unit



The treatment center can be equipped with the Heliodent Plus X-ray tube unit.

The X-ray tube unit is attached to the light post of the treatment center using a multi-jointed support arm that can be adjusted both horizontally and vertically. Brakes in the support arm hold the X-ray tube unit in the position to which it has been adjusted.

The X-ray parameters are set on the wall adapter of the X-ray tube unit or on a "remote timer".

The intraoral X-ray system Xios XG USB module can be connected to the PC via the USB interface on the dentist element. For details, please refer to the section "USB interface" [-> 204].

WARNING

The X-ray tube unit can be positioned within the movement range of the patient chair.

Moving the patient chair may cause the patient to collide with the X-ray tube unit or its support arm. The patient could be injured.

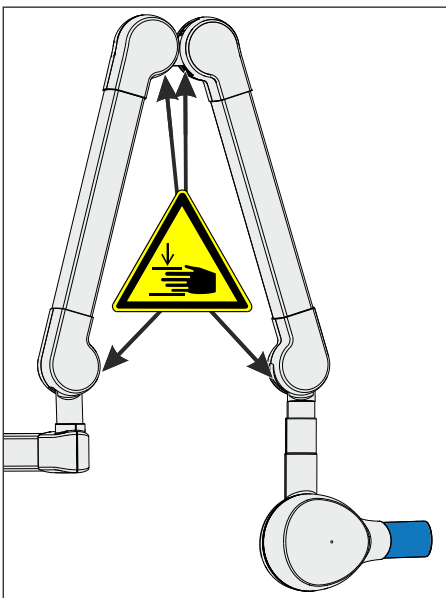
- Before moving the patient chair, position the X-ray tube unit to make a collision with the patient or the patient chair impossible.

CAUTION

Gaps appear between the internal hinges when moving the support arm.

Fingers may be crushed in these gaps.

- Ensure that you never place your fingers in the gaps between the hinges, neither during operation nor for cleaning purposes.



IMPORTANT

See also the Heliodent Plus instructions for use.

4.14 Sivision Digital video system

The Sivision Digital video system enables intraoral and extraoral images to be made. The SiroCam AF+ intraoral camera generates digital image data that can be transmitted via a USB 2.0 port (high-speed universal serial bus) to a connected PC and stored there. This computer can then display the images on the Sivision monitor of the treatment center.

The video images represent an outstanding possibility for improving patient communication.

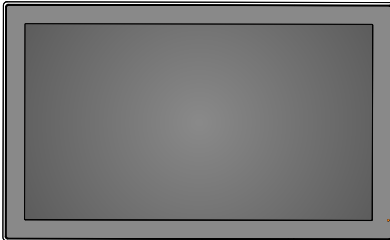
CAUTION

The video images are not suitable for diagnosis.

The Sivision Connect and/or Siucom Plus application must be installed in order to transmit the camera images to the PC. Siucom Plus enables PC control. Furthermore, a video application, e.g. Sidexis 4 or Sidexis XG and/or SI Video must be installed on the PC in order to display the camera images. For details, refer to the "Installation and configuration of Siucom Plus / Sivision Connect" manual.

4.14.1 Sivision monitor

22" DC monitor (REF 6497452 D3655)



The monitor is equipped with loudspeakers and a glass screen to facilitate cleaning. For details, see "Operating Instructions for the 22 inch DC monitor".

WARNING

Monitors without approval must not be connected.

They endanger the product safety of the treatment center.

- Use only monitors that are approved according to IEC 60950-1, IEC 62368-1 (office equipment) or IEC 60601-1 (medical devices).

WARNING

Unsuitable devices can be connected to the loudspeaker port of the monitor.

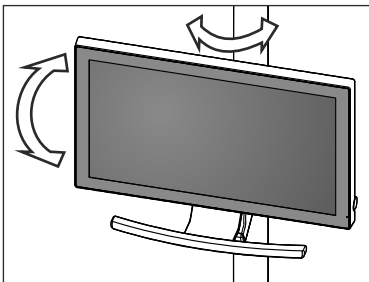
The connection of unsuitable devices endangers the product safety of the treatment center.

- The loudspeaker port of the monitor may be connected only to a device that complies with IEC 60950-1, IEC 62368-1 (office equipment such as PCs) or IEC 60601-1 (medical devices). Under no circumstances should it be connected e.g. to a stereo system.

Attachment versions

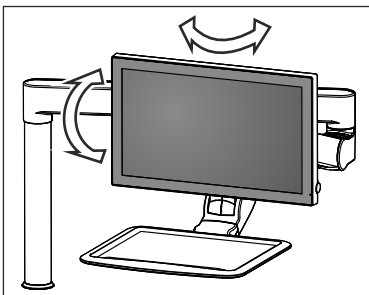
Monitor on lamp support tube

The monitor can be rotated and swiveled.



Monitor on tray arm

The monitor can be rotated and swiveled.



CAUTION

The patient can collide with the monitor.

The patient's head could collide with the monitor during movement of the patient chair or during use of the cuspidor.

- Make sure that the patient does not collide with the monitor. Swivel the monitor out of the collision zone as soon as it is no longer required.

4.14.2 SiroCam AF+ intraoral camera

4.14.2.1 Safety instructions

The SiroCam AF+ intraoral camera is a sensitive optical instrument and must therefore always be handled with care.

NOTE

The lens window is sensitive to scratches.

The lens window can be damaged by hard objects. Deep scratches in the lens window impair image quality.

- > Always place the intraoral camera in the designated holder and clean the lens window with a soft cloth.

IMPORTANT

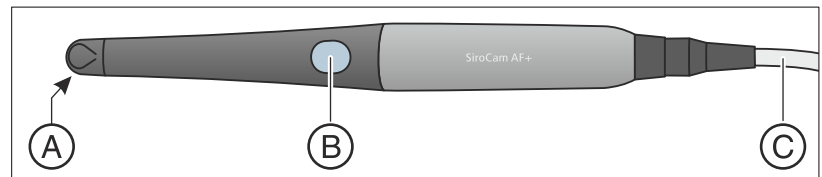
The intraoral camera is heated during operation due to the LEDs in the camera head.

The following temperatures are reached:

Duty time	Temperature at 25 °C room temperature	Temperature at 37 °C in oral cavity
1 min	31°C	43°C
Continuous operation	46°C	58°C

4.14.2.2 Functional description

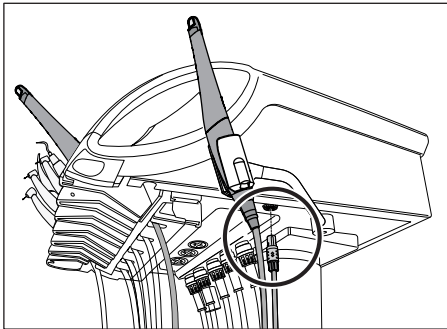
The camera generates digital image data with the help of a CMOS sensor. The camera allows for the acquisition of intraoral and extraoral images.



A	Lens window (covered)
B	Key for automatic focus (Auto focus)
C	Connecting cable

4.14.2.3 Connecting the SiroCam AF+ intraoral camera

Connecting the intraoral camera



Depending on the equipment version, the intraoral camera can be placed at instrument position 6 or in the additional holder.

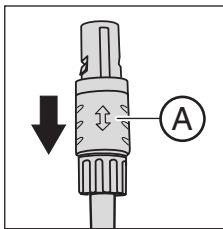
The intraoral camera is connected on the bottom side of the dentist element.

- > Plug the connector of the intraoral camera into the socket on the dentist element.
 - ↳ The connector locks into place.

Removing the intraoral camera

The plug of the intraoral camera is secured against unintentional removal.

- > Grasp the plug by its locking device **A** and pull this out without tilting, if possible.



4.14.2.4 Operating SiroCam AF+ intraoral camera

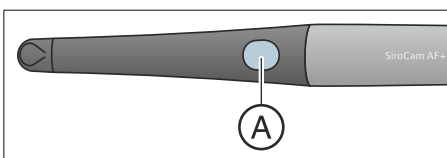
An external or internal PC is required in order to display the video images of the SiroCam AF+ intraoral camera on the Sivision monitor. The Sidexis or SI Video can be used as a PC video application.

For details please refer to chapter "Operation with a PC" [-> 198].

4.14.2.4.1 Focusing SiroCam AF+ intraoral camera

The SiroCam AF+ intraoral camera adjusts the image focus at the touch of a button. It is focused continuously.

1. Direct the camera to the subject to be acquired.
 - ↳ The image is displayed on the Sivision monitor.
2. Press the *Auto focus* key **A**.
 - ↳ The intraoral camera adjusts the image focus according to the distance from the object to be scanned. The adjustment remains until the key is pressed again.



The function of focusing the camera image using the foot control can be configured in the treatment center setup, see "Switching on/off the foot control function for intraoral camera focus" [-> 213].

4.14.2.4.2 Using the camera with SI Video



Using SI Video, up to four still images can be generated with the SiroCam AF+ intraoral camera. These can be displayed on the Sivation monitor either as a sequence of single images or simultaneously as a quad image. The active quadrant is marked with an orange square. The quadrants are run through in a clockwise direction.

The generated still images remain until the treatment center or the PC is disconnected from the power supply.

- > Remove the intraoral camera from the holder.
 - ↳ The live image is displayed on the Sivation monitor as a single image. The *Sivation* program is displayed on the touchscreen.

When the intraoral camera is put in the holder, the live image is no longer displayed on the monitor. The generated still images remain displayed.

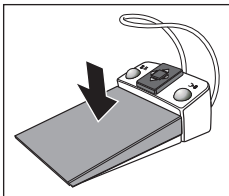


Operation of Si Video with the camera removed

With the camera removed, Si Video is controlled via the foot control and the Sivation program keys.

Switching between live and still image

- ✓ The intraoral camera is removed from its holder.
 1. Press the **foot pedal**.
 - ↳ The display switches from live to still image.
 2. Press the foot pedal again.
 - ↳ The live image is displayed again.

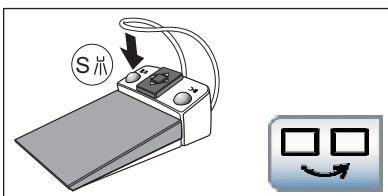


The function of focusing the camera image using the foot control can be configured in the treatment center setup, see "Switching on/off the foot control function for intraoral camera focus" [→ 213]. In this case, the foot pedal must be pressed down fully to switch between live and still images.

Selecting the next quadrant

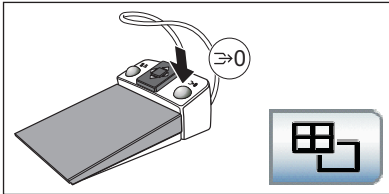
In order to produce another still image, another quadrant must be selected. If there is already a still image in the desired quadrant, it can be replaced by a new image.

- ✓ The intraoral camera must be removed from its holder to allow for operation via the foot control.
 1. Press the **left button** of the foot control.
 or
 - > Touch the *Select next quadrant* key on the touchscreen.
 - ↳ The orange square highlights the selected quadrant. When the intraoral camera is removed, the live image is displayed.



Switching between quad image and single image

When switching from quad to single image, the previously marked quad image is displayed as a single image. Conversely, the displayed single image is marked in the quad image.



- ✓ The intraoral camera must be removed from its holder to allow for operation via the foot control.

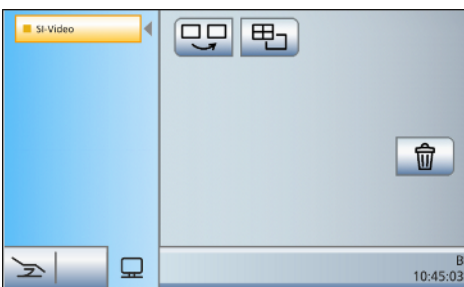
1. Press the **right button** of the foot control.

or

- > Touch the *Quad image* key on the touchscreen.
 - ↳ The mode changes between quad and single image.

Operation of Si Video with the camera in place

When the camera is in the holder, SI Video is controlled via the Sivision program buttons.



Selecting the next quadrant

In single image mode, the still image in the next quadrant is displayed. In quad image mode, the next quadrant is highlighted.

Quad image

Display quad image or single image. Up to four single images are simultaneously displayed on the Sivision monitor in quad image mode.

Deleting images

All generated still images are deleted.

4.14.2.4.3 Using the camera with Sidexis



Besides displaying and processing X-ray images, Sidexis 4 and Sidexis XG can be used additionally as a video application for the SiroCam AF+ intraoral camera. Sidexis displays live and still images in separate windows. Still images are saved in the patient database.



Some functions of Sidexis 4 and Sidexis XG can be controlled via the user interface of the treatment center, see "Communication with Sidexis" [-> 201].



An additional video plugin must be installed if the intraoral camera is used in combination with Sidexis 4. Please refer to the "Video plugin for Sidexis 4" user manual for details on installing and using the plugin. The video plugin can be controlled via the user interface of the treatment center with version 2.0 and higher, see "Communication with video plugin" [-> 203].

Switching the SiroCam AF+ intraoral camera on/off

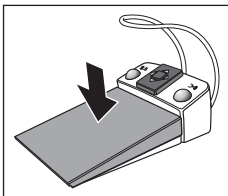
- ✓ The PC is in operation and the Sivision Connect or Siucom Plus PC application is started.
- Take the SiroCam AF+ intraoral camera from the holder.
 - ↳ The *Sivision* program appears on the touchscreen. Sidexis is started and the live image appears on the Sivision monitor.

When the intraoral camera is returned to the holder, the live image window closes. Sidexis remains active on the PC.

Generating a still image

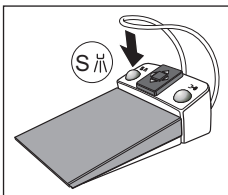
- ✓ The live image is displayed on the Sivision monitor.
- 1. Step on the **foot pedal**.
 - ↳ The display switches from live to still image.
- 2. Press the foot pedal again.
 - ↳ The live image is again displayed on the Sivision monitor.

The function of focusing the camera image using the foot control can be configured in the treatment center setup, see "Switching on/off the foot control function for intraoral camera focus" [→ 213]. In this case, the foot pedal must be pressed down fully to switch between live and still images.



Saving an image

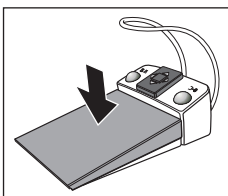
- ✓ The patient must be registered in Sidexis.
- ✓ The still image to be saved is displayed on the Sivision monitor.
- Press the **left button** of the foot control or put the camera back in the holder.
 - ↳ An acoustic signal sounds.
 - ↳ In Sidexis 4, the still image is saved in the side image bar of the video plugin. For the final export in Sidexis 4, see "Communication with the video plugin" [→ 203].
For Sidexis XG, the still image is displayed in an additional Sidexis window and saved in the patient database.



Focusing and automatically saving the image

When using Sidexis 4 version 4.2 or higher in combination with the video plugin version 2.0 or higher, we recommend selecting the third option in the setup dialog for focusing the intraoral camera, see "Switch focusing the intraoral camera on/off by the foot switch" [→ 213]. The images can then be displayed automatically on the Sivision monitor in the side image bar of the video plugin. Saving the still image with the left button (S) of the foot switch and switching between live and still image is thus no longer necessary.

- ✓ The live image is displayed on the Sivision monitor.
- Press the **foot pedal**.
 - ↳ The live image is focused and automatically saved in the side image bar of the video plugin.



4.14.2.5 Technical data of camera

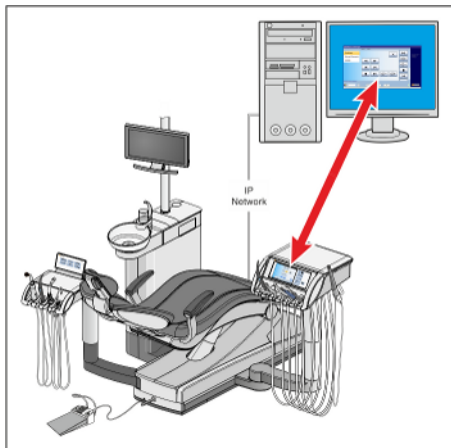
General technical data

Model:	SiroCam AF+ intraoral camera
Weight of handpiece without cable:	approx. 85 g
Dimensions:	diam. 27.5 x 207 mm
Working temperature:	+10 to +40 °C
Power supply and signal output:	5 V via USB 2.0 interface (modified plug-in connection)

Characteristics of the image acquisition

Lighting:	2 white light LEDs
Image sensor:	1/4" CMOS
Live image resolution:	824 x 514
Resolution of saved images:	1276 x 796
White balance:	Permanently set to 4800 K

4.15 Operation with a PC



The treatment center can be connected to a PC via an Ethernet cable. The Sivation Connect and/or Siucom Plus PC application enables communication between the treatment center and the PC. Siucom Plus is required for PC control. This allows the PC to be operated directly via the touchscreen and in connection with the SiroCam AF+ intraoral camera, via the foot control of the treatment center.

For details, please refer to the "Installation and configuration of Siucom Plus / Sivation Connect" manual.

⚠ CAUTION

Integrating the Teneo into an IT network that includes other devices can lead to previously unknown risks.

The following changes to the IT network can lead to new risks:

- Changes to the IT network configuration
- Connecting additional elements to the IT network
- Removing elements from the IT network
- Updating devices that are connected to the IT network
- Upgrading devices that are connected to the IT network

The provider of the IT network must determine, analyze, assess, and control the risks (e.g. IEC 80001-1).

The treatment center can be operated with the following PC versions:

- **External PC**
The treatment center is connected to an external PC via an Ethernet cable. PC applications such as Sidexis, Microsoft® PowerPoint®, Windows Mediaplayer and SI Video can be controlled from the treatment center.
- **Internal PC**
The treatment center is operated as a standalone unit without an external PC. A mini PC is integrated in the base of the chair instead. It is required to display the camera images using the SI Video PC application. This version is not intended for image storage or the control of any additional PC applications.
- **Operation without PC**
The use of Sivation is not possible.

The SI Video application is used in treatment centers with an external PC on which Sidexis is not installed, or with an internal PC (standalone solution). In these cases, SI Video serves as a video application for the camera.

IMPORTANT

The PC's HDMI outlet and graphics card should be hot-plug capable.

When the PC is switched on before the treatment center, the Sivation monitor may remain black in some PC models.

- In this case, switch the treatment center on first, then the PC..
- Equip your PC with a hot-plug capable HDMI outlet. Then the devices can be switched on in any order.

4.15.1 Sivision program

Various PC applications of the PC can be started and operated in the Sivision program.

The PC applications to be operable via the treatment center can be set in Siucom Plus. The keys displayed on the touchscreen and their arrangement can be adjusted individually. See the "Installation and configuration of Siucom Plus / Sivision Connect" manual.

The network connection of the treatment center must be configured in the setup program before using the Sivision program, see "Configuring the network connection" [→ 217].

PC applications can be controlled from the treatment center only if they were started via Siucom Plus.

4.15.1.1 Starting PC communication

Opening the Sivision dialog

✓ All PC applications which were started from the treatment center have been terminated.

✓ Siucom Plus has been started, e.g. via autostart.

1. Touch the *Sivision program* program change key.

or

➤ If intraoral images are desired: Remove the SiroCam AF+ intraoral camera from the holder. The Sidexis PC application or SI Video starts immediately.

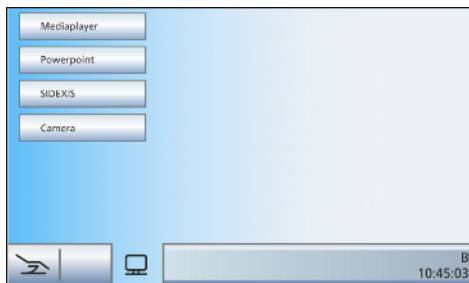
↳ The *Sivision* program is displayed on the touchscreen.



Starting other PC applications

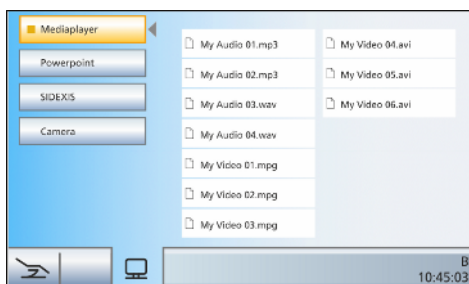
1. Select the desired PC application from the left side of the touchscreen.

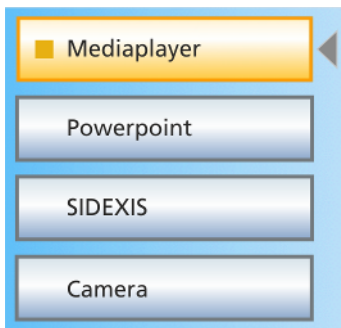
↳ The key of the selected PC application is highlighted orange and the corresponding control keys are displayed on the right side of the touchscreen; see the following sections. The PC application is automatically started on the PC.



2. The *File selection* dialog opens for PC applications that can access files of the PC. Select the desired file by touching it.

↳ The control keys of the relevant PC application are displayed on the touchscreen.





The treatment center starts the PC applications automatically. An orange square located in front of the respective PC application on the touchscreen indicates whether the application has been started and is ready for operation on the PC. If the orange square is not displayed, communication with the PC application is not yet possible.

4.15.1.2 Communication with the media player



The treatment center has the option of playing back multimedia files stored on the external PC using the Windows Media Player. Audio or video files can be selected from the file system and the Media Player can be controlled from the treatment center. Video images can be viewed on the Sivision monitor.



Previous/next title



Stop playback



Start/interrupt playback



Mute



Adjust volume

4.15.1.3 Communication with Microsoft PowerPoint



For effective patient communication, Microsoft® PowerPoint® presentations stored on the external PC can be displayed on the Sivision monitor. The presentations in the file system can be selected and the display of slides can be controlled from the treatment center.



Previous/next slide

4.15.1.4 Communication with Sidexis



Next image

The next image window is activated.



Tiled layout

All open image windows are scaled to a uniform size in the display area and arranged without overlapping.



Cascaded layout

The opened windows are "cascaded", i.e. arranged slightly displaced behind one another. All image window titles are thus visible.



Overview layout

The opened image windows are scaled in the display area so that no scroll bars or as few scroll bars as possible must be displayed. The image windows are arranged without overlapping.



Full frame

The active image window is enlarged so that it covers the entire display area. The control elements of the Sidexis user interface are not concealed in the process.



Zoom in/out

This magnifies and decreases the active image window and the size of the image displayed in it on the Sivation monitor.



Rotate image

Rotates the image 90° counterclockwise or clockwise. With Sidexis 4, the image can be rotated 180° by pressing a key.





Contrast optimization filter

This image filter analyses and optimizes the current grayscale distribution of an image. In this way, for instance, details within a very low-contrast, "faint" image can be made visible.



Relief display filter

Image details with high contrast are displayed brighter or darker. Edges or contours within the image are thus clearly accentuated. The result is a relief-like image distortion.



Smooth image

To mitigate high-contrast or high-interference effects in images, the contrast between neighboring pixels is reduced or averaged. The overall definition of the image is reduced.



Sharpen image

Contrasts between neighboring pixels are increased. This function helps to accentuate edges or contours. The impression of a sharper image is created.



Invert image

This function inverts the brightness values of the image pixels, thus enabling a positive or negative display of the image. The inversion can be canceled by pressing the key once again.



Display image in pseudocolors

To enable better distinction of image details, an image can be displayed in what is called pseudo color mode. The grayscale values of the image are replaced by colors which the human eye can distinguish better from one another than the corresponding gray levels.



Filter black dots

Single pixel errors may occur when taking digital X-rays. These pixel errors appear as individual black dots when the optimum resolution (100%) is selected. They are removed by Sidexis.



Reducing noise

Individual scattered pixels and minor disturbing information which lead to a noisy image are eliminated without reducing the overall definition of the image.



Undo

The effect of the last filter operation is undone.



Restore original image

The changes previously made, e.g. via filters, are canceled. The most recently saved version of the image is restored.



Close current media window



Close all media windows



Cancel/confirm entry

Accept an order

Accepts an order that was placed and is waiting in Sidexis, e.g. for creating an intraoral image with the X-ray unit of the treatment center or a video recording with the intraoral camera.

Readiness for intraoral X-ray exposure

Establishes readiness for an X-ray exposure. A Sidexis window then opens where the image type can be selected and the image can be described in detail.

4.15.1.5 Communication with video plugin



The video plugin for Sidexis 4 can be controlled via the user interface of the treatment center in versions 2.0 and higher. After replacing the SiroCam AF+ intraoral camera, the last image taken is displayed in the main window of the video plugin. In an image bar at the side, a preview of all images taken is displayed. The image displayed in the main window is highlighted orange. Via the touchscreen of the treatment center, the images taken can be selected and marked for final export to Sidexis. Unmarked images are discarded.

For more details, refer to the "Video plugin for Sidexis 4" user manual.



Scroll up / select previous still image



Scroll down / select next still image



Mark selected still image for import to Sidexis 4



Mark all still images for export to Sidexis 4



Import marked still images to Sidexis 4

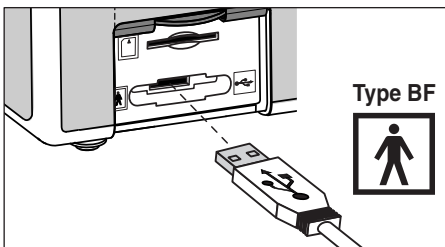
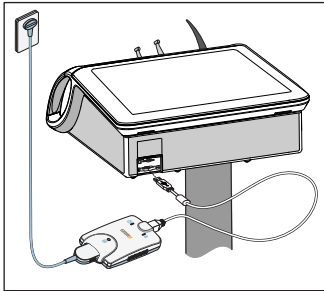


Discard all still images

Note: The Siiucom Plus PC application can be used to configure the layout of the keys.

For a description of the *SI Video* Sivation program, please refer to the section "Using the camera with SI Video" [-> 193].

4.15.2 USB port



A USB 2.0 port is provided on the back of the dentist element.

CAUTION

In the event of electrical faults, mains voltage could be conducted to the USB interface via the protective conductor.

There is a risk of electric shock.

- Only type BF medical devices and applied parts according to IEC 60601-1, e.g., the Dentsply Sirona Xios XG USB module intraoral X-ray system, may be connected to the USB interface.
- Do not connect extension cables to the USB interface.

CAUTION

USB devices with their own voltage supply (e.g., via a power supply unit) may lead to increased leakage current.

This endangers the safety of patients and users.

- Connect only USB devices that use the USB connection as their exclusive power source.

4.16 Configuration of the treatment center (setup)

Various treatment center functions can be individually configured via the Setup settings. The treatment center can therefore be adapted to match each user's personal method of treatment.

4.16.1 Opening the setup programs

- ✓ All instruments are in place.
- ✓ The required user profile is active.
- > Press and hold the *Setup* fixed key (approx. 3 s).



- ✎ Six setup programs are offered for selection.

The current software version of the treatment center is displayed on the left side of the touchscreen.

Key symbols of the six setup programs row by row from left to right:

- EasyTouch user interface
 - Date and time
 - Control options
 - Instruments
 - Network connection
 - Service domain (for service engineers only)
- > Touch the corresponding key to open the Setup dialogs.



Some of the setup programs comprise several pages. Navigation can then be performed via the *Scroll forward/back* keys.

IMPORTANT

Setup program, storing settings

The setup program closes automatically if no key is activated in 25 seconds. All of the settings you have made will be accepted when you leave the setup program.

IMPORTANT

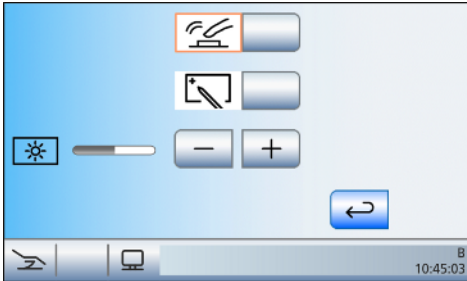
Missing function keys

Function keys for functions which the treatment center equipment does not include are not displayed on the touchscreen.

4.16.2 Configuring the EasyTouch user interface



- > Touch the *EasyTouch user interface* key in the setup program.



- ↳ The sub-screen opens.

4.16.2.1 Switching the key sound on/off

The program can be set to issue an acoustic signal that sounds when the operator touches a key on the touchscreen or a fixed key.



- > Touch the *Key tone* key.
 - ↳ If the key is highlighted orange, the key tone is activated.

4.16.2.2 Calibrating the touchscreen

If the touchscreen is no longer able to precisely locate the position of a contact, it must be recalibrated.

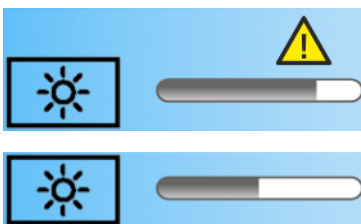


1. Touch the *touchscreen calibration* key.
 - ↳ A calibration field is displayed.
2. Touch the small cross on the touchscreen with a blunt pen.
 - ↳ The cross is displayed at another location on the touchscreen.
3. Repeat this procedure until the cross no longer appears.
4. Touch the empty touchscreen again.
 - ↳ The touchscreen is now calibrated. The *User interface* setup program is displayed again.



4.16.2.3 Adjusting the touchscreen brightness

The brightness of the touchscreen will decrease after a few years of operation. This aging effect is normal and can be counterbalanced by adjusting the brightness. The lighting of the touchscreen has sufficient reserves for this.



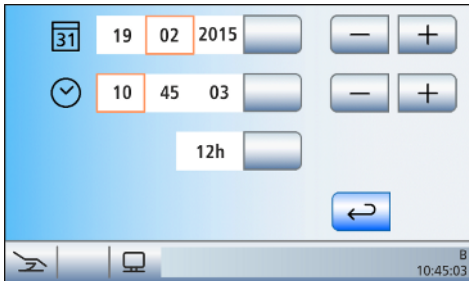
To reduce the aging effect, the touchscreen should not be brighter than necessary. A warning sign is displayed if the maximum recommended brightness is exceeded.

- > Use the – and + keys to set the brightness of the touchscreen.

4.16.3 Setting the date and time



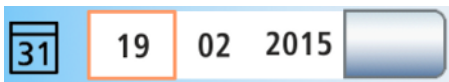
> Touch the *Date and time* key in the setup program.



↪ The sub-dialog opens.

Setting the date

The date is displayed in the format day/month/year.



1. Use the – and + keys to set the day.
2. Touch the *Date* key.
 - ↪ The month field is highlighted orange.
3. Repeat this procedure for the month and year.



Set the time

1. Use the – and + keys to set the hour.
2. Touch the *Time* key.
 - ↪ The minutes field is highlighted orange.
3. Repeat this procedure for the minutes and seconds.



Switching 12/24 hour display

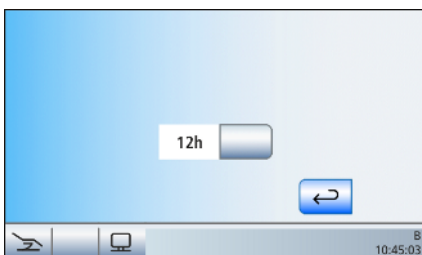
The 12-hour display is only changed in the status bar of the touch screen. The setup dialog will continue to display a 24-hour system.

- > Touch the *12/24 hour display* key.
- ↪ If the field is highlighted orange, the 12-hour display is set.

Activating/deactivating time synchronization

With Sidexis 4, the treatment center can synchronize the date and time on the PC.

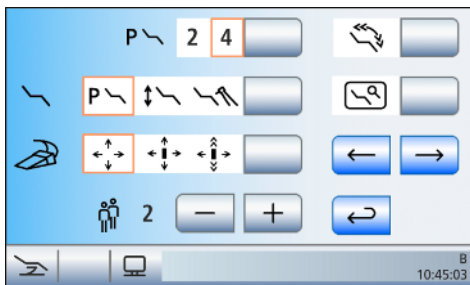
- ✓ The treatment center is connected with a Sidexis 4 PC on which the dental unit plug-ins are installed.
- > This function can be switched on and off at the PC with the dental unit plug-in "Time synchronization". For more details, refer to the "Dental unit plug-ins" user manual.
 - ↪ When time synchronization is activated, the setting keys for the time and date are hidden on the touchscreen.



4.16.4 Configuring control options

Operation of the entire treatment center operation can be configured in this dialog.

- > Touch the *Control options* key in the setup program.



- ↪ The sub-dialog opens.

4.16.4.1 "Showing/hiding" chair programs 3 and 4"

In addition to the mouth rinsing position (S) and entry/exit position (0) chair programs, the number of chair programs can be extended to 4 or limited to 2. The setting affects all the operating modes of the Start program.

- > Touch the *Chair programs* key.
- ↪ The selected field is highlighted orange.



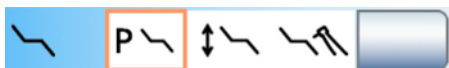
4.16.4.2 Setting the operating mode of the Start program

The treatment center can be set to the following operating modes:

- Field 1: Simple Start program
- Field 2: Advanced Start program
- Field 3: EasyMode Start program

For further information, see "Start program operating modes" [→ 46].

- > Touch the *Operating mode* key.
- ↪ The selected field is highlighted orange.



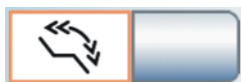
4.16.4.3 Increasing the travel speed of the chair

The travel speed can be increased for manual chair settings and programmed movements of the chair. If this function is switched on, the following chair movements are executed faster:

- OrthoMotion – Tilting the patient chair
- ErgoMotion – Tilting the patient couch and inclining the backrest
- Adjusting the chair height

Please note that motor noises become louder when the travel speed is increased.

- > Touch the *Travel speed* key.
- ↪ If the key is highlighted orange, the patient chair travels at increased speed.



4.16.4.4 Showing/hiding the fine adjustment key

Depending on the type of treatment, it may be necessary to adjust the patient chair more slowly and more precisely (e.g., for tiny corrections in case of treatment under a microscope). In this case, the *Fine Adjustment* key can be displayed in the *Start program*. If this function is activated there, the patient chair carries out the following movements at reduced speed:

- OrthoMotion – Tilting the patient chair
- ErgoMotion – Tilting the patient couch and inclining the backrest
- Adjusting the chair height

Chair program travel movements are always executed at maximum speed.

- > Touch the *Fine Adjustment* key.
 - ↳ If the key is highlighted orange, the *Fine Adjustment* key is displayed in the *Advanced Start program* and in the *Manual Chair Adjustment* screen.



4.16.4.5 Setting the cursor control

The cursor control can be set as follows:

- Field 1: Cursor control switched off
- Field 2: Cursor control switched on, without screen change
- Field 3: Cursor control switched on, with screen change:

For more information, please refer to "Using the cursor control" [→ 54].

- ✓ A cable foot control is connected to the treatment center or a wireless foot control is registered on the treatment center; see "Setting the wireless foot control on the treatment center" [→ 51].
- > Touch the *Cursor control* key.
 - ↳ The selected field is highlighted orange.



4.16.4.6 Preselecting the number of user profiles

If fewer user profiles are required, their number can be limited so that only the specified users can be selected after the treatment center is switched on.

- > Use the – and + keys to set the number of user profiles.

If the number of user profiles is limited to one, the *User profiles* key is hidden in the start dialog.

- > Change to the next setup dialog page.



4.16.4.7 Automatic activation of the operating light with approaching dentist element



- > Touch the *Operating light* key.
 - ☞ If the key is highlighted orange, the operating light is automatically activated when the dentist element approaches.

4.16.4.8 Linking the movement of the cuspidor bowl to the mouth rinsing position



- This can be used to set the cuspidor bowl so that it automatically moves inward when the mouth rinsing position (S) chair program is selected.
- > Touch the *Cuspidor bowl movement* key.
 - ☞ If the key is highlighted orange, the cuspidor bowl automatically moves inward as soon as the mouth rinsing position has been reached.

4.16.4.9 Linking the tumbler heater to the chair program

A setting can be made so that the tumbler heater automatically switches off when the entry/exit position (0) chair program is activated. The tumbler heater switches back on as soon as the patient chair leaves the entry/exit position. This makes it possible for the patient to drink cold water during waiting periods and to save energy.

- Field 1: The tumbler heater is switched off in the chair program entry/exit position (0).
- Field 2: The tumbler heater remains switched on in every chair program.

Chair programs 3 and 4 are not displayed on the touchscreen to save space.



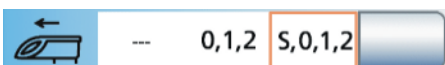
- > Touch the *Tumbler heater* key.
 - ☞ The selected field is highlighted orange.

4.16.4.10 Linking the dentist element movement to chair programs

A setting can be made to designate the chair programs for which the position of the dentist element can be additionally programmed.

- Field 1: The position of the dentist element is not added to any chair program.
- Field 2: The position of the dentist element is added to all chair programs except for the mouth rinsing position (S).
- Field 3: The position of the dentist element is added to every chair program.

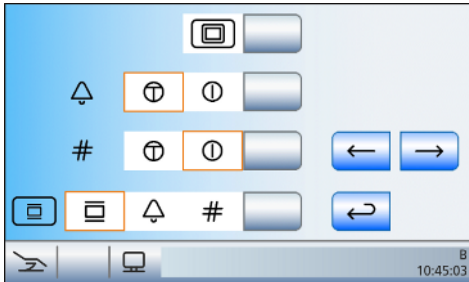
Chair programs 3 and 4 are not displayed on the touchscreen to save space.



- > Touch the *Dentist element position* key.
 - ☞ The selected field is highlighted orange.



- > Change to the next setup program page.



4.16.4.11 Key for showing/hiding white screen on the Sivation monitor

If the treatment center has no X-ray viewer but is equipped with a Sivation monitor, the Sivation monitor can be set to the white screen mode.



- > Touch the *White screen* key.
 - ↳ If the key is highlighted orange, the *White screen* key is displayed in the *Start program*.

4.16.4.12 Setting the bell/hash fixed key as a pushbutton or as a switch

The relay assigned to the bell and hash keys can be actuated as a push button or a switch.



- Field 1: Push button
- Field 2: Switch
- > Touch the *Bell* and/or *Hash* key.
 - ↳ The selected field is highlighted orange.

4.16.4.13 Setting the X-ray viewer key on the assistant element

The *X-ray viewer* key on the assistant element can be assigned the X-ray viewer function or, if the X-ray viewer key is set to the white screen on the Sivation monitor, it can be assigned the white screen function. See "Key for showing/hiding white screen on Sivation monitor" [→ 211].

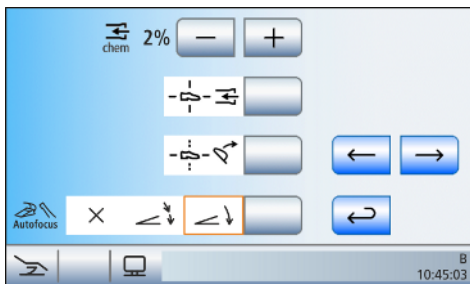
Alternatively, the *X-ray viewer* key on the assistant element can also be used to activate the bell or hash key relay, e.g. if neither an X-ray viewer nor a Sivation monitor is available.



- > Press the *X-ray viewer*, *bell*, or *hash* key.
 - ↳ The selected field is highlighted orange.



> Change to the next setup program page.



4.16.4.14 Adjust cleaning agent mixture for chemical suction hose cleaning

The suction system can be cleaned by pumping water into a tank behind the receptacle of the suction hoses and extracting it from there. A cleaning agent is added to the water if the dental treatment center is equipped with the chemical suction hose cleaning option. For more information, see the section "Cleaning the suction hose".

It is possible to set how much cleaning agent should be added to the water for chemical suction hose cleaning. The quantity is dependent on the cleaning agent used and the type of treatment. Please follow the manufacturer's instructions for the cleaning agent.



- > Use the – and + keys to adjust the cleaning agent mixture for chemical suction hose cleaning (0 to 5%).
 - ☞ The percentage set is displayed on the touch panel.

4.16.4.15 Switching the central supply for chemical suction hose cleaning off and on

For clinical use, Teneo treatment centers can be equipped with a central cleaning agent supply for chemical suction hose cleaning. The CDS 60 system of Dürr Dental is intended for this purpose.

The cleaning agent is pumped from the central supply station to the treatment centers via an in-house tubing or hose system. Here it is mixed with water and suctioned off at the water unit via the suction hose adapter.



- > Touch the *Dürr CDS* key.
 - ☞ If the key is highlighted orange, the treatment center is switched to the central supply for chemical suction hose cleaning.

NOTE

The CDS 60 station may be operated only with a cleaning agent approved by Dürr Dental and Dentsply Sirona, e.g., Orotol plus.

IMPORTANT

Also observe the installation and operating instructions for the CDS 60 from Dürr Dental.

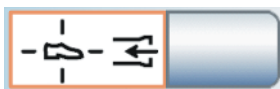
4.16.4.16 Linking the spray aspirator to the 4-way foot switch

A setting can be made to enable interruption and/or reactivation of the suction flow of the spray aspirator by pressing the 4-way foot switch in any direction. This function cannot be used on the saliva ejector or on the surgical suction device. Also observe the safety information, see "Suction handpieces" [→ 168].

CAUTION

When using the controllable spray aspirator with slide, interruption of the suction flow with the 4-way foot switch must not be configured.

Due to the lack of suction flow, fluid may run back out of the spray aspirator and into the patient's mouth.



- > Touch the *Spray aspirator* key.
 - ↳ If the key is highlighted orange, the removed spray aspirator can be switched on/off with the 4-way foot switch.

If you deposit the spray aspirator in its holder while the suction flow is interrupted, the suction flow is automatically restarted when you pick it up again.

4.16.4.17 Linking the headrest tilt to the 4-way foot switch

If a motor-driven headrest is used, control of the ErgoMotion function using the 4-way foot control can be replaced by the headrest tilt function.



- > Touch the *headrest tilt* key.
 - ↳ If the key is highlighted orange, the tilt of the motor-driven headrest can be adjusted to the left and right using the 4-way foot control.

4.16.4.18 Switching on/off the foot control function for intraoral camera focus

The foot control can be set to focus the SiroCam AF+ intraoral camera:

- Field 1: The display switches between a still or live image when the foot pedal is pressed. The knob on the camera can be used to focus the image.
- Field 2: The camera is focused by pressing the foot pedal. The display switches between a still or live image only when the foot pedal is pressed down fully. The knob on the camera can still be used to focus the image.
- Field 3: When the foot pedal is pressed, the camera image is focused and a still image is automatically taken. The knob on the camera can still be used to focus the image.



- > Touch the *Autofocus* key.
 - ↳ The selected field is highlighted orange.

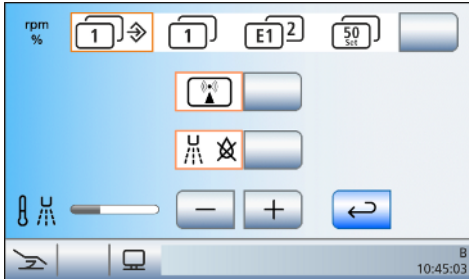
Please note that the *Autofocus* key is displayed in the setup dialogue only when the PC is switched on and the autofocus camera is configured for use on this treatment center. The latest version of the SIUCOM Plus / Sivision Connect application must be installed on the PC. For details, please refer to the "Installation and configuration of Siucom Plus / Sivision Connect" manual.

When using Sidexis 4 version 4.2 and higher in combination with the video plugin version 2.0 or higher as a PC application for the intraoral camera, we recommend selecting the third option for focusing the camera. The images are then displayed automatically in an image bar on the Sivation monitor. Saving the still image with the left button (S) of the foot switch and switching between live and still image is thus no longer necessary. For details, please see the section "Using the camera with Sidexis" [→ 195] and the "Video plugin for Sidexis 4" user manual.

4.16.5 Configure instruments



- > Touch the *Instruments* key in the setup program.



- ↳ The sub-screen opens.

4.16.5.1 Preselecting how instrument settings are to be saved

The settings in the instrument programs can be made either via static quick setting keys (with the key values 0.09, 10, 20, 30, 40 or 1, 25, 50, 75, 100), via the programmable quick setting keys (with changeable key values) or via the function levels (E1, E2). For more information see "Quick setting keys and function levels" [→ 82] and "Saving the instrument settings" [→ 84].

When using the static quick setting keys, you can choose one of two options for saving the settings you made in the instrument program:

- **SaveMode** – The *Memory* key is displayed in the instrument programs:
The settings made in the Instrument program will be saved after the instrument is placed in its holder only if the Memory key was pressed and held beforehand (> 2 s).
- **DropMode** – *Memory* key hidden in Instrument programs:
When the instrument is deposited, the settings made in the Instrument program are automatically saved.

One of the following presets can be selected:

- Field 1: Static quick setting keys with SaveMode
- Field 2: Static quick setting keys with DropMode
- Field 3: Function levels
- Field 4: Programmable quick setting keys



- > Touch the *Select memory type* key.
↳ The selected field is highlighted orange.

4.16.5.2 Showing/hiding the key for the external HF surgical unit

External HF surgical devices may interfere with the treatment center and Sivation monitor. Therefore, the *External HF surgical devices* key may be displayed on the *Start* sub-screen. If the key in the sub-screen is highlighted in orange, the treatment center is protected from interference resulting from the HF fields.



- > Touch the *External HF surgical unit* key.
↳ If the key is highlighted orange, the *external HF surgical unit* key is displayed in the *Start* sub-screen.

If the suction system is required with the external HF surgical unit during the treatment, the suction handpiece must be removed from the holder before blocking the treatment center. The suction unit remains switched on until the block is removed and the suction handpiece is returned to the holder.

4.16.5.3 Switching afterblow on/off

After the foot control pedal has been released, the cooling spray remaining in the instrument head or in the tip of the instrument can be automatically blown out by briefly activating the chip blower.



- > Touch the *Afterblow* key.
 - ↳ If the key is highlighted orange, the afterblow function is activated.

4.16.5.4 Setting the spray temperature

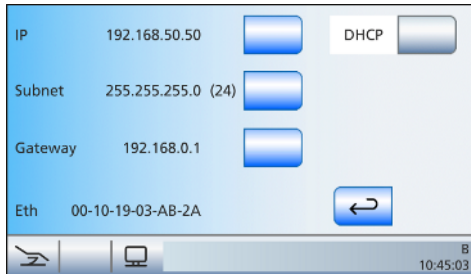
The spray temperature of instruments on the dentist element except for the Sprayvit M multifunctional syringe can be adjusted.

The spray temperature of the Sprayvit M multifunctional syringe can be adjusted separately, see "Switching the instrument light on/off and setting the water temperature" [→ 96].



- > Use the – and + keys to set the spray temperature.

4.16.6 Configuring the network connection



- > Touch the *Network connection* key in the setup dialog. Berühren Sie im Setup-Dialog die Taste Netzwerkverbindung.

↳ The sub-dialog *Network connection* opens. It shows the currently used network configuration.

Call in your data processing specialist for network configuration.

Network configuration is described in detail in the "Teneo installation instructions".

4.16.7 Opening the service function



The Service domain is intended to be used only by service engineers.

CAUTION

A user operating error may cause malfunctions and hazards.

- > Please contact your service technician or your dental depot.

5 Care, cleaning and maintenance by the practice team

5.1 Basics

Reprocessing mainly involves the following steps:

- Cleaning
- Disinfection
- Sterilization if possible

The treatment center must be reprocessed immediately, or at the latest, one hour after treatment. Preliminary cleaning should be done with disposable/paper towels.

Inappropriate care and cleaning of the device can result in failure or damage. Technical personnel must be trained in the handling of medical devices.

5.1.1 Intervals

To maintain the value and safe functioning of your treatment center, it is necessary to have it regularly maintained, cleaned, and disinfected by the practice team. This will minimize the risk of contamination for patients and users and ensure proper functioning.

The national requirements and recommendations for hygiene and disinfection must be observed, e.g., Robert Koch Institute (RKI), American Dental Association (ADA), Centers for Disease Control and Prevention (CDC), etc.

IMPORTANT

Maintenance, cleaning, and disinfecting intervals

The time intervals specified for maintenance, cleaning, and disinfection/sterilization are reference values.

Please adapt the time intervals to suit your personal method of working and your national requirements.

In the morning

Automatically purge water lines (AutoPurge function) [→ 234]

Flush water lines [→ 231]

After each patient

Clean the gold trap [→ 265]

Clean/disinfect the cuspidor [→ 266]

Purge the water paths (purge function) [→ 231]

Lubricate, disinfect/sterilize the treatment instruments [→ 240]

Clean and disinfect/sterilize the components of the ApexLocator [→ 247]

Sterilize the separate motor holder [→ 229]

Clean the suction hoses [→ 257]

Sterilize the suction cannula [→ 262]

Clean/disinfect surfaces [→ 223]

Disinfecting the upholstery [→ 227]

Disinfecting the EasyTouch [→ 224]

Disinfect handles [→ 225]

Maintaining and cleaning the operating light (see separate instructions for use for the operating light)

In the evening

Automatically purge water lines (AutoPurge function) [→ 234]

Cleaning the suction system using the cleaning adapter in the cuspidor or via external container [→ 259] (if chemical suction hose cleaning option not available)

Clean the filter in the suction hoses and disinfect/thermally disinfect the suction hoses [→ 263]

Thermally disinfect the instrument holder of the dentist and assistant element and sterilize silicone mats [→ 228] and [→ 229]

Sterilize the sealing cap of the lateral motor connection [→ 229]

Disinfect the tray [→ 226]

Disinfect the cup holder [→ 226]

Weekly

Clean and care for upholstery [→ 227]

Clean the foot control [→ 230]

Clean outlet lines [→ 267] (if chemical suction hose cleaning option available)

Change the cotton wool roll on the turbine hose [→ 256]

Sterilizing/disinfecting and lubricating the suction handpieces [→ 262]

Monthly or as required

Change the water and air filters [→ 269]

Microbiological water test [→ 220]

Maintaining treatment instruments [→ 253]

Check the flow rate on the Sprayvit M multifunctional syringe [→ 243]

Thermally disinfect the sanitization adapter [→ 290]

Sanitize the treatment center [→ 278]

Change the amalgam rotor [→ 270] or
empty the sediment container [→ 274] or
clean the filter insert of the standard wet suction [→ 276]

Check the message system of the amalgam separator [→ 273]

Changing the battery of the wireless foot switch [→ 291]

For a quick overview of the work involved, see the “Maintenance, cleaning, and disinfection schedule” for the Teneo treatment center.

5.1.2 Care, cleaning, and disinfecting agents

NOTE

Approved care, cleaning, and disinfecting agents

Use only care, cleaning, and disinfecting agents approved by Dentsply Sirona!

A continuously updated list of approved agents can be downloaded from the Internet on the online portal for technical documents. You can reach this portal at the address:

www.dentsplysirona.com/manuals

.Click on the menu item "*General documents*" and then open the "*Care, cleaning and disinfection agents*" document.

If you do not have access to the internet, please contact your dental depot to order the list (REF 59 70 905).

5.1.3 Microbiological water test

Perform the microbiological test of the water from the treatment center at regular intervals and after longer periods of disuse > 1 week; see "Media quality" [→ 16]. Start the checkups in intervals of no more than two weeks and adjust the time intervals depending on the results. In addition to running laboratory tests, you can also use the "Total Count Tester" as a simple means of performing this test.

To order the motor total count tester, see "Spare parts and consumables" [→ 299].

IMPORTANT

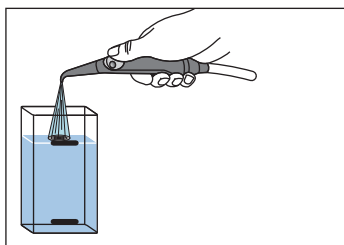
Shelf life of the total count tester

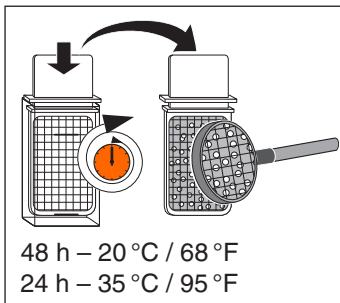
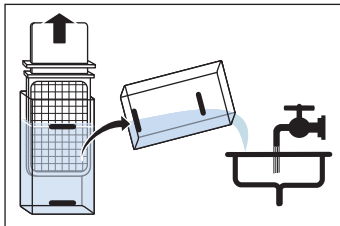
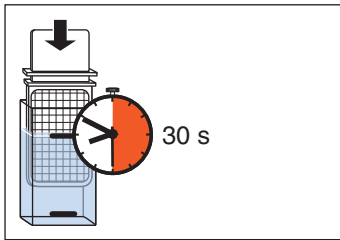
The maximum shelf life of the total count tester is 1 year after the date of receipt.

The cardboard disk contains a dehydrated nutrient medium. It is activated by the sample and serves as a culture medium for a number of bacteria. The bacterial count provides information on the hygienic condition of the water.

Be careful not to touch the inside of the test container or the part of the tester to be immersed in the nutrient medium prior to incubation.

1. Allow water to run out of the Sprayvit M multifunctional syringe into the cuspidor bowl for about 1 minute.
2. Use the Sprayvit M multifunctional syringe to fill cold water into test container up to its upper mark.
3. To neutralize the disinfecting agent of the water sample, add approx. 1.5 g of fixing salt (sodium thiosulfate). Fixing salt can be obtained in pharmacies or from chemical dealers.





4. Immerse the tester in the filled container for 30 seconds.
 - ↳ The cardboard disk with the culture medium will now absorb 1 ml of the water sample.

5. Remove the tester from the container. Shake out any excess water. Empty the tank.
6. Place the tester in the container for incubation either for two days at a room temperature of 20°C/68°F or for 24 hours at a temperature of 35°C/95°F.

7. Count all bacterial colonies found on the surface of the tester.

If the bacterial count is well over 100, the water must be treated, see "Sanitizing required, see "Sanitize treatment center" [→ 278] and "Biofilm removal by the service technician" [→ 290].

5.1.4 General handling instructions

The general reprocessing instructions generally apply to the treatment center provided there are no other product-specific reprocessing instructions in this operating manual. The manufacturer's instructions related to disinfectants must be observed (temperature, concentration, exposure times, etc.).

Manual cleaning

The equipment can be cleaned manually using a cloth or soft brush. Unless specified otherwise, use drinking water that is warm to the touch to clean surface contamination.

Manual disinfection

The treatment center can be disinfected by wiping. Use a soft colorless cloth and approved disinfectant for disinfection. Other disinfection procedures, e.g. spray disinfection, immersion bath, etc., should not be applied.

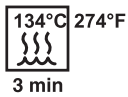
Machine cleaning and disinfection

Thermal disinfection at up to 93°C in accordance with ISO 15883-1/-2 is possible with labeled components. To do so, use cleaning and disinfection equipment.



Manual drying

No drying is required following wiping with disinfectants since surplus disinfectant evaporates. Surplus water from the cleaning process can be removed with a soft cloth.



Sterilization

Sterilization may be conducted for components that are marked accordingly. Steam sterilizers that fulfill the requirements of EN 13060, class B (e.g., DAC Premium / DAC Professional) are approved.

The sterilization must be completed with multiple vacuum fractionation (class B sterilizer). The process parameters can be found in the engraved characters on the relevant components and the instructions for use for these.

During the drying cycle, the sterilized parts must not exceed a temperature of 140 °C (284 °F) during the drying.

5.1.5 Inspection, maintenance and testing

Unless otherwise specified in this operating manual, test all components for proper functioning on a regular basis and carry out a visual inspection for damage and wear. Exchange damaged components if necessary.

5.2 Surfaces

5.2.1 Clean/disinfect surfaces

The surfaces can be disinfected by wiping with surface disinfectants.

NOTE

Drugs have a chemical reaction with the surface of the unit.

Due to their high concentrations and the substances they contain, many drugs can dissolve, etch, bleach, or stain surfaces.

- Wipe any drug residues off the unit immediately with a moist, white cloth!

NOTE

Liquids can enter the unit during cleaning or disinfection.

Electrical components of the treatment center can be destroyed by liquids.

- Do not spray any liquids into the unit.
- To clean near openings, first spray the liquid onto a cleaning cloth. Then wipe over the unit with the cleaning cloth.

NOTE

Disinfectants can dissolve dyes in cleaning clothes.

The outer surface of the unit may then be discolored by the dye.

- Do not clean or disinfect the unit with colored cleaning cloths.
- Remove any dirt and disinfectant residues regularly using a mild commercial cleaning agent.

5.2.2 Disinfect the EasyTouch

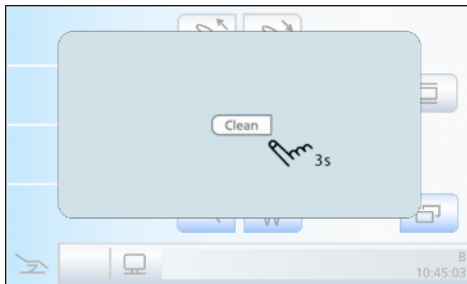
The touchscreen and fixed keys of the dentist element, with the exception of the standby switch, can be deactivated for disinfection. This prevents the inadvertent triggering of unwanted functions.

NOTE

Approved care, cleaning, and disinfecting agents

Use only care, cleaning, and disinfecting agents that have been approved by Dentsply Sirona, see "Care, cleaning, and disinfecting agents" [→ 220].

Clean



1. Actuate the *Clean* fixed key on the dentist element.
 - ↳ A display stating that the touchscreen and fixed keys are deactivated appears on the touchscreen. The standby switch is excluded from this.
2. Disinfect the EasyTouch user interface by means of wipe disinfection.
3. Press and hold the *Clean* fixed key on the dentist element (> 3 s) or press the pedal of the foot switch.
 - ↳ The touchscreen and fixed keys are now reactivated.

5.2.3 Disinfecting handles

NOTE

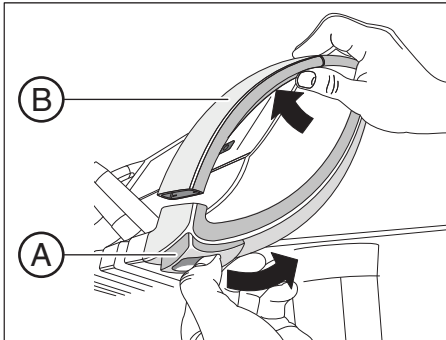
Approved care, cleaning, and disinfecting agents

Use only care, cleaning, and disinfecting agents that have been approved by Dentsply Sirona, see "Care, cleaning, and disinfecting agents" [→ 220].

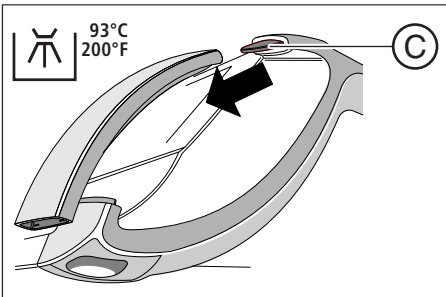
Dentist element

The handles on the dentist element can be wiped and thermally disinfected. They can be detached.

1. Press the locking rocker switch **A** toward the rear with your thumb.
↳ The handle **B** is unlocked.
2. Raise the handle **B** slightly.



3. Remove the handle from the upper guide tab **C**.
4. Repeat this procedure for the opposite handle.



Proceed in reverse order when reattaching the handle. The locking rocker switch **A** engages automatically.

Assistant element

The handles on the instrument holder of the dentist element can be wiped and thermally disinfected. See also "Thermally disinfect the instrument holder of the assistant element" [→ 229].

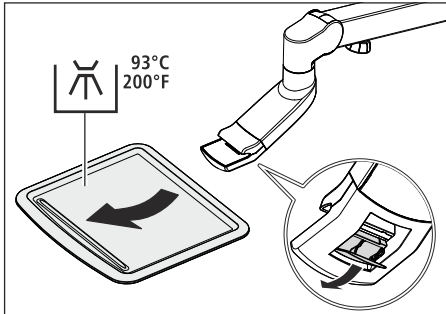
5.2.4 Disinfecting the tray

The tray can be removed to facilitate cleaning or thermal disinfection.

NOTE

Approved care, cleaning, and disinfecting agents

Use only care, cleaning, and disinfecting agents that have been approved by Dentsply Sirona, see "Care, cleaning, and disinfecting agents" [→ 220].



1. Take the silicone mat off the tray.
2. Hold the tray tightly.
3. Open the lock by swiveling the lever downwards.
4. Remove the tray.
5. Let the lever fall back into its original position.
6. If a cup holder is attached to the tray, it must be removed, see "Disinfect the cup holder" [→ 226].
7. Thermally disinfect the tray and the silicone mat.

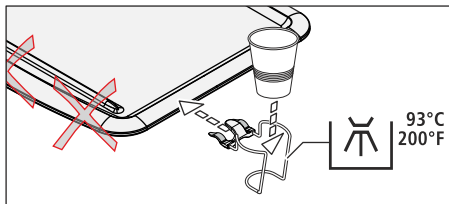
To insert the tray, simply guide it into the mount. The mechanism locks automatically.

CAUTION

If the tray is not locked in place, it can disengage from the tray holder.

- After installing the tray, make sure it is securely attached to the tray holder.

5.2.5 Disinfecting the cup holder



The cup holder can be disinfected by wiping or thermally.

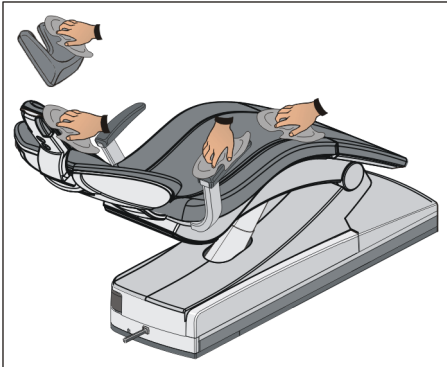
The disposable cup must be replaced after each patient.

NOTE

Approved care, cleaning, and disinfecting agents

Use only care, cleaning, and disinfecting agents that have been approved by Dentsply Sirona, see "Care, cleaning, and disinfecting agents" [→ 220].

5.2.6 Care for, clean, and disinfect upholstery



Special care, cleaning, and disinfecting agents are recommended by Dentsply Sirona for the care, cleaning, and disinfection of the upholstery.

NOTE

Approved care, cleaning, and disinfecting agents

Use only agents approved by Dentsply Sirona for the upholstery, see "Care, cleaning, and disinfecting agents" [→ 220]!

The upholstery of the patient chair and the headrest can be spray and wipe disinfected.

The armrests can also be spray and wipe disinfected using the recommended surface disinfectant. After use, wipe the chair down with an absorbent cloth so no disinfectant remains on the upholstery.

The imitation leather upholstery must be cared for and cleaned regularly (at least once a week), especially light colored upholstery.

NOTE

The special sponge included with FD 360 may not be used on lounge upholstery.

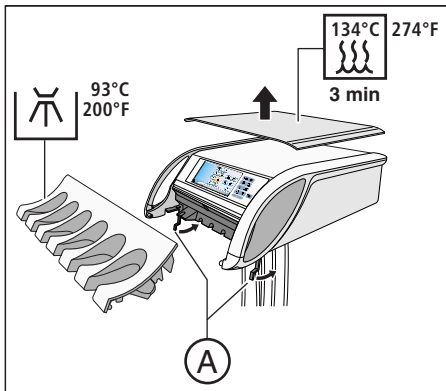
Lounge upholstery could be damaged by the special foam.

Tip: The upholstery of the Hugo, Theo, Carl, and Paul dental working stool is identical to that of the patient chair. It can therefore be cleaned in the same way; refer to the instructions for use for the respective dentist stool.

5.2.7 Thermally disinfecting the instrument holder of the dentist element and sterilizing the silicone mat

The instrument holder can be removed for cleaning and thermal disinfection.

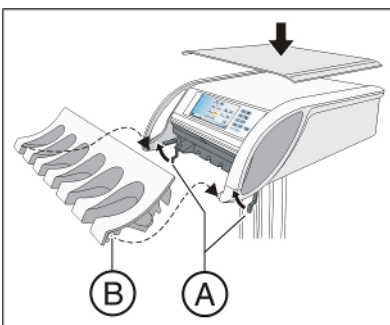
Removing the instrument holder



1. Remove all instruments from the holder.
2. Swivel both of the levers **A** below the instrument holder to the rear.
↳ The latch of the instrument holder is released.
3. Grasp underneath the instrument holder and raise it at the rear.
↳ The instrument holder tilts to the front and can be removed from the dentist element in an upward direction.

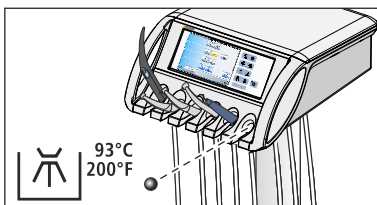
The removable silicone mat on the dentist element can be sterilized.

Inserting the instrument holder



- ✓ The levers **A** are swiveled to the rear.
1. Fit the front recesses **B** of the instrument holder onto the bolts in the dentist element.
 2. Gently press the instrument holder into the dentist element.
 3. Hold the instrument holder firmly and swivel both levers **A** toward the front.
↳ The instrument holder is locked into the dentist element.

Ball stopper

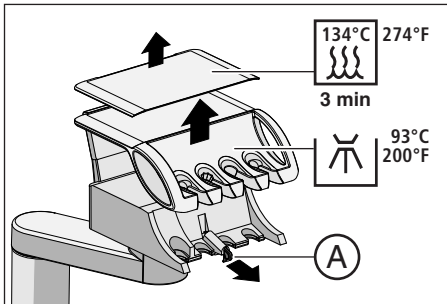


A ball stopper in an unused instrument holder can simply be pushed out of the holder from the rear to facilitate cleaning or thermal disinfection.

5.2.8 Thermally disinfecting the instrument holder of the assistant element and sterilizing the silicone mat

The instrument holder can be removed for cleaning and thermal disinfection.

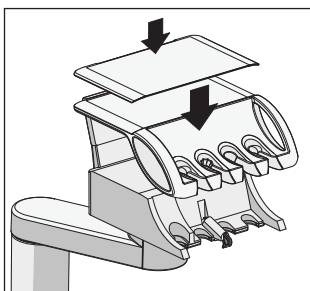
Removing the instrument holder



1. Remove all instruments from the instrument holder.
2. Pull the latch **(A)** underneath the assistant element.
↳ The latch of the instrument holder is released.
3. Remove the instrument holder.

The removable silicone mat on the assistant element can be sterilized.

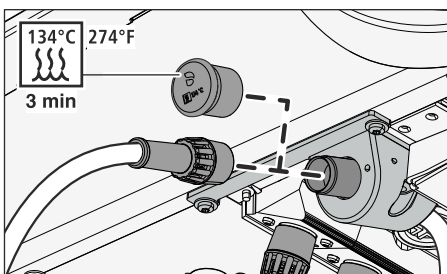
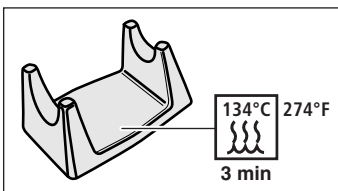
Inserting the instrument holder



- First insert the instrument holder in the groove underneath the user interface. Then push the holder forward and downward until it locks in place.
↳ The instrument holder is locked into the assistant element.

5.2.9 Sterilizing the separate motor holder and sealing cap of the lateral motor connection

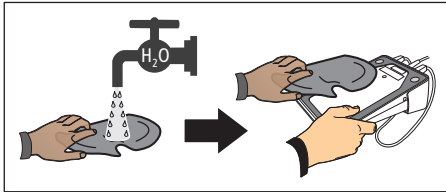
A sterilizable motor holder is available for surgical procedures



A lateral motor connection can be retrofitted on the dentist element. The retrofitting kit includes a sterilizable sealing cap. It is screwed onto the lateral motor connection to protect it from contamination when no instrument hose is connected to it.

For more information on sterile operation, please see the section "Preparing the treatment center for sterile operation" [-> 149].

5.2.10 Clean the foot switch



Regular cleaning of the foot control improves its stability.

- > Clean the bottom plate of the foot control with a moist cloth (water).

5.3 Instruments and instrument hoses

5.3.1 Rinse water paths

Microorganisms can grow in the water paths of the treatment center. Use a large amount of water for rinsing the lines prior to starting patient appointments.

- > Flush the cuspidor for at least one minute.



5.3.2 Purge water paths (purge function)

To reduce the amount of germs, the water paths of the water-carrying instruments of the dentist element and the Sprayvit M multifunctional syringe of the dentist and assistant element are purged with water. Purging (Purge function)

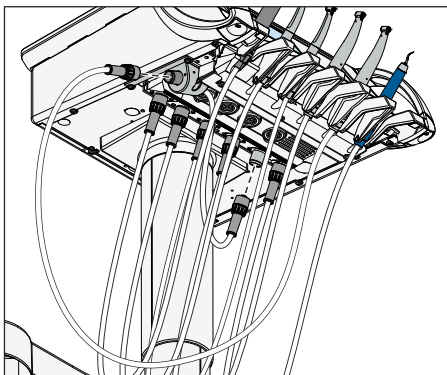
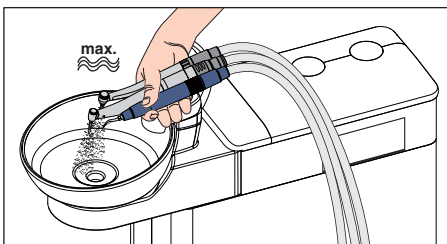
For the purge function, individual instruments are removed from their holders and held over the cuspidor for purging. If your treatment center is not equipped with a cuspidor, hold the instruments over a watertight container with sufficient capacity. The water paths of all removed instruments are then purged simultaneously. **Press the water key of the Sprayvit M unit for purging.**

It is also possible to purge the water paths automatically, see "Automatically purge water paths (AutoPurge function)" [→ 234].

Preparation

The following preparations should be made before you begin to purge the water paths.

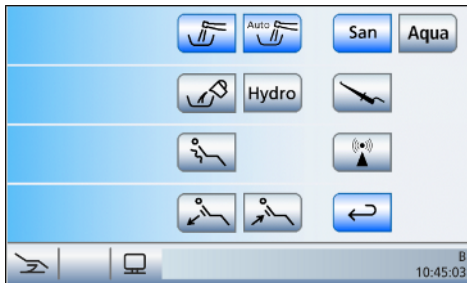
1. If your treatment center is equipped with a cuspidor, activate the cuspidor flushing for at least one minute. This flushes the water paths.
2. Set all of the instruments to be purged to their maximum water flow rate.
3. Place all instruments in their holders.
4. If the treatment center is equipped with a lateral motor connection, it must be integrated into the purge process. To do this, connect the hose of the lateral motor connection to a water-carrying instrument connector on the dentist element. Then connect the instrument hose of the water-carrying instrument to the lateral motor connection.



Opening the purging dialog

✓ The *Start dialog* is displayed on the touchscreen.

1. Touch the *Sub-screen* key.



✎ The *Start* sub-dialog is displayed.

2. Touch the *Purge function* key.



✎ The *Purge* screen is displayed on the touchscreen.

Setting the purge time and starting the purge function

The purge time of the removed instruments can be set between 20 and 180 seconds.

✓ The *Purge* dialog is displayed on the touchscreen.

1. Use the – and + keys to set the purging time.
2. Touch the *Start* key.



Please note that changes made during the purging process take effect only after the next purge process is started.

Error message: Refill water (only for self-sufficient water supply)

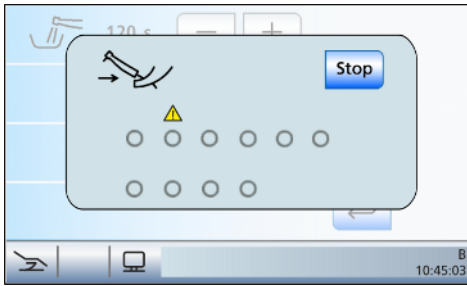
If the *Refill water* display appears after the purge function has been started, there is not sufficient water in the disinfectant tank of the water unit to purge the water paths. The purge function cannot be started with insufficient water.

- > Mix distilled water with the agent for disinfecting the water paths in a ratio of 100:1 (1 liter of water, 10 ml of the agent) and fill this into the disinfectant tank of the water unit. For more information, please refer to the section "Self-sufficient water supply" [→ 179].

✎ When sufficient water has been refilled, the purge program continues.



Error message: Deposit instruments in instrument holders

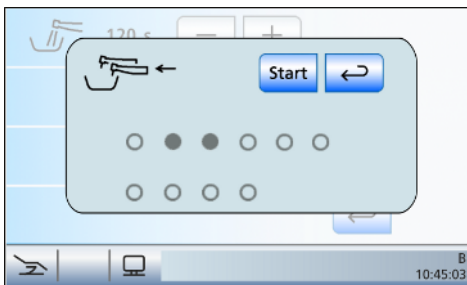


If the *Deposit instruments* display appears after the purge function has been started, the treatment center has detected that not all of the instruments have been placed in their holders.

- > Check the seating of the instruments in the holders marked with a warning triangle on the touchscreen.
 - ↪ When all of the instruments have been put in the holders, the purge program will continue.

Purging water lines

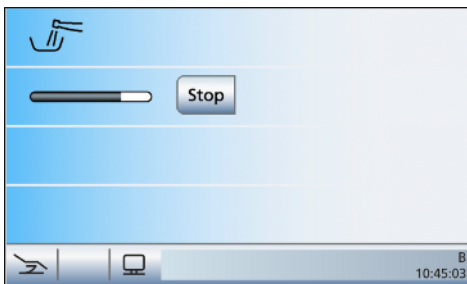
✓ The *Remove instruments* display appears on the touchscreen.



1. Remove the instruments to be purged from the holder.
 - ↪ If an instrument has been removed, this is displayed by a solid gray circle on the touchscreen.

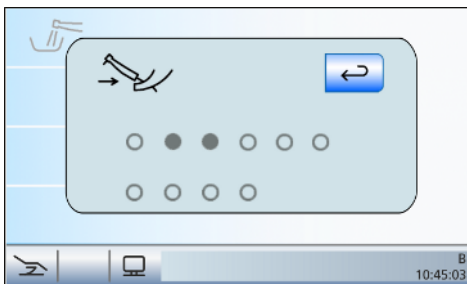


2. Hold the instruments over the cuspidor or over a watertight container with sufficient capacity and press the *Start* key. **Press the water key of the Sprayvit M unit for purging.**
 - ↪ The removed instruments are purged with water for the duration of the set purging time. The elapsed purge time is displayed by a progress bar on the touchscreen.



When the purge time has elapsed, the *Set instruments down* display appears.

3. Place the removed instruments back in their holders. All instruments not deposited are marked with a solid gray circle on the touchscreen.



↪ When all of the instruments have been deposited, the *Deposit instruments* display disappears.

- ↪ The water path purging procedure is finished. The treatment center is again ready for operation.

Canceling the purge function

In case of an error message, deposit the instruments in their holders or, during purging, the purge function can be canceled.

- > Touch the *Stop* key on the touchscreen.



5.3.3 Automatically purge water paths (autopurge function)

The AutoPurge function enables automatic purging of all water-carrying instruments in the dentist element, of the Sprayvit M multifunctional syringe in the dentist and assistant elements and of the suction hoses and the tumbler filling.

All of the instruments inserted in the water unit are purged when the AutoPurge function is activated. If the instruments remain in the water unit after the treatment center is switched off, the purging process will automatically be started again the next time the treatment center is switched on.

Execute the AutoPurge function:

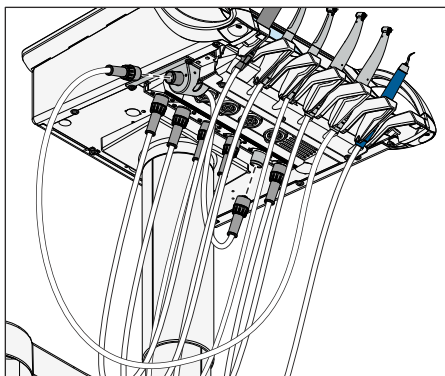
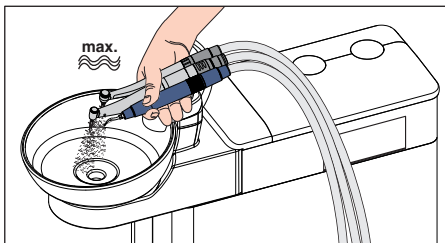
- Before starting work
- At the end of the work day

When the treatment center is switched to stand-alone water supply mode, the AutoPurge function is no longer available (key hidden). It is still possible to purge individual instruments; see "Purging water paths (purge function)" [-> 231].

Preparation

The following preparations must be made before you start purging the water lines:

1. If your treatment center is equipped with a cuspidor, activate the cuspidor flushing for at least one minute. This flushes the water paths.
2. Set all burr drives and the SiroSonic TL scaler to the maximum water flow rate.
3. Put all instruments in their holders.
4. Do **not** remove the tumbler holder from the cuspidor. Place the empty tumbler under the tumbler outlet.
5. If the treatment center is equipped with a lateral motor connection, it must be integrated into the AutoPurge process. To do this, connect the hose of the lateral motor connection to a water-carrying instrument connector on the dentist element. Then connect the instrument hose of the water-carrying instrument to the lateral motor connection.



Opening the AutoPurge screen

- ✓ The *Start dialog* is displayed on the touchscreen.

 1. Touch the *Sub-screen* key.





↪ The *Start* sub-dialog is displayed.

2. Touch the *Autopurge function* key.



↪ The *Autopurge* screen is displayed on the touchscreen.



Setting the instrument purge time and starting the AutoPurge function

The purging time of the instruments may be set between 60 and 180 seconds.

✓ The *AutoPurge* screen is displayed on the touchscreen.

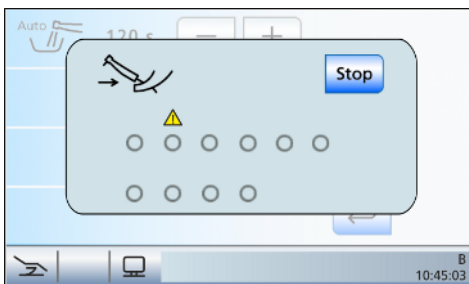
1. Use the – and + keys to set the purging time.
2. Touch the *Start* key.



Error message: Deposit instruments

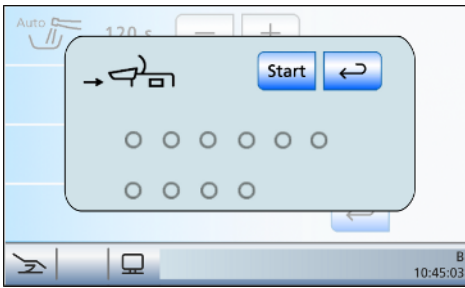
If *Deposit instruments* is displayed after the AutoPurge function has been started, the treatment center has detected that not all of the instruments have been placed in their holders.

- Check the seating of the instruments in the holders marked with a warning triangle on the touchscreen.
 - ↪ The AutoPurge program will continue when all instruments have been deposited in the holder.



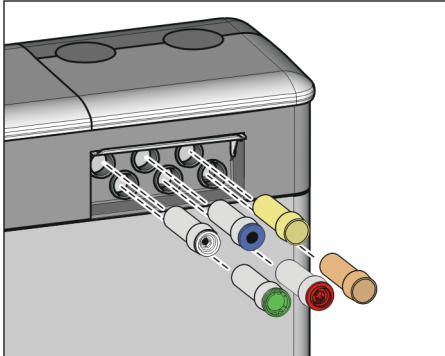
Inserting water-carrying instruments into the receptacle on the water unit

The water unit has integrated receptacles for water-carrying instruments and suction hoses. They enable all instruments to be purged with water. For this purpose, water-carrying instruments must be inserted into receptacles on the water unit.

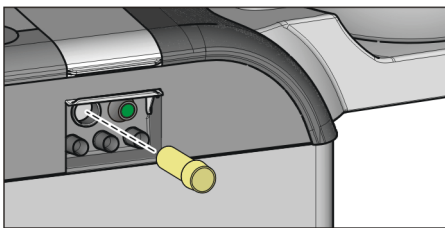


✓ The *Insert instruments in water unit* display appears on the touchscreen.

1. Remove the Sprayvit M sleeves from the valve bodies, the straight and contra-angle handpieces from the water-carrying instruments, and the suction tips from the suction hoses.



2. If the adapters are not yet located in the receptacles of the water unit, insert them into the receptacles until they lock into place. The Sprayvit M adapters can be inserted only into the two receptacles on the right side of the dentist element with the guide rib facing upward. A Sprayvit M adapter must also be inserted into the assistant element side. The adapters always remain in the water unit.



IMPORTANT

Arrangement of adapters

The adapters for the instrument couplings are color coded:

Yellow = Sprayvit M, water on right button

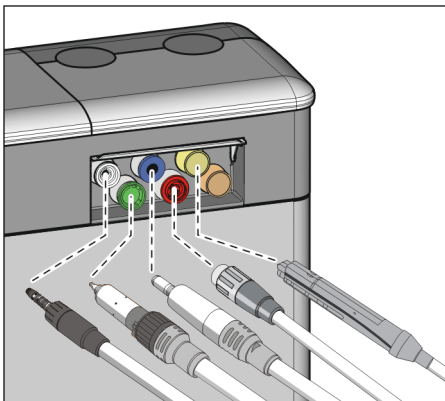
Orange = Sprayvit M, water on left button

White = high-speed handpiece

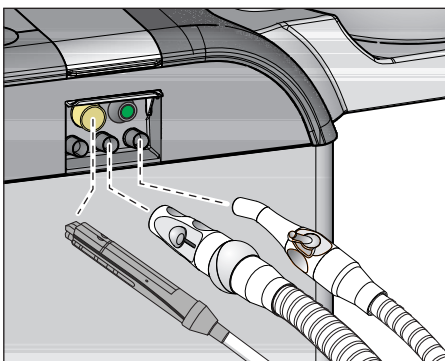
Green = BL motor

Blue = BL ISO C motor (ISO interface)

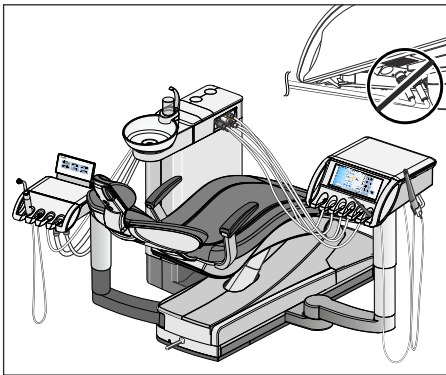
Red = SiroSonic TL scaler



3. Dentist element side: Insert the couplings of all water-carrying treatment instruments into the adapter in the water unit (for Sprayvit M: Valve lever in the up position, locking knob in the down position).



4. Assistant element side: Insert the valve bodies of the Sprayvit M into the adapter in the water unit. Set maximum suction flow on the suction handpieces and then attach to the connections.

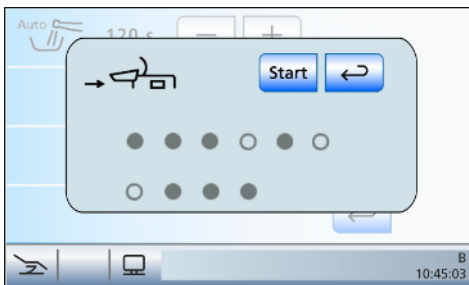


IMPORTANT

Pinching the instrument hoses

Be careful not to pinch the instrument hoses when inserting the instruments.

If the hoses are pinched, the water flow will be obstructed during purging.



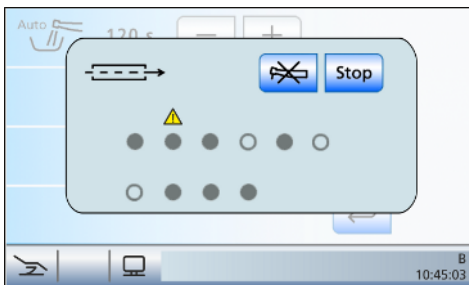
- Place all water-carrying instruments and suction hoses into the receptacles.

5. Touch the *Start* key on the touchscreen.

- First, the treatment center checks whether there is water flow through the instruments. This will take a moment.

Error message: No water flow

If the treatment center detects no water flow through an instrument, you can try to restore water flow through the relevant instrument. If this is not possible, the instrument concerned can be excluded from the purging process.



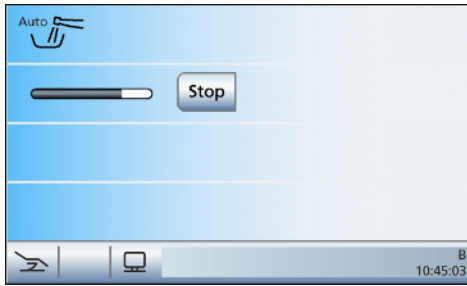
1. Check the water flow through the instruments in the instrument positions marked with a warning triangle on the touchscreen. Set the instruments to maximum water flow. Leave all instruments plugged into the water unit.

- If the treatment center detects the water flow, the warning triangle will disappear. If water flow is detected for all instruments, the AutoPurge program automatically continues.

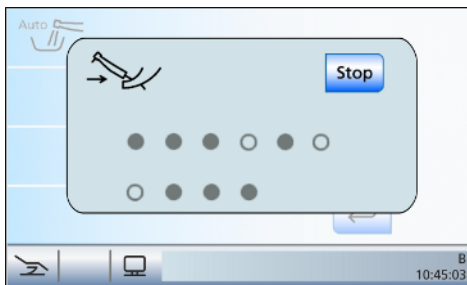
2. If you want to exclude the instruments concerned from purging, touch the *Exclude instrument* key.

- The AutoPurge program continues. The water paths affected are not included in the purging process.

Purging water lines

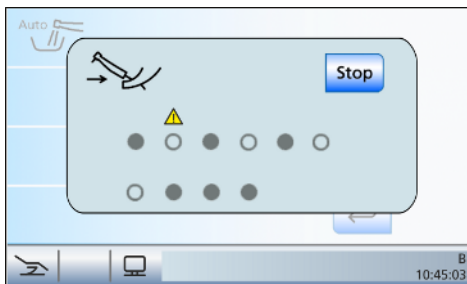


The removed instruments are purged with water for the duration of the set AutoPurge time. Afterwards, the tumbler filler is purged and the suction hoses are cleaned. The progress bar displayed on the touchscreen refers to the entire AutoPurge program, not to the set instrument purge time.



Following the purging process and suction hose cleaning, the display *Deposit instruments* appears.

Displays if the purging process is not completed



The AutoPurge program can determine whether the purge process for all instruments and the tumbler filling has been completed. Errors that occurred during flushing are displayed on the touchscreen using a warning triangle.

Leave the AutoPurge function active for the next working day or stop it

There are now two options for continuing:

- **Leave the instruments in the water unit**

The AutoPurge function remains activated provided the *Stop* or *Back* keys are not pressed.

The instruments remain in the water unit and the treatment center can be switched off. On the next day, the autopurge function is automatically performed again on all of the instruments remaining in the water unit as well as on the tumbler filling unit and the suction hoses are cleaned again immediately after the treatment center is switched on. On the next day, the autopurge function is automatically performed again on all of the instruments remaining in the water unit as well as on the tumbler filling unit and the suction hoses are cleaned again immediately after the treatment center is switched on.

Then you can prepare the treatment center for daily practice operation.

If the treatment center is out of operation over a prolonged period of time, you can briefly switch it on every day and then switch it off

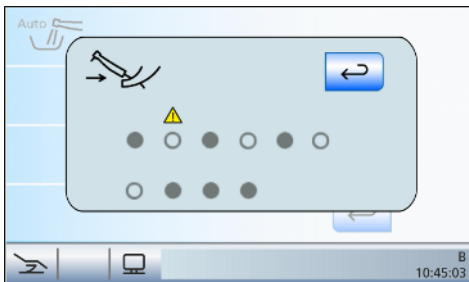
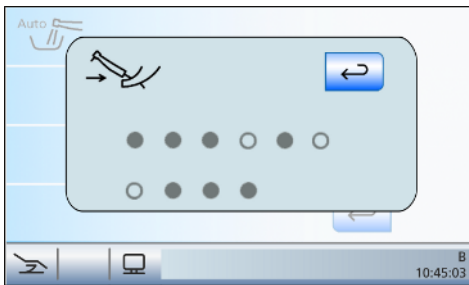
again when the purging process is finished. This ensures that the number of microorganisms in the water lines will not increase excessively. Empty the rinsing tumbler after each purging process and place the empty tumbler again below the tumbler outlet.

If any instruments are removed from the water unit or new instruments are connected to the treatment center while the latter is switched off, they must be plugged into the adapters of the water unit or returned to the instrument holder again before switching the treatment center back on.

- **Deposit instruments**

The AutoPurge function is completed.

- > Remove the instruments from the water unit and place them back in their holders.
 - ↳ When all of the instruments have been deposited, the *Deposit instruments* display disappears.
- ↳ The AutoPurge procedure is finished. The treatment center is again ready for operation and can be prepared for the working day.



If individual water-carrying instruments are not flushed, this is displayed on the touchscreen by a warning triangle.



In this case the *Back* key must be activated to end the AutoPurge function.



Canceling the AutoPurge function

If the error message *Deposit instruments* appears at the end of the flow rate check or during purging, the AutoPurge function can be canceled.

- > Touch the *Stop* key on the touchscreen.

5.3.4 Lubricate, disinfect/sterilize the treatment instruments

5.3.4.1 Treatment instruments with separate instructions for use

The procedures required for the following treatment instruments are described in the following separate instructions for use:

- Straight and contra-angle handpieces in various versions
- Turbines
- SiroSonic TL ultrasonic handpiece

5.3.4.2 Lubricate, disinfect/sterilize the Sprayvit M multifunctional syringe

NOTE

Approved care, cleaning, and disinfecting agents

Use only care, cleaning, and disinfecting agents that have been approved by Dentsply Sirona, see "Care, cleaning, and disinfecting agents" [→ 220]!

All disinfectants must be approved in your country and have proven bactericidal, fungicidal and virucidal properties. Use only disinfectants with no protein-fixing properties.

Do **not** use any strong acidic or alkaline solutions ($5 < \text{pH} < 9$) or solutions containing chloride.

NOTE

Never clean in an ultrasonic bath!

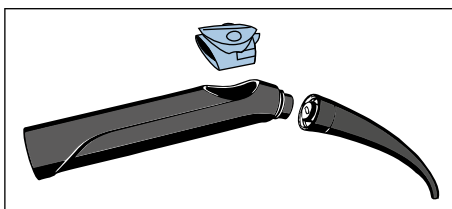
Never immerse in disinfectants!

After each treatment session

NOTE

Reprocess immediately, or at the latest, one hour after treatment.

- ✓ Wear appropriate protective clothing.
1. Remove any residue, e.g., from impression material or caustic chemicals, immediately.
 2. Purge the water and air channels on the treatment center for 30 seconds.
 3. Predisinfect directly at the treatment center [→ 240].
 4. Remove the nozzle and the housing [→ 95].
 5. Transport the nozzle and housing to the hygiene room in a suitable transport container.
 6. Perform automatic reprocessing [→ 241]. Manual reprocessing [→ 242] is possible in exceptional cases if national/local regulations are followed.
 7. Sterilize the housing, keyboard and nozzle [→ 242].



Conduct pre-disinfection

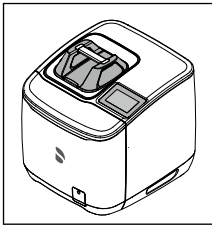
- ✓ Wear appropriate protective clothing.
 - ✓ All disinfectants must be approved in your country and have proven bactericidal, fungicidal and virucidal properties. Use only disinfectants with **no** protein-fixing properties.
1. Wipe the surface with disinfectant cloths.

2. Wipe the disinfectant off with a cloth.
 - ↳ For further reprocessing, the Sprayvit M should be dry and free of residue.

Automated cleaning and disinfecting

We recommend using the **Dentsply Sirona DAC Universal** for automated cleaning and disinfection (inside and outside) of the nozzles.

For further details, please refer to the instructions for use supplied with the unit.



NOTE

The housing and keyboard are **not** suitable for reprocessing in the Dentsply Sirona DAC Universal.

- ✓ The nozzle is reprocessed using the DAC Universal.
1. Check whether the nozzle is clean after reprocessing under good lighting (min. 500 lux) and color rendering index (min. 80 Ra).
 2. If they are still dirty, repeat the process.
 - ↳ For further reprocessing, the nozzle should be dry and free of residue.
 3. If necessary, pack the housing, keyboard and nozzle in packaging suitable for sterilization and storage, e.g., soft packaging (paper/film) or a container in accordance with ISO 11607.
 4. Perform sterilization [-> 242].

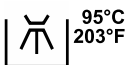
The housing, keyboard and nozzle can also be cleaned and disinfected in suitable **cleaning and disinfection equipment**. The cleaning and disinfection equipment used must comply with ISO 15883-1/-2 and be approved by its manufacturer for the cleaning and disinfection of dental instruments (e.g., 95°C (203 °F) and 10 min holding time).

IMPORTANT

For automatic reprocessing in cleaning and disinfection equipment, use suitable adapters.

For further details, please refer to the instructions for use supplied with the respective unit.

- ✓ The housing, keyboard and nozzle are reprocessed with a cleaning and disinfection device.
1. Check whether the housing, keyboard and nozzle are clean after reprocessing under good lighting (min. 500 lux) and color rendering index (min. 80 Ra).
 2. If they are still dirty, repeat the process.
 - ↳ For further reprocessing, the housing, keyboard and nozzle should be dry and free of residue.
 3. Blow the nozzle with 2.5 - 3 bar until no more moisture exits, but at least 10 seconds.
 4. If necessary, pack the housing, keyboard and nozzle in packaging suitable for sterilization and storage, e.g., soft packaging (paper/film) or a container in accordance with ISO 11607.
 5. Perform sterilization [-> 242].



Manual cleaning and disinfection

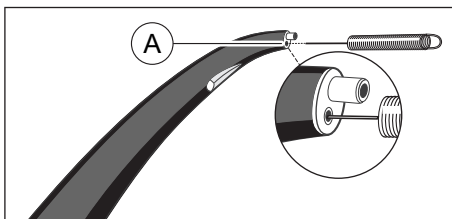
Manual reprocessing is possible in exceptional cases if the national/local regulations are followed. The national/local regulations are to be checked before.

NOTE

The valve body of Sprayvit M is **not** suitable for cleaning or disinfection.

- ✓ All disinfectants must be approved in your country and have proven bactericidal, fungicidal and virucidal properties. Use only disinfectants with **no** protein-fixing properties.
- 1. Brush the housing, keyboard and nozzle under running water (< 38°C, < 100°F, at least drinking water quality) and good lighting (min. 500 lux) and color rendering index (min. 80 Ra) until no more dirt can be seen, for at least 10 seconds.
- 2. Conduct thermal disinfection or unwrapped steam sterilization.
- 3. If necessary, pack the housing, keyboard and nozzle in packaging suitable for sterilization and storage, e.g., soft packaging (paper/film) or a container in accordance with ISO 11607.
- 4. Perform sterilization [→ 242].

Maintaining the cooling nozzle outlet

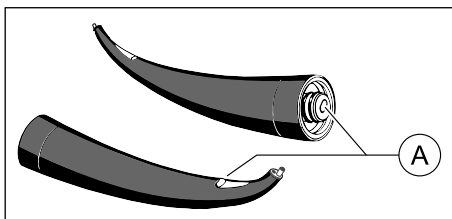


⚠ CAUTION

The media temperatures may become too high if the water path in the nozzle is clogged. Risk of burns!
> Clean the water path **A** regularly.

- ✓ The nozzle is removed.
- > Insert the cleaning wire provided through the water path in the nozzle to clean it.

Cleaning the light guide surfaces



1. In order to avoid scratching the surfaces **A**, blow off any dirt particles with air.
2. Wipe the surfaces with a Q-tip or a soft cloth and alcohol.

Sterilizing

Intervals:

- Prior to initial operation
- Prior each subsequent use

Procedure:

NOTE

The valve body is not suitable for use in the steam sterilizer.

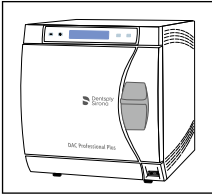


- ✓ The housing, keyboard and nozzle are cleaned and disinfected.
- Sterilize the housing, keyboard and nozzle in the steam sterilizer with saturated water vapor.

Overpressure: 2.04 bar (29.59 psi)

Temperature: 134°C (274°F)

Holding time: 3 min



Steam sterilizers that fulfill the requirements of either EN 13060, class B (for example, DAC Premium / DAC Professional) or EN 13060, class S and are suitable for the sterilization of multi-functional syringes are approved.

Please observe the instructions for use for the sterilizer.

NOTE

Do not exceed 140°C (284°F), even during the drying phase.

Please observe the instructions for use for the sterilizer.

After sterilizing:

1. Remove the housing, keyboard and nozzle from the steam sterilizer immediately.

⚠ CAUTION

These parts are hot. Risk of burns!

NOTE

Do **not** try to accelerate the cool-down process by placing the parts in cold water. This will damage the parts!

2. Store all components so that they are protected against contamination.
3. Sterilize again once the storage period has elapsed.

5.3.4.3 Check the flow rate on the Sprayvit M multifunctional syringe

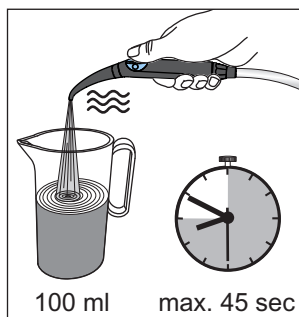
If the flow rate is less than 135 ml/min with the water button fully actuated, there is a risk of excessively hot water being emitted.

⚠ CAUTION

If the flow rate is insufficient, hot water may be emitted by the Sprayvit M.

The patient could thus be scalded.

- Check the water flow rate prior to use.
- Clean the nozzle if required, see "Maintaining the cooling nozzle outlet" [→ 242].



Perform the following measurement to exclude a patient risk.

- > Fill a measuring cup up to the 100 ml mark with the water button fully actuated while measuring the required filling time.
 - ↳ The filling time must not exceed 45 seconds.

If the indicated water level is not reached within the filling time of 45 seconds, clean the nozzle, see "Maintaining the cooling nozzle outlet" [→ 242] or have the treatment unit checked by a service technician.

5.3.4.4 Disinfecting/sterilizing motors and adapters

NOTE

Approved care, cleaning, and disinfecting agents

Use only care, cleaning, and disinfecting agents that have been approved by Dentsply Sirona, see "Care, cleaning, and disinfecting agents" [→ 220]!

Use disinfectants and other agents that contain **no** corrosive components such as chloride.

All disinfectants must be approved in your country and have proven bactericidal, fungicidal and virucidal properties. Use only disinfectants with no protein-fixing properties.

NOTE

Never clean in an ultrasonic bath!

Never immerse in disinfectants!

NOTE

Never lubricate the motors!

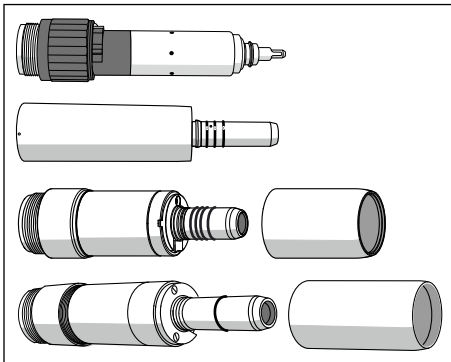
- > Remove the handpieces from the motors at the end of the working day so that no oil can run in overnight.

After each treatment session

NOTE

Reprocess immediately, or at the latest, one hour after treatment.

- ✓ Wear appropriate protective clothing.
- 1. Purge the water and air channels on the treatment center for 30 seconds.
- 2. Remove the instrument [→ 103].
- 3. Predisinfect directly at the treatment center [→ 245].



4. Remove the adapter/motor [→ 103].
5. Transport the motor/adapter to the hygiene room in a suitable transport container.
6. Perform automatic reprocessing of the adapter [→ 245]. Manual reprocessing [→ 246] is possible in exceptional cases if national/local regulations are followed.
7. Conduct manual conditioning of the motor following national/local regulations [→ 246].
8. Sterilize the motor, adapter, and accessories [→ 246].

Conduct pre-disinfection

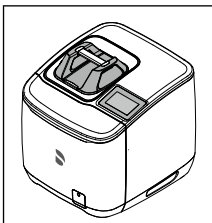
- ✓ Wear appropriate protective clothing.
 - ✓ All disinfectants must be approved in your country and have proven bactericidal, fungicidal and virucidal properties. Use only disinfectants with **no** protein-fixing properties.
 - ✓ Use disinfectants and other agents that contain **no** corrosive components such as chloride.
1. Wipe the surface with disinfectant cloths.
 2. Wipe the disinfectant off with a cloth.
 - ↳ For further reprocessing, the motor/adapter should be dry and free of residue.

Automated cleaning and disinfecting

Apply the following steps for the adapter only.

NOTE

Do **not** clean the motors automatically.

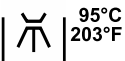


We recommend using **Dentsply Sirona DAC Universal** for automated cleaning, disinfection, and care.

For further details, please refer to the instructions for use supplied with the unit.

- ✓ The adapter is reprocessed using the DAC Universal.
1. Check whether the adapter is clean after reprocessing under good lighting (min. 500 lux) and color rendering index (min. 80 Ra).
 2. If they are still dirty, repeat the process.
 - ↳ For further reprocessing, the adapter should be dry and free of residue.
 3. If necessary, pack the adapter in packaging suitable for sterilization and storage, e.g., soft packaging (paper/film) or a container in accordance with ISO 11607.
 4. Perform sterilization [→ 246].

The adapter can also be cleaned and disinfected in suitable **cleaning and disinfection equipment**. The cleaning and disinfection equipment used must comply with ISO 15883-1/-2 and be approved by its



manufacturer for the cleaning and disinfection of dental instruments (e.g., 95°C (203 °F) and 10 min holding time).

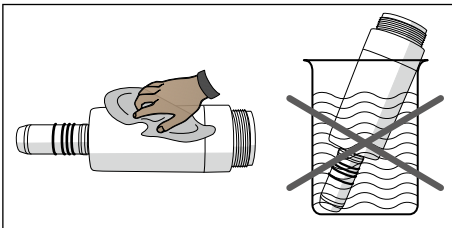
For further details, please refer to the instructions for use supplied with the respective unit.

- ✓ The adapter is reprocessed with a cleaning and disinfection device.
- 1. Check whether the adapter is clean after reprocessing under good lighting (min. 500 lux) and color rendering index (min. 80 Ra).
- 2. If they are still dirty, repeat the process.
 - ↳ For further reprocessing, the adapter should be dry and free of residue.
- 3. If necessary, pack the adapter in packaging suitable for sterilization and storage, e.g., soft packaging (paper/film) or a container in accordance with ISO 11607.
- 4. Perform sterilization [→ 246].

Manual cleaning and disinfection

Manual reprocessing is possible in exceptional cases if the national/local regulations are followed. The national/local regulations are to be checked before.

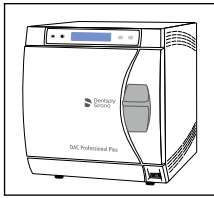
- ✓ All disinfectants must be approved in your country and have proven bactericidal, fungicidal and virucidal properties. Use only disinfectants with **no** protein-fixing properties.
- ✓ Use disinfectants and other agents that contain **no** corrosive components such as chloride.
- 1. Moisten a clean, lint-free cloth with disinfectant.
- 2. Wipe the motor/adapter with the moist cloth. When doing so, also wipe any hard-to-reach places.
- 3. Observe the application time for the disinfectant.
- 4. Wipe the motor/adapter dry.
 - ↳ The motor/adapter is disinfected and clean.
- 5. When the motor/adapter is dirty, repeat the cleaning process.



Sterilizing

- ✓ The motor/adapter is cleaned and disinfected.
- ✓ The motor sleeve is unscrewed from the BL ISO C motor and BL Implant.
- ✓ If necessary, the adapter, motor and motor sleeve can be packed in packaging suitable for sterilization and storage, e.g., soft packaging (paper/film) or a container in accordance with ISO 11607.
- Sterilize the adapter, motor and motor sleeve in the steam sterilizer with saturated water vapor.

Overpressure: 2.04 bar (29.59 psi)
Temperature: 134°C (274°F)
Holding time: 3 min



Steam sterilizers that fulfill the requirements of either EN 13060, class B (for example, DAC Premium / DAC Professional) or EN 13060, class S and are suitable for the sterilization of motors are approved.

NOTE

Do not exceed 140°C (284°F), even during the drying phase.

Please observe the instructions for use for the sterilizer.

After sterilizing:

1. Remove the adapter, motor and motor sleeve from the steam sterilizer immediately.

⚠ CAUTION

The adapter, motor and motor sleeve are hot. Risk of burns!

NOTE

Do **not** try to accelerate the cool-down process by placing the parts in cold water. This will damage the parts!

2. Store all motors/adapters so that they are protected from contamination.
3. Sterilize again once the storage period has elapsed.

Sterilize regularly and have the motors serviced after approx. 2 years in a workshop authorized by Dentsply Sirona.

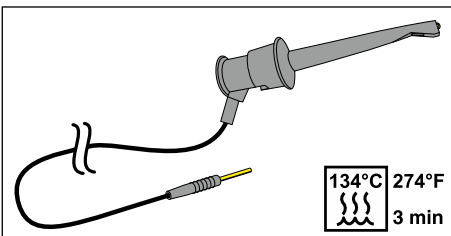
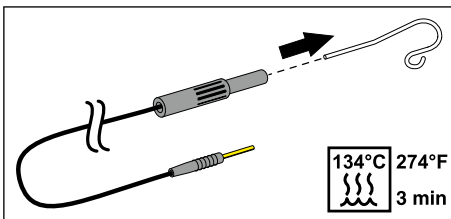
5.3.4.5 Clean and disinfect/sterilize the components of the ApexLocator

NOTE

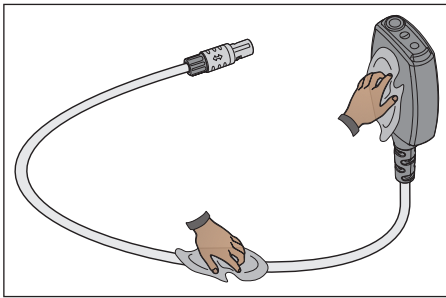
Approved care, cleaning, and disinfecting agents

Use only care, cleaning, and disinfecting agents that have been approved by Dentsply Sirona, see "Care, cleaning, and disinfecting agents" [→ 220].

- > Disconnect the mucosal electrode from the connection cable. The metal hook and the connection cable can be sterilized.



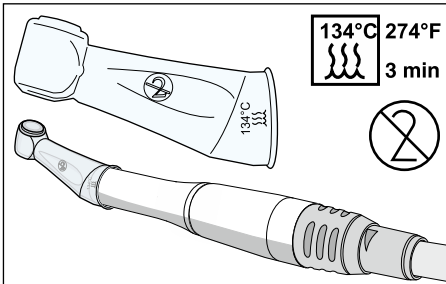
The file clamp for manual measurement can be sterilized with the connection cable.



The apex adapter and its connection cable can be disinfected by wiping.

IMPORTANT

To guarantee conductivity, no disinfectant must be allowed to penetrate the electrical contacts.



The silicone isolation sleeve is a disposable item. It must be changed after each patient. The silicone isolation sleeve must be sterilized prior to initial use.

To reorder the silicone isolation sleeve, see "Spare parts and consumables" [→ 299].

Sterilize the root canal files according to the manufacturer's instructions.

5.3.4.6 Disinfecting/sterilizing the HF electrosurgery components

NOTE

Approved care, cleaning, and disinfecting agents

Use only care, cleaning, and disinfecting agents that have been approved by Dentsply Sirona, see "Care, cleaning, and disinfecting agents" [→ 220]!

Use disinfectants and other agents that contain **no** corrosive components such as chloride.

All disinfectants must be approved in your country and have proven bactericidal, fungicidal and virucidal properties. Use only disinfectants with no protein-fixing properties.

NOTE

Never clean in an ultrasonic bath!

Never immerse in disinfectants!

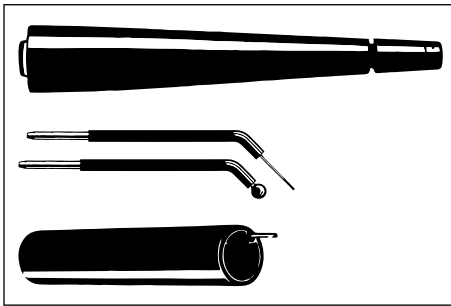
After each treatment session

NOTE

Reprocess immediately, or at the latest, one hour after treatment.

✓ Wear appropriate protective clothing.

1. Predisinfect directly at the treatment center [→ 249].



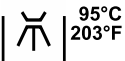
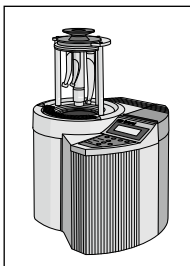
2. Remove the active electrode [→ 128].
3. Pull the handpiece off from the supply line [→ 127].
4. Remove the neutral electrode from the supply line.
5. Transport the handpiece, the active electrode and the neutral electrode to the hygiene room in a suitable transport container.
6. Perform automatic reprocessing [→ 249]. Manual reprocessing [→ 250] is possible in exceptional cases if national/local regulations are followed.
7. Sterilize the handpiece, the active electrode and the neutral electrode [→ 250].

Conduct pre-disinfection

- ✓ Wear appropriate protective clothing.
 - ✓ All disinfectants must be approved in your country and have proven bactericidal, fungicidal and virucidal properties. Use only disinfectants with **no** protein-fixing properties.
 - ✓ Use disinfectants and other agents that contain **no** corrosive components such as chloride.
1. Wipe the surface with disinfectant cloths.
 2. Wipe the disinfectant off with a cloth.
 - ↳ For further reprocessing, the handpiece, active electrode and neutral electrode should be dry and free of residue.

Automated cleaning and disinfecting

The handpiece and the neutral electrode can be cleaned and disinfected automatically with a suitable basket insert in the **Dentsply Sirona DAC Universal (MK3)**. Processing in the Dentsply Sirona DAC Universal Touch is not possible.



NOTE

The active electrodes and neutral electrode supply line can **not** be processed automatically.

The handpiece and the neutral electrode can also be cleaned and disinfected in suitable **cleaning and disinfection equipment**. The cleaning and disinfection equipment used must comply with ISO 15883-1/-2 and be approved by its manufacturer for the cleaning and disinfection of dental instruments (e.g., 95°C (203 °F) and 10 min holding time).

For further details, please refer to the instructions for use supplied with the respective unit.

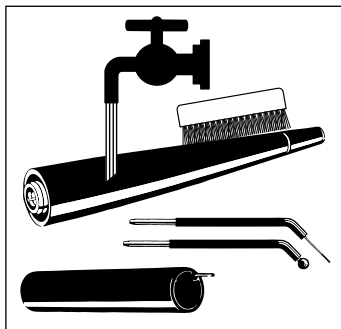
- ✓ The handpiece and neutral electrode are reprocessed with a Dentsply Sirona DAC Universal (MK3) or a cleaning and disinfection device.
1. Check whether the handpiece and the neutral electrode are clean after reprocessing under good lighting (min. 500 lux) and color rendering index (min. 80 Ra).
 2. If they are still dirty, repeat the process.
 - ↳ For further reprocessing, the handpiece and neutral electrode should be dry and free of residue.

3. If necessary, pack the handpiece and neutral electrode in packaging suitable for sterilization and storage, e.g., soft packaging (paper/film) or a container in accordance with ISO 11607.
4. Perform sterilization [-> 250].

Manual cleaning and disinfection

Manual reprocessing is possible in exceptional cases if the national/local regulations are followed. The national/local regulations are to be checked before.

- ✓ All disinfectants must be approved in your country and have proven bactericidal, fungicidal and virucidal properties. Use only disinfectants with **no** protein-fixing properties.
- ✓ Use disinfectants and other agents that contain **no** corrosive components such as chloride.



1. Brush the handpiece, the active electrodes and the neutral electrode under running water (< 38°C, < 100°F, at least drinking water quality) and good lighting (min. 500 lux) and color rendering index (min. 80 Ra) until no more dirt can be seen, for at least 10 seconds.
2. Conduct thermal disinfection or unwrapped steam sterilization.
3. If necessary, pack the handpiece, the active electrodes and neutral electrode in packaging suitable for sterilization and storage, e.g., soft packaging (paper/film) or a container in accordance with ISO 11607.
4. Perform sterilization [-> 250].

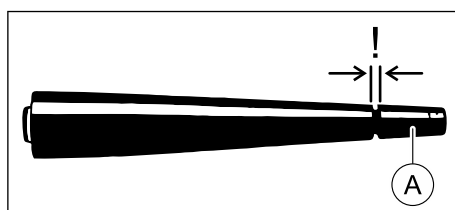
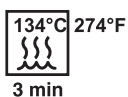
Good operating results are only guaranteed if the active electrodes are clean, i.e. metallicly bright. Baked-on encrustations of tissue residue and blood can be removed easily after being briefly soaked in water or 3% hydrogen peroxide.

NOTE

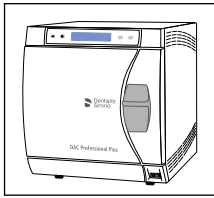
Do not pull unnecessarily on the highly flexible electrode cable when cleaning the supply line in order to prevent damage.

Sterilizing

- ✓ The handpiece, the active electrodes, and the neutral electrode are cleaned and disinfected.
- ✓ The chuck **A** is not firmly clamped. Allow some distance, as illustrated.
- ✓ The handpiece, the active electrodes and the neutral electrode are packed in packaging suitable for sterilization and storage, e.g., soft packaging (paper/film) or a container in accordance with ISO 11607.
- Sterilize the handpiece, the active electrodes and the neutral electrode in the steam sterilizer with saturated water vapor.



Overpressure: 2.04 bar (29.59 psi)
 Temperature: 134°C (274°F)
 Holding time: 3 min



Steam sterilizers that fulfill the requirements of either EN 13060, class B (for example, DAC Premium / DAC Professional) or EN 13060, class S and are suitable for the sterilization of dental instruments are approved.

Please observe the instructions for use for the sterilizer.

After sterilizing:

1. Remove the handpiece, the active electrodes and the neutral electrode from the steam sterilizer immediately.

CAUTION

These parts are hot. Risk of burns!

NOTE

Do **not** try to accelerate the cool-down process by placing the parts in cold water. This will damage the parts!

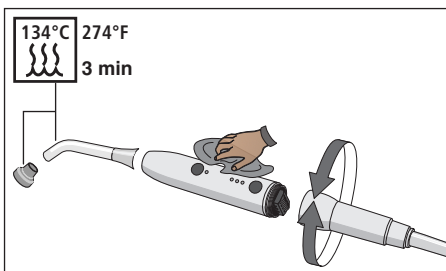
2. Store all components so that they are protected against contamination.
3. Sterilize again once the storage period has elapsed.

5.3.4.7 Disinfecting/sterilizing Mini L.E.D. curing light

NOTE

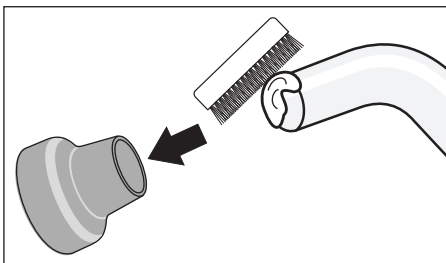
Approved care, cleaning, and disinfecting agents

Use only care, cleaning, and disinfecting agents that have been approved by Dentsply Sirona, see "Care, cleaning, and disinfecting agents" [→ 220].



1. Remove the connection cable of the Mini L.E.D. by turning the handpiece.
2. Pull out the light guide and remove the glare shield.
3. Sterilize the light guide and the glare shield at 134° C, 2 bar for 3 min.
4. Disinfect the handpiece of the Mini L.E.D.
5. Screw the sterilized light guide and glare shield back onto the Mini L.E.D.
6. Reconnect the handpiece of the Mini L.E.D. to the connecting cable.

The following points should also be observed when operating the Mini L.E.D.:



- Always use the glare shield to protect your eyes.
- Check the light guide after each use. Make sure that the light guide is in perfect condition.
- There should be no traces of composite material on the light guide. Immediately remove any residue.
- If you find any damage, replace the light guide, since damage will impair its performance considerably.

5.3.4.8 Cleaning/disinfecting the SiroCam AF+ intraoral camera



The shape of the SiroCam AF+ intraoral camera complies with hygienic requirements and therefore has no areas that are difficult to reach. It can be wipe disinfected.

NOTE

Approved care, cleaning, and disinfecting agents

Use only care, cleaning, and disinfecting agents that have been approved by Dentsply Sirona, see "Care, cleaning, and disinfecting agents" [→ 220].

NOTE

The lens window is sensitive to scratches.

Deep scratches in the lens window impair image quality.

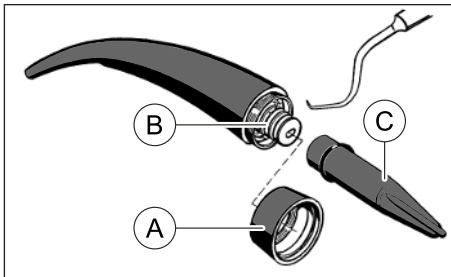
- Protect the lens window against scratching. Disinfect it with a soft, lint-free cloth.

5.3.5 Maintaining treatment instruments

5.3.5.1 Maintaining the multifunctional syringe Sprayvit M

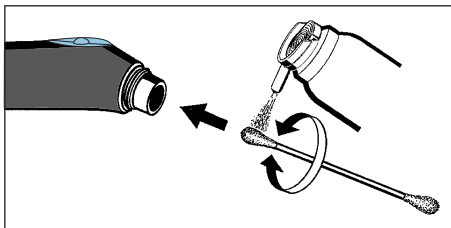
5.3.5.1.1 Replacing O-rings

Replace the O-rings every 3 months.



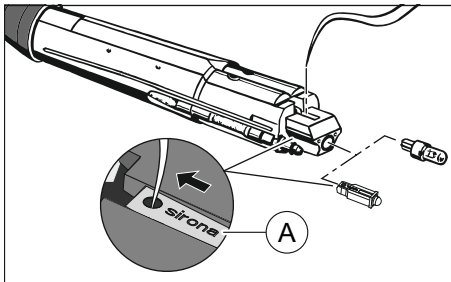
1. Unscrew ring **A** from the nozzle.
2. Remove O-rings **B** with a hook probe.
3. Slide tool **C**, with the new O-ring attached, up to just in front of the corresponding groove.
4. Insert the O-ring. Do **not** use any sharp objects.
5. Repeat steps 3-4.
6. Screw ring **A** tightly onto the nozzle.

Protect O-rings regularly



1. Soak a Q-tip in Dentsply Sirona's T1 spray.
2. Wipe the housing at the separating joint with the Q-tip.

5.3.5.1.2 Replacing lamps



⚠ CAUTION

The lamp can be hot.

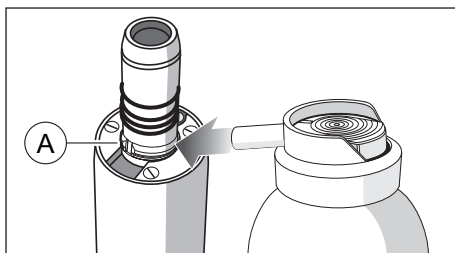
Risk of burns!

> Allow the lamp to cool down.

1. Switch the treatment center off at the standby switch.
2. Remove the housing from the valve body.
3. Use a probe or the like to pry the lamp out of the socket from the button side.
4. Insert the new lamp, observing the contact surface. The Sirona logo **A** on the LED must face upward. The logo must be legible after inserting it into the slit in the valve body.
Tip: Insert a probe into the hole of the LED and pull the LED into the valve body up to the stop.

5.3.5.2 Maintaining the motors

5.3.5.2.1 Lubricate the lock washer



Lubricate the lock washer once a week.

1. Spray some T1 Spray on the lock washer **A**.
2. Turn the lock washer to distribute the T1 Spray.

5.3.5.2.2 Replacing lamps and lamp ring (BL motor)

! CAUTION

The lamp can be hot.

Risk of burns!

- > Allow the lamp to cool down.

✓ Use an LED or halogen lamp with a green base.

1. Detach the instrument or adapter.
2. Place the marking of lamp ring **A** over the lamp **B**.
3. Detach the lamp ring.
4. Remove the defective lamp from the socket.
5. Place the new lamp in sideways. Do **not** slide the lamp in from the front. In doing so, note the position of the contact surfaces.

NOTE

The LED may break if you press too hard on the lens.

- > Use the assembly tool **C** to insert the LED.

6. Attach the lamp ring. The marking on the lamp ring must be over the lamp. The marking points toward the instrument/adapter.
7. Check the light function.

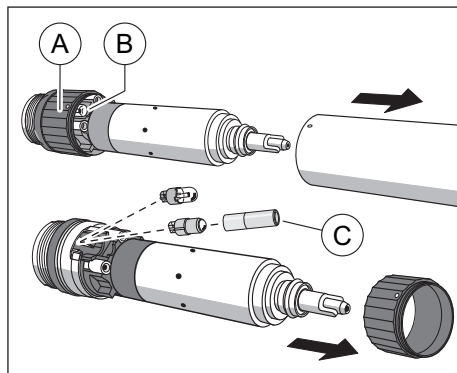
If the LED does not light up:

- > **Remove the LED and re-insert it after rotating it 180° around its own axis.**

5.3.5.2.3 Replacing lamps (BL ISO C motor)

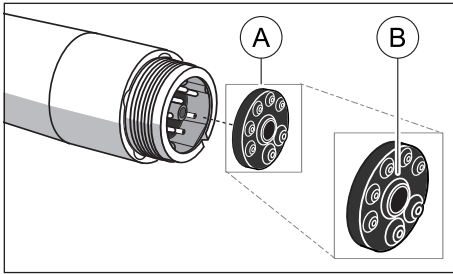
NOTE

An LED is built into the BL ISO C motor. This LED is designed for the service life of the motor and may be replaced only by Dentsply Sirona or a service technician trained by Dentsply Sirona. Safe operation is no longer guaranteed in case of improper replacement.



5.3.5.2.4 Replace the sealing washer

If water leaks out between the motor and the hose connection, replace the sealing washer.



- ✓ The color of the new sealing washer matches the colored mark of the hose coupling that fits the motor.
- 1. Remove the motor from the instrument hose.
- 2. Use a probe or the like to remove the defective sealing washer **B** from the rear of the motor.
- 3. Fit the new sealing washer observing the position of the small tubes and contact pins and slide it as far as it will go.

IMPORTANT

The bulging side **A** of the sealing washer faces the instrument hose.

5.3.5.2.5 Replacing O-rings

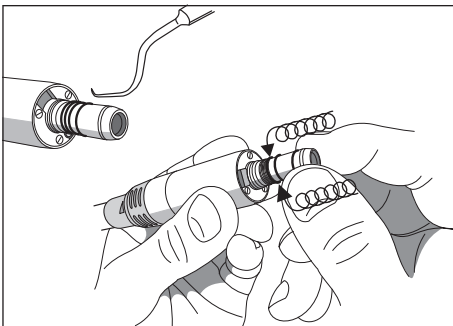
NOTE

Do not use any sharp tools and do not stretch the new O-rings.

If the handpiece coupling leaks, the O-rings must be replaced.

IMPORTANT

The BL Implant motor and the Basic Apex adapter have only one O-ring.

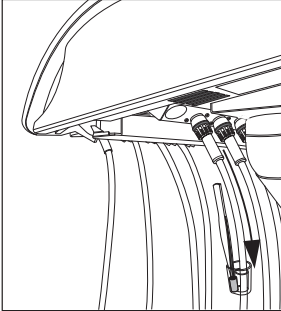


1. Remove the defective O-rings.
2. Insert the O-rings one after another. Start with the first groove.
3. Lightly oil the O-ring with T1 Spray.

NOTE

Do **not** use Vaseline or silicone grease on the O-rings.

5.3.6 Changing the cotton wool roll on the turbine hose



Return air containing a small amount of high-speed handpiece oil is emitted at the unit end of the high-speed handpiece hose. This oil is absorbed by the cotton wool roll in the transparent collecting cup.

1. Push the cup down and remove the cotton wool roll.
2. Insert new cotton wool roll and again push the container up.

5.4 Vacuum system

5.4.1 Cleaning the suction hoses

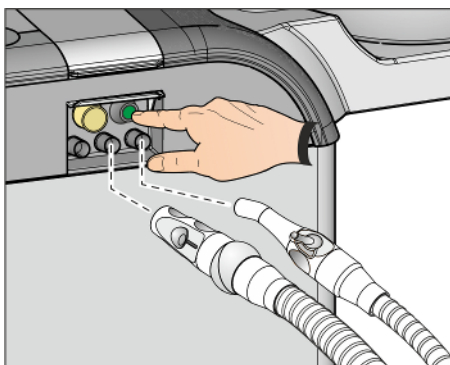
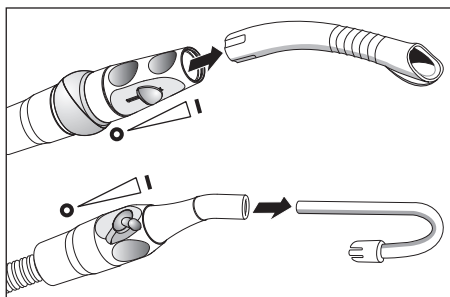
The suction system is exposed daily to secretions, saliva, and blood that contain bacteria. Therefore, for reasons of hygiene, the used suction hoses must be cleaned after each patient, in particular after every treatment involving blood. For long-duration treatments, the suction hose must be cleaned at least every 60 minutes.

The suction system can be cleaned by pumping water into a tank behind the receptacle of the suction hoses and extracting it from there. A cleaning agent is added to the water if the dental treatment center is equipped with the chemical suction hose cleaning option. The cleaning agent tank is accessible via the maintenance flap on the base of the water unit.

In the Setup of the treatment center, it is possible to set the amount of cleaning agent to be mixed with water for suction hose cleaning, see "Adjusting cleaning agent mixture for chemical suction hose cleaning" [→ 212].

If your treatment center is connected to a central cleaning agent supply for chemical suction hose cleaning, please observe the section "Switching the central supply for chemical suction hose cleaning off and on" [→ 212].

Cleaning suction hoses and suction system



1. Remove the suction cannulae from the suction hoses to be cleaned.
2. Set maximum suction flow on the suction handpieces.
3. Swivel the cover cap on the water unit upward for fitting the suction hoses.
4. Insert the suction hoses into the receptacle.
5. Press the button.
 - ↳ The mixture of water and cleaning agent (optional) is pumped into the suction hose cleaning container and drawn off by the suction hoses. An acoustic signal will sound after completing the suction hose cleaning.

⚠ CAUTION

The suction hose cleaning must not be interrupted to ensure that no residual water remains in the container.

6. Then place the suction hoses back into their holders on the assistant element.



⚠ CAUTION

Disinfect the hose fittings on the water unit after each patient.

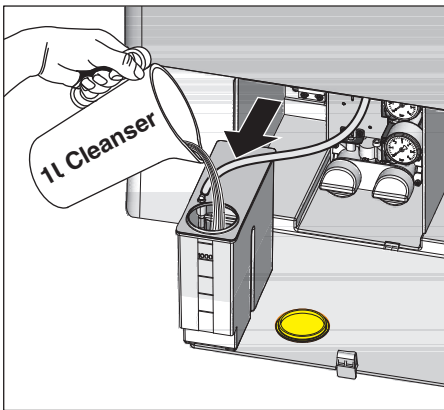
Refilling the cleaning agent

When the adjacent display appears in the status bar of the touchscreen, the cleaning agent for cleaning the suction system is almost depleted. It should then be refilled as soon as possible.

⚠ CAUTION

It is possible that the cleaning agent for the suction system and the agent for disinfecting the water paths could get mixed up.

- Do **not** fill the agent for disinfecting the water paths into the cleaning agent tank for chemical suction hose cleaning! Use only "Agents for the suction lines" approved by Dentsply Sirona, see "Care, cleaning, and disinfecting agents" [→ 220].



1. Open the maintenance flap on the base of the water unit. The cleaning agent tank for chemical suction hose cleaning is located on the left side.
2. Pull the tank slightly out of the water unit. At the same time, check the hose line.
3. Open the lock of the tank and fill the cleaning agent. The cleaning agent tank will have a capacity of 1 liter.

5.4.2 Cleaning vacuum system using cleaning adapter in the cuspidor or via external container

If the treatment center is not equipped with the chemical suction hose cleaning option, only water is used for cleaning the suction hoses. The suction system therefore must be cleaned daily using the cleaning adapter in the cuspidor or via external container.

The suction system is exposed to secretions, saliva, and blood that contain bacteria. Cleaning at regular intervals is therefore absolutely mandatory for hygienic reasons.

NOTE

Approved care, cleaning, and disinfecting agents

Use only care, cleaning, and disinfecting agents that have been approved by Dentsply Sirona, see "Care, cleaning, and disinfecting agents" [→ 220].

NOTE

Domestic cleaning agents foam up.

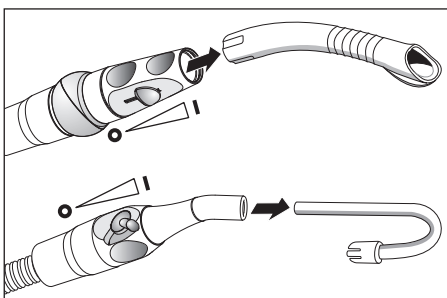
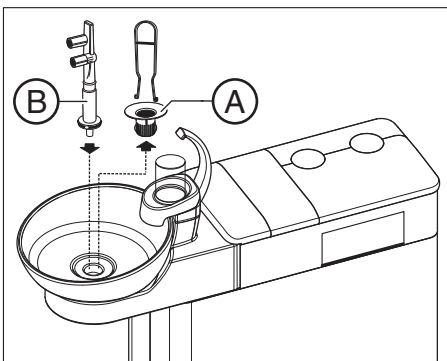
Foaming cleaning agents often cause foam and water to be sucked into the dry suction system. This can cause damage to the suction machine.

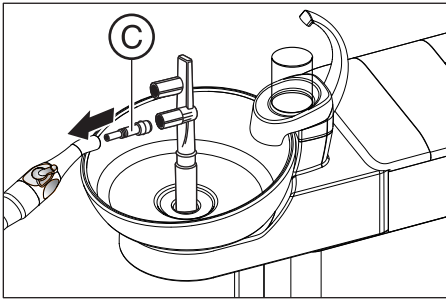
- Use only care, cleaning, and disinfecting agents approved by Dentsply Sirona, see "Care, cleaning, and disinfecting agents" [→ 220].

5.4.2.1 Cleaning vacuum system using cleaning adapter in the cuspidor

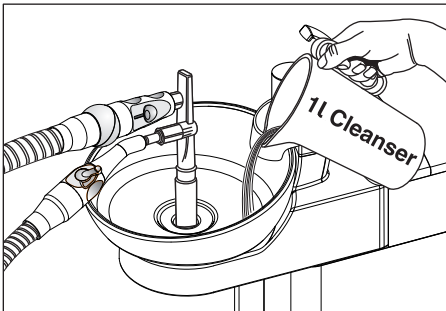
Preparation for cleaning

1. Prepare 1 liter of cleaning solution in a separate container according to the manufacturer's instructions and mix it thoroughly.
2. Remove the gold trap **A**.
3. Clean the cuspidor.
4. Insert the cleaning adapter **B** as far as it will go.
5. Remove the suction tips from the suction hoses.
6. Set maximum suction flow on the suction handpieces.



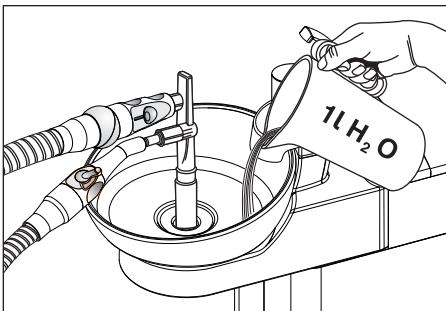


7. Attach the adapter **C** to the saliva ejector.



Cleaning procedure

1. Pour 1 liter of cleaning solution into the cuspidor.
2. Remove the suction hoses from their holders and attach them to the side of the cleaning adapter as simultaneously as possible.
 - ↳ Two thirds of the cleaning solution will be suctioned off by the suction hoses; one third will flow into the drain of the cuspidor.
3. Allow the cleaning solution to act. Observe the reaction time specified for the cleaning solution by the manufacturer.



Rinsing the cleaning agent

1. Following the cleaning process, pour at least 1 liter of water into the cuspidor.
 - ↳ The water is drawn off, thus preventing any cleaning agent residues from remaining in the suction hoses.
2. When the aspiration process has been completed, detach the hoses. Place the suction hoses back in their holders.
3. Remove the cleaning adapter **B** and insert the gold trap **A**.

If the treatment center is equipped with a third suction hose, repeat the above procedure.

If the water unit is equipped with a standard wet suction, the filter insert of the standard wet suction must also be cleaned once a month after cleaning the suction system; see "Cleaning the filter insert of the standard wet suction" [→ 276].

5.4.2.2 Cleaning the suction system via external container

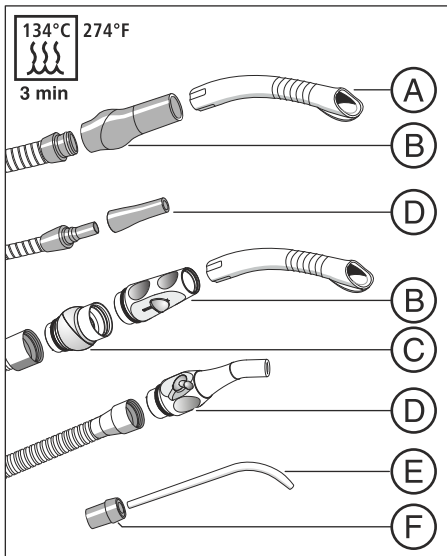
If the treatment center is not equipped with a cuspidor, the suction system must be cleaned via external container.

1. Prepare 1 liter of cleaning solution in a separate container according to the manufacturer's instructions and mix it thoroughly.
2. Fill the cleaning solution into a suitable container.
3. If the container is equipped with suitable adapters for the suction hoses, take the suction cannulae from the suction hoses. Otherwise, the cleaning solution is to be aspirated with plugged on suction cannulas.
4. Set maximum suction flow on the suction handpieces.
5. Remove the suction hoses from their holders and aspirate the cleaning solution simultaneously with all the suction hoses from the container.
6. Allow the cleaning solution to act. Observe the reaction time specified for the cleaning solution by the manufacturer.
7. Following the cleaning process, pour at least 1 liter of water into the container. Aspirate the water in the same way to ensure that no cleaning agent residues remain in the suction hoses.
8. After finishing, place the suction hoses back in their holders.

5.4.3 Sterilizing/disinfecting and lubricating the suction handpieces

Sterilization/disinfection

All parts of the suction handpieces can be sterilized and thermally disinfected.



A	Suction tip
B	Suction Handpiece
C	Rotary joint
D	Saliva ejector handpiece
E	Surgical suction tip
F	Intermediate piece

Lubricating suction handpieces

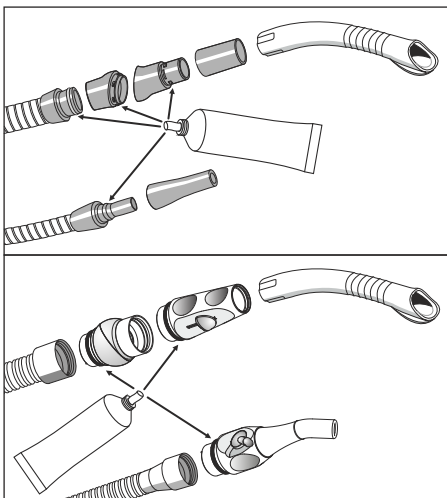
The disconnection points of the suction handpieces must be lubricated once a week and after each thermal disinfection or sterilization process.

⚠ CAUTION

Unsuitable lubricants

Lubricants that are not food safe may endanger the patient's health. Rubber materials such as O-rings are corroded by unsuitable lubricants.

- > Never use petroleum jelly or similar lubricants.
- > Use only lubricants approved by Dentsply Sirona.



1. Detach the handpiece of the spray aspirator, the saliva ejector and, if installed, the surgical suction device from their suction hoses.
2. Take apart the handpiece of the spray aspirator at its joints.
3. Lubricate the disconnection points and O rings of the handpieces.

5.4.4 Clean the filter in the suction hoses and disinfect the suction hoses

The hoses of the spray aspirator, the saliva ejector and the surgical suction device as well as the connection hose to the water unit can be pulled off for rinsing under running water.

Filter inserts are inserted between the suction hoses and the assistant element to filter out solid particles. Depending on the treatment involved, it may also periodically be necessary to remove the trapped solid particles (e.g. amalgam) from the collector due to a decrease in the suction power.

CAUTION

Amalgam residues must not enter the public sewage system.

Amalgam is a mercury compound that is hazardous to water.

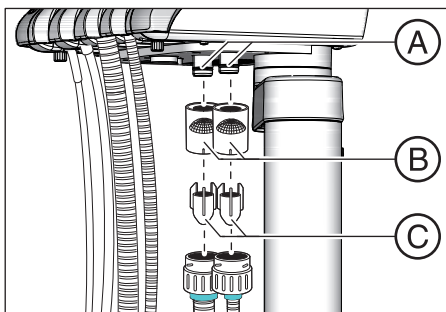
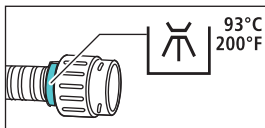
- > Do not dispose of amalgam residues in a sink.
- > Collect amalgam residues in a closed container with water. Dispose of amalgam residues, e.g. when replacing the amalgam rotor by filling the amalgam residues into the amalgam rotor or when emptying the sediment container.

The outside of the suction hoses can be disinfected by wiping.

NOTE

Powdering suction hoses with talcum

If the surfaces of the hoses have become sticky from disinfectants, clean them with a commercially available dishwashing liquid and then powder them with a light coat of talcum if necessary.



WARNING

Wear gloves when performing the following work.

If the treatment center is equipped with a third suction hose, the following instructions must be performed analogously.

1. Switch the treatment center off at the standby switch.
2. Pull the filter housing **B** off of the connectors on the assistant element.
3. Disconnect the suction hoses from the filter housings **B**.



4. Take the collectors **C** out of the suction hoses. Collect the amalgam residues in a glass filled with water.
5. Take off the suction cannulae and rinse out the suction hoses with clean water.
6. Disinfect the suction hoses with a wipe disinfection agent for dental instruments and hoses.

If the treatment center is equipped with thermidisinfectable suction hoses, thermal disinfection can be performed after cleaning.

Assembly is performed in reverse order. Lubricate the O-rings **A** before reconnecting the suction hoses. For lubricants see "Care, cleaning, and disinfecting agents" [-> 220]. Make sure that the suction hoses snap into place.

5.5 Components of the water unit

5.5.1 Clean the gold trap

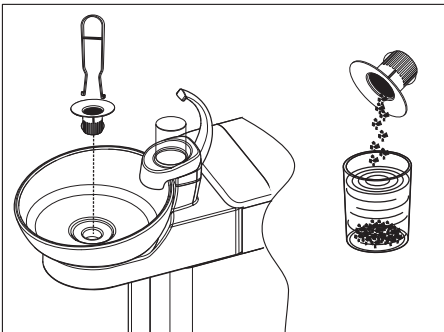
The gold trap retains larger solid particles to prevent them from being washed down the drain in the cuspidor bowl. The amalgam rotor must be replaced and the sediment container must be emptied less often.

CAUTION

Amalgam residues must not enter the public sewage system.

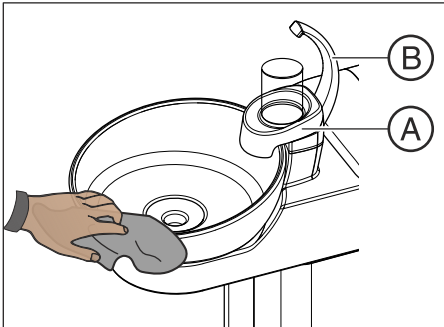
Amalgam is a mercury compound that is hazardous to water.

- Do not dispose of amalgam residues in a sink.
- Collect amalgam residues in a closed container with water. Dispose of amalgam residues, e.g. when replacing the amalgam rotor by filling the amalgam residues into the amalgam rotor or when emptying the sediment container.



1. Remove the gold trap from the drain of the cuspidor bowl.
2. Remove the amalgam residues from the gold trap. Amalgam residues must be disposed of separately.
3. Clean the gold trap.
4. Reinsert the gold trap.

5.5.2 Clean/disinfect the cuspidor



The cuspidor bowl, the tumbler holder **A** and the tumbler outlet **B** can be wiped with surface disinfectants.

Clean and disinfect the cuspidor bowl with a special cleaning agent. This agent will also care for the drain lines of the cuspidor bowl.

NOTE

Domestic cleaning agents foam up.

Foaming cleaning agents often cause foam and water to be sucked into the dry suction system. This can cause damage to the suction machine.

- Use only care, cleaning, and disinfecting agents approved by Dentsply Sirona, see "Care, cleaning, and disinfecting agents" [→ 220].

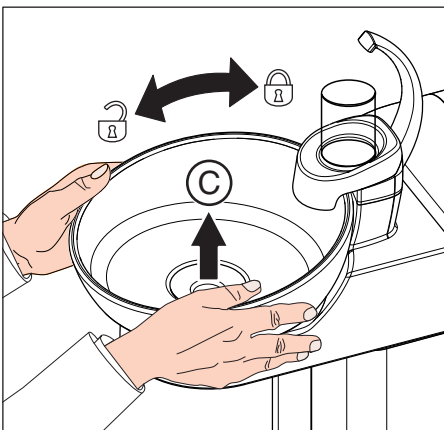
The cuspidor bowl is attached to the water unit via a bayonet catch and can be removed for thorough cleaning. The tumbler holder **A** can be left attached when doing this.

CAUTION

If the treatment center is switched on, the flushing and tumbler filling functions can be activated even with the cuspidor bowl removed.

In this case, water would run onto the floor and could enter the treatment center.

- Switch the treatment center off at the standby switch before removing the cuspidor bowl.



1. Remove the gold trap **C**.
2. Hold the cuspidor bowl firmly with both hands. Loosen the bayonet catch by twisting the cuspidor bowl counterclockwise.

A rubber gasket is attached to the bayonet catch of the water unit to seal its closure. Lubricate this gasket before reinserting the cuspidor bowl. For lubricants, see "Lubrication, cleaning, and disinfecting agents" [→ 267].

Make sure that the bayonet catch snaps into place when you reinsert it.

After snapping into place, the higher side of the cuspidor bowl must be located below the tumbler outlet.

5.5.3 Cleaning the outlet lines of the cuspidor

With the option chemical suction hose cleaning, the drain outlets of the cuspidor are not cleaned/disinfected. If the treatment center is equipped with this option, the drains of the cuspidor must therefore be cleaned weekly. Use the same agent as for the suction lines.

NOTE

Approved care, cleaning, and disinfecting agents

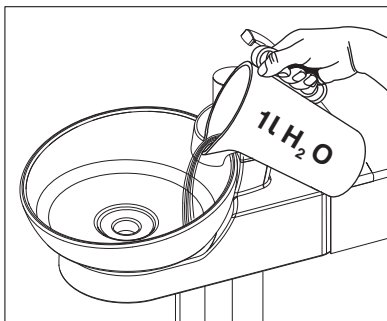
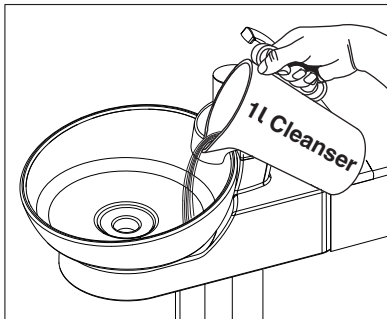
Use only care, cleaning, and disinfecting agents that have been approved by Dentsply Sirona, see "Care, cleaning, and disinfecting agents" [→ 220].

NOTE

Domestic cleaning agents foam up.

Foaming cleaning agents often cause foam and water to be sucked into the dry suction system. This can cause damage to the suction machine.

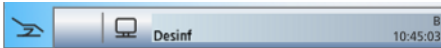
- Use only care, cleaning, and disinfecting agents approved by Dentsply Sirona, see "Care, cleaning, and disinfecting agents" [→ 220].



1. Prepare 1 liter of cleaning solution in a separate container according to the manufacturer's instructions and mix it thoroughly.
2. Fill the cuspidor with the cleaning solution and leave it to take effect. Observe the reaction time specified for the cleaning solution by the manufacturer.
3. Rinse the cleaning solution away. To do this, pour at least 1 liter of water into the cuspidor.

5.5.4 Refill disinfectant for the water paths

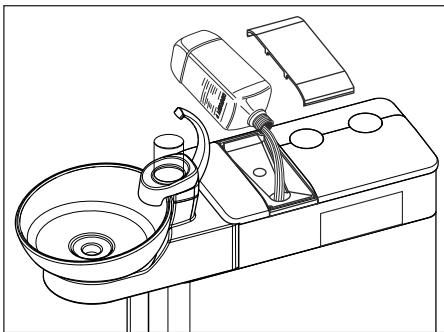
The water unit is equipped with a disinfection system. In normal operation, this will automatically inoculate the water that comes in contact with the patient (also called treatment water) with an agent to disinfect the water paths. This leads to a decrease in bacterial growth and to the reduction of the bacteria in the water. Furthermore, the disinfection system can also be used to disinfect the water paths, see "Interactive sanitizing of the treatment center" [→ 278].



When the supply of disinfectant for sanitizing the water paths in the reservoir begins to run short (< 300 ml), the *Desinf* display appears in the status bar of the touchscreen. Treatment can nevertheless be continued. Refill the disinfectant as soon as possible.

If the *Desinf* display does not appear, agent for disinfecting the water paths should not be refilled. The treatment center may detect that consumption of disinfectant is too low due to regular refilling and report an error. See "Error messages," [→ 296] Code 14.

1. Open the cover of the disinfectant tank.
2. Refill the agent for disinfecting the water paths. The refill container has a capacity of approx. 1.3 liters. It is full when the disinfectant is visible at the filter of the funnel tube.
 - ↳ The *Desinf* display is hidden.



WARNING

It is possible that the cleaning agent for the suction system and the agent for disinfecting the water paths could get mixed-up.

- Do **not** fill the agent for chemical suction hose cleaning into the disinfectant tank of the water unit. Use the agent for disinfecting the water paths, see "Care, cleaning, and disinfecting agents" [→ 220].

NOTE

Splashes of undiluted disinfectant for sanitizing the water paths can result in discoloration of surfaces if left for too long.

Any splashes should therefore be removed immediately using a moist cloth.

To reorder the disinfectant for sanitizing the water paths, see "Spare parts and consumables" [→ 299].

NOTE

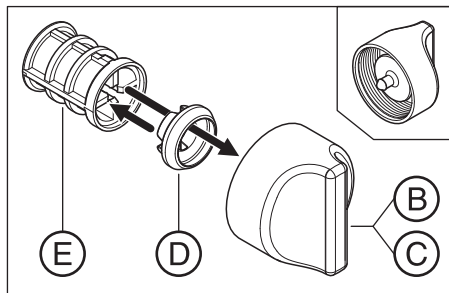
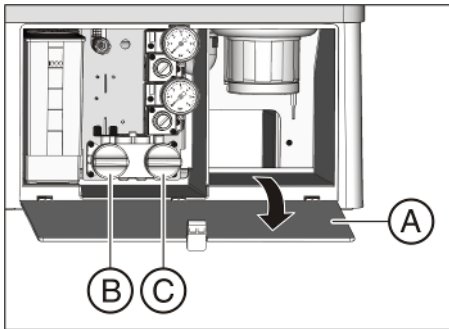
Approved care, cleaning, and disinfecting agents

Use only the agent for disinfecting the water paths that has been approved by Dentsply Sirona for the disinfection system; see "Care, cleaning, and disinfecting agents" [→ 220].

5.5.5 Change the water and air filters

If you notice any changes in media flows, check the water and air filters for permeability. The filters must be replaced, if necessary.

To reorder the filters, see "Spare parts and consumables" [-> 299].



1. Switch the treatment center off at the standby switch.
↳ The water and air supply are switched off.
2. Open the maintenance flap **A**.
3. Any remaining water flows out of the water filter when it is opened.
You should therefore place an absorbent cloth underneath the filter.
Then unscrew and remove the screw cap of the water filter **B** and/or the air filter **C**.
4. Check the filters and replace them if necessary.
5. Put the seal **D** back on the filter **E**. Then insert both into the screw cap **B**, **C** as shown.
↳ The filter **E** clicks into the screw cap **B**, **C**.
6. Screw the screw-on cap(s) **B**, **C** back onto the water unit.

5.5.6 Changing the amalgam rotor

Amalgam residues and other solid particles are trapped in the amalgam rotor according to the centrifugal principle.



When the *Amalg* display appears in the status bar of the touchscreen, the amalgam rotor is almost full and must be replaced as soon as possible. An acoustic signal sounds when the rotor is completely filled. In this case, a safety shutoff function ensures that the rotor is exchanged before the treatment center can be used again.

Regardless of whether or not the *Amalg* display lights up, the amalgam rotor must be replaced **at least once a year**.

CAUTION

Amalgam residues must not enter the public sewage system.

Amalgam is a mercury compound that is hazardous to water.

- > Do not dispose of amalgam residues in a sink.
- > Collect amalgam residues, e.g. from the gold trap of the cuspidor bowl, in a closed container with water. Dispose of amalgam residues when replacing the amalgam rotor by filling the amalgam residues into the amalgam rotor.

CAUTION

Disposal of the amalgam rotor

When a replacement rotor is supplied, a package for the return shipment of the filled amalgam rotor is attached.

Authorize only certified waste management companies to dispose of rotors.

Cleaning the suction system

The amalgam rotor is exposed to secretions, saliva and blood that contain bacteria. It is therefore important to clean the suction system before replacing the amalgam rotor.

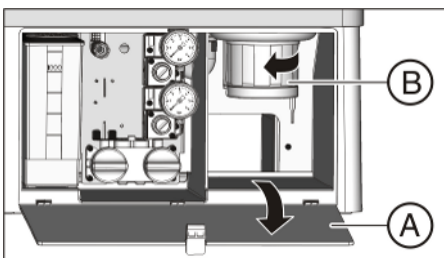
If the treatment center is equipped with the chemical suction hose cleaning option, see "Cleaning the suction hoses" [-> 257]. If this option is not available, see "Cleaning suction system using cleaning adapter in the cuspidor or via external container" [-> 259].

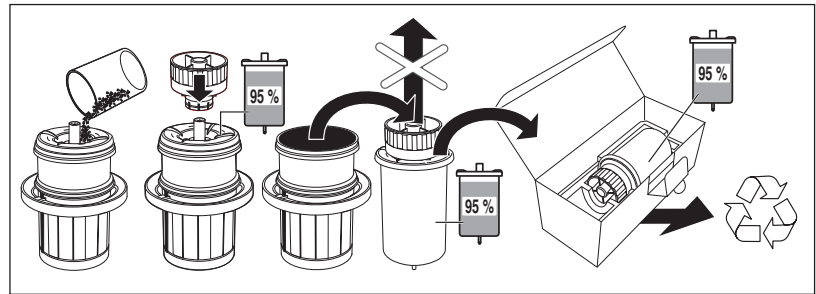
Removal and disposal of the amalgam rotor

WARNING

Wear gloves when performing the following work.

- ✓ The treatment center is switched on.
- 1. Open the flap **A** on the base of the water unit.
- 2. Loosen the bayonet catch by turning the lower part of the amalgam separator **B** counterclockwise. Remove the lower part of the amalgam separator along with the amalgam rotor located inside it.
 - ↳ The message "Amalg" appears on the touchscreen and an acoustic signal sounds.



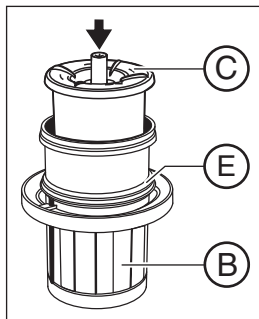


3. Dispose of the collected amalgam residues from the cuspidor bowl and from the suction hoses in the amalgam rotor; see "Cleaning the gold trap" [→ 265] and "Cleaning and disinfecting the suction hoses" [→ 263]. Fill the amalgam residues into the amalgam rotor.
4. Hold the lower part of the amalgam separator upright. Attach the transport cap to the amalgam rotor.
 - ↳ The transport cap clicks into place. Do not remove the transport cap after closing it.
5. Remove the amalgam rotor with the transport cap from the lower part of the amalgam separator.
6. Place the container in the special packaging and ship it for disposal or authorize a certified waste management company.

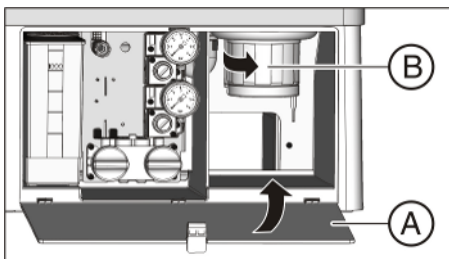
Installing the amalgam rotor

Use only original Dentsply Sirona accessories. Never use a used or recycled amalgam rotor.

To reorder the amalgam rotor, see "Spare parts and consumables" [→ 299].



1. Grease the O-ring **E** on the lower part of the amalgam separator. For lubricants, see "Care, cleaning and disinfecting agents" [→ 220].
2. Insert the new amalgam rotor **C** in the lower part of the amalgam separator **B**.
3. Hold the lower part of the amalgam separator **B** so that the latching noses of the bayonet catch are positioned transverse to the water unit. Screw the lower part of the amalgam separator **B** onto its upper part by rotating it clockwise.



NOTE

Amalgam separator message

If the message *Amalg* is still displayed on the touchscreen and the acoustic signal persists after the amalgam rotor has been inserted, the lower part of the amalgam separator is not properly locked.

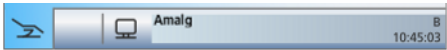
4. Close the flap **A**.
5. In Germany: Document the exchange of the amalgam rotor in the "D3521 amalgam separator operation log".
International: Document in accordance with the national regulations.

Amalgam separator operator's log

In Germany, users are obligated by law to keep an operation log for the amalgam separator. This log is included with the treatment center. Please note the user duties as described in the operation log:

- Document the replacement of the amalgam rotor
- Check the function of the amalgam separator system annually
- Arrange for a 5-year inspection

5.5.7 Check the message system of the amalgam separator

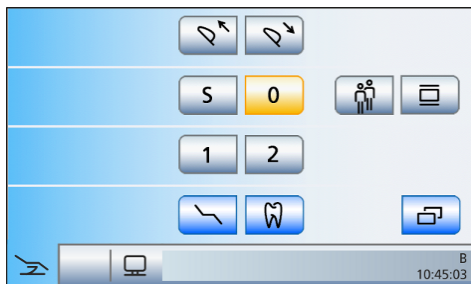


An electronic control monitors the function of the amalgam separator. It detects any mechanical blocking or failure of the drive motor. The error is indicated by the *Amalg* display on the touchscreen and by an acoustic signal.

The functionality of this message system must be checked at least **once per year**.

Inform your service technician if the error occurs during regular operation.

In Germany: Document the test in the operation log of the amalgam separator in the "Testing the function of display and message systems" section.



- ✓ All instruments are in their holders. The Start program is displayed on the touchscreen.

Setup



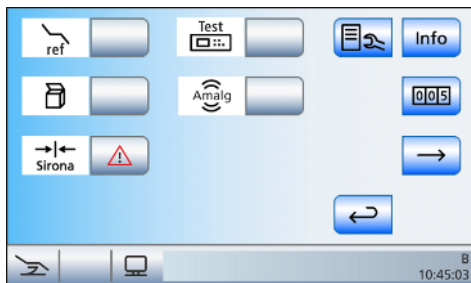
1. Press and hold the *Setup* fixed key (> 2 s).

↳ The *Setup dialog* appears.



2. In the setup dialog, hold and press the *Service* key (> 2 s).

↳ The service dialog is shown.



3. Test the message system. Press and hold the *Amalg* key for an extended period.

↳ The message system is working if a signal sounds as long as the *Amalg* key is pressed.

Inform your service technician if the acoustic signal does not sound.





Press the *Back* key to exit the service dialog.

5.5.8 Emptying the sediment container

In addition to other solid particles, a large proportion of the amalgam residues are trapped in the sediment container by gravitational force.

Empty the sediment container in cycles that are appropriate for your work method, but at least every 4 weeks.

The sediment container is installed only if neither an amalgam separator nor a standard wet suction is installed.

Cleaning the suction system

The sediment container is exposed to secretions, saliva and blood that contain bacteria. It is therefore important to clean the suction system before removing the sediment container.

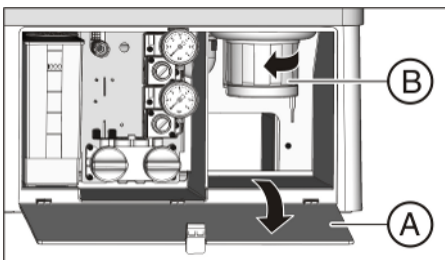
If the treatment center is equipped with the chemical suction hose cleaning option, see "Cleaning the suction hoses" [→ 257]. If this option is not available, see "Cleaning suction system using cleaning adapter in the cuspidor or via external container" [→ 259].

Removing and emptying the sediment container

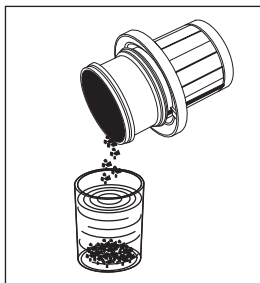


! WARNING

Wear gloves when performing the following work.

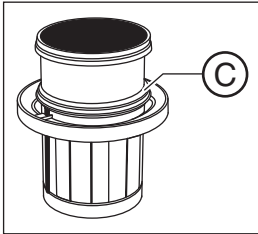


1. Open the flap **A** on the base of the water unit.
2. Loosen the bayonet catch by turning the sediment container **B** counterclockwise.

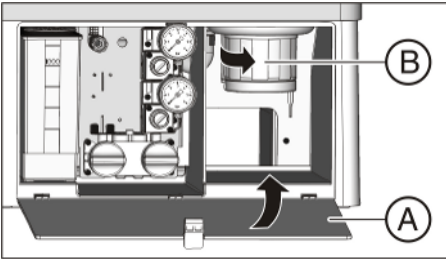


3. Pour the excess water out of the sediment container and collect the amalgam residues. Dispose of these properly together with the amalgam residues collected from the cuspidor bowl and from the suction hoses; see "Cleaning the gold trap" [→ 265] and "Cleaning and disinfecting the suction hoses" [→ 263].

Installing the sediment container



1. Lubricate the O-ring **C** on the sediment container. For lubricants, see "Care, cleaning and disinfecting agents" [→ 220].



2. Hold the sediment container **B** so that the latching noses of the bayonet catch are positioned transverse to the water unit. Rotate the sediment container **B** clockwise.
↳ The sediment container is locked in place.
3. Close the flap **A**.

5.5.9 Cleaning the filter insert of the standard wet suction

The automatic separator and amalgam separator or sediment container are not installed in the water unit for standard wet suction. The separation of air and water and amalgam separation are performed centrally in this case.

In order to ensure that larger solid particles nevertheless cannot enter the separating unit, the vacuum line in the water unit is equipped with a filter. The filter insert must be cleaned when the suction power decreases.



WARNING

Wear gloves when performing the following work.

Cleaning the suction system

Before the filter insert of the standard wet suction is cleaned, the suction system should be cleaned.

If the treatment center is equipped with the chemical suction hose cleaning option, see "Cleaning the suction hoses" [→ 257]. If this option is not available, see "Cleaning the suction system using cleaning adapter in the cuspidor or via external container" [→ 259].

Opening Start sub-screen

- ✓ The *Start program* is displayed on the touchscreen.
- > Touch the *Sub-screen* key.



- ↪ The *Start* sub-screen is displayed.

Extracting residual water

As long as the treatment center is switched on, water remains in the vacuum line for technical reasons. The water must be completely extracted to be able to clean the filter insert. Otherwise the remaining water will flow out when the filter housing is opened. The remaining water is automatically extracted when the treatment center is switched off at the standby switch.

- > Touch the *Extract residual water* key.
 - ↪ As long as the key is lit up in orange, water is being extracted from the water unit. A slurping noise indicates that the water unit is completely empty. When the key turns gray the extraction process is finished.



Removing and cleaning the filter insert

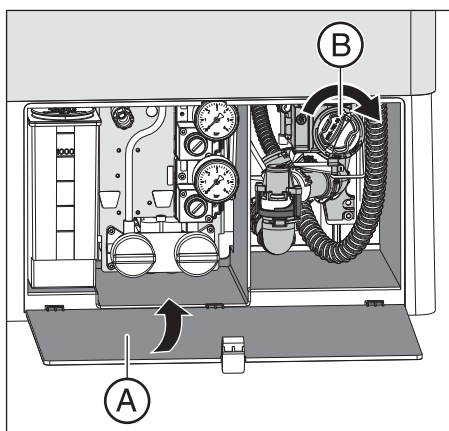
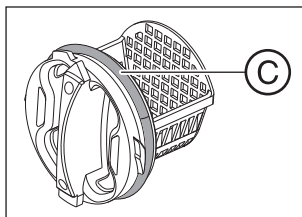
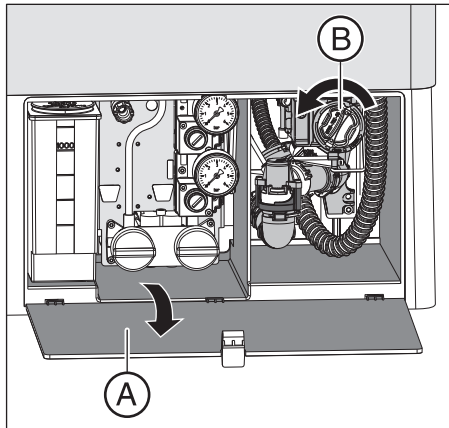
NOTE

The flushing and tumbler filling functions may not be activated when the filter housing is open.

Otherwise, water could escape from the open filter housing.

- Do not switch the flushing and tumbler filling functions on whenever the filter housing is open.

✓ Water completely extracted from the water unit.



1. Open the flap **A** on the base of the water unit.
2. Loosen the bayonet catch of the filter insert **B**. Unscrew the filter insert from the filter housing of the wet suction device counterclockwise.
3. Properly dispose of the amalgam residues together with the amalgam residues collected from the cuspidor bowl and from the suction hoses. Then clean the filter insert under running water in a sink (not in the cuspidor!).
4. Grease the O-ring **C** of the filter insert. For lubricants, see "Lubrication, cleaning, and disinfecting agents" [-> 220].
5. Reinsert the filter insert in the filter housing. Rotate the filter insert **B** clockwise.
6. Close the flap **A**.
↳ The treatment center is again ready for operation.

5.6 Sanitation

Sanitation effectively combats the reproduction of microorganisms in the water paths.

If the disinfection system is set for operation with public drinking water supply, the sanitization must be guided using the sanitization screen, see "Interactively guided sanitation of the treatment center" [→ 278].

If the equipment is being operated with a self-sufficient water supply, sanitation can only be carried out manually, see "Sanitizing the treatment center manually" [→ 286]. The *Sanitation* program is not available in this operating mode.

For more information, please refer to the section entitled "Self-sufficient water supply" [→ 179].

5.6.1 Interactively guided sanitation of the treatment center

Sanitization, that is disinfecting the treatment water paths, can be performed by using the disinfection system. During sanitization, the treatment water is first emptied according to a pre-defined process, then the disinfectant for the water paths is filled undiluted into the treatment water paths and flushed out again at the end. Sanitization includes several phases and takes at least 24 hours but should not exceed 3 days.

When operating with public drinking water supply (self-sufficient water supply switched off), interactive sanitization should be carried out:

- Regularly every 4 weeks
The display *Days until next sanitization* appears in the status bar of the touchscreen. It first appears three days before the date of sanitization (3d = 3 days until sanitization).
- After longer periods of disuse (> one week)
- If the bacterial count exceeds 100 bacteria per milliliter; see "Microbiological water test" [→ 220]
- After changing from stand-alone water supply to public drinking water supply and the agent for disinfecting the water paths

NOTE

Additional devices connected to the external device connection must not be sanitized with the treatment center.

The additional devices could be damaged. Residues of the agent for disinfecting the water paths can remain in the additional devices.

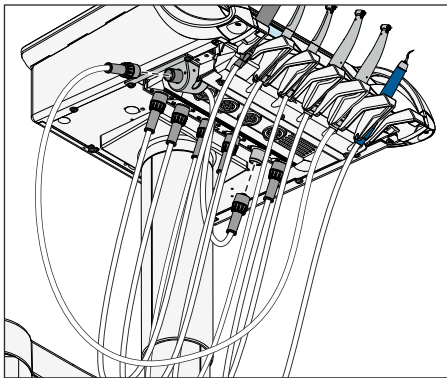
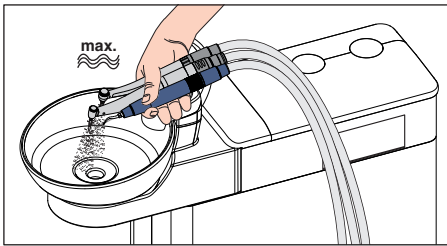
- Disconnect any additional devices from the treatment center prior to sanitization.

Preparation

The following preparations should be made prior to beginning sanitation.

1. If your treatment center is equipped with a cuspidor, activate the cuspidor flushing for at least one minute. This flushes the water paths.



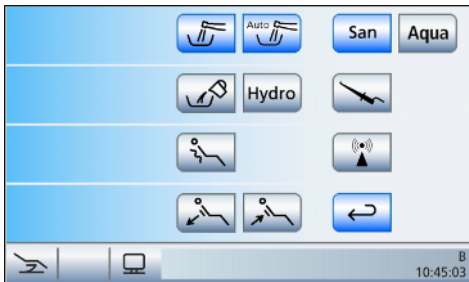


2. Set all bur drives and the SiroSonic TL scaler to the maximum water flow rate.
3. Put all instruments and suction hoses in their holders.
4. Do **not** remove the tumbler holder from the cuspidor. Put an empty glass with a volume ≥ 200 ml under the tumbler outlet to prevent discoloration from the agent for disinfecting the water paths.
5. If the treatment center is equipped with a lateral motor connection, it must be integrated into the sanitization process. To do this, connect the hose of the lateral motor connection to a water-carrying instrument connector on the dentist element. Then connect the instrument hose of the water-carrying instrument to the lateral motor connection.

Opening the sanitization dialog via the touchscreen

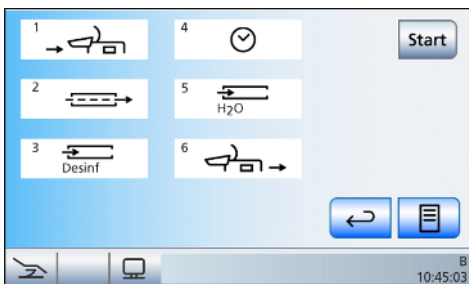
✓ The *Start dialog* is displayed on the touchscreen.

1. Touch the *Sub-screen* key.



↪ The *Start* sub-dialog is displayed.

2. Touch the *San* key.



↪ The *Sanitation* dialog is displayed on the touchscreen.

Symbols 1 to 6 stand for the individual sanitation phases as described below. The current sanitation phase is highlighted by an orange rectangle.

Symbol legend

The status of the individual instruments is represented by symbols on the touchscreen as operational help and for support in case of an error. These symbols have the following meaning:



- Empty gray circle
Instrument cannot be sanitized
- Solid gray circle
Instrument not yet sanitized
- Solid orange circle
Instrument sanitized
- Crossed-out solid gray circle
Instrument excluded from sanitation, after a failed flow rate check or if an instrument was returned during the reaction time
- Warning triangle
Check instrument or tumbler filling

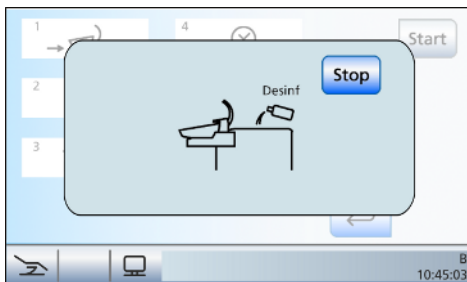
The top row of symbols indicates the instrument positions in the dentist element, while the bottom row indicates the instrument positions in the assistant element.

Starting sanitation



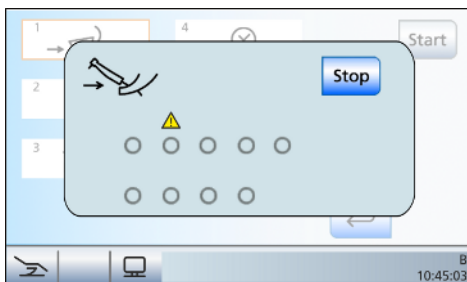
- > Touch the *Start* key.
↳ The sanitization process starts.

Error message: Filling with agent for disinfecting the water paths



If the *Disinf* display appears after the sanitization process has been started, the supply of disinfectant for the water paths in the reservoir of the water unit is not sufficient to sanitize the treatment center. Sanitization cannot be started with too little disinfectant, see "Filling with disinfectant for the water paths" [→ 268].

Error message: Deposit instruments in instrument holders

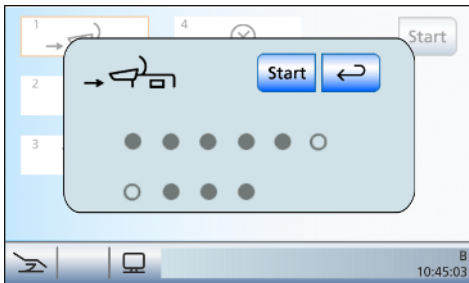


If the *Deposit instruments* display appears after sanitation has been started, the treatment center has detected that not all of the instruments have been placed in their holders.

- > Check the seating of the instruments in the holders marked with a warning triangle on the touchscreen.
↳ When all of the instruments have been deposited, sanitation phase 1 begins automatically.

Sanitation phase 1 – Inserting instruments and suction hoses into the receptacle on the water unit

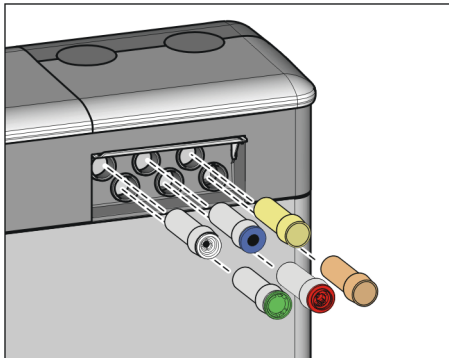
The water unit has an integrated receptacle for water-carrying instruments and suction hoses. This allows all instruments and suction hoses to be simultaneously treated with a high concentration of sanitation solution and then rinsed with water. For this purpose, sanitizable instruments and suction hoses must be inserted into the adapters on the water unit.



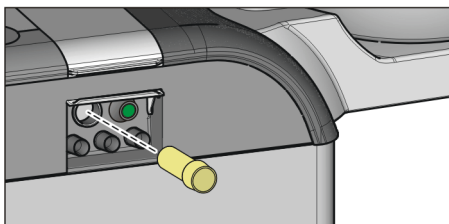
✓ Sanitization phase 1 is highlighted on the touchscreen.

✓ The *Insert instruments in water unit* display appears on the touchscreen.

1. Remove the Sprayvit M sleeves from the valve bodies, the straight and contra-angle handpieces from the instruments that can be sanitized, and the suction tips from the suction hoses.



2. If the adapters are not yet located in the receptacles of the water unit, insert them into the receptacles until they lock into place. The Sprayvit M adapters can be inserted only into the two receptacles on the right side of the dentist element with the guide rib facing upward. A Sprayvit M adapter must also be inserted into the assistant element side. The adapters always remain in the water unit.



IMPORTANT

Arrangement of adapters

The adapters for the instrument couplings are color coded:

Yellow = Sprayvit M, water on right button

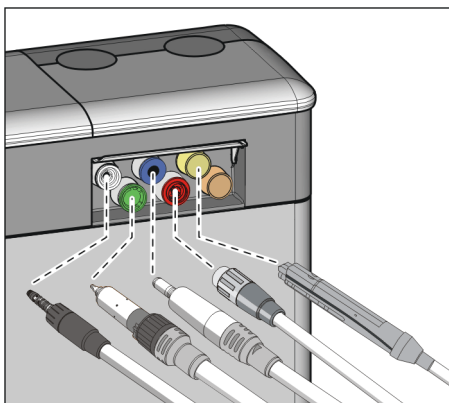
Orange = Sprayvit M, water on left button

White = high-speed handpiece

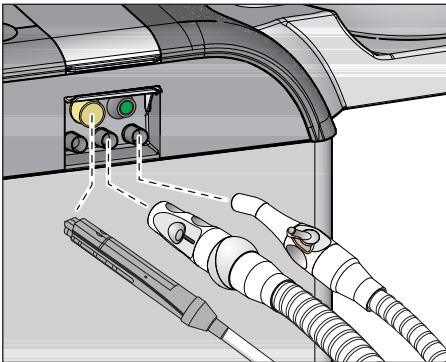
Green = BL motor

Blue = BL ISO C motor (ISO interface)

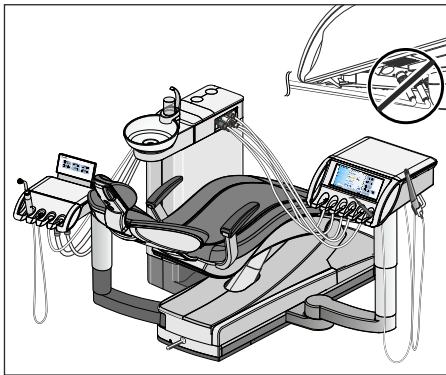
Red = SiroSonic TL scaler/SiroSonic TL



3. Dentist element side: Insert the couplings of all water-carrying treatment instruments into the adapter in the water unit (for Sprayvit M: Valve lever in the up position, locking knob in the down position).



- Assistant element side: Insert the valve bodies of the Sprayvit M into the adapter in the water unit. Set maximum suction flow on the suction handpieces and then attach to the connections.



IMPORTANT

Pinching the instrument hoses

Be careful not to pinch the instrument hoses when inserting the instruments.

If the hoses are pinched, the water flow will be obstructed during purging.

- ✎ The receptacles for the water-carrying instruments and suction hoses are completely assembled.

Start

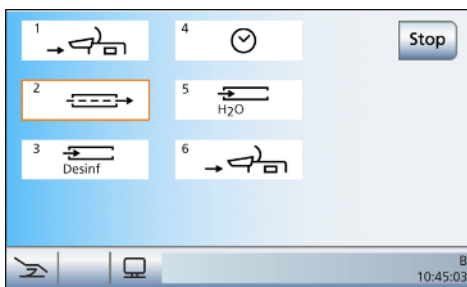
- Touch the *Start* key on the touchscreen.

Sanitization can be started only if at least one instrument is removed from the holder.

Sanitization phase 2 – Checking the water flow

First, the treatment center checks whether there is water flow through the instruments.

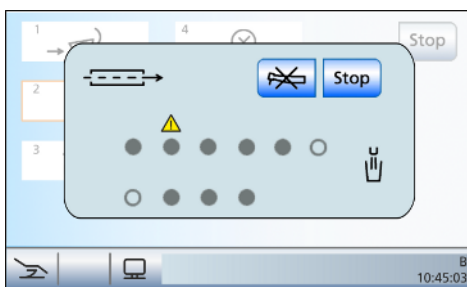
- ✓ Sanitization phase 2 is highlighted on the touchscreen.
- Wait briefly until the water flow has been checked.
 - ✎ If sufficient water flow is present, the treatment center continues with sanitation phase 3.



Error message: No water flow

If the treatment center detects no water flow through an instrument or through the tumbler filler, you can try to restore water flow. If this is not possible, the instrument concerned can be excluded from the sanitation process.

- Check the water flow through the instruments in the instrument positions marked with a warning triangle on the touchscreen. Set the instruments to maximum water flow. Leave all instruments plugged into the water unit.
 - ✎ If the treatment center detects the water flow, the warning triangle will disappear. If there is sufficient water flow through all instruments, sanitation phase 3 automatically continues.

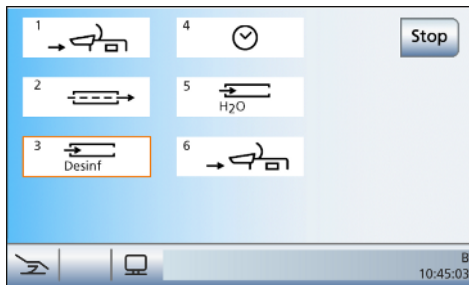




- If you want to exclude the instruments concerned from sanitation, touch the *Exclude instrument* key.
 - The treatment center continues with sanitation phase 3. The water paths you excluded are not included in the sanitation process.

If it is impossible to restore the flow to the tumbler filler, sanitization is not possible. The tumbler filler cannot be excluded from the sanitization process.

Sanitizing phase 3 - Treating the water paths with the agent for disinfecting the water paths



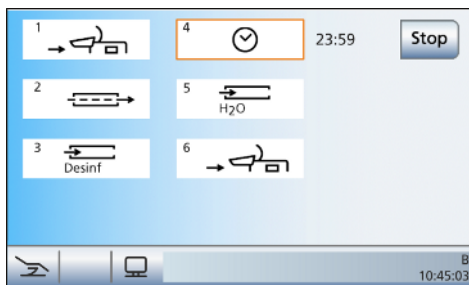
The water is pumped out of the water tank of the water unit using the tumbler filling function. Then the water tank is automatically filled with the undiluted disinfectant for the water paths. The instrument hoses, the Sprayvit M hoses, and the tumbler filler are then rinsed with the disinfectant. The suction hoses are cleaned.

NOTE

Splashes of undiluted disinfectant for sanitizing the water paths can result in discoloration of surfaces if left for too long.

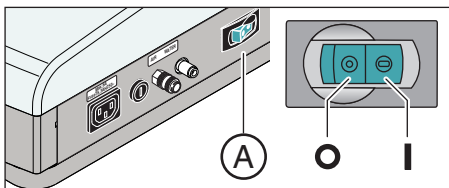
Any splashes should therefore be removed immediately using a moist cloth.

Sanitization phase 4 – Allow 24 hours reaction time



In order to effectively combat germs, you must let the agent for disinfecting the water paths react for at least 24 hours and not longer than 3 days (maximum sanitation time).

- Sanitization phase 4 is highlighted on the touchscreen.
 - The treatment center displays the remaining reaction time on the touchscreen next to the sanitation phase 4 field, starting from 24 hours.
 - The treatment center has automatically switched to Standby mode.
- Leave all instruments plugged into the water unit.
 - Make sure that the treatment center is switched off for at least 24 hours, but not longer than 3 days (maximum sanitation time). If necessary, you can also turn off the power switch on the base of the treatment center patient chair.



IMPORTANT

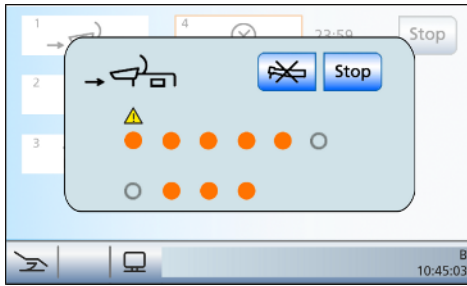
Blocking water and air supply

If the treatment center is turned on again after 24 hours, then sanitization phase 5 continues automatically. However, if the water and air supplies are blocked, the agent for disinfecting the water paths cannot be rinsed out of the water paths.

Switch the treatment center back on after 24 hours only when the water and air supply lines are open.

- Empty the rinsing tumbler and return the empty tumbler below the tumbler outlet.
- Switch the treatment center on again after 24 hours and before 3 days have elapsed.

Error message: Inserting instruments in the water unit



If an instrument is accidentally deposited in its holder during the reaction time, the message *Insert instruments in water unit* is displayed on the touchscreen after the treatment center is switched on. The sanitizing process is then completed anyway.

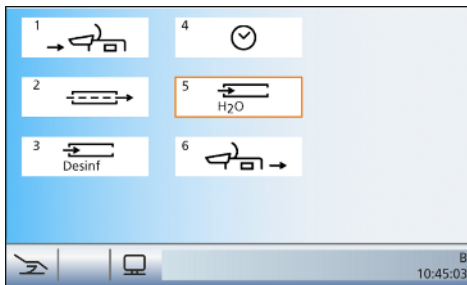
1. Take the accidentally removed instrument out of the instrument holder and place it back in the receptacle on the water unit so that it can be rinsed in sanitation phase 5.



2. If you want to exclude the instruments from sanitation, touch the *Exclude instrument* key.

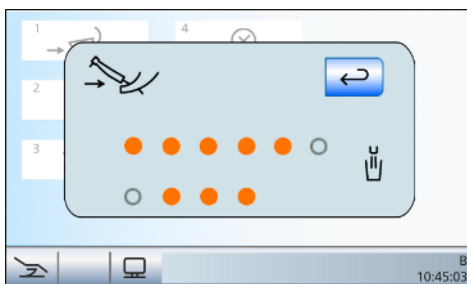
↳ Excluded instruments will not be rinsed in sanitation phase 5.

Sanitization phase 5 – Rinsing water paths with water



The disinfectant for the water paths is purged from the instrument hoses, Sprayvit M hoses, and tumbler filling unit with water. This takes several minutes.

Sanitization phase 6 – Returning the instruments to their holders



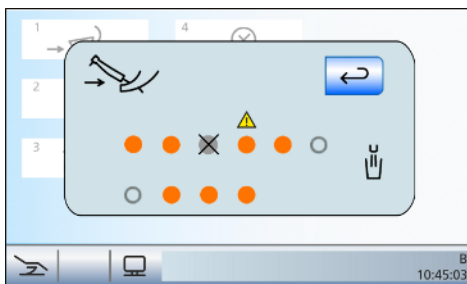
After the water paths have been purged, the instruments and suction hoses can be removed from the receptacle on the water unit and re-inserted in the instrument holders.

✓ The *Return instruments to their holders* display appears on the touchscreen.

➤ Place the Sprayvit M sleeves, the straight and contra-angle pieces and the suction tips on the instruments or suction hoses. Return all instruments and suction hoses to the instrument holders.

↳ The sanitation process is finished. The treatment center is again ready for operation.

Displays in case of incomplete sanitation



The sanitization program detects whether the sanitization of all instruments and the tumbler filling was completed. Errors that occurred during sanitization will be displayed on the touchscreen as follows:

- Crossed-out, solid gray circle: The instrument was excluded from sanitization before it had been filled with the disinfectant for the water paths.

- Orange circle with warning triangle: The instrument or tumbler filling was not (sufficiently) purged, the disinfectant for the water paths is still present in the water paths.

➤ In the latter case, rinse the affected instruments and tumbler filling manually after sanitization.

Canceling the sanitizing process

Sanitation can be canceled during some sanitation phases, e.g. if the treatment center must be switched back on before the 24 hours have expired. The *Stop* key shows whether cancellation is possible.



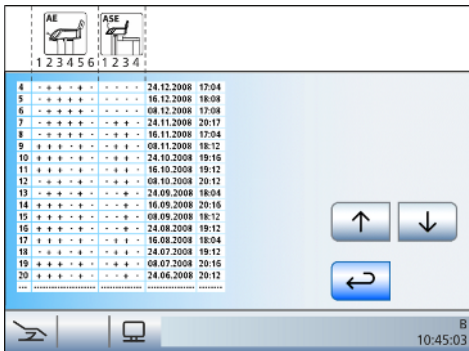
- ✓ The sanitizing process has started.
- Touch the *Stop* key on the touchscreen.
 - ↳ The sanitization process is canceled. If the water paths have not yet been treated with the agent for disinfecting the water paths (prior to sanitization phase 3), the treatment center automatically proceeds directly to sanitization phase 6. If the sanitization process is canceled during the reaction time, the water paths are initially rinsed with water (sanitization phase 5).

5.6.2 Display sanitation report

Sanitation processes with interactive guidance, with a reaction time of at least 24 hours, are logged by the treatment center. The corresponding log reports can be displayed on the touchscreen.



- ✓ The *Sanitation program* is displayed on the touchscreen.
- Press the *Sanitation program* key to display the log.
- ↳ The sanitation report is displayed.



The sanitation report contains the following data:

Column	Description
1	Sequential number
2	Status of sanitized instruments in dentist element, holder 1 to 6
3	Status of sanitized instruments in assistant element, holder 1 to 4
4	Date of sanitization
5	Time

The status of column 3 and 4 can assume the following values:

- + = successful sanitation
- = Sanitation was not completed (e.g., interruption)

5.6.3 Sanitizing the treatment center manually

IMPORTANT

The sequence for manual sanitization described below is feasible only if the treatment center is operated with a self-sufficient water supply.
If the disinfection system is set for operation with public drinking water supply, the sanitization must be guided via the "Sanitation" dialog box, see "Interactively guided sanitation of the treatment center" [→ 278].

When operating with a self-sufficient water supply, sanitation is to be carried out manually:

- if the self-sufficient water supply takes more than 28 days, in exceptional cases
- After longer periods of disuse (> one week)
- If the germination index exceeds 100 germs per milliliter, see "Microbiological water test" [→ 220].

Manual sanitation is not documented in the sanitation report, see "Display sanitation report" [→ 285].

Sanitization takes at least 24 hours.

NOTE

Additional devices connected to the external device connection must not be sanitized with the treatment center.

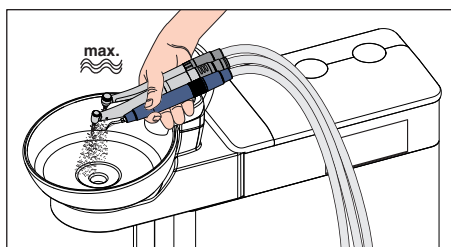
The additional devices could be damaged. Residues of the agent for disinfecting the water paths can remain in the additional devices.

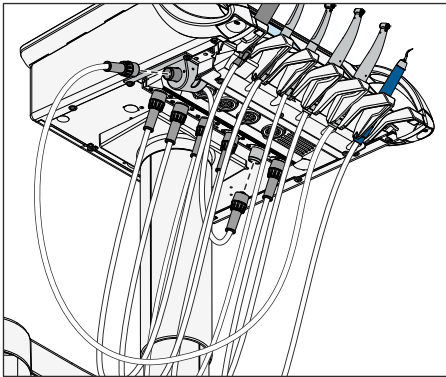
- Disconnect any additional devices from the treatment center prior to sanitization.

Preparation

The following preparations should be made prior to beginning sanitation.

1. If your treatment center is equipped with a cuspidor, activate the cuspidor flushing for at least one minute. This flushes the water paths.
2. Set all bur drives and the SiroSonic TL scaler to the maximum water flow rate.
3. Put all instruments and suction hoses in their holders.
4. Do **not** remove the tumbler holder from the cuspidor. Put an empty glass with a volume ≥ 200 ml under the tumbler outlet to prevent discoloration from the agent for disinfecting the water paths.

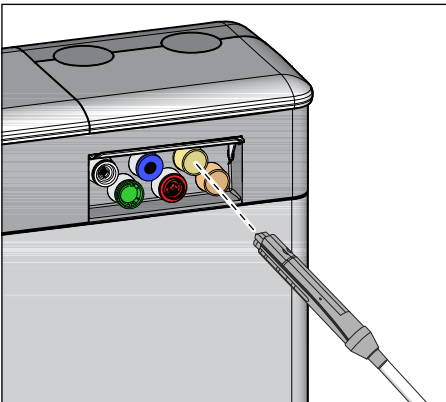




5. If the treatment center is equipped with a lateral motor connection, it must be integrated into the sanitization process. To do this, connect the hose of the lateral motor connection to a water-carrying instrument connector on the dentist element. Then connect the instrument hose of the water-carrying instrument to the lateral motor connection.

Emptying the disinfectant tank and mixing tank

Before manual sanitization, the disinfectant tank and mixing tank must be emptied using the Sprayvit M.

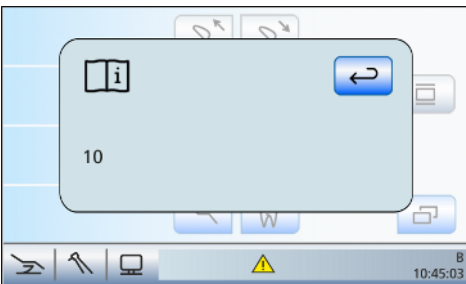


1. Remove the Sprayvit M on the dentist element from the instrument holder. Remove the Sprayvit M sleeve from the valve body and connect the valve body into the water unit adapter (in for Sprayvit M: valve lever up, locking button down).



2. Wait until no more water flows from the Sprayvit M. This can take up to 12 minutes. Press the tumbler filler several times to speed up the process.

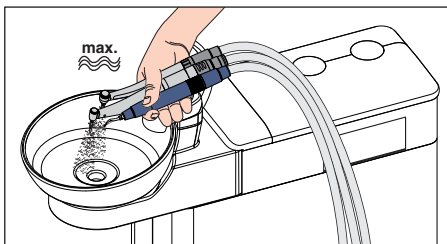
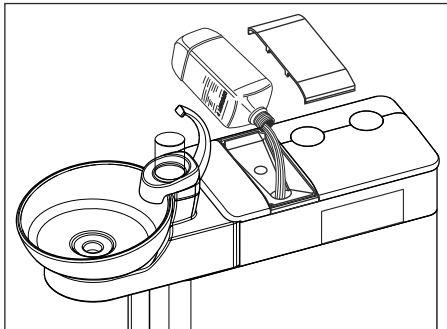
- ↳ A warning triangle appears in the status bar of the touchscreen. After pressing the warning triangle, the error code 10 is displayed ("Flow in the Sprayvit M on the dentist element too low"). This message confirms that the disinfectant tank and mixing tank are empty.



3. Switch off the treatment center via the user interface and return the Sprayvit M valve body to the instrument holder.

Treating the water paths with the disinfectant for the water paths

The water paths of the instrument hoses, Sprayvit M hoses, and the tumbler filler are filled with the undiluted disinfectant for the water paths.



1. Fill approx. 0.6 liters of undiluted disinfectant into the disinfectant tank.

2. Switch the treatment center on via the user interface and wait approximately 3 minutes until the treatment center is ready for operation.
3. Remove the instruments one after the other from the holder and hold them over the cuspidor or over a watertight container with sufficient capacity. Activate each instrument for approximately 15 seconds. Afterward, return the instruments to the instrument holder.
4. Empty the rinsing tumbler and return the empty tumbler below the tumbler outlet.
5. If your treatment center is equipped with a cuspidor, press the tumbler filler twice.

NOTE

Splashes of undiluted disinfectant for sanitizing the water paths can result in discoloration of surfaces if left for too long.

Any splashes should therefore be removed immediately using a moist cloth.

Allow 24 hours reaction time

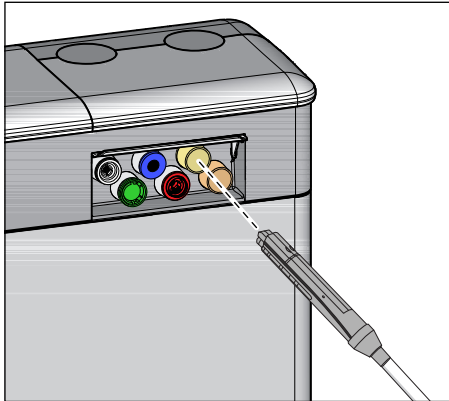
In order to effectively combat bacteria, you must let the disinfectant for the water paths react for at least 24 hours and not longer than 3 days (maximum sanitization time).

1. Switch off the treatment center via the user interface, not via the power switch on the base of the patient chair. Make sure that the treatment center is switched off for at least 24 hours, but not longer than 3 days (maximum sanitization time).
2. Switch the treatment center back on after the reaction time.

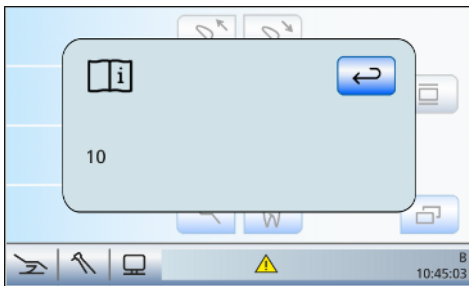


Purging disinfectant for the water paths from the water paths

Once it has reacted, the remaining disinfectant for the water paths must be rinsed out of the mixing tank using the Sprayvit M.



1. Insert the Sprayvit M valve body on the dentist element into the water unit adapter as described above. Wait until no more water flows from the Sprayvit M.

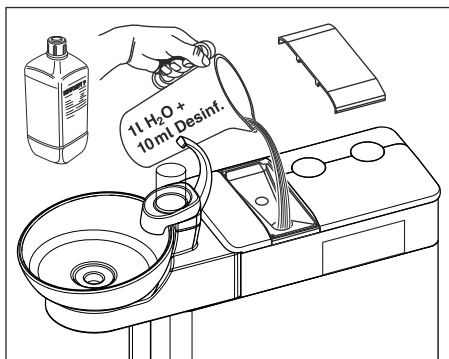


↗ The warning triangle with error code 10 ("Flow at the Sprayvit M on the dentist element too low") appears again in the status bar of the touchscreen. The remaining disinfectant for the water paths has now been rinsed out.

2. Remove the Sprayvit M valve body from the water unit and reattach the Sprayvit M sleeve. Return the Sprayvit M to the instrument holder.

Purging water paths with water

The disinfectant for the water paths is rinsed out of the instrument hoses, Sprayvit M hoses, and tumbler filling unit with water.



1. Mix distilled water with the agent for disinfecting the water paths in a ratio of 100:1 (1 liter of water, 10 ml of disinfectant) and fill this into the disinfectant tank of the water unit. Then wait approx. 2 minutes.
2. Hold the instruments over the cuspidor or over a watertight container with sufficient capacity again and thoroughly rinse all the instruments for approximately 30 seconds.
3. Empty the rinsing tumbler and return the empty tumbler below the tumbler outlet.

4. If your treatment center is equipped with a cuspidor, press the tumbler filler three times.

↗ The manual sanitation process is finished. The treatment center is again ready for operation.

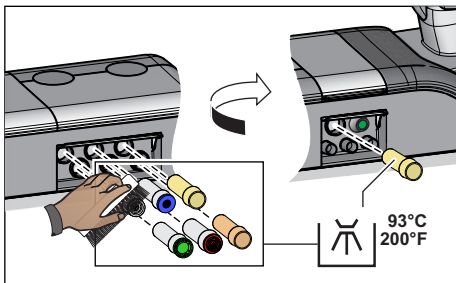
Cleaning the suction hoses

After the manual sanitation, all suction hoses should also be cleaned.

- If the treatment center is equipped with the chemical suction hose cleaning option, see "Cleaning the suction hoses" [→ 257].
- If the treatment center is not equipped with the chemical suction hose cleaning option, see "Cleaning suction system using cleaning adapters in the cuspidor or an external container" [→ 259].

5.6.4 Thermally disinfect the sanitization adapter

The sanitization adapter can be removed from the water unit for cleaning and thermal disinfection.



1. Remove the sanitization adapter from the water unit on the dentist and assistant side.
2. Clean the inside and outside of the adapter with a moist cloth and brush.
3. Thermally disinfect the adapter.
4. Insert the sanitization adapter back into the water unit as illustrated.

5.6.5 Biofilm removal by the service technician

If the microbiological test of the water from the treatment center does not correspond with the hygiene requirements in spite of regular sanitization of the water paths and/or regular purge/autopurge cycles, the biofilm must be removed using special chemicals.

Biofilm removal should be performed if the bacterial count is significantly above 100 colony forming units per milliliter.

Biofilm removal may only be done by a trained service technician. In this case, please contact your dental depot.

Before initiating biofilm removal it must be ensured that the reason for the raised bacterial count is not due to inflowing water.

5.7 Foot control and connection box

5.7.1 Changing the battery of the wireless foot control



The wireless foot control is powered by a battery. An empty battery is detected and displayed by the system. The battery can be changed by the user.

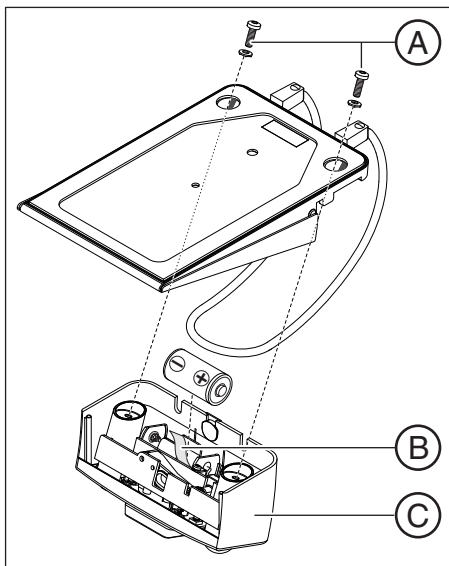
For the battery type, see "Spare parts and consumables" [→ 299].

- > Switch the treatment center off at the standby switch before changing the battery. This prevents the inadvertent triggering of unwanted functions.

For older wireless foot controls, the housing must be unscrewed to change the battery. Newer models have a battery compartment:

Removing and replacing the battery (without battery compartment)

The housing of the wireless foot switch must be opened to change the battery. Touch a grounded metal part before opening the housing to prevent damage to the PC board due to electrostatic discharge.



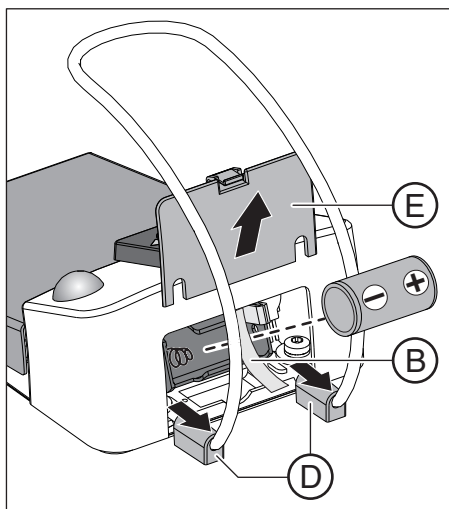
1. Remove the screws **A** from the bottom of the foot control.
2. Remove the switch part **C** from the foot control.
3. Pull the battery out of the battery compartment by pulling the cloth strap **B** and replace it with a new one. Be careful to insert them with the correct polarity (minus pole facing spring). The cloth strap **B** must again lie underneath the battery.
4. Note the blink signal of the LED after replacing the battery, see "Check battery" (step after next).
5. Mount the switch part **C** on the foot control to reassemble the foot control.
6. Remove the screws **A** from the bottom of the foot control.

IMPORTANT

Putting the wireless foot control back into operation

After changing the battery, start the treatment center and check the complete functionality of the foot control.

It is **not** necessary to register the foot control again at the treatment center after changing batteries.



Replacing the battery (with battery compartment)

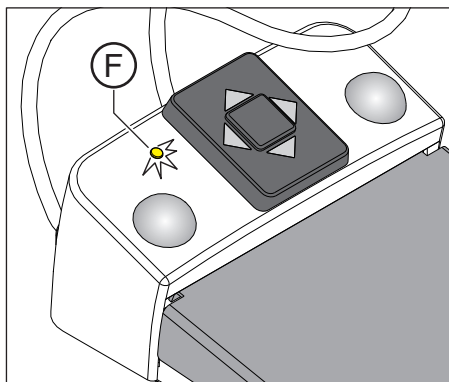
1. If the adjustable feet **D** sit close to the battery cover **E**, slide this small part outward.
2. Open the battery cover **E**.
3. Pull the battery out of the battery compartment by pulling the cloth strap **B** and replace it with a new one. Be careful to insert them with the correct polarity (minus pole facing spring). The cloth strap **B** must again lie underneath the battery.
4. Note the blink signal of the LED after replacing the battery, see "Check battery" (step after next).
5. Close the battery cover **E**.

IMPORTANT

Putting the wireless foot control back into operation

After changing the battery, start the treatment center and check the complete functionality of the foot control.

It is **not** necessary to register the foot control again at the treatment center after changing batteries.



Checking the battery status

The battery status is indicated by the yellow LED **F** in the switch part.

- LED lights up for approx. 10 s after battery is inserted – Battery OK
- LED flashes after battery is inserted – Battery too weak, must be replaced
- LED does not light up – Battery empty, must be replaced

Battery disposal

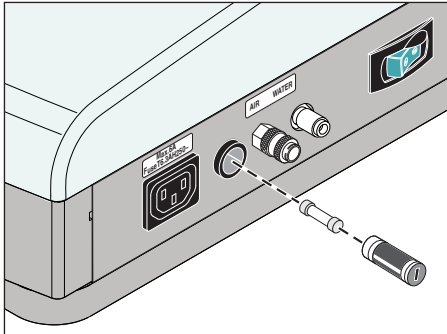
For environmental reasons, batteries may not be disposed with household garbage. Please observe the applicable national regulations for battery disposal.



5.7.2 Changing the fuse of the external device connection

The IEC outlet socket remains live even when the power switch is turned off. The fuse can nevertheless be changed.

To reorder the fuse, see "Spare parts and consumables" [-> 299].



- ✓ The IEC outlet socket is not supplying any power.
 - 1. Pull the plug of the connected device out of the IEC outlet socket.
 - 2. Use a screwdriver to unscrew the fuse sleeve.
 - 3. Replace the fuse (T 6.3 A, 250 VAC) and screw the fuse sleeve back in.
 - 4. Reconnect the external device to the IEC outlet socket.
- ⚠ If the inlet connect still is not supplying any power, contact the manufacturer of the connected device or your local distributor.

6 Maintenance by the service engineer

6.1 Inspection and maintenance

In order to ensure the operational safety and reliability of your treatment center and to avoid damage due to natural wear, **annual** inspection and maintenance must be performed on your treatment center. This is done by an authorized service technician from your dental depot.



As soon as the next maintenance call is due in less than 42 days, a wrench symbol appears in the status line of the touchscreen after switch-on. Below this symbol, the number of days until the maintenance deadline are counted down (e.g. 13 d = 13 days). You should now contact your dental depot and make an appointment.

The treatment center should be cleaned and disinfected by the practice personnel before the maintenance deadline.

The work steps to be performed as well as the parts which must be replaced are specified in the document "Maintenance Log".

An overview of the inspection and servicing carried out is additionally recorded by the service technician in the "Maintenance Manual".

6.2 Safety checks

Medical equipment is designed in such a way that the first occurrence of a fault does not create a hazard to the safety of patients, users or other persons. It is therefore important to detect such faults before a second fault occurs, which might then lead to safety hazards.

For that reason it is essential to perform safety checks **every 2 years** in which electrical faults (e.g. defective insulation) in particular can be detected. This is done by an authorized service engineer from your dental depot, most practically together with the work to be performed according to "Inspection and maintenance" [→ 294].

Safety tests must also be performed and documented during initial startup, after extensions / upgrades (conversion) of your treatment center and after repair work which might affect the electrical safety of the system.

WARNING

The treatment center must not be operated if it has failed to pass the safety tests!

The safety check includes a visual inspection as well as measurements of the protective ground wire connections and the equivalent leakage currents.

The inspections and measurements to be performed are specified in the "Maintenance Manual". The measured values must be documented there by the service technician.

6.3 Safety tests for systems with HF surgical equipment

In Germany, medical devices are subject to the Ordinance on the Installation, Operation and Use of Medical Devices (MPBetreibV) dated June 29, 1998.

- According to Section 6, safety tests are required for systems with HF surgical equipment.
- According to Section 7, a "medical device log" must be kept, in which the values measured and the tests conducted are documented.

These tests for systems with HF surgical equipment are identical to the safety tests described in "Safety tests" [→ 294].

The "maintenance manual" contains the "medical device log". The system owner must keep this medical device log.

In order to comply with the provisions of the Ordinance on the Installation, Operation and Use of Medical Devices (MPBetreibV), the following documentation must be maintained for treatment centers with HF surgical equipment in Germany:

- Performance of safety tests
- Personnel who have been trained in the use of HF surgical equipment (§5 MPBetreibV)
- Repair work on the HF module
- Effects of malfunctions and similar repeated operation errors
- Reporting incidents to authorities and manufacturers

The medical device log must be stored for a period of at least **5 years** after the system is decommissioned. The medical device log must be made available at request to the competent authority for inspection purposes at any time.

IMPORTANT

As a system user outside of Germany, you must observe the legal requirements of your country.

6.4 Maintenance Manual

Keep this Maintenance Manual near your treatment center.

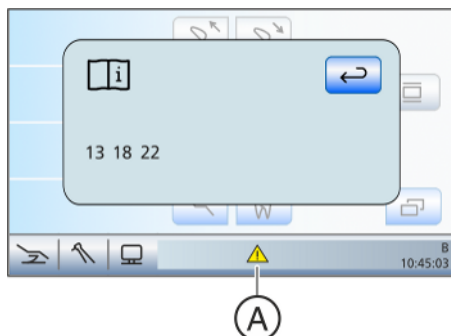
Any inspection and maintenance work as well as all safety tests are documented by the service engineer in the Maintenance Manual. For systems with HF surgical equipment, the consequences of malfunctions and reports to the competent authorities must be documented by the user.

The "Maintenance Manual" contains the "Medical Product Log".

We recommend to the user to always keep the documentation in the chapter "Reporting of incidents to authorities / manufacturers" up to date, regardless of any legal requirements.

7 Malfunctions

7.1 Error messages



Error states of the treatment center that cannot be immediately recognized by the user but must nevertheless be corrected are displayed on the touchscreen. If an error state exists, this is indicated by a warning triangle **A** in the status line of the touchscreen.

- > Touch the warning triangle **A** in the status bar of the touchscreen.
 - ↳ The error code(s) is(/are) displayed.

The error codes have the following meaning:

Code	Error	Description	Measure
10	Flow rate of Sprayvit M on dentist element too low	The water flow rate is below the limit value. The heater of the Sprayvit M is no longer heated to prevent scalding by overheated water.	Clean the outlet nozzle of the Sprayvit M, see "Instructions for use Sprayvit M" and perform the flow test, see "Checking the flow rate on the Sprayvit M multifunctional syringe" [→ 243].
11	Flow rate of Sprayvit M on assistant element too low		
12	Tumbler temperature fuse defective	The temperature fuse was blown by overheating. The water in the tumbler filling unit is no longer heated.	Inform your service technician.
13	Battery of wireless foot control empty	Operation of the treatment center no longer possible due to fully depleted battery.	See "Changing the battery of the wireless foot control" [→ 291].
14	Consumption of the agent for disinfecting the water paths too low	The disinfectant tank was not emptied since its last filling even though many disinfection cycles were performed.	Inform your service technician.
15	Water supply too low	The maximum filling time for the mixing tank is exceeded.	Change the water filter, see "Changing the water and air filters" [→ 269]. Check the water pressure of the drinking water network.
16	Hydrocolloid flow rate	It was detected via the water pump that the flow rate of the hydrocolloid is too low.	Check the hydrocolloid hoses for clogging.
17	Emergency pump operation	Malfunctioning of pump sensors in the water unit.	Inform your service technician.
18	Chair movement outside of the permissible movement limits or chair drive position not plausible	If the chair is located outside of the permissible movement limits or the position is not plausible, the chair stops moving.	Inform your service technician.
19	Injection valve for the agent for disinfecting the water paths defective	No agent for disinfecting the water paths will be added if the injection valve is defective.	Inform your service technician.

Code	Error	Description	Measure
20	HF surgery power stage is overheated	The temperature sensor of the HF surgery power stage has been activated due to high load.	Wait a few minutes for the HF surgery power stage to cool off.
21	The flushing tank is empty	It was detected that the flushing tank had not been filled. Flushing of the suction paths cannot be ensured.	Change the water filter, see "Changing the water and air filters" [-> 269]. Check the water pressure of the drinking water network. With a wet suction system, a restart is necessary following troubleshooting.
22	Position of the chair lift safety switch not plausible	If the chair lift safety switch is not detected or the position is not plausible, the chair does not move.	Inform your service technician.
23	Apex locator	After switching on the treatment center, the apex self-test failed or an error occurred during the measurement.	Inform your service technician if the error occurs repeatedly. The mucosal electrode must not be used on the patient in this state.
24	Backup battery empty	The time and date are reset after the treatment center is switched back on.	Inform your service technician.
25	Wireless foot control is disturbed	Communication between the wireless foot control and the treatment center is interrupted. The instrument is stopped for the duration of the interruption.	After the foot pedal is pressed again, the instrument can be reactivated. If the error occurs repeatedly, switch off sources of interference, e.g. microwaves and WLAN.
27	Suction hose cleaning	Too little water is used for suction hose cleaning.	Inform your service technician. Instead, suction a glass of water regularly.
31	Chemical suction hose cleaning	The cleaning agent tank for chemical suction hose cleaning has not been emptied since the last filling despite several suction hose cleanings.	Inform your service technician.
33	Cuspidor bowl valve	The water container of the cuspidor valve is not emptied. The tumbler filling, flushing, suction hose cleaning, sanitation, purge and autopurge functions cannot be activated.	Check whether the suction device is switched on. Inform your service technician.
34	LEDview Plus	The operating light has excessively overheated. It can no longer be operated at full brightness. In the event of further heating, the light will switch itself off.	Protect LEDview Plus against strong sunlight. Switch the treatment center off and on again. For further details please refer to LEDview Plus instructions for use, section "Faults".
35	Chair positioning defective	The target positions of the motor-driven headrest or sliding track are possibly not reached.	Inform your service technician.

The warning triangle automatically disappears as soon as the error state has been eliminated. If it does not disappear, please inform your service engineer.

7.2 Remote diagnosis

Functional description

With remote diagnosis, you enable the staff of your dental depot or our Customer Service Center, see "Contact data" [→ 12], to connect to the PC of your treatment center. The contents of your PC monitor are then transmitted to the computer of the service specialist and remote access to your PC is enabled.

Advantages

This offers you the following advantages:

- Fast support through remote access
- Remote diagnosis via readout of error codes
- Effective help during the application
- Fewer service calls by service engineers due to remote diagnosis
- Shorter downtimes

Prerequisites

In order to utilize remote diagnosis, your treatment center must be connected to a PC. In addition, the PC must have Internet access.

Remote access to your PC is established via a remote access software. Various different software applications can be used for remote access. Please contact your service engineer for more information.

Safety aspects

During a remote access session, you as the customer can cancel the service specialist's remote control rights at any time, thus blocking further remote access. You thus always remain in control during remote access.

Extensive security and access protection functions protect your PC against alterations, spying and manipulations. These options will vary depending on the remote access software involved. In general, remote controlled access can be monitored directly by the customer. By setting the access rights, you as the customer can determine which activities service specialists will be allowed to perform via remote access. All other functions which have not been approved by you remain disabled for the service specialist.

If you have any further questions, please contact your dental depot or our Customer Service Center; see "Contact data" [→ 12].

8 Spare parts and consumables

Use only original spare parts and original consumables from Dentsply Sirona!

Please order the materials listed below from a specialized dental dealer.

Care, cleaning, and disinfecting agents

A continuously updated list of approved agents can be downloaded from the Internet on the online portal for technical documents. You can reach this portal at the address:

www.dentsplysirona.com/manuals

.Click on the menu item "*General documents*" and then open the "*Care, cleaning and disinfection agents*" document.

If you do not have access to the internet, please contact your dental depot to order the list (REF 59 70 905).

Treatment center

Total count tester	58 53 775
Air and water filters	14 43 436
Amalgam rotor	14 34 138
Peristaltic pump hose set (5 pcs)	66 25 953
Spray aspirator with additional air intake, saliva ejector A spray aspirator as well as a saliva ejector from the Dürer Dental company is attached to the treatment center on delivery. They can be ordered from a specialized dealer.	–
Ball stopper For sealing the instrument holder of the dentist element	58 99 575
Fuse for the external device connection 100 V – 240 V~ (T 6.3 A, 250 V~)	10 77 452
Battery for wireless foot control 1x type alkaline baby (C or LR14) with 1.5 V (commercially available) Always use high-quality batteries!	–

Multifunctional syringe Sprayvit M

Sprayvit nozzle G, long, curved, with fiber optic	59 92 180
Casing, right water path	60 02 179
Casing, left water path	60 02 187
Keyboard	63 21 728
Small cleaning wires	24 00 232
LED	63 22 007
Heating cartridge	33 27 132
O-ring 1.5 x 1 for heating cartridge	70 41 734

O-ring set Sprayvit nozzle 1 x attachment tool and 10 x O-rings 5.5x1.03	41 76 751
Dentsply Sirona T1 Spray (6 x 250 ml cans)	59 01 665

BL motor

Halogen lamp	60 34 677
LED	63 14 558
Lamp ring	60 81 082
BL sealing washer, blue	62 24 484
ISO adapter	60 00 793
Basic Apex adapter	59 83 072

BL ISO C motor

BL ISO C motor sleeve	63 49 851
BL ISO C/E/S sealing washer, green	63 11 240
O-ring 8.4 x 0.7	58 60 390
T1 Spray (6 x 250 ml cans)	59 01 665

BL Implant motor

BL Implant motor sleeve	62 42 734
BL Implant sealing washer, yellow	62 24 492
O-ring 8 x 1	70 36 189
O-ring 15 x 0.7 (5 pieces)	62 81 559
T1 spray (6 x 250 ml cans)	59 01 665

ISO adapter / Basic Apex adapter

O-ring 8.4 x 0.7	58 60 390
O-ring 8 x 1	70 36 189
T1 spray (6 x 250 ml cans)	59 01 665

Endodontics/implantology

Silicone insulation sleeve for endodontics with the ApexLocator (5 pcs)	63 24 631
Peristaltic pump hose set (5 pcs)	62 25 903
Separate motor holder for implantology motor	59 99 821

Sirotom HF electrosurgical handpiece

Needle electrode no. 1 , straight	24 78 071
Needle electrode no. 2 , 45° offset	24 25 684
Wire-sling electrode no. 3 , elongated	24 25 692
Wire-sling electrode no. 4 , rhomboid	24 77 867

Coagulation electrode no. 5 , 90° offset	24 25 676
Wire-sling electrode no. 6 , circular	24 25 650
Ball electrode 3 mm Ø no. 7	24 77 982
Ball electrode 1.7 mm Ø no. 8	24 25 700
Intermediate piece for Miller needles	24 78 030
Hook electrode no. 9	24 77 909
Coagulation electrode no. 10 , 45° offset	24 77 883
Special seal	89 92 937
O-ring 14x1.5	70 47 285
O-ring 4.5 x 1	70 23 286

9 Disposal



In accordance with Directive 2012/19/EU and national disposal regulations regarding old electrical and electronic devices, please be advised that such items must be disposed of in a special way within the European Union (EU). These regulations require the environmentally friendly recycling/disposal of old electrical and electronic devices. Such items must not be disposed of as domestic refuse. This has been expressed using the icon of the “crossed out trash can”.

Disposal procedure

We feel responsible for our products from the first idea to their disposal. For this reason, we give you an option to return our old electronic and electrical devices.

If you wish to dispose of your devices, please proceed as follows:

In Germany

To initiate return of the electrical device, please send a disposal request to enretec GmbH. You have the following options here:

- Use the ‘Returning an electrical device’ button under the ‘eom’ menu item on the enretec GmbH homepage (www.enretec.de).
- Alternatively, you can also contact enretec GmbH directly.

enretec GmbH
Kanalstraße 17
16727 Velten, Germany
Phone: +49 3304 3919-500
E-mail: eom@enretec.de

In accordance with the national disposal regulations regarding old electrical and electronic devices (ElektroG), as the manufacturer, we assume the costs for disposing of the electrical and electronic devices in question. Disassembly, transport and packaging costs shall be borne by the owner / operator.

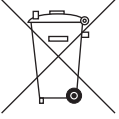
Prior to disassembly/disposal of the unit, it must be prepared professionally (cleaned/disinfected/sterilized).

If your unit is not permanently installed, it will be collected from the practice. If it is permanently installed, it will be picked up curbside at your address by appointment.

Other countries

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

9.1 Battery disposal



Note for disposal company

Prior to disposal, remove the following batteries from the treatment center:

- Battery in the wireless foot control
- Lithium battery on the **NSA** circuit board (REF 61 15 591) in the junction box of the chair.
Remove the yellow battery on J503.

10 Overview of all function keys

The following contains a brief description of the fixed keys on the dentist and assistant elements and the function keys on the touchscreen and to provide the reader with a quick overview of the significance of the symbols on the keys. Detailed descriptions can be found in the corresponding sections of this document.

10.1 Fixed keys

10.1.1 Dentist element



Standby switch

Switches the treatment center on/off.

To switch off the treatment center, press and hold the key until an acoustic signal sounds. Then release the key.

IMPORTANT

Power switch

The treatment center also features a power switch on the base of the chair that separates the treatment center from the power supply, see "Switching the treatment center on/off" [→ 42].



Timer function

Opens the *Timer Function* screen by activating one of the six preset timers. The elapsed time is displayed in the status bar of the touchscreen.

If the *Timer function* key is pressed (> 2 s), the settings dialog appears.



Shock positioning

Immediately moves the patient chair to a position for shock positioning of the patient.



Operating light

Switches the operating light on/off.

If the *Operating light* key is pressed for > 2 s, the settings screen appears.



Composite function

Switches the composite function for the operating light on/off.

This function can delay the curing of composite materials.



Tumbler filling

Starts or stops the tumbler filling function.

When the *Tumbler filling* key is pressed (> 2 s), the filling time and water heating settings screen appears.



Flushing

Starts or stops cuspidor flushing.

When the *Flushing* key is pressed (> 2 s), the *Flushing Time* settings screen appears.



Freely selectable function

e.g., call key

Freely available relay 230 VAC, 6 A
(connected by the service engineer).

This function can be preset as a button or as a switch in the Setup program.



Freely selectable function

Freely available relay 230 VAC, 6 A
(connected by the service engineer).

This function can be preset as a button or as a switch in the Setup program.



Clean key

Pressing this key deactivates the complete user interface of the dentist element with the exception of the standby switch. Pressing the key again > 3 s or stepping on the foot control pedal reactivates the user interface.

This is used to make sure that no unwanted functions can be accidentally triggered while cleaning the surface.



Setup key

Used for individual configuration of the treatment center by the user and for reading out messages by the service technician, see "Configuration of the treatment center (Setup)" [[→ 205](#)].

10.1.2 Assistant element



Tumbler filling

On/Off



Flushing the cuspidor

On/Off



X-ray image viewer

On/Off

Also white screen on Sivation monitor for Sivation Digital or, if set accordingly, activation of the bell or hash (#) relay



Timer function

Triggers the time lapse of the first timer. The timer is set on the dentist element.



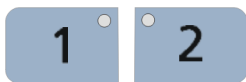
Chair program S

Mouth rinsing position with last-position memory function (programmable)



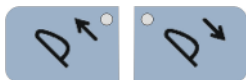
Chair program 0

Entry/exit position (programmable)



Chair programs 1 and 2

(programmable)



Headrest

Moves the motor-driven headrest out/in for size adjustment.



Composite function

Switches the composite function for the operating light on/off.

The composite function delays the curing of composite materials.



Operating light

On/Off

10.2 Start program



Chair program S

Mouth rinsing position with last-position memory function (programmable)



Chair program 0

Entry/exit position (programmable)



Chair programs 1, 2 and, if required, 3, 4

(programmable)



Display of chair programs 3 and 4 adjustable



Patient-specific chair programs

With Sidexis 4, practitioners can save patient-specific treatment positions for every patient on the program keys (S, 0, 1, 2, and if applicable 3, 4). The chair programs are available when the patient is logged in again.



Moving the headrest in/out

if a motor-driven headrest is installed



Inclining the headrest

if a motor-driven headrest is installed



ErgoMotion – Tilting the patient couch and inclining the backrest

Compensated motion of the seat and backrest without any compression or stretching effects for the patient



OrthoMotion – Tilting the patient chair

Tilting motion of the patient chair without changing the angle between the seat and backrest. This movement is particularly suitable for patients with limited mobility.



Adjusting the chair height



Fine adjustment

The patient chair moves at reduced speed during ErgoMotion, OrthoMotion and adjustment of the chair height.



Selecting a user profile

A stored user profile can be selected for up to six different users (A to F).



X-ray viewer

Also white screen on Sivision monitor for Sivision Digital



Open manual chair setting screen

For the *Simple Start program* operating mode only



Treatment function

Activation of the implantology and endodontics functions



Opening the sub-screen

Used to access additional subordinate functions; see the following function keys:



Purging water paths

Starts the purge function



Purging water paths automatically

Starts the autopurge function



Sanitizing

Starts the treatment center sanitation program



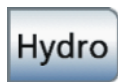
Stand-alone water supply

The disinfection system switches to self-sufficient water supply



Extracting residual water

Extraction of residual water by standard wet suction before cleaning the filter



Hydrocolloid

Activation and adjustment of cooling water flow for the cooling spoon



Apex measurement with file clamp

Activation of the ApexLocator for manual measurement with the file clamp, showing the distance display



Apex distance signal tones

Activates the acoustic signals for the distance to the apex. The intervals between the acoustic signals vary according to the measured distance to the apex.



External HF surgical device

Activation of the protection against interference caused by an external HF surgical unit



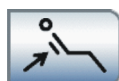
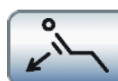
Sprayvit M instrument light

Switches the instrument light of the Sprayvit M removed from the holder on/off.



Massage function

Soft back massage



Active lumbar support

Adjustment of active lumbar support

10.3 Instrument program



Static speed quick setting keys

Setting preset or intermediate speeds

min. 90 rpm, max. 40,000 rpm



Static intensity quick setting keys

Used to select preset or intermediate intensity settings for the SiroSonic TL scaler and the Sirotom electrosurgical handpiece



Programmable speed quick setting key

Adjusts and saves the speed of the electric motor and also preselects and activates the coolant

min. 90 rpm, max. 40,000 rpm



Programmable intensity quick setting key

Adjusts and saves the intensity of the SiroSonic TL scaler and Sirotom electrosurgery handpiece and also preselects and activates the coolant.



Memory key

Used to save instrument settings

This key is displayed only in the Save mode with static quick setting keys. Storage occurs automatically when the instrument is deposited in the Drop mode.



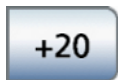
Function levels

Storage and selection of instrument settings at two levels



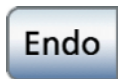
Direction of rotation

Switches counterclockwise rotation ON/OFF



Boost function

Increases the intensity setting of the SiroSonic TL scaler in steps of 20, referenced to the final value during treatment. After an intensity of 80 is reached, only the maximum value of 100 can be selected.



Endodontics function

Activation of the endodontics function for the SiroSonic TL scaler (power limitation)



Chip blower

Used to dry treatment areas or blow off drilling chips by emitting air blasts from the treatment instrument

This key is displayed only when cursor control is activated



Activate preselected coolant

The coolants to be available for selection in the Instrument program can be set in the sub-screen of each individual instrument, see below.



Sub-screen

Used to access additional subordinate functions; see the following function keys:



Preselecting spray coolant

Used to cool the treatment area with spray



Preselecting air coolant

For cooling the treatment area with air



Preselect NaCl coolant

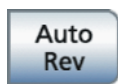
For cooling the treatment area with sterile saline solution



Setting the automatic motor stop of the ApexLocator

When the *Apex Stop* key is pressed, the – and + keys and the Auto-Reverse key are displayed. The automatic motor stop can be switched off or set to four different levels. If the distance is 0, the motor does not stop until it reaches the physiological apex. Please note that the distance values are not a metric length measurement!

The preset motor stop position is displayed as a black triangle to the right of the distance display under the text "Stop".



AutoReverse

Switching the ApexLocator auto-reverse function on or off. When the set motor stop position is reached, the bur drive automatically switches to counterclockwise rotation the next time the foot control is activated. When the root canal file is withdrawn, the bur drive automatically switches back to clockwise rotation.



Apex acoustic signals

Switching the apex acoustic signals on/off. If the signal tones are switched on, a beep is issued when the apex or a set motor stop position is reached. If the Auto-reverse function is activated, three acoustic signals are issued when the motor switches to counterclockwise rotation.



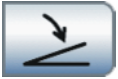
Apex distance acoustic signals

Switching the apex distance signal tones on or off. If the automatic motor stop is switched off, the intervals between the beeps vary according to the measured distance from the apex. If this function is switched on, the beeps vary depending on the measured distance to the preset motor stop position.



Instrument light

Activates and sets the instrument light



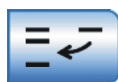
Direct starter / speed foot control

Direct starter (highlighted gray): Switches the instrument on at the set speed or intensity

Regulating foot switch (highlighted orange): Controls instrument up to the maximum set speed or intensity depending on the position of the the foot switch pedal.

10.4 Treatment program

10.4.1 Endodontics and implantology management



Open treatment management

Access from the *Treatment selection* program. See the following function keys:

Assigning the bur drive

A bur drive must be assigned to each treatment type, i.e. endodontics and implantology.

Display of assigned bur drive

The assigned bur drive is marked with an orange circle. Any position marked with a gray circle also can be assigned.

Creating a new endodontic treatment

Up to five endodontic treatments can be saved.

Copy endodontic treatment

To reduce the amount of setting work required, you can copy an endodontic treatment and resave it under a different name. Then the settings can be changed.

Rename endodontic treatment

Endodontic treatments can be renamed to facilitate corrections and changes.

Delete endodontic treatment

Removes individual endodontic treatments from the treatment list.

Adding a file system

For importing saved file systems to the endodontic treatment list.

10.4.2 Endodontics

Calibrating the burr drive

A calibration must be performed each time you change or lubricate the contra-angle handpiece.

The contra-angle handpiece is automatically checked during calibration. This includes a measurement of motor current at different speeds to assess the properties of the system.

Direction of rotation

Switches counterclockwise rotation ON/OFF

Insert file

Opens a screen in which individual files, even from other file systems, can be inserted in the existing sequence.



Creating user-defined files

Creation of individual user-defined files. Once a name has been entered, the standard speed and torque values of the new file must be set according to the manufacturer's specifications.



Select file system

Each time the key is pressed, the next file system in the list is displayed on the left side of the touchscreen.



Opening the sub-screen

Used to access additional subordinate functions; see the following function keys:



Setting the automatic motor stop of the ApexLocator

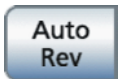
When the *Apex Stop* key is pressed, the – and + keys are displayed. The automatic motor stop can be switched off or set to four different levels. If the distance is 0, the motor does not stop until it reaches the physiological apex. Please note that the distance values are not a metric length measurement!

The preset motor stop position is displayed as a black triangle to the right of the distance display under the text "Stop".



Apex distance acoustic signals

Switching the apex distance signal tones on or off. If the automatic motor stop is switched off, the intervals between the beeps vary according to the measured distance from the apex. If this function is switched on, the beeps vary depending on the measured distance to the preset motor stop position.



AutoReverse function

When the set torque value is reached, the burr drive automatically switches to counterclockwise.

If your treatment center is equipped with the ApexLocator option, the burr drive stops automatically when the set motor stop position is reached. If the AutoReverse function is switched on, the next time the foot pedal is activated following a motor stop, the motor is switched to counterclockwise rotation. When the root canal file is withdrawn, the burr drive automatically switches back to clockwise rotation.



Switching the torque signal and apex signal tones on/off

A beep is issued when approx. 75% of the set torque value is exceeded.

If your treatment center is equipped with the ApexLocator option, a beep is also issued when the apex or the set motor stop position is reached. If the AutoReverse function is activated, three acoustic signals are issued when the motor switches to counterclockwise rotation.



Remove file from sequence

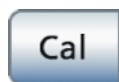
Deletes the selected files from the sequence.



Memory key

Stores the settings of an endodontic treatment

10.4.3 Implantology



Calibrating the bur drive

A calibration must be performed each time you change or lubricate the contra-angle handpiece.

The contra-angle handpiece is automatically checked during calibration. This includes a measurement of motor current at different speeds to assess the properties of the system.



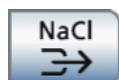
Direction of rotation

Switches counterclockwise rotation ON/OFF



Activating/deactivating the NaCl flow

The flow volume settings are permanently shown in the *Implantology* program on the touchscreen.



Activating NaCl rinsing

Rinses treatment areas with a sterile saline solution whenever the bur stops as long as key is actuated



Selecting a step

Used to select the previous/next implantology work step



For implantology treatments from the library, the name of the bur instrument is displayed.



Memory key

Stores the settings of an implantology treatment



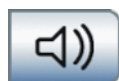
Opening the sub-screen

Used to access additional subordinate functions; see the following function keys:



Preselecting NaCl rinsing and setting the flow rate

Preselection of the NaCl rinse to display the key in the Implantology program. When the function is activated, the setting keys of the NaCl rinse are shown in the sub-screen.



Torque acoustic signal

A beep is issued when approx. 75% of the set torque value is exceeded.



Direct starter / speed foot control

Direct starter (highlighted gray): Switches the instrument on with the set speed or intensity

Speed foot control (highlighted orange): Regulates the instrument up to the maximum set speed or intensity depending on the position of the foot control pedal.



Setting the number of work steps

Up to eight implantology work steps can be saved.

10.5 Other dialogs

10.5.1 Timer screen



Timer keys

Up to six timers can be set. The maximum time setting is 9 minutes and 30 seconds.



Time loop

If the key is highlighted orange, the countdown will automatically be restarted when the set time has expired.



Acoustic signal

If the key is highlighted orange, an acoustic signal will sound when the set time has expired.

10.5.2 Sprayvit M setup



Switch instrument light on/off



Activating/deactivating and setting the water tempering

10.5.3 Tumbler filling settings screen



Link tumbler filling to mouth rinsing position

If the key is highlighted orange, the tumbler filling function will automatically be switched on for the duration of the preset filling time when the mouth rinsing position chair program (S) is activated.



Water tempering on/off



Set filling time



Setting the water tempering

10.5.4 Flushing settings screen



Linking flushing to mouth rinsing position S

Following movement to mouth rinsing position S, the flushing function automatically switches on for the duration of the set flushing time.

10.5.5 Operating light setting program



Sensor control for switching the operating light on/off

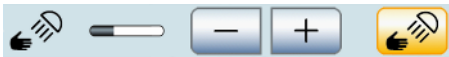
If the key is highlighted orange, the operating light can be switched on/off or changed to the Composite function by a hand movement.



Setting the brightness of the operating light



Setting the color temperature of the operating light



Setting the operating distance of the sensor control

Defines the distance at which the non-touch switch will react to movements.

10.6 Sivision program

10.6.1 Media Player



Start Media Player

Media Player is started on the external PC. The keys corresponding to the Media Player PC application are displayed on the right side of the touchscreen after a file is selected:

Previous/next title

Stop playback

Start/interrupt playback

Mute

Adjust volume

10.6.2 Microsoft® PowerPoint®



Start PowerPoint

PowerPoint is started on the PC. The keys corresponding to the PowerPoint PC application are displayed on the right side of the touchscreen after a file is selected:

Previous/next slide

10.6.3 SI Video



Start SI Video

SI Video is started on the external PC if Sidexis is not installed on it. Or: SI Video is started on the internal PC if the treatment center is operated as a standalone unit. The keys for the SI Video PC application are displayed on the right side of the touchscreen:

Selecting the next quadrant

In single image mode, the still image in the next quadrant is displayed. In quad image mode, the next quadrant is highlighted.

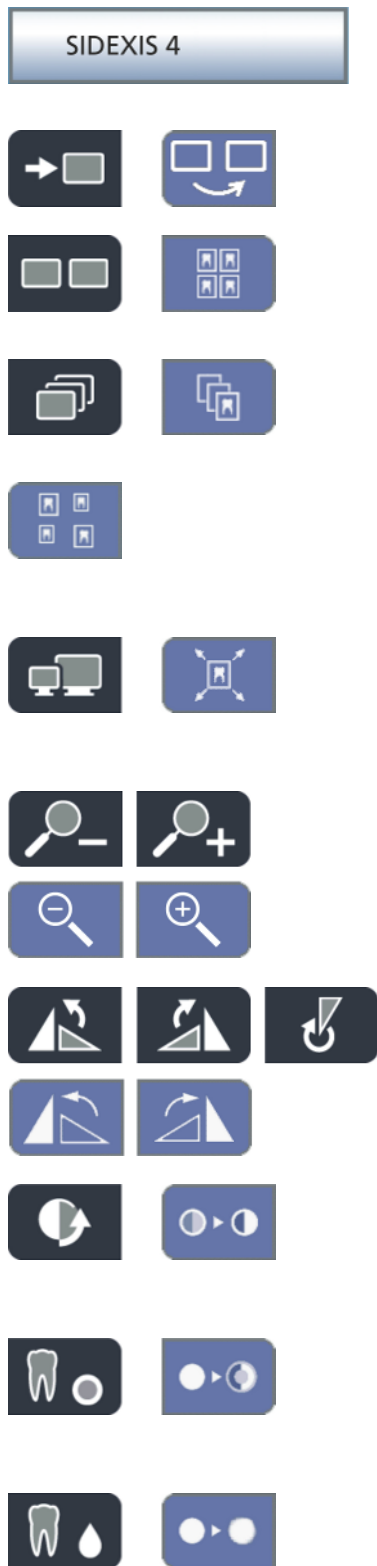
Quad image

Display quad image or single image. Up to four single images are simultaneously displayed on the Sivision monitor in quad image mode.

Deleting images

All generated still images are deleted.

10.6.4 Sidexis



Starting Sidexis

Sidexis is started on the PC. The keys for the Sidexis PC application are displayed on the right side of the touchscreen:

Next image

The next image window is activated.

Tiled layout

All open image windows are scaled to a uniform size in the display area and arranged without overlapping.

Cascaded layout

The opened windows are "cascaded", i.e. arranged slightly displaced behind one another. All image window titles are thus visible.

Overview layout

The opened image windows are scaled in the display area so that no scroll bars or as few scroll bars as possible must be displayed. The image windows are arranged without overlapping.

Full frame

The active image window is enlarged so that it covers the entire display area. The control elements of the Sidexis user interface are not concealed in the process.

Zoom in/out

This magnifies and decreases the active image window and the size of the image displayed in it on the Sivision monitor.

Rotate image

Rotates the image 90° counterclockwise or clockwise. With Sidexis 4, the image can be rotated 180° by pressing a key.

Contrast optimization filter

This image filter analyses and optimizes the current grayscale distribution of an image. In this way, for instance, details within a very low-contrast, "faint" image can be made visible.

Relief display filter

Image details with high contrast are displayed brighter or darker. Edges or contours within the image are thus clearly accentuated. The result is a relief-like image distortion.

Smooth image

To mitigate high-contrast or high-interference effects in images, the contrast between neighboring pixels is reduced or averaged. The overall definition of the image is reduced.



Sharpen image

Contrasts between neighboring pixels are increased. This function helps to accentuate edges or contours. The impression of a sharper image is created.



Invert image

This function inverts the brightness values of the image pixels, thus enabling a positive or negative display of the image. The inversion can be canceled by pressing the key once again.



Display image in pseudocolors

To enable better distinction of image details, an image can be displayed in what is called pseudo color mode. The grayscale values of the image are replaced by colors which the human eye can distinguish better from one another than the corresponding gray levels.



Filter black dots

Single pixel errors may occur when taking digital X-rays. These pixel errors appear as individual black dots when the optimum resolution (100%) is selected. They are removed by Sidexis.



Reducing noise

Individual scattered pixels and minor disturbing information which lead to a noisy image are eliminated without reducing the overall definition of the image.



Undo

The effect of the last filter operation is undone.



Restore original image

The changes previously made, e.g. via filters, are canceled. The most recently saved version of the image is restored.



Close current media window



Close all media windows



Cancel/confirm entry



Accept an order

Accepts an order that was placed and is waiting in Sidexis, e.g. for creating an intraoral image with the X-ray unit of the treatment center or a video recording with the intraoral camera.



Readiness for intraoral X-ray exposure

Establishes readiness for an X-ray exposure. A Sidexis window then opens where the image type can be selected and the image can be described in detail.

10.6.5 Video plugin



Start the video plugin

Sidexis 4 and the video plugin are started on the PC. The fixed keys for the video plugin are displayed on the right side of the touchscreen.

Scroll up / select previous still image

Scroll down / select next still image

Mark selected still image for import to Sidexis 4

Mark all still images for export to Sidexis 4

Import marked still images to Sidexis 4

Discard all still images

10.7 Setup program

10.7.1 User interface



Configuring the user interface

Opens the *User Interface* setup program.



Key tone

A setting can be made to activate or deactivate an acoustic signal that sounds when the operator touches a key on the touchscreen.



Calibrating the touchscreen

If the touchscreen is no longer able to precisely locate the position of a contact, it must be recalibrated.



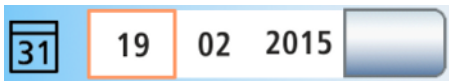
Touchscreen brightness

10.7.2 Date and time



Date and time

Opens the *Date and Time* setup program.



Date



Time



12/24 hour display

10.7.3 Control options



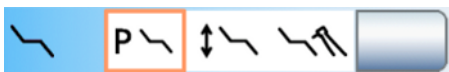
Configuring control options

Opens the *Control Options* setup dialog.



Number of chair programs

In addition to the mouth rinsing position (S) and entry/exit position (0) chair programs, the number of chair programs can be extended to 4 or limited to 2. The setting affects all operating modes of the Start program.



Operating mode of the Start program

The treatment center can be set to the following operating modes:

- Field 1: Simple Start program
- Field 2: Advanced Start program
- Field 3: EasyMode Start program



Increasing the travel speed of the patient chair

The travel speed can be increased for manual chair settings and programmed movements of the chair.



Fine adjustment

Displays the *Fine Adjustment* key in the *Start program*. If this function is activated, the patient chair moves more slowly when adjusted manually. Chair program travel movements are always executed at maximum speed.



Cursor control

The cursor control can be set as follows:

- Field 1: Cursor control switched off
- Field 2: Cursor control switched on, without screen change
- Field 3: Cursor control switched on, with screen change



Number of user profiles

If fewer user profiles are required, their number can be limited so that only the specified users can be selected after the treatment center is switched on.



Open next dialog page



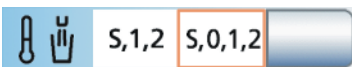
Operating light

The operating light is automatically activated when the dentist element approaches.



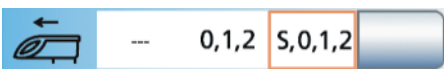
Cuspidor movement

This can be used to set the cuspidor so that it automatically moves inward when the mouth rinsing position (S) chair program is selected.



Tumbler heater

A setting can be made so that the tumbler heater automatically switches off when the entry/exit position (0) chair program is activated. The tumbler heater switches back on as soon as the patient chair leaves the entry/exit position.



Dentist element movement

A setting can be made to designate the chair programs for which a dentist element movement can be additionally programmed:

- Field 1: The position of the dentist element is not added to any chair program.
- Field 2: The position of the dentist element is added to all chair programs except for the mouth rinsing position (S).
- Field 3: The position of the dentist element is added to every chair program.



Open next dialog page



White screen

If the treatment center has no X-ray viewer but is equipped with a Sivision monitor, the *X-ray viewer* key can change the Sivision monitor to the white screen mode.



Bell/hash (#) relay

The relay of the bell and hash (#) key can be actuated as a push button or as a switch.

- Field 1: Push button
- Field 2: Switch



X-ray viewer/bell/hash (#)

The *X-ray viewer* key on the assistant element can be assigned the X-ray viewer function or, if the X-ray viewer key is set to the white screen on the Sivision monitor, it can be assigned the white screen function.

Alternatively, the *X-ray viewer* key on the assistant element can also be used to activate the bell or hash key, e.g. if neither an X-ray viewer or a Sivision monitor is available.



Open next dialog page



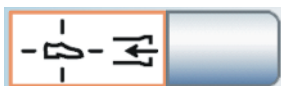
Cleaning agent mixture for chemical suction hose cleaning

The vacuum system can be cleaned by pumping water into the receptacle of the suction hoses and extracting it from there. A cleaning agent is automatically added to the water if the dental treatment center is equipped with the chemical suction hose cleaning option. It is possible to set how much cleaning agent should be mixed with water for chemical suction hose cleaning.



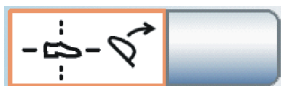
Central supply for chemical suction hose cleaning

For clinical use, Teneo treatment centers can be equipped with a central cleaning agent supply for chemical suction hose cleaning. The function can be switched on and off.



Spray aspirator

Enables interruption and/or activation of the suction flow of the spray aspirator via the 4-way foot control on the base of the chair in any direction.



Headrest inclination

If a motor-driven headrest is used, operation of the ErgoMotion function via the 4-way foot control can be replaced by the headrest tilt function.



Focusing the intraoral camera using the foot control

It is possible to enable the foot control to focus the SiroCam AF+ intraoral camera.

- Field 1: The display switches between a still or live image when the foot pedal is pressed. The knob on the camera can be used to focus the image.
- Field 2: The camera is focused by pressing the foot pedal. The display switches between a still or live image only when the foot

pedal is pressed down fully. The knob on the camera can still be used to focus the image.

- Field 3: When the foot pedal is pressed, the camera image is focused and switched automatically from still to live image. The knob on the camera has no function.

10.7.4 Instruments



Configure instruments

Opens the *Instruments* setup program.



Quick setting keys/Function levels

The settings in the instrument programs can be made either via static quick setting keys (with the key values 0.09, 10, 20, 30, 40 or 1, 25, 50, 75, 100), via the programmable quick setting keys (with changeable key values) or via the function levels (E1, E2).

When using the static quick setting keys, you can choose one of two options for saving the settings you made in the instrument program:

- SaveMode – The *Memory* key is displayed in the instrument programs:

The settings made in the Instrument program will be saved after the instrument is placed in its holder only if the Memory key was pressed and held beforehand (> 2 s).

- DropMode – *Memory* key hidden in Instrument programs:

When the instrument is deposited, the settings made in the Instrument program are automatically saved.

One of the following presettings can be selected:

- Field 1: Static quick setting keys with SaveMode
- Field 2: Static quick setting keys with DropMode
- Field 3: Function levels
- Field 4: Programmable quick setting keys



External HF surgical device key

External HF surgical devices may interfere with the treatment center and Sivation monitor. Therefore, the *External HF surgical devices* key may be displayed on the *Start* sub-screen. If the key on the sub-screen is highlighted in orange, the treatment center is protected from interference by HF fields.



Afterblow

After an instrument is put in its holder, the cooling spray remaining in the instrument head or in the tip of the instrument is automatically blown out by briefly activating the chip blower.



Spray temperature

The spray temperature of the instruments on the dentist element can be set.

The spray temperature of the Sprayvit M multifunctional syringe can be adjusted separately, see "Switching the instrument light on/off and setting the water temperature" [→ 96].

10.7.5 Network connection



Configure IP address setup program

Opens the *IP Address* setup program.



Entry of the IP Address, subnet mask and the Gateways

To configure a static network connection



DHCP

Activating the dynamic network configuration with DHCP (Dynamic Host Configuration Protocol)

10.7.6 Service domain



Opening the service function

The Service domain is intended to be used only by service engineers. Please contact your service technician or your dental depot.

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We reserve the right to make any alterations which may be required due to technical improvements.

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