PLANMECA

Planmeca Sovereign® Classic

EN

user's manual

10032652

The manufacturer, assembler and importer are responsible for the safety, reliability and performance of the unit only if:

- installation, calibration, modification and repairs are carried out by qualified authorised personnel
- electrical installations are carried out according to the appropriate requirements such as IEC 60364
- equipment is used according to the operating instructions.

Planmeca pursues a policy of continual product development. Although every effort is made to produce up-to-date product documentation this publication should not be regarded as an infallible guide to current specifications. We reserve the right to make changes without prior notice.

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1 Introduction

The Planmeca dental unit is an electrically controlled dental device that consists of a patient chair, cuspidor, delivery arm, dental instruments, operating light and a foot control. The Planmeca dental unit is meant to be used for dental treatment by dental care professionals.

This manual describes the Planmeca dental unit and how to use it. Depending on the configuration of your dental unit, this manual may contain parts that do not apply to your dental unit. Please read this manual carefully before using the unit.

NOTE

The use of the Planmeca dental unit is allowed only under the supervision of dental care professionals.

NOTE

This manual is valid for software revision 1.12.0 or later.

NOTE

In error situations, this manual is the primary source of information.

NOTE

For information on OEM products, please refer to OEM documentation.

CE 0598

This Planmeca dental unit fulfils the requirements of Directives 93/42/EEC (MDD) and 2011/65/EU (RoHS).

Classification according to European Council Directive 93/ 42/EEC: Class IIA.

All button illustrations indicate that the button on the control panel should be pressed. Pressing a button will either switch a function on or off, depending on the original setting, or change the value.

The settings and values shown in this manual are only examples and should not be interpreted as recommended values unless otherwise stated.

1.1 Disclaimer

NOTE

IMPORTANT SAFETY NOTICE!

Planmeca Solanna Vision is equipped with a network connection. Planmeca claims no responsibility for the end user's data security or for any malfunction in the system that may lead to data loss. User organisation must take care of protecting the network by using a firewall.

NOTE

IMPORTANT DATA PRIVACY NOTICE!

Planmeca Solanna Vision is equipped with camera and microphone functionalities. These can be used to record patient and employee personal data. User organisation must take into account national regulations concerning the fundamental rights and freedoms of natural persons and in particular their right to the protection of personal data.

2 Associated documentation

This Planmeca dental unit is delivered with the following manuals and diagrams:

- User’s manual

  For dental care professionals. Describes the dental unit and its different parts as well as instructs how to operate and clean the dental unit.

- Installation manual

  For service personnel. Describes how to install the dental unit.

  NOTE

  Use the installation template (included in delivery) to position the unit correctly.

- Technical manual

  For service personnel. Gives instructions for service situations.

- Wiring and pneumatic diagrams (10034555)

Planmeca Romexis software is delivered with the following manuals:

- Planmeca Romexis user’s manual

  For dental care professionals. Describes how to monitor and control the activities as well as gather data related to dental treatments.

- Planmeca Romexis quick installation guide

  For service personnel. Describes how to install Planmeca Romexis software.

- Planmeca Romexis technical manual

  For service personnel. Gives instructions for service situations.

The Planmeca Solanna or Planmeca Solanna Vision operating light is delivered with the following manual:

- User's manual

  For dental care professionals. Describes the operating light and instructs how to operate and clean it.

- Installation and technical manual

  For service personnel. Describes how to install the operating light to the ceiling or wall, and gives instructions for service situations.

  The operating light's installation to the dental unit is described in the dental unit's installation manual.

The intraoral X-ray unit Planmeca ProX can be installed to the Planmeca dental unit. Planmeca ProX is an option that is available in selected market areas. Please contact your local sales representative for details.

Planmeca ProX is delivered with the following manuals:

- User’s manual

  For dental/health care professionals. Describes the intraoral X-ray unit and its different parts as well as instructs how to operate and clean the X-ray unit.

- Installation manual

  For service personnel. Describes how to install the intraoral X-ray unit.

- Technical manual

  For service personnel. Gives instructions for service situations.

The Planmeca intraoral scanner is delivered with the following manual:

- Planmeca FIT user’s manual

  For dental care professionals who take digital impressions for dental restorations.
- Planmeca FIT installation manual

  For service personnel. Describes how to install the intraoral scanner.

The Planmeca ProSensor sensor is delivered with the following manuals:

- User’s manual

  For dental care professionals. Describes the sensor that is intended to be used for capturing digital intraoral X-ray images and instructs how to use it.
- Installation manual

  For service personnel. Describes how to install the sensor.

Before using surface disinfectants, upholstery disinfectants, dental unit water and waterline disinfectants, or suction disinfectants, read the disinfectant’s material safety data sheet and the document *Planmeca approved disinfectants* (30007097). The document can be found in the Planmeca Material bank.

Before using an instrument, read the instrument’s user’s manual.

For a full list of accessories, refer to the Planmeca product price list.

3 Training

A hands-on user’s training is given in connection with the installation of this device.

4 Registering your product

About this task

Before you start using your Planmeca product, you must register it to activate the warranty.

NOTE

As an alternative to navigating to the registration website as described below, you can enter www.planmeca.com/register/ in your Internet browser.

Steps

1. Go to Planmeca's Product registration page.
   1.a. Sign in to the dental unit.
   1.b. Press **Program**.

   1.c. Press **About this unit**.

   1.d. Select **Service** > **Product registration**.
   1.e. Read the QR code with a QR code reader to enter the registration website.
2. Follow the instructions on the website.

5 Annual maintenance

To guarantee the dental unit’s proper operation, the unit must be checked and serviced by a qualified Planmeca service technician according to the maintenance schedule that has been set for your dental unit.

In the annual maintenance, the service technician replaces all parts specified by the maintenance kit. These include, but are not limited to, parts in contact with air, water and suction systems. In addition, the service technician checks and services all dental unit parts suspect to wear and tear in normal use. These include parts in the cuspidor, foot control, instrument console, delivery arms, patient chair, suction arm and operating light. Also, the mechanical stability and electrical safety inspection is performed.

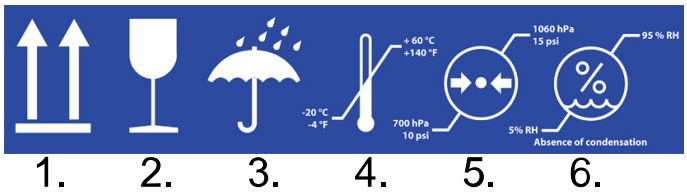
The default maintenance interval is 365 days.

In the *About this unit* window you can check when the annual maintenance was last performed and when it should be performed next.

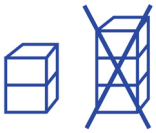
A help message will remind you about the annual maintenance well in advance.

6 Symbols on product labels

Packaging symbols (Standard ISO 7000.)



1. This side up
2. Fragile
3. Keep dry
4. Temperature limitation
5. Air pressure limitation
6. Humidity limitation



Packaging symbol. The number of stacked packages is limited to 2 due to the weight of the package. (Standard ISO 7000.)

Fulfils the requirements of Directive 93/42/EEC.

Certification mark of the Eurasian Customs Union.

Date of manufacture (Standard ISO 7000).

SGS listing marking according to US and Canadian standards (ANSI/AAMI ES60601-1 and CAN/CSA C22.2 No. 60601- 1).

Type B applied part (Standard IEC 60417).

Type BF applied part for specified dental instruments (Standard IEC 60417).

Alternating current (Standard IEC 60417)

On/Off switch (Standard IEC 60417).

Refer to instruction manual/booklet (Standard ISO 7010).

General warning (Standard ISO 7010).

Warning, crushing hazard: hand (Standard ISO 7010).

Warning, hot surface (Standard ISO 7010).

Warning: Electricity (Standard ISO 7010).

To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth.

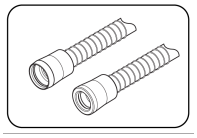
Health hazard (acc. to EC regulation no. 1272/2008).

Do not put fingers inside mechanical parts.

Strong magnet. Remove the tray mounting arm when treating patients who have a cardiac pacemaker. (Standard ISO 7010.)

Planmeca PlanClear™

Planmeca PlanClear is a disinfectant for the water and waterlines. Only put Planmeca PlanClear in the container.



The container must be filled with Planmeca approved suction disinfectant.

IPX1

Protected against dripping water (Standard IEC 60529).

Disposable item. Do not reuse (Standard ISO 7000).

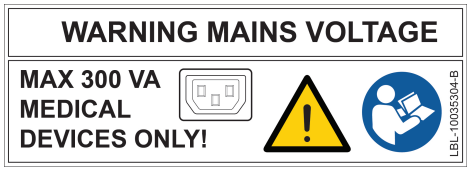
Sterilised using steam or dry heat (Standard ISO 7000).

Indicates the direction of rotation for increasing/ decreasing the water flow for the bowl rinse and cup fill. (Standard ISO 7000.)

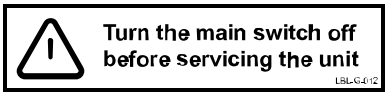
Separate collection for electrical and electronic equipment according to Directive 2002/96/EC (WEEE).

Protective earth (ground) (Standard IEC 60417).

Radio certification label (Japanese Radio Law).



The multiple socket outlet (MSO) is reserved for medical devices that comply with the IEC 60601-1 standard. The MSO is available as an option.



Note that the mains voltage is always present at the mains terminal under the cover, when the unit is switched on. Do NOT open the cover. (Standard IEC 60601-1.)

WARNING

Do not connect a multiple socket outlet or extension cord to the system.

WARNING

The unit contains live mains voltage parts. Always first turn off the power to the unit externally before attempting to service the lift-motor, backrest motor, or any parts inside the electronics control box.

The power supply must be disconnected externally from, for example, a fuse or a mains switch. The fuse or main switch must be lockable into off-position.

Turning off the unit from its own mains switch DOES NOT cut off the mains voltage from all internal nodes.

CAUTION

Only connect equipment approved by Planmeca to the multiple socket outlet.

7 For your safety

7.1 Safety precautions

WARNING

No modification of this dental unit is allowed.

WARNING

Only instruments or equipment approved by Planmeca may be connected to this dental unit.

WARNING

Do not simultaneously touch the patient and the PC.

WARNING

Do not simultaneously touch the patient and the USB ports, or any electrical connectors of external instrument modules.

WARNING

Do not touch the patient when opening the cuspidor door or when the cuspidor door is open.

WARNING

Maintenance procedures shall not be performed while equipment is in use with a patient.

WARNING

The patient must not be in contact with instruments when the patient is resuscitated with a defibrillator.

WARNING

The worm screw securing nut in the chair lift motor must always be attached to the worm screw and must not be removed. If the securing nut is faulty or displaced, immediately stop using the dental unit and contact your Planmeca dealer.

The worm screw nut is marked with an arrow in the picture below.

CAUTION

A faulty or broken dental unit must not be used.

CAUTION

Do not perform other maintenance procedures than those instructed in this manual.

CAUTION

When servicing the unit, always switch the unit off.

CAUTION

Guide the patient to sit on the chair. Make sure no one sits on the legrest, the backrest or any other part of the dental unit.

CAUTION

When the patient is in the chair, ensure that the patient's arms and legs are resting on the chair.

CAUTION

Do not allow the patient to grab the operating light or its arm when getting seated or getting up from the patient chair.

CAUTION

Instrument hoses have a limited lifespan and should be replaced after 5 years of use.

CAUTION

Drops of water on the touch display might disturb the functioning of the control panel.

CAUTION

Lock the control panel from the Maintenance window before using a table-top instrument.

CAUTION

The dental unit must not be used simultaneously with the intraoral X-ray unit Planmeca ProX.

CAUTION

The light source of the operating light may cause retinal injury if viewed upon directly.

Protect the patient's and dental treatment staff's eyes with protective glasses that block high-energy visible light (HEV light), or limit the direct exposure to 10 minutes.

CAUTION

Switch off the unit before using an electrosurgical knife.

CAUTION

The use of the electrosurgical knife may affect the function of an implanted pacemaker or defibrillator. Please refer to the manufacturer's own documentation.

CAUTION

Do not use the scaler or the polymerisation light on patients with cardiac pacemakers. The instrument can cause disturbance on the pacemaker's function.

CAUTION

Electromagnetic interference between the equipment and other devices can occur in very extreme conditions. Do not use the equipment in close conjunction with sensitive devices, or devices creating high electromagnetic disturbances.

CAUTION

Do not use the equipment in close conjunction with anaesthetic gas or in highly oxygenated environments (oxygen content >25%).

CAUTION

Before using the dental unit, ensure that the instruments have been properly flushed and that the suction tubes as well as the dental unit's waterlines have been cleaned as instructed in this manual.

CAUTION

Make sure that the cup fill tube is always properly in its position by the cup holder.

CAUTION

If the drain is blocked, the dental unit might overflow with contaminated water and excessive water could flow onto the floor. Shut down the unit and contact your property's caretaker and your Planmeca dealer.

CAUTION

When a water leak is detected, help message HE4004 is displayed. Turn off the clinic's main water tap and contact your Planmeca dealer.

CAUTION

For surgical procedures, use sterile irrigating solutions, such as sterile water or saline. Appropriate delivery devices should be used to deliver sterile irrigating solutions during surgery. This may include a dedicated surgical irrigation system with components including handpieces that are single-use disposable or compatible with heat sterilisation methods used in outpatient dental settings.

CAUTION

A power cut will shut down the software-controlled backflow prevention system. If you are using a turbine without a built-in backflow prevention system, contaminated water can enter into the turbine and turbine hose in the event of a power cut.

CAUTION

In extreme operating conditions the temperature of the chair lift and backrest motors might rise significantly. DO NOT TOUCH THE MOTORS!

CAUTION

In extreme operating conditions the surface temperature of the seat upholstery may rise to 44°C (111°F). When applying maximum allowed load on the patient chair in hot climate conditions, ensure sufficient time for the seat upholstery to cool down.

NOTE

Before switching on the dental unit, make sure that the main water feed, air pressure and suction motor are turned on.

NOTE

National regulations concerning the quality of dental water and dental air must be followed when using the Planmeca dental unit.

NOTE

The water used by the dental unit instruments and cup fill are to be used for rinsing only. For more information, please contact your Planmeca dealer.

NOTE

The main water feed must be turned off when the dental unit is not in use.

NOTE

The user must monitor the microbial load of the water used by the dental unit. Biotest Plus (by Alpro Medical GmbH) or equivalent test can be used for this purpose.

NOTE

If a method such as electro-chemical activation is used to disinfect the dental unit water and waterlines, disinfection with Planmeca PlanClear is not necessary. For more information, please contact your Planmeca dealer.

NOTE

If using air abrasives, please consult instructions for use given by the air polisher manufacturer. Make sure that adequate flushing of dental unit is performed immediately after using air polishers.

NOTE

The air used by the dental unit instruments must be dry, clean and oil-free.

NOTE

Never place heavy objects or containers of liquid on any part of the unit or hang objects from the unit's arm structures.

NOTE

Care should be taken when other movable equipment is used in conjunction with the dental unit.

NOTE

The dental unit shall only be connected to a trusted private network (and not, for example, the Internet).

NOTE

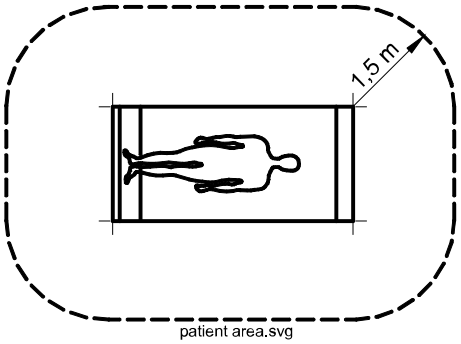
EMC requirements have to be considered, and the equipment must be installed and put into service according to the specific EMC information provided in the accompanying documents.

NOTE

Portable and mobile RF communications equipment can affect the dental unit.

NOTE

External equipment intended for connection to signal input, signal output or other connectors, shall comply with relevant IEC standard (e.g. IEC 60950 for IT equipment and the IEC 60601 series for medical electrical equipment). In addition, all such combinations - systems - shall comply with the IEC 60601-1 standard. Equipment not complying to IEC 60601-1 shall be kept outside the patient area.



patient area.svg

Any person who connects external equipment to signal input, signal output or other connectors has formed a system and is therefore responsible for the system to comply with the requirements of IEC 60601-1. If in doubt, contact a qualified technician or your local representative.

7.2 Safety switches

Care should be taken when driving the patient chair from one position to another. Obstructions in the patient chair's line of movement activate safety switches that stop the motorised movements. The safety switches and their functions are described below.

1. Backrest

   An obstruction between the backrest and the floor when driving down the chair and/or the backrest stops downwards chair and backrest movements. Remove the obstruction to resume normal operation.

2. Chair

   An obstruction between the chair and the floor stops downwards chair and backrest movements. Remove the obstruction to resume normal operation.

3. Legrest

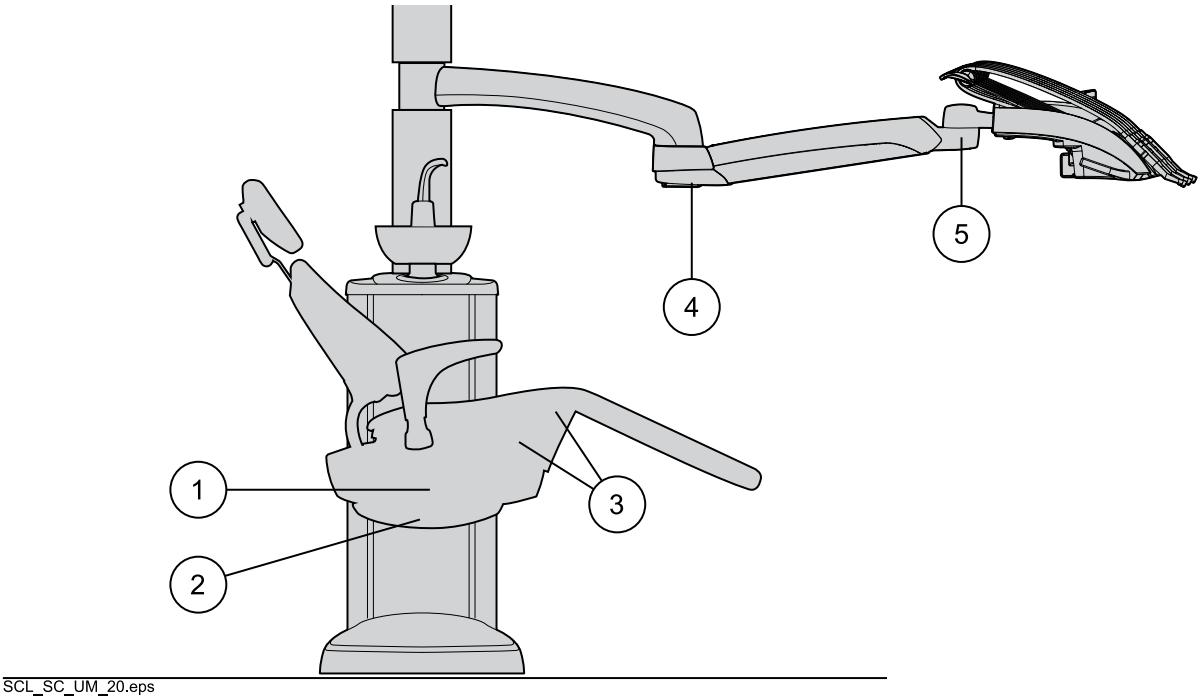
   An obstruction between the legrest and the floor stops downwards chair and backrest movements. Remove the obstruction to resume normal operation. The location of the safety switch depends on which legrest your dental unit is equipped with.

4. OP delivery arm joint

   An obstruction between the OP delivery arm and the chair when driving up the chair stops upwards chair movements. Remove the obstruction to resume normal operation.

5. OP delivery arm

   An obstruction between the OP delivery arm and the chair when driving up/down the chair stops up-/downwards chair movements. Remove the obstruction to resume normal operation.



7.3 Chair movement restrictors

Some dental unit parts are equipped with sensors that recognise when the part is in its home position. When the part is not in the home position, chair movements are disabled or restricted.

1. Bowl

   The bowl is above the patient chair and slows down and restricts upward chair movements. Return the bowl to its home position to resume normal operation.

   The home position is presented in section "Bowl" on page 23.

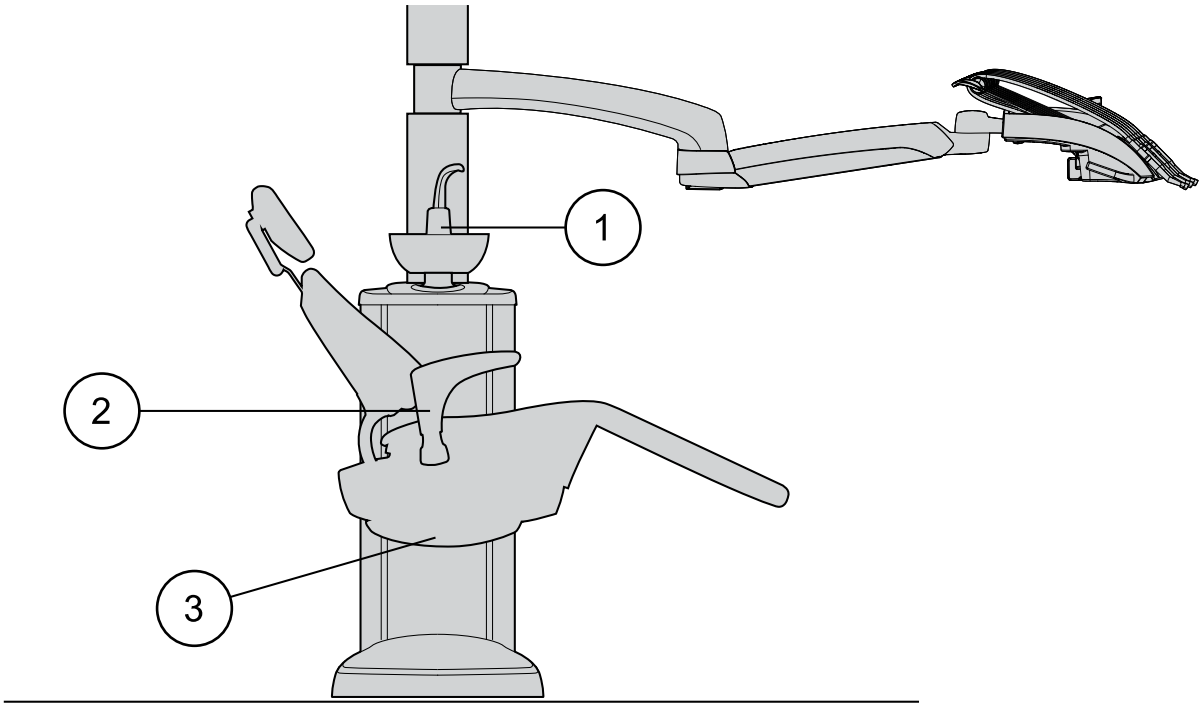
2. Armrests

   When the armrests are turned outwards, all chair movements are disabled. Turn the armrest inwards so that it is aligned with the chair to resume normal operation.

3. Chair swivel

   Depending on the chair swivel angle, the up-/downwards movements of the chair and backrest might be restricted. Swivel the chair back to its home position to resume normal operation.

   The home position is presented in section "Chair swivel" on page 55.



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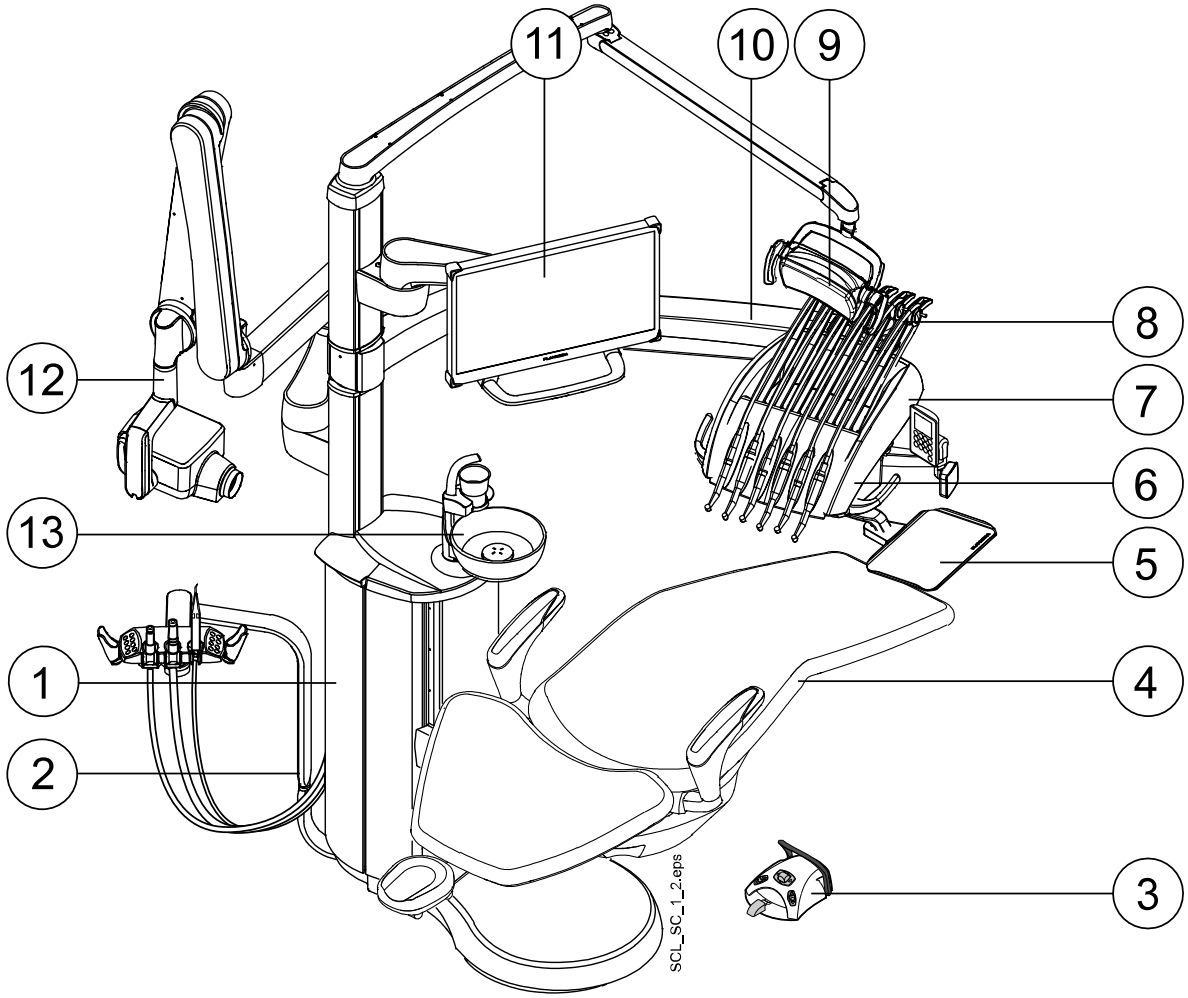
8 Planmeca Sovereign Classic dental unit

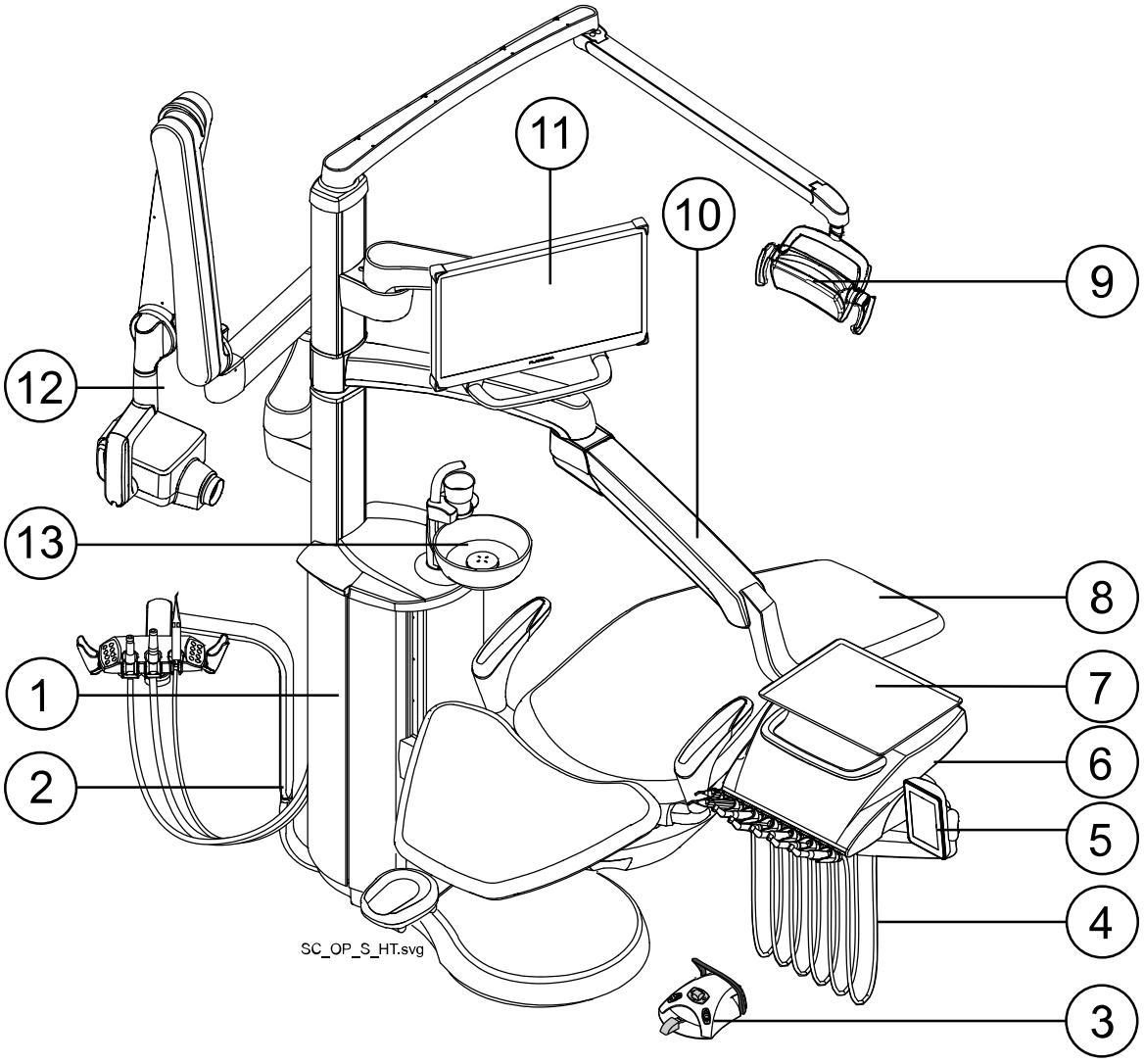
8.1 Dental unit configurations

8.1.1 Over-the-patient delivery with balanced instrument arms



1. Cuspidor
2. Suction arm
3. Foot control
4. Patient chair
5. Tray
6. Control panel
7. Instrument console
8. Balanced instrument arms
9. Operating light
10. Over-the-patient (OP) delivery arm
11. Monitor
12. ProX X-ray unit (optional, not available in all market areas)
13. Bowl

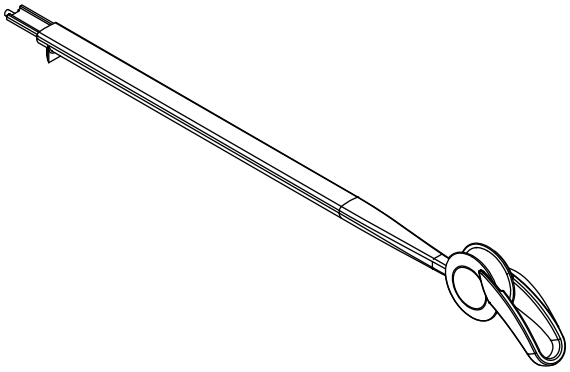
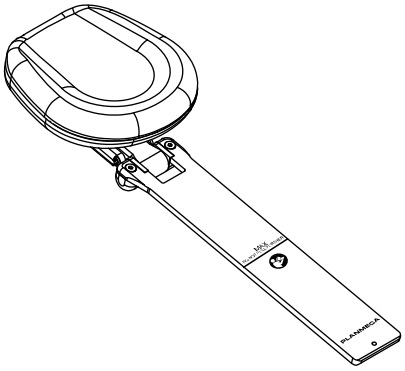
8.1.2 Over-the-patient delivery with hanging-tube instruments



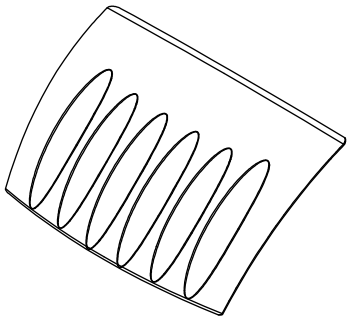
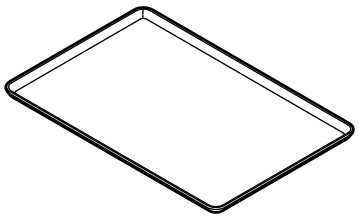
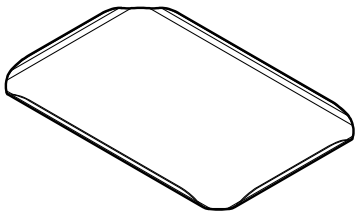
1. Cuspidor
2. Suction arm
3. Foot control
4. Hanging-tube instruments
5. Control panel
6. Instrument console
7. Tray
8. Patient chair
9. Operating light
10. Over-the-patient (OP) delivery arm
11. Monitor
12. ProX X-ray unit (optional, not available in all market areas)
13. Bowl

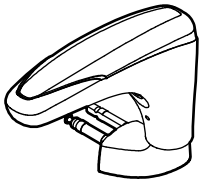
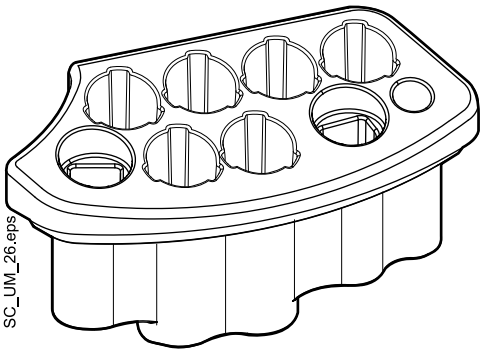
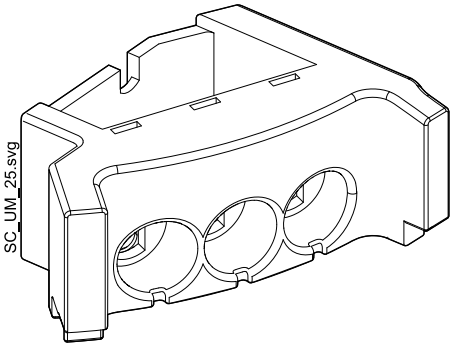
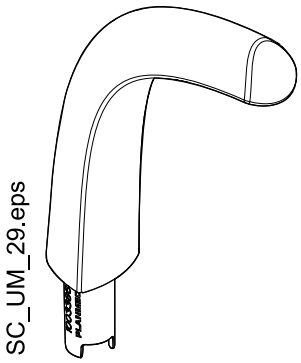
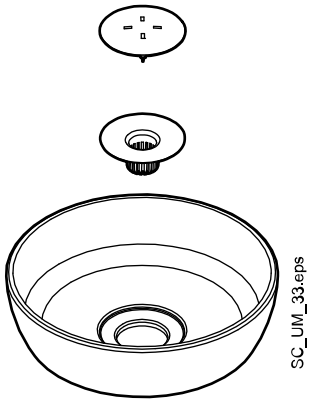
8.2 Detachable parts

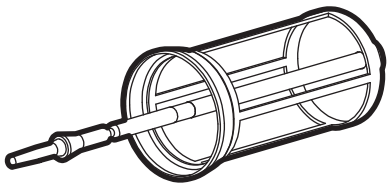
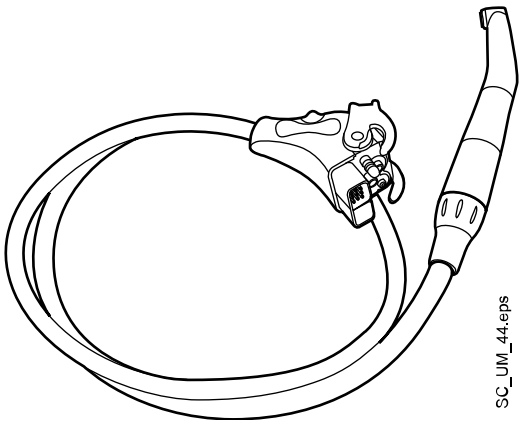
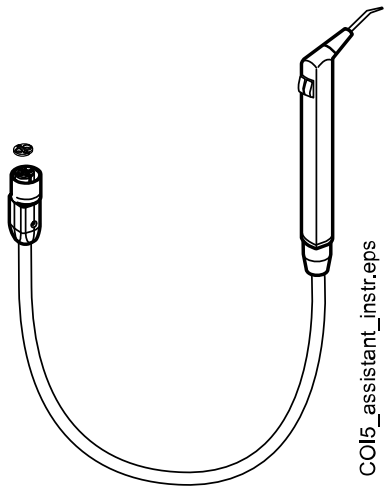
The following detachable components are marked with a manufacturer trademark. Do not perform dental treatment when either or both of these are detached.

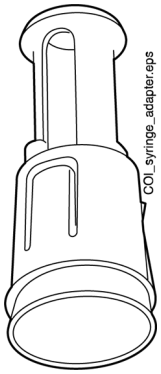
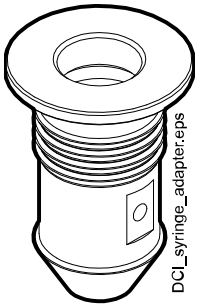
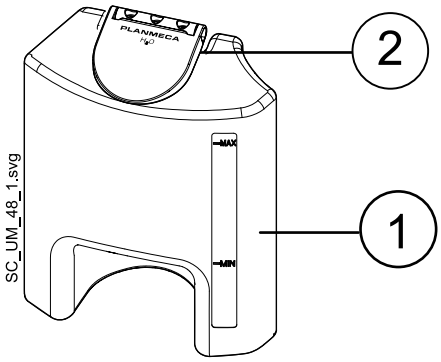
	Balanced instrument arms
	Headrest

The following detachable components are not critical to operation. The user can perform dental treatment even if a wrong, similar part is fitted.

	Hygienic membrane
	Top tray (size 1 and 2)
	Quick connect tray (size 1 and 2)

	Armrests
	Instrument flushing holder
	Suction tube cleaning holder
	Cup fill tube
	Bowl, filter and filter cap

	Disposable filters
	Dentist’s instruments and hoses
	Suction tubes
	Assistant’s instruments and hoses

	Adapter for Luzzani Minibright syringe
	Adapter for DCI syringe
	Water container and cap
	Foot cover

8.3 Applied parts

Applied parts are parts of the dental unit that in normal treatment situations come into contact with the patient.

The applied parts of this dental unit include the instruments, the patient chair with upholstery, and the armrests.

8.4 Bowl

CAUTION

Do not allow the patient to grab the bowl when getting seated or getting up from the patient chair.

NOTE

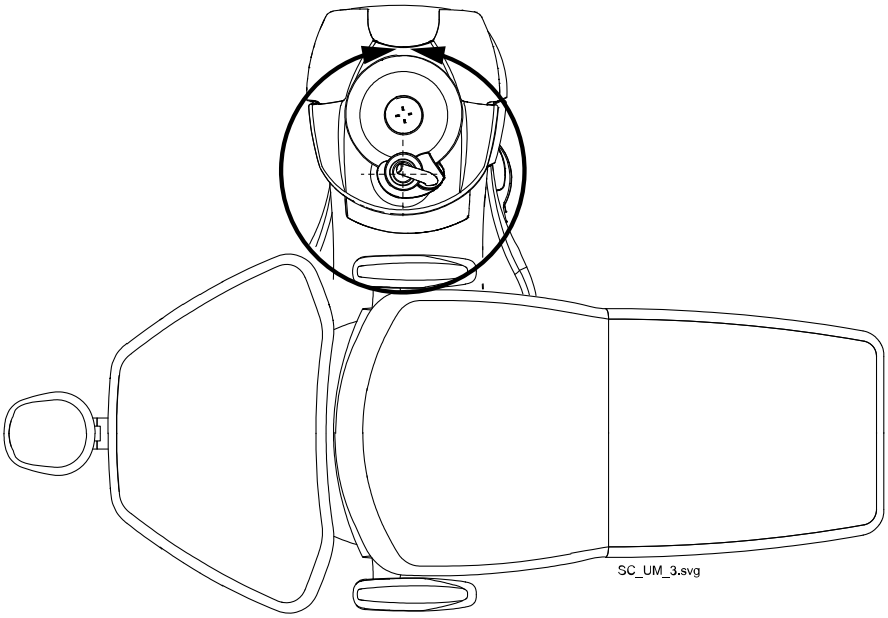
Always place the bowl in home position.

NOTE

Make sure that the bowl is not above the patient chair when you drive the chair upward.

The glass bowl is attached to the top of the cuspidor.

It can be rotated 370° around its axis according to the figure below.



If the bowl assembly for some reason comes off the cuspidor, you can put it back as follows:

1. Place the ring to the underside of the bowl assembly
2. Make sure that the peg goes into the slot as shown in the picture below.

3. Push the bowl downwards at the same time making sure that no cables are squeezed.
4. Turn the bowl assembly into place. You will know that it is in place when you hear the clicking sound of the micro switch

8.5 Monitor

The monitor can be moved from its handle.

CAUTION

Do not allow the patient to grab the monitor handle or monitor arm when getting seated or getting up from the patient chair.

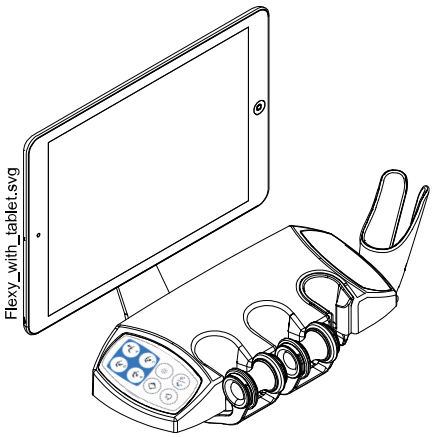
NOTE

Never spray water on the monitor.

For more information, see the monitor's user's manual.

8.6 Tablet holder

A tablet can be attached to the tablet holder on the Flexy-holder.



Before attaching the tablet to the tablet holder, ensure that the round mount interface is glued to the backside of the tablet.

To attach the tablet to the tablet holder, position the mount interface towards its counterpart on the tablet holder slightly askew so that they interlock. Then, turn the tablet 45° to either side to lock the tablet to the tablet holder.

NOTE

Ensure that the tablet is protected from splashes.

NOTE

Planmeca is not liable for damages caused to the tablet caused by negligence, including but not limited to dropping the tablet on the floor.

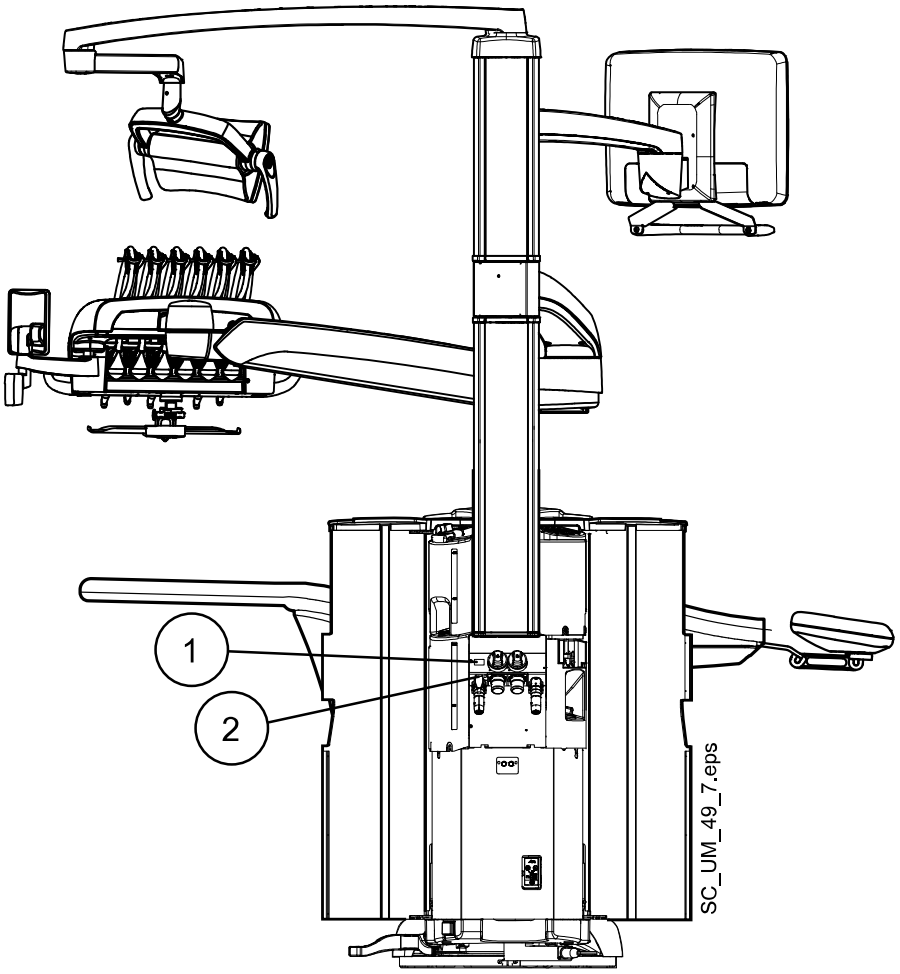
The tablet can be charged from the USB port on the cuspidor, see section "USB connectivity" on page 25.

8.7 USB connectivity

The dental unit has two USB ports for different purposes.

1. The USB port on the cuspidor marked "user settings and service" offers a USB connection for downloading/uploading your personal settings. It can also be used by a qualified Planmeca service technician in service situations.
2. The USB port on the cuspidor marked "Planmeca specified USB device only" enables the use of an intraoral camera on the assistant side.

However, if the same USB port is marked “For tablet PC charging only”, it can only be used for charging the tablet, not for the intraoral camera.



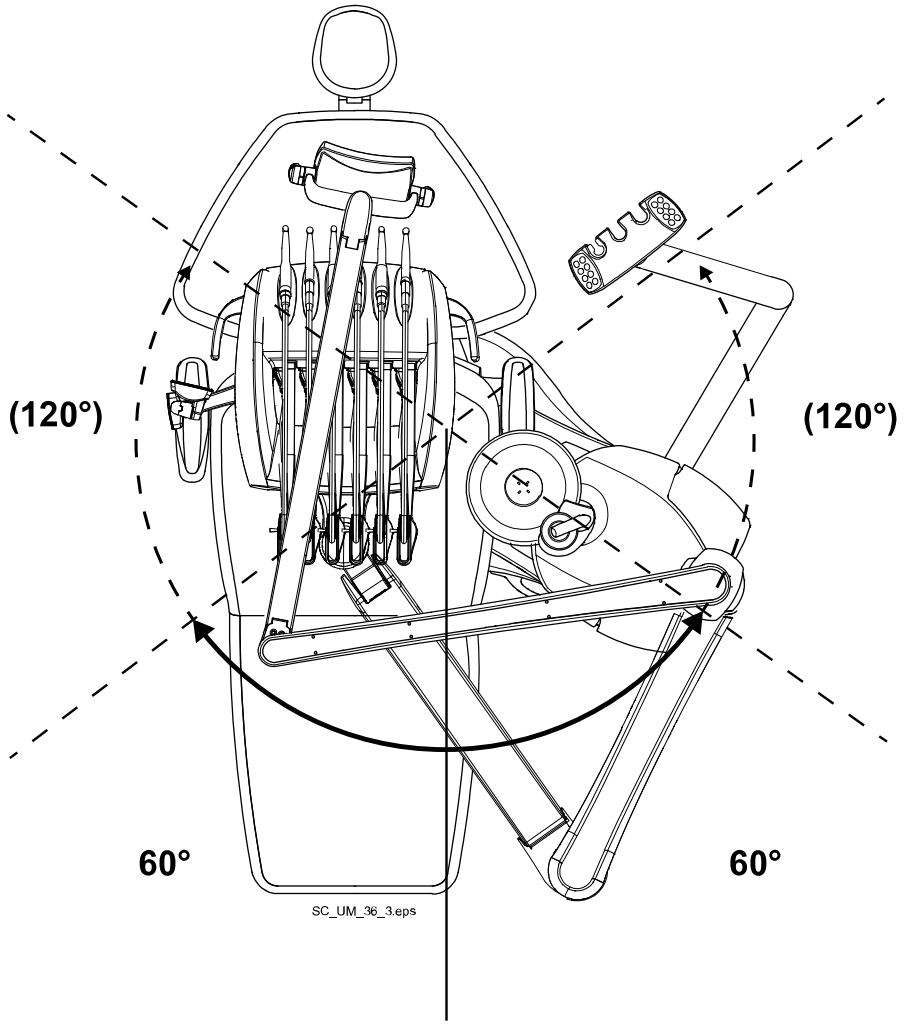
In addition, a USB connection for the intraoral camera can be made available in the quick-connector slot in the instrument console. At installation, the position for the intraoral camera is selected (either the instrument console or USB port 2) and the port that is selected is linked to the external PC.

NOTE

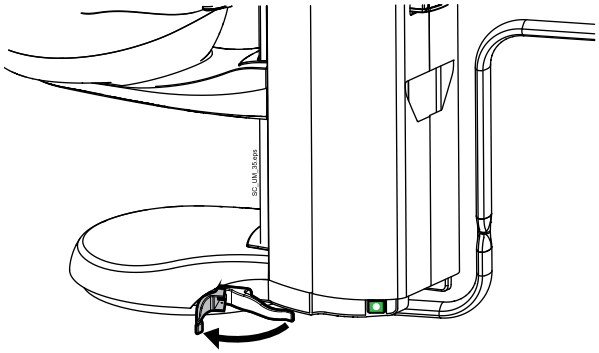
Connect only intraoral cameras supplied by Planmeca to the dental unit.

8.8 Unit swivel

The Planmeca Sovereign Classic dental unit can be swivelled manually ±120°.



Pull the lever on the unit base to unlock the base and swivel the dental unit to the desired position. Lock the base by pushing the lever back in.



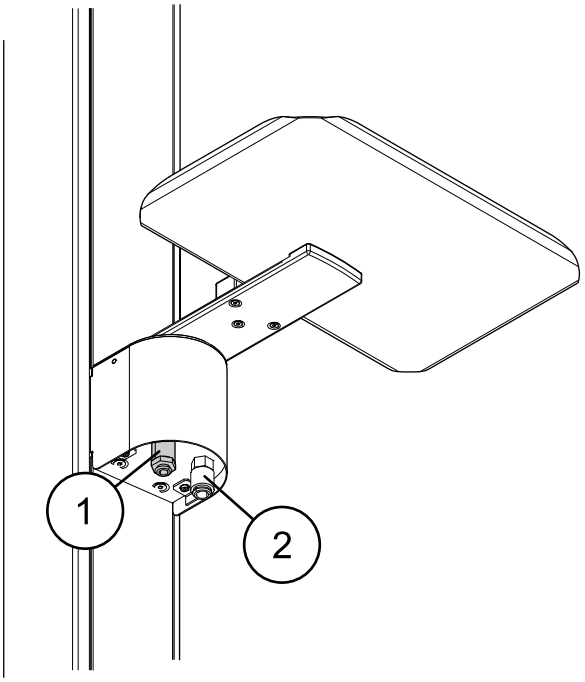
For an overview of how the cuspidor can be positioned, see section "Cuspidor positions" on page 280.

For detailed measurements on the unit swivel area, see section "Top view" on page 282.

Also the chair can be swivelled, see section "Chair swivel" on page 55.

8.9 Water and air quick-connectors

The water and air quick-connectors are located on the backside of the pylon.



1. Water quick-connector
2. Air quick-connector

A tray can be placed above the water and air quick-connectors. The tray is attached to the mounting arm with a magnetic connector and can easily be attached and detached. You can attach the tray to the mounting arm either from the long end or the short end, and you can freely choose the point of attachment. Further, you can rotate the tray 180° to the desired position.

The maximum weight limit on the tray is 2 kilograms (4.4 lbs).

On the tray you can place, for example, a table-top scaler, microetcher or surgical knife.

For information on how to use the quick-connectors, see section "Water and air quick-connectors" on page 135.

8.10 Planmeca Romexis connection

The dental unit must be connected to Planmeca Romexis software when you want to use Planmeca Romexis Clinic Management, the intraoral camera, the intraoral scanner, the touchpad functionality, or sign in with a PlanID card.

Planmeca Romexis Clinic Management software allows time stamped recording and real-time monitoring and control of most dental unit activities. The features and gathered data can be used for remote assistance, service and maintenance support, as well as preventive maintenance planning.

The Romexis symbol on the dental unit’s control panel indicates the state of the connection.

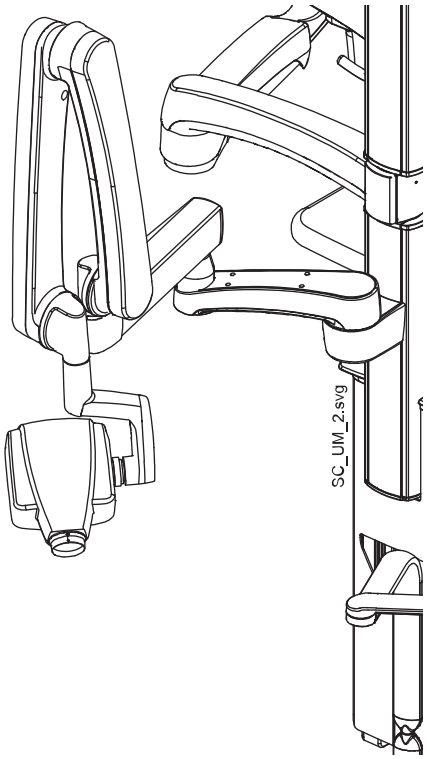
Symbol	Dental unit network settings	Connection between Planmeca Romexis and dental unit
	Romexis connection enabled	On The connection is unsecured.
	Romexis connection enabled (SSL)	On The connection is secured using SSL.
	Romexis connection enabled	Off
No symbol	Romexis connection disabled	Off

The settings for the Planmeca Romexis connection can only be changed by a qualified Planmeca service technician. If, for example, your dental unit configuration includes the Planmeca Romexis Clinic Management module, but the connection is disabled (no symbol displayed on control panel), contact your Planmeca dealer.

For information on how to use Planmeca Romexis Clinic Management software, see *Planmeca Romexis user's manual*.

8.11 Planmeca ProX X-ray unit

The Planmeca ProX X-ray unit can be mounted to the dental unit pylon.



CAUTION

Drive the chair carefully when positioning the ProX X-ray unit.

CAUTION

Do not drive the chair during the exposure.

CAUTION

Do not touch the external PC and the patient at the same time.

CAUTION

Move the ProX X-ray unit behind the pylon when it is not being used.

NOTE

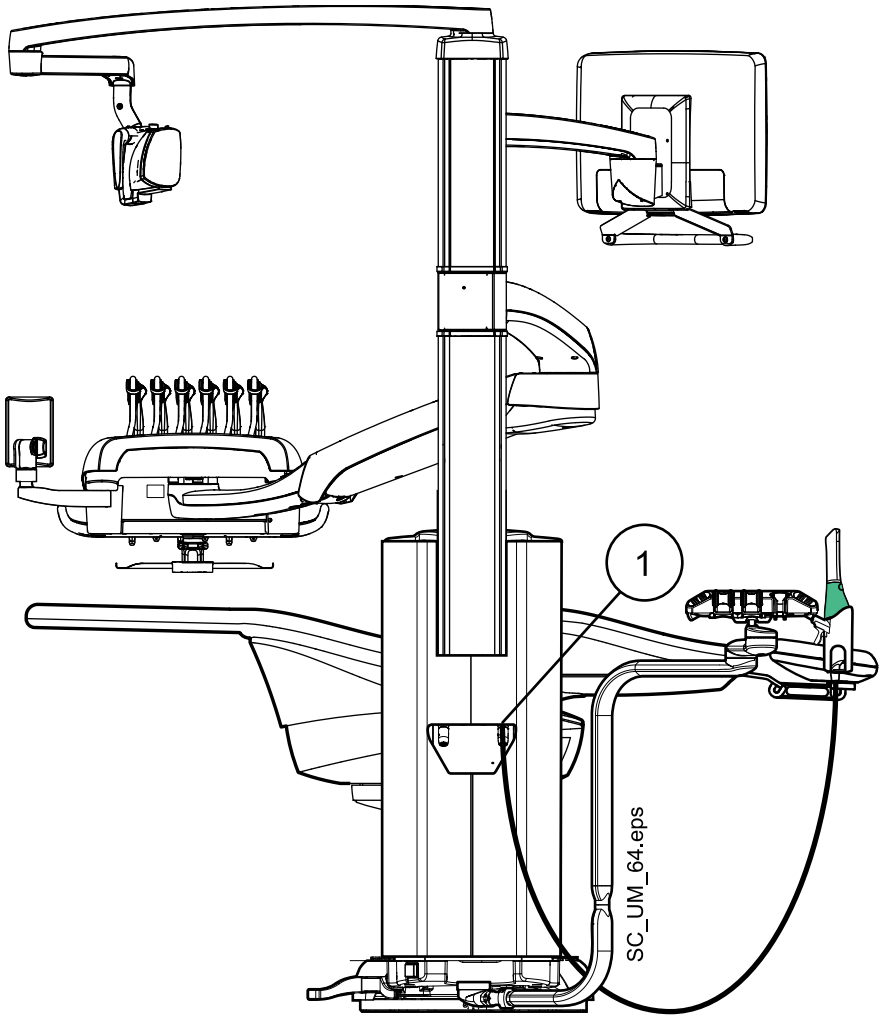
The Planmeca ProX X-ray unit is an option and is not available in all market areas.

For more information about Planmeca ProX, see Planmeca ProX User's Manual.

8.12 Planmeca intraoral scanner

The intraoral scanner can be placed in the Flexy-holder.

Before using the scanner you must connect it to the dental unit. The connector on the scanner must be carefully attached to the port for the scanner on the cuspidor (1).



CAUTION

Make sure that you attach the intraoral scanner connector the right way into the port for the scanner. If the connector is turned the wrong way, it will not go into the port. Use of unnecessary force will break the connector.

NOTE

There are two ports on the cuspidor. Make sure you attach the connector to the port marked "Planmeca specified USB device only".

NOTE

To avoid splashes on the scanner, remove it from the dental unit after use and place it on the table stand.

For more information about the intraoral scanner, see *Planmeca FIT user's manual.*

8.13 Zeiss OPMI pico microscope

The Zeiss OPMI pico dental microscope can be mounted to the dental unit pylon.

CAUTION

Do not drive the chair when a patient is under the microscope.

NOTE

The Planmeca Intra X-ray unit and the Zeiss OPMI pico dental microscope can not simultaneously be attached to the dental unit.

For more information about Zeiss OPMI pico, see the manufacturer's own documentation.

9 Planmeca Solanna and Planmeca Solanna Vision operating lights

CAUTION

Do not allow the patient to grab the operating light or its arm when getting seated or getting up from the patient chair.

You can operate the Planmeca Solanna operating light either from the light itself, or from the dental unit's control panel or foot control. It also features a "no touch" function, which means that you can operate the light by waving your hand in front of the sensor.

The Planmeca Solanna Vision operating light has all the features of the Planmeca Solanna operating light and is also equipped with two cameras and a microphone that can be used for video streaming, capturing still images and recording videos.

You can operate the Planmeca Solanna Vision operating light either from the light itself, from the dental unit's control panel or foot control, or from Planmeca Romexis software. All data is stored in Planmeca Romexis.

For information on how to operate the operating light, see section "Planmeca Solanna and Planmeca Solanna Vision operating light" on page 118.

For information on how to operate the camera, see section "Planmeca Solanna Vision camera" on page 127.

For instructions on how to program the operating light, see section "Planmeca Solanna and Planmeca Solanna Vision operating lights" on page 191.

10 Instrument system

10.1 Over-the-Patient (OP) delivery arm

The OP delivery arm is attached to the top of the dental unit and swings over the chair.

CAUTION

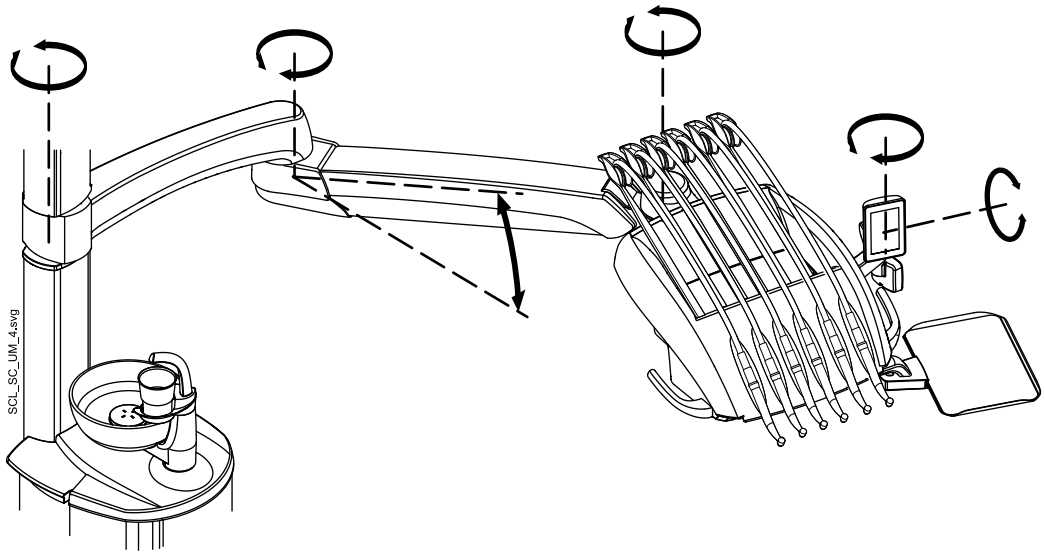
Do not lean on the OP delivery arm.

CAUTION

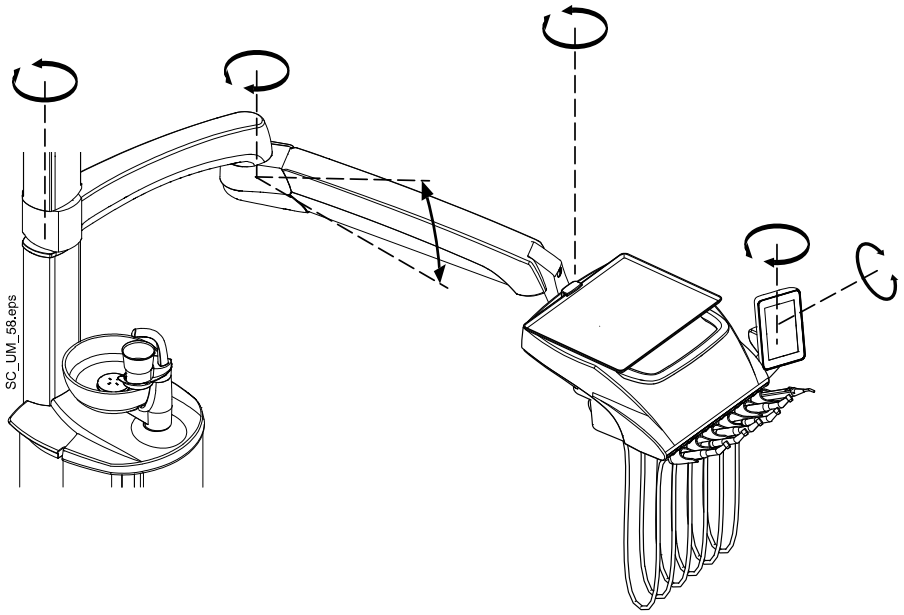
Do not allow the patient to grab the OP delivery arm when getting seated or up from the patient chair.

The instrument console can be positioned using the handles on the console. The rotation area of the delivery arm, instrument console and the control panel are shown in the illustrations below. The items do not need to be locked into position.

The following presents the OP delivery arm with balanced instrument arms.



The following presents the OP delivery arm with hanging-tube instruments.



10.2 Instrument console

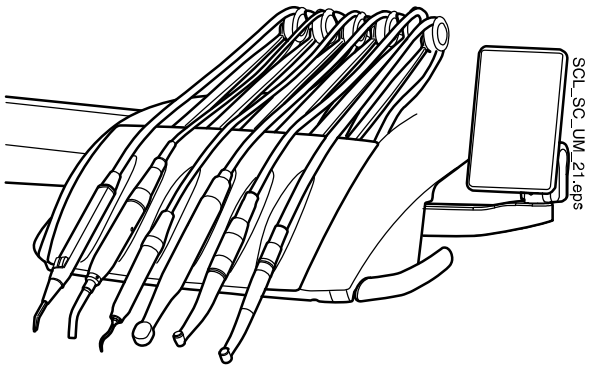
10.2.1 Instrument console with balanced instrument arms

The console can be equipped with up to six dynamic instruments. A special feature of the Planmeca Sovereign Classic dental unit is that the syringe can be right- or leftmounted.

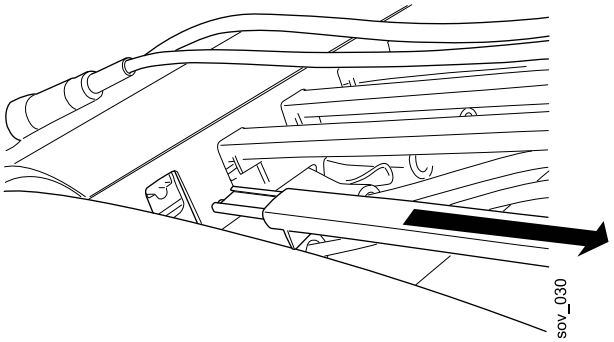
Labels mark the positions of the Bien-Air MX2 micromotor, the apex micromotor (Morita TORX), the syringe and the USB-device.

The other instruments can be positioned according to your own preferences.

The control panel can be right- or left-mounted.



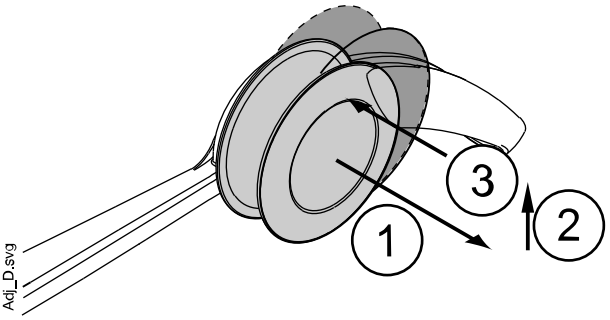
The instrument arms can be removed by pulling them out from their holders, for example for cleaning or for covering with protective sleeves. The arms are replaced simply by pushing them firmly into their places.



When placing the instrument hose back in the roller, bend the hook of the hose guide carefully and pass the hose over the roller.

The balance of the instrument arms can be changed according to the weight of the instrument and personal preferences. Their flexibility can be adjusted as follows:

1. Pull out the roller.
2. Adjust the balance of the instrument arm by moving the roller to a desired position. Note that by positioning the roller higher up, the arm is lighter to bend.
3. Push the roller back in to lock its position



NOTE

When balancing/adjusting the instrument arms, bear in mind that the instruments shall under no circumstances fall over the patient.

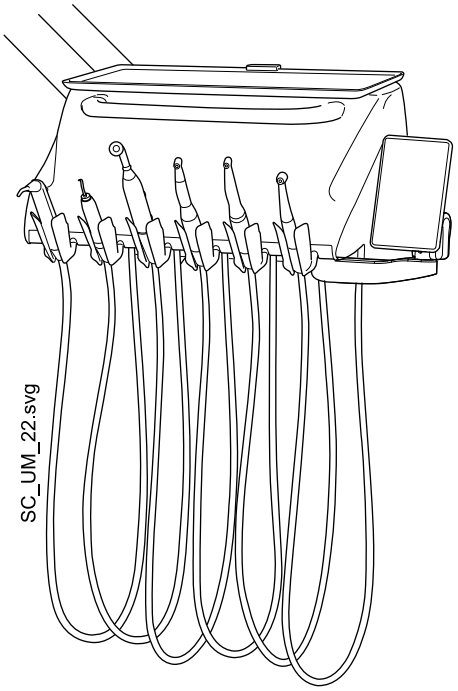
10.2.2 Instrument console with hanging-tube instruments

The console can be equipped with up to six dynamic instruments. A special feature of the Sovereign Classic dental unit is that the syringe can be right- or left-mounted.

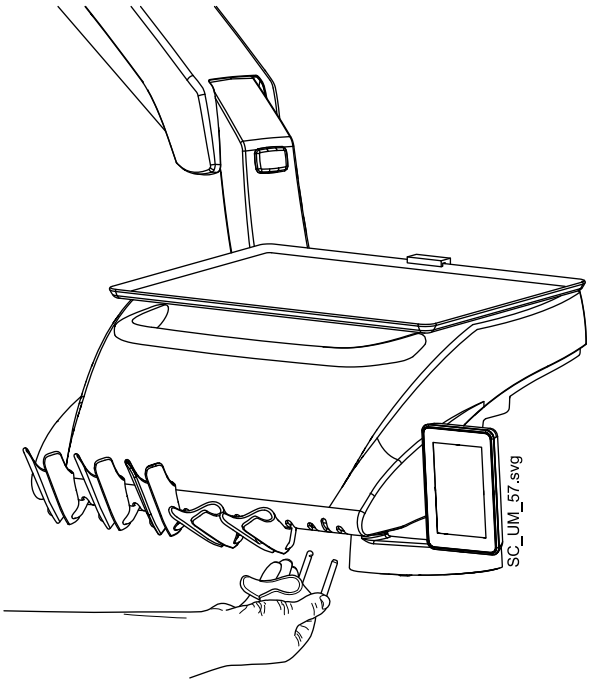
Labels mark the positions of the Bien-Air MX2 micromotor, the apex micromotor (Morita TORX), the syringe and the USB-device.

The other instruments can be positioned according to your own preferences.

Both the control panel and the tray can be right- or left-mounted.

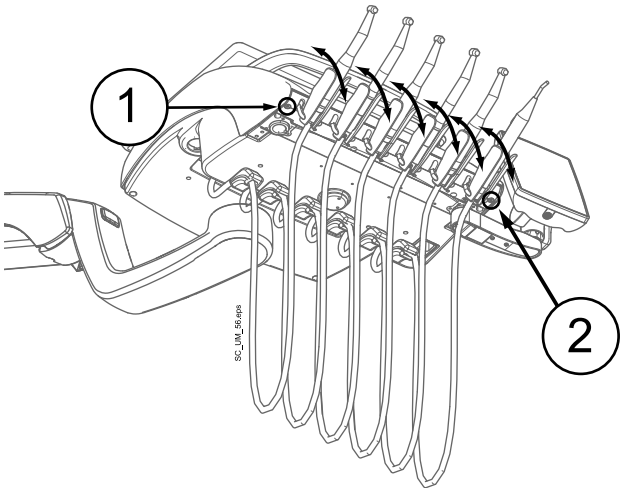


The instrument holders can be removed by pulling them out from their openings, for example for cleaning. The holders are replaced simply by pushing them firmly into their places. The angle of the instrument holder can be slightly adjusted.



By slightly tightening the screws (1, 2) under the instrument console you can make the adjustment of the instrument holders more rigid. By tightening the screws completely you can lock the angle of the instrument holder. Note that you have to tighten both screws equally, otherwise you may no longer be able to place the instrument holders to the console.

Similarly, you can untighten the screws to unlock the angle or loosen the adjustment of the instrument holders.

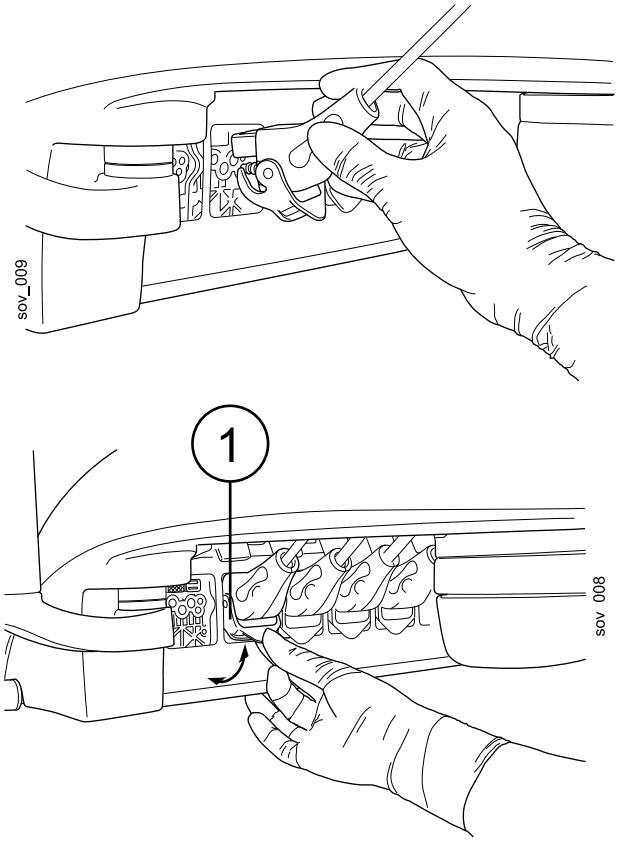


10.3 Quick-connector hoses

The instruments are equipped with quick-connector hoses to be connected to the instrument console. If a syringe and/or a polymerisation light are placed in the Flexy-holder, they are connected to the cuspidor.

Insert the hose to its place so that the locking mechanism is facing down, and pull down the locking bar (1).

Remember to pull up the locking bar (1) before removing the quick-connector hose.



When disconnecting the syringe, empty the water and air from the hose before opening the connector.

The instrument location can be changed simply by removing the instrument with its hose and reconnecting it to the new place. The old instrument settings will remain the same despite the new location of the instrument hose.

The instrument selection can also be interchanged. The settings of the previously used instruments are stored in the memory, and are recalled when the instrument is reconnected.

The syringe can be placed in the leftmost or rightmost position. The syringe can be used simultaneously with other instruments.

Otherwise, there are no restrictions concerning the placing of the instruments on the console.

NOTE

Make sure that the locking bar is properly locked to the console to avoid any leakage.

NOTE

Always make sure that the instrument hose is correct for the used instrument. The control system identifies the instrument hose, not the instrument. The control system does not recognise if an instrument has been changed on the instrument hose.

NOTE

If the outer casing of the instrument hose is broken, the entire hose must be replaced, although the hose itself might still be functioning.

NOTE

The instrument sealings must be correct and unbroken, and the instrument must be attached properly to the hose connector. The leakage between the instrument and the connector causes leakage air to drift into the hose lining.

NOTE

A scaler requires additional electronics and the scaler type can not be changed without changing electronics.

10.4 Instruments

The instrument console has six instrument positions. The following instruments are available for this dental unit:

- Syringe
- Turbine
- Micromotor
- Scaler
- Polymerisation light
- Intraoral camera

The syringe can be placed in the leftmost or rightmost position. The syringe can be used simultaneously with other instruments.

Labels mark the positions of the Bien-Air MX2 micromotor, the apex micromotor (Morita TORX), the syringe and the USB-device.

The other instruments can be positioned according to your own preferences.

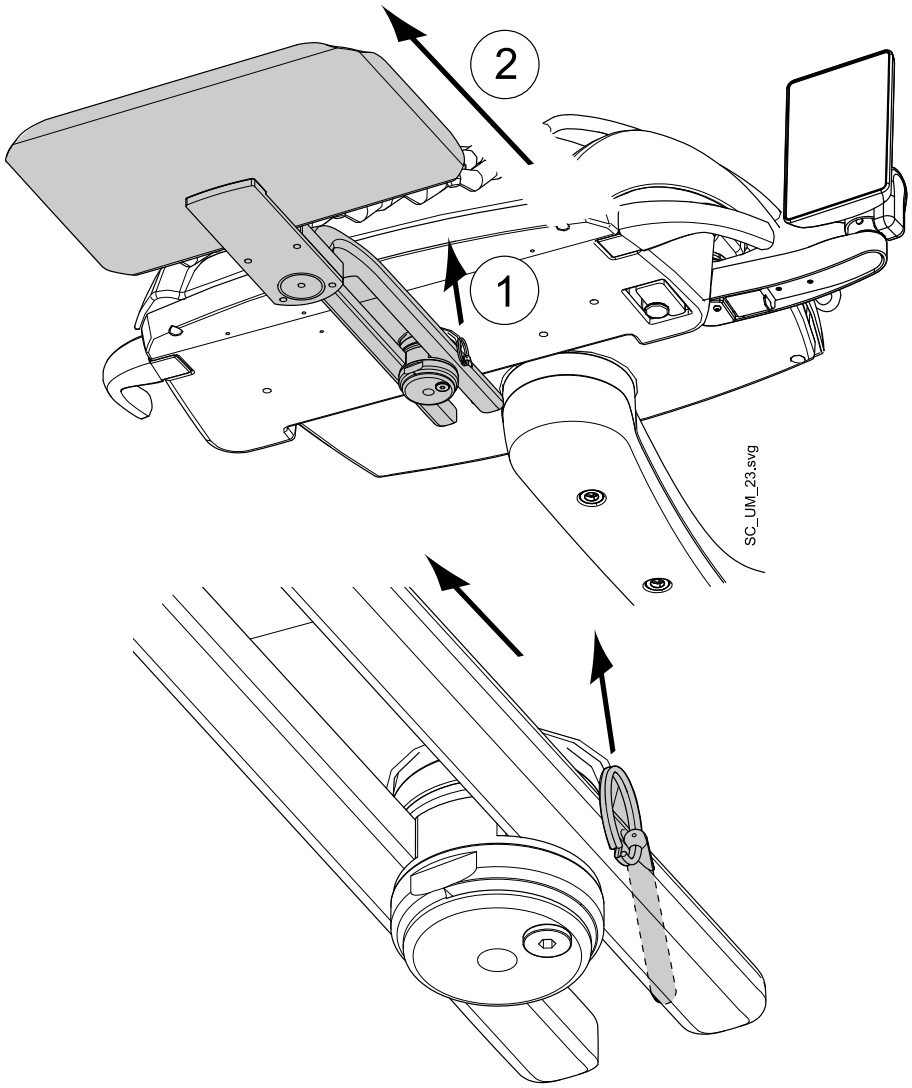
The control panel will give you detailed guidance while using the instruments.

10.5 Trays

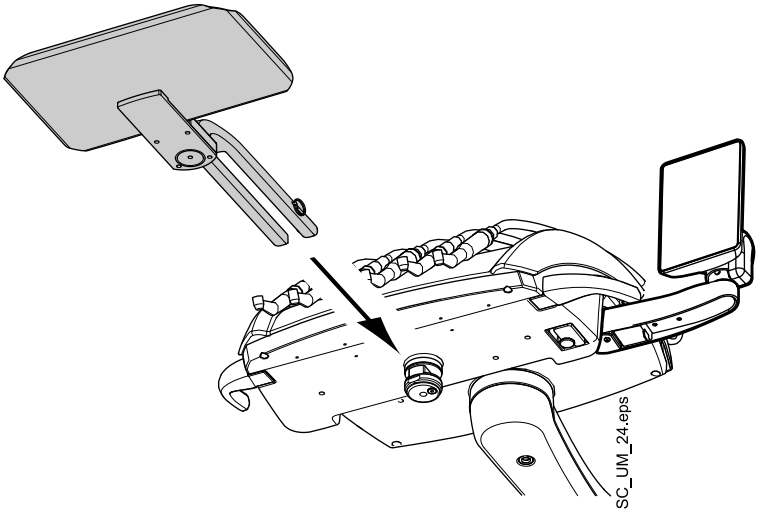
10.5.1 Tray for balanced-arm instrument console

The tray is attached to the mounting arm with a magnetic connector and can easily be attached and detached. You can rotate the table 360° to the desired position. The maximum weight limit on the tray is 2 kilograms (4.4 lbs).

The tray mounting arm is attached to the instrument console with a quick-connector. The tray assembly can be removed from the instrument console as follows. Pull the ring of the locking mechanism outwards (1) and pull the tray arm away from its position (2).



The mounting arm can be attached to the instrument console by pushing it to its position.



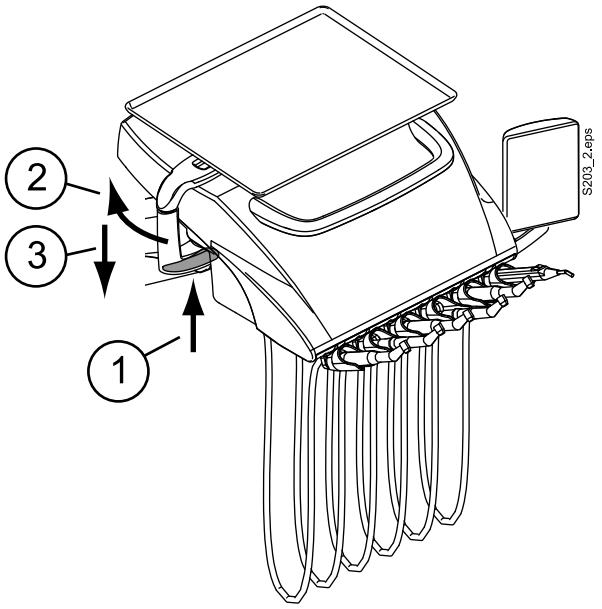
10.5.2 Tray for hanging-tube instrument console

The tray mounting arm is attached to the instrument console with a quick-connector, enabling an easy attachment and detachment of the tray. You can rotate the table 360° to the desired position. The maximum weight limit on the tray is 2 kilograms (4.4 lbs).

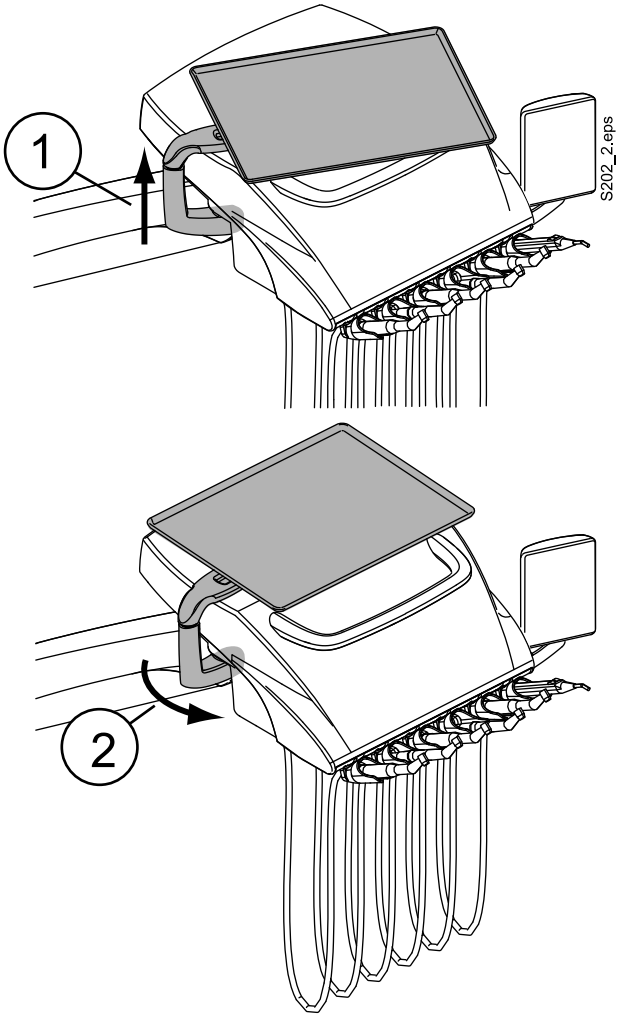
The quick-connectors make it easy to, for example, change from left-handed to right-handed operation.

To detach the tray, press the locking button located underneath the tray mounting arm (1) and turn the tray mounting arm approximately 30° clockwise (2) (when the tray is placed on the left side of the console) or counter-clockwise (when the tray is placed on the right side of the console).

Detach the tray by pulling the arm out from the instrument console (3).



To attach the tray, push the tray mounting arm into the attachment opening in a position where the tray mounting arm is rotated approx. 30° backward as shown in the figure (1). Attach the tray mounting arm to the instrument console by rotating the tray mounting arm counter-clockwise (when the tray is placed on the left side of the console) or clockwise (when the tray is placed on the right side of the console) until you hear a click (2).



10.6 Sterile water system

10.6.1 Introduction

When the sterile water system is used, sterilised water is fed from a disposable sterile water bag through an external disposable tube to a surgical handpiece or scaler. The instrument must have an externally mounted spray nozzle on which the sterile water tube is fitted.

CAUTION

Before using an instrument with sterile water, make sure water comes out from the instrument.

CAUTION

The sterile water system can only be used with surgical handpieces that are intended for sterile use, as well as with scalers with external sterile water connection. If other instruments are used, the system is not sterile.

CAUTION

To ensure sterile conditions, extra precaution should be taken to make sure that correct procedures are followed and all the components and tools used (e.g. scissors) are sterile.

CAUTION

The sterile water bag, nozzle and tubes are disposable and intended for single use only.

CAUTION

Inspect sterile packaging for damage. If sterile packaging is damaged, the item must not be used.

CAUTION

The attachment of the sterile water bag, nozzle and tubes to the dental unit is to be performed by dental personnel only.

CAUTION

Be careful not to squeeze your fingers in the water pump.

NOTE

When using sterile water, be careful not to step on the sterile water tubes or otherwise squeeze them.

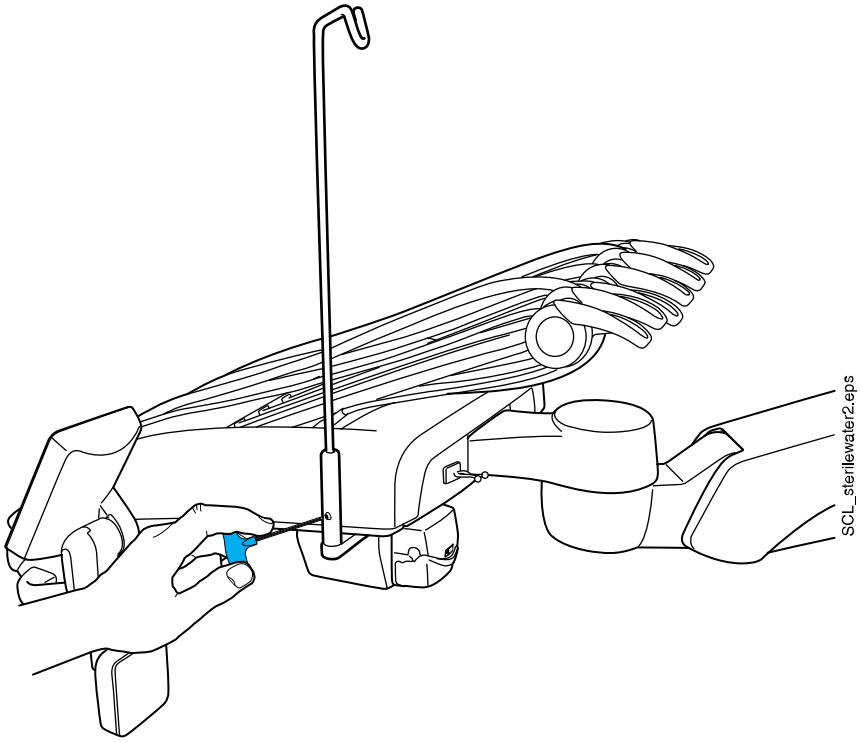
Refer also to the documentation delivered with the sterile water bag and the sterile water tube.

Before using sterile water, you need to set up the sterile water system as described below and edit the instrument spray settings so that sterile water is used (see section "Enabling/disabling sterile water mode" on page 182).

10.6.2 Setting up sterile water system

Steps

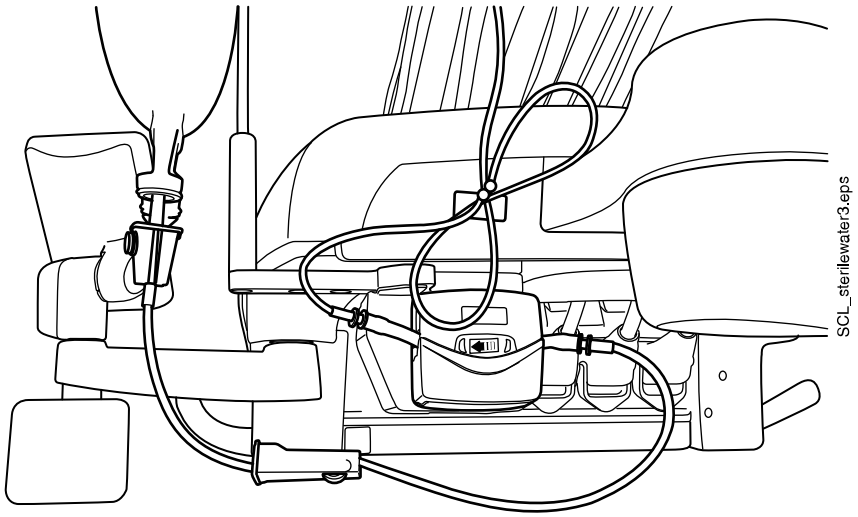
1. Attach the sterile water bag holder to the mount on the instrument console as follows:
   1. Put the holder in the mount as shown in the picture below.
   2. Tighten the screw with a 2 mm Allen key.



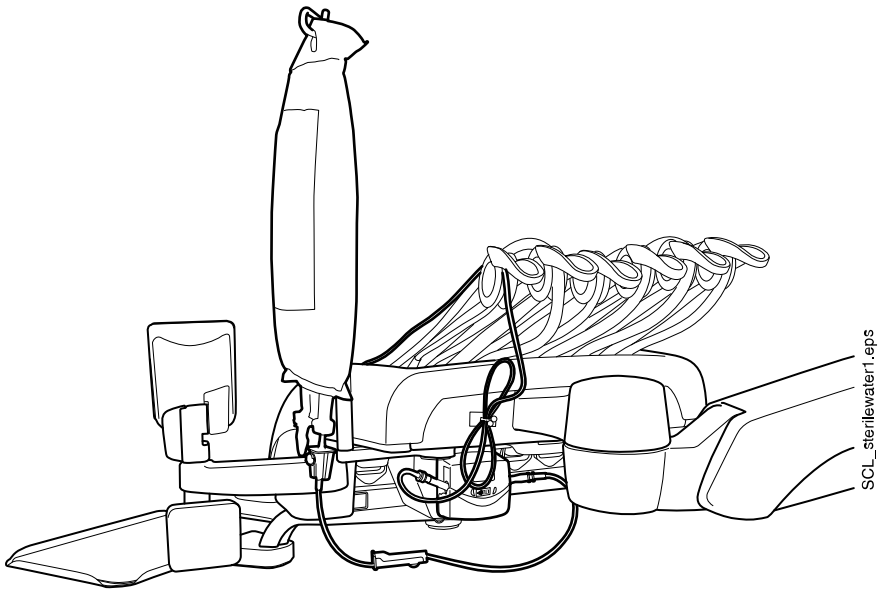
2. Hang the sterile water bag on the holder.
3. Open the lid of the water pump and place the silicone part of the sterile water tube in the pump.

   Make sure that the sterile water tube is inserted so that water is pumped from the sterile water bag to the instrument. The arrow on the pump indicates the direction of the water flow, away from the bag and toward the instrument.

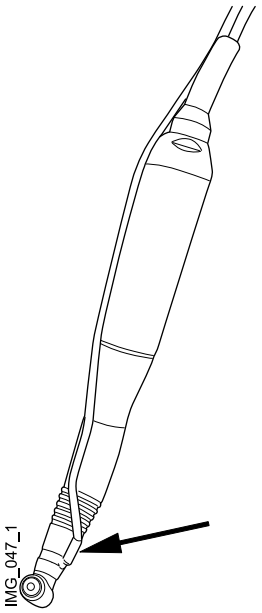
4. Close the lid of the pump.



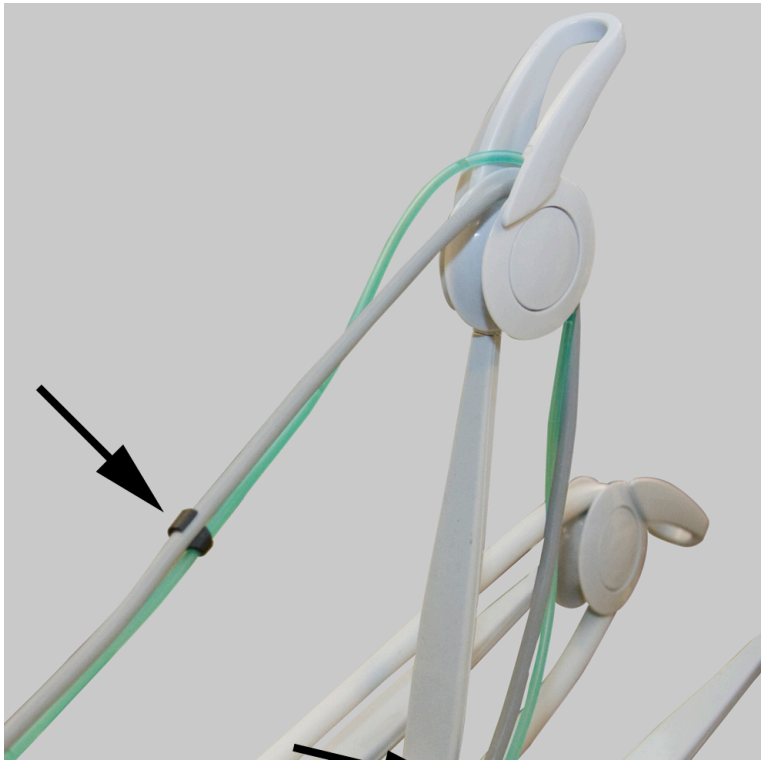
5. Connect the nozzle to the sterile water bag.
6. Route the long end of the tube to the instrument hose.



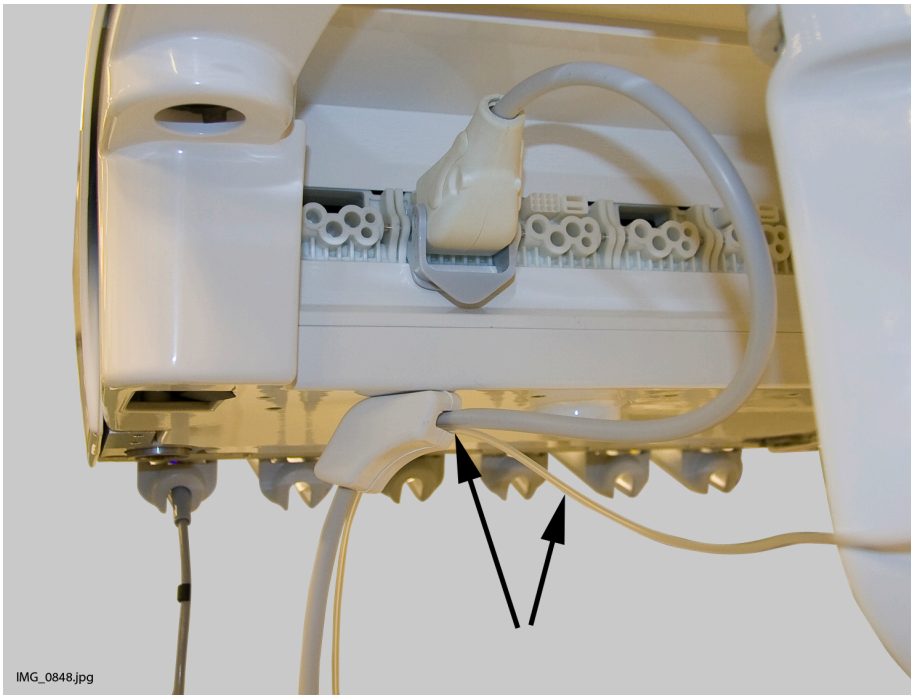
7. Connect the water tube to the instrument by sliding the tube over the externally mounted spray nozzle as shown in the figure below.



8. **Balanced instrument arms:** Attach the sterile water tube to the instrument hose with small clips provided with the instrument.



Hanging-tube instruments: Attach the sterile water tube (1) to the instrument hose holder (2) before connecting it to the instrument.

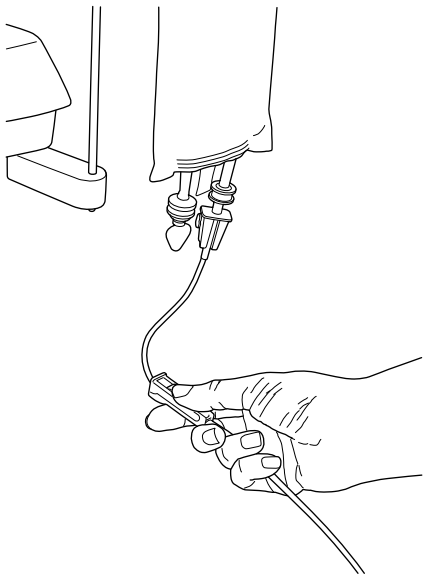


10.6.3 Adjusting sterile water flow rate

The sterile spray flow rate can be programmed, see section "Instrument spray" on page 181.

10.6.4 Adjusting sterile water volume

Use the clamp on the sterile water tube to adjust the water volume. Push the slide forward to reduce the volume, and backward to increase the volume.



11 Suction system

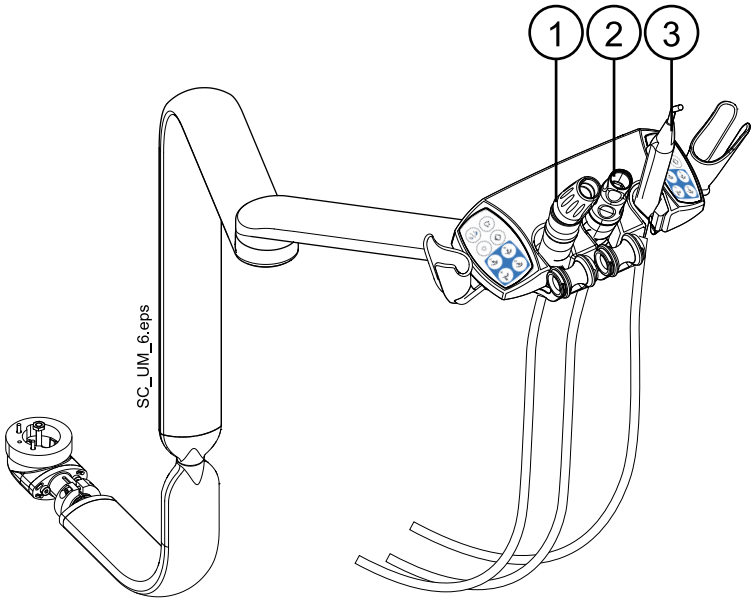
11.1 Flexy-holder

The suction handpieces are placed in the Flexy-holder.

The Flexy-holder is a suction holder that is attached to the suction arm. Its integrated control panels enable you to control selected functions of the dental unit. For more information on the control panel, see section "Control panel on Flexy-holder" on page 67.

The Flexy-holder has three openings. In one you place the assistant's syringe and the suction handpieces are placed in the two remaining openings. In addition, one or two supplementary holders or a holder for the intraoral scanner can be placed on either side of the Flexy-holder. The supplementary holder can be equipped with a USB intraoral camera or a polymerisation light.

The picture shows the default positions for the suction handpieces and syringe. To change the positions, please contact a qualified Planmeca service technician.

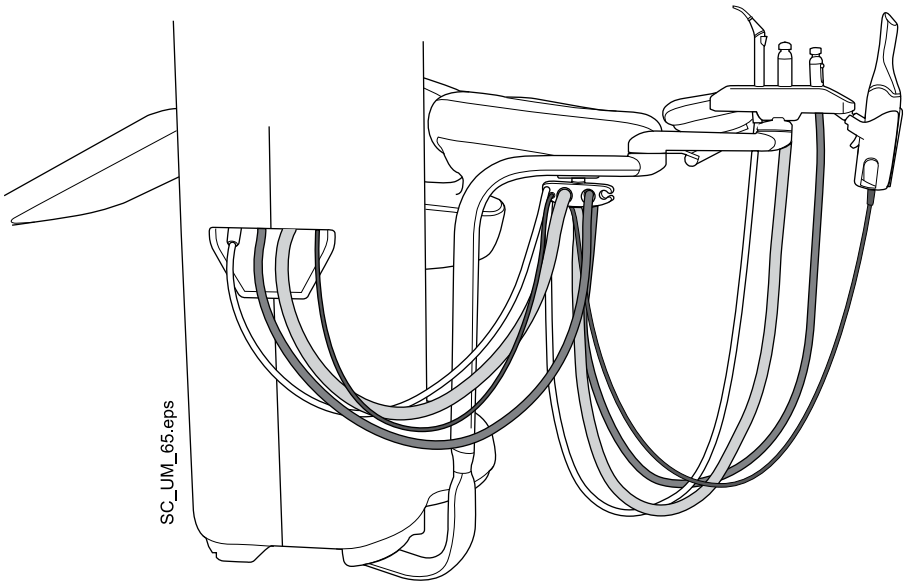


1. Saliva suction handpiece
2. High-volume suction handpiece
3. Syringe

NOTE

The intraoral scanner and the USB intraoral camera can not be simultaneously attached to the Flexy-holder. If the intraoral scanner is placed in the Flexy-holder, the USB intraoral camera can be placed in the instrument console.

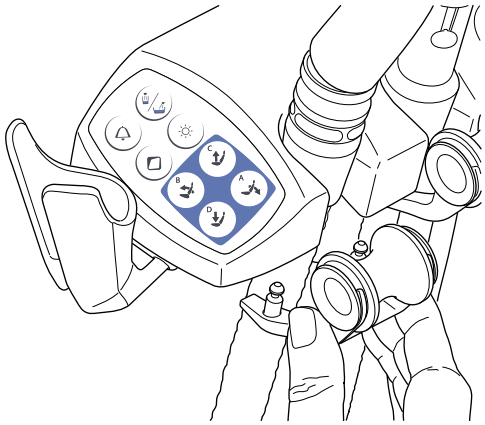
To promote hygiene and ergonomics, attach the suction tubes and instrument cables to the holder on the suction arm as shown in the picture below.



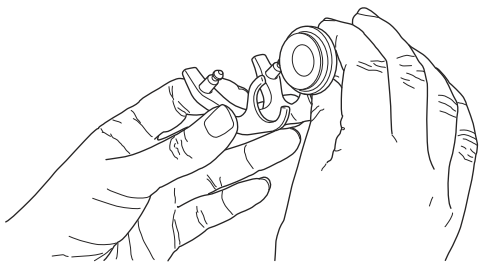
Removing holders

The suction tube, instrument and supplementary holders can be removed from the Flexy-holder, for example for cleaning.

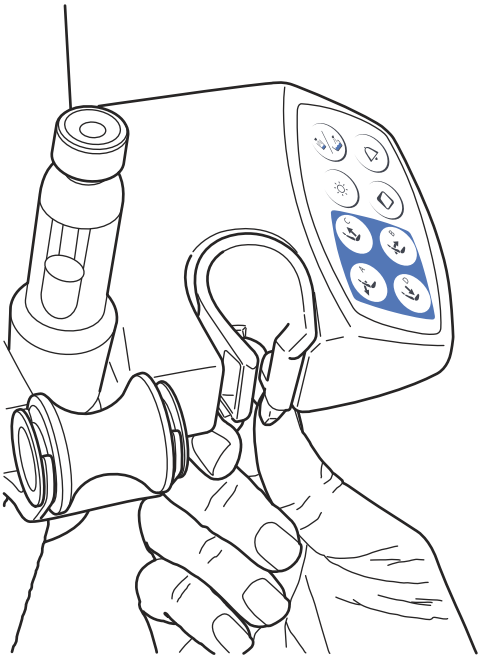
Remove the suction tube holder by pulling it downward from the Flexy-holder. To replace it, push it firmly into its place.



Remove the roller from the suction tube holder by pulling it away from the holder. To replace it, push it firmly into its place.

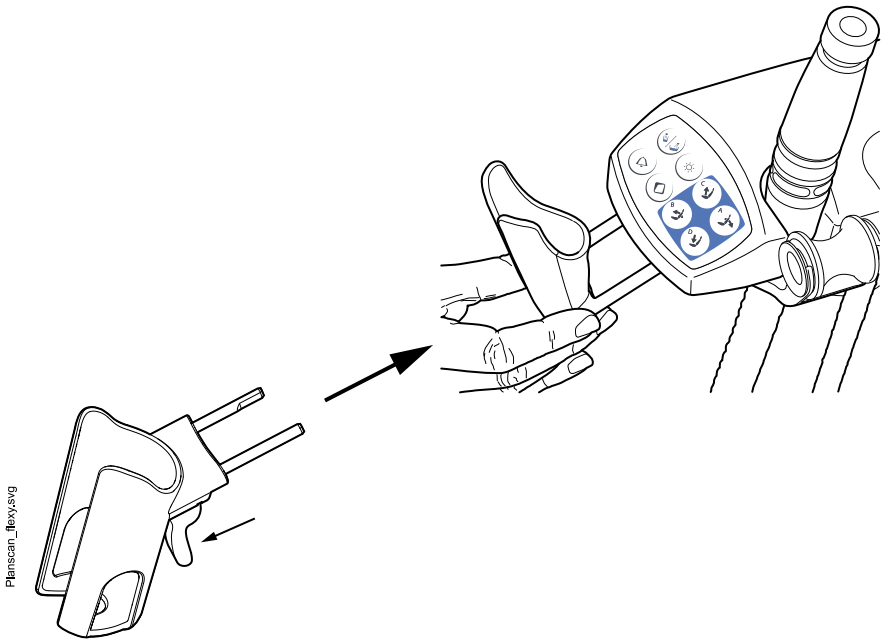


Remove the instrument holder by squeezing it from the bottom and at the same time lifting it upward. To replace it, squeeze the holder and insert it into its place.



Remove the supplementary holder by pulling it out from the Flexy-holder. To replace it, push it firmly into its place.

Remove the holder for the intraoral scanner by pressing the trigger (see arrow in picture) and pulling the holder out from the Flexy-holder. To replace the holder for the intraoral scanner, push it firmly into its place.



11.2 Removing and replacing suction tubes

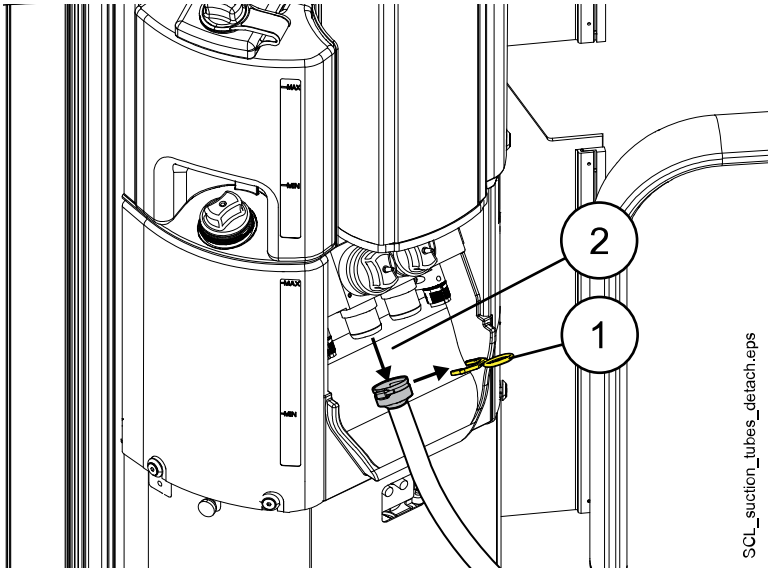
Steps

1. To minimise contamination risk, perform suction cleaning.

   For instructions, see section "Suction cleaning" on page 223.
2. Open the cuspidor door.
3. Detach the securing ring (1) from the suction tube.

   NOTE

   You can grease the securing ring with non-toxic vaseline to make it easier to remove.
4. Remove the suction tube (2) from the suction tube connector.



5. Replace the suction tubes in the reverse order.

12 Patient chair

CAUTION

Make sure no one sits on the legrest or the backrest.

NOTE

The patient chair can be equipped with an adaptive or an automatic legrest.

NOTE

Dark coloured clothes may cause coloured stains on the bright coloured upholstery.

NOTE

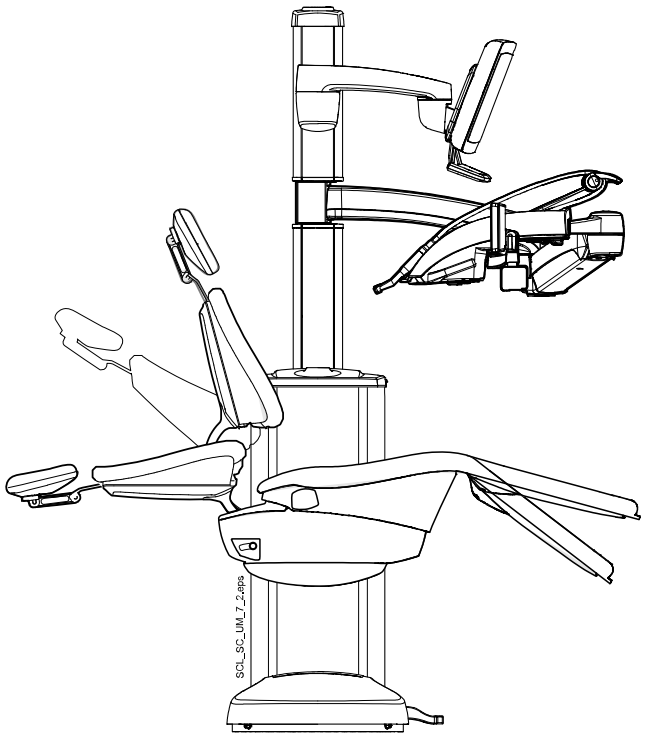
As the Ultra relax upholstery and its viscoelastic filling adapt to each patient, it is normal that wrinkles appear after some time. It is recommened to tighten the artificial leather on a daily basis.

12.1 Introduction

The Planmeca Sovereign Classic patient chair is integrated with the floor-mounted unit which gives plenty of room under the chair allowing the dentist and the assistant to move their legs freely while sitting down.

Integrating the chair with the unit allows the chair to be raised high for a good working position.

When you drive the backrest down, the seat follows the movements of the backrest and tilts accordingly. This ensures that the patient's head stays in the correct position throughout the movement.



12.2 Patient recognition

A sensor in the patient chair recognises if there is a patient in the chair and forwards information about this to Planmeca Romexis Clinic Management software.

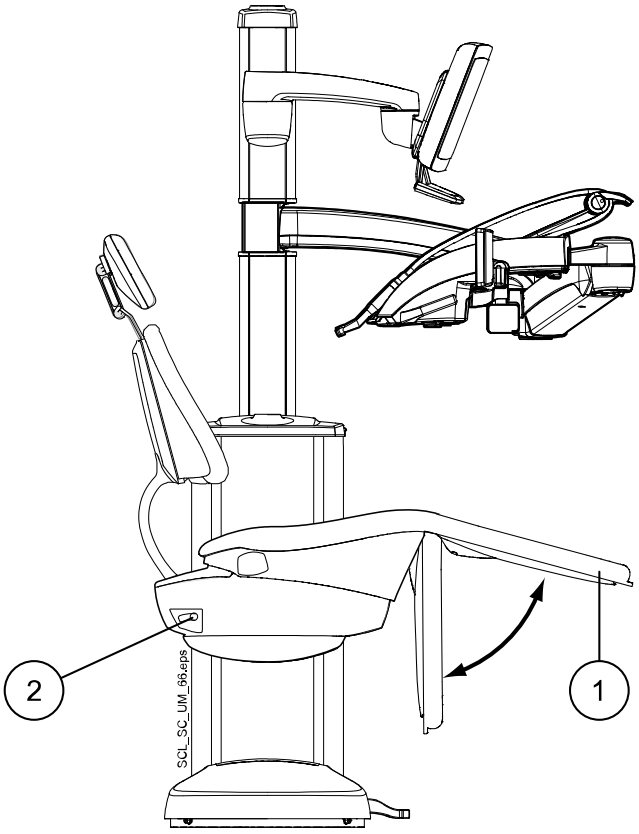
When a patient is in the chair, a **Patient** icon is displayed on the control panel.

When the chair is empty, an **Empty chair** icon is displayed on the control panel.

12.3 Automatic legrest

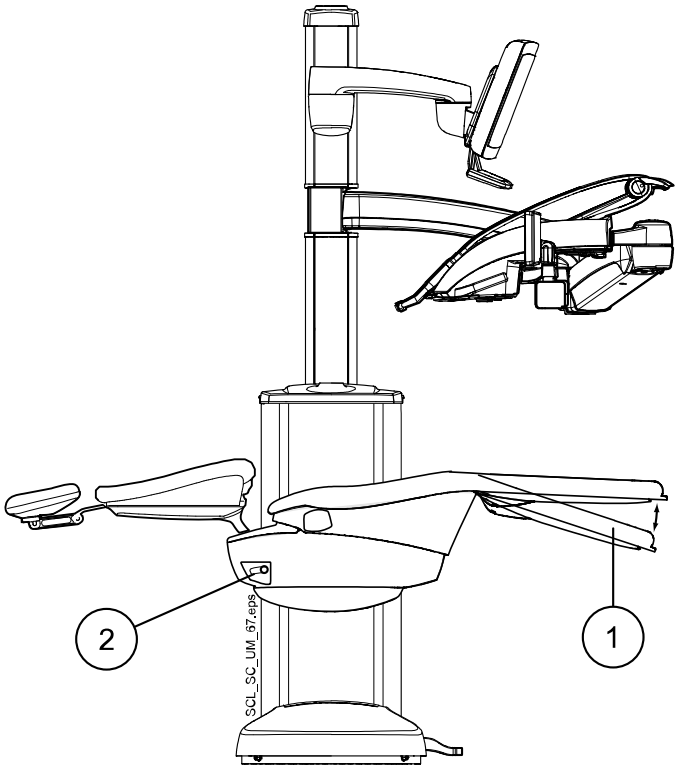
The automatic legrest can be folded to a 90° angle enabling easy access for the patient to the chair.

To move the legrest synchronously with the backrest, you must unlock the the legrest by pressing the button underneath the chair seat.



1. Automatic legrest
2. Legrest lock/unlock button

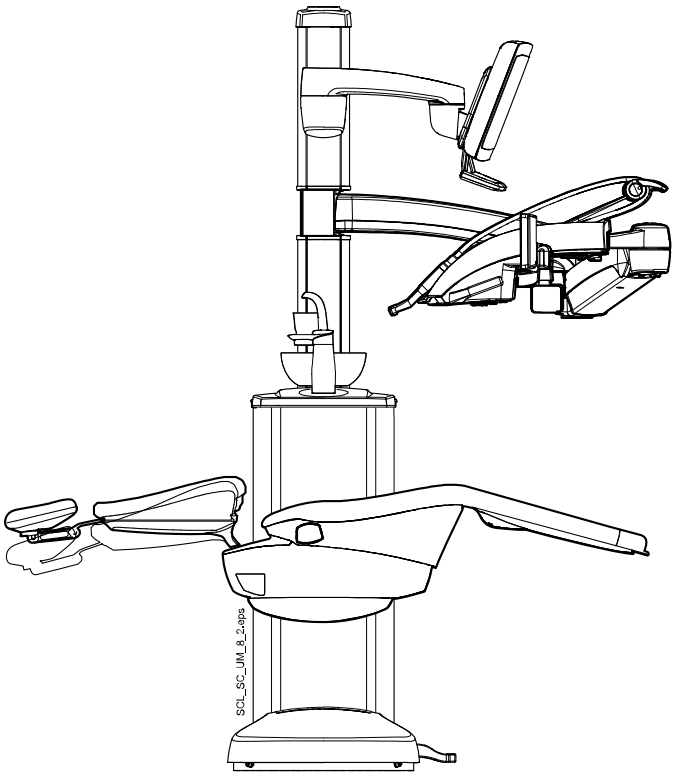
The automatic legrest can be locked approximately 18° from the horizontal position. To lock the legrest, press the button underneath the chair seat. Support the legrest with your other hand when locking or unlocking it. Notice that the backrest will move upward and downward when the legrest is locked.



1. Approx. 18° from the horizontal position
2. Legrest lock/unlock button

12.4 Trendelenburg position

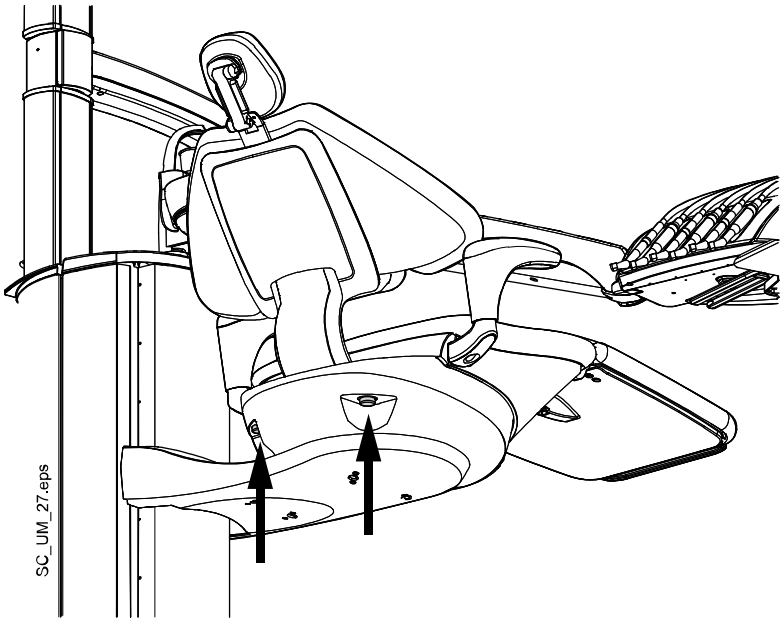
The Trendelenburg position is used in the event of a patient collapsing. The chair is driven to a position where the patient’s feet are higher than the head.



For information on how to drive the chair to the Trendelenburg position, see section "Trendelenburg position" on page 114.

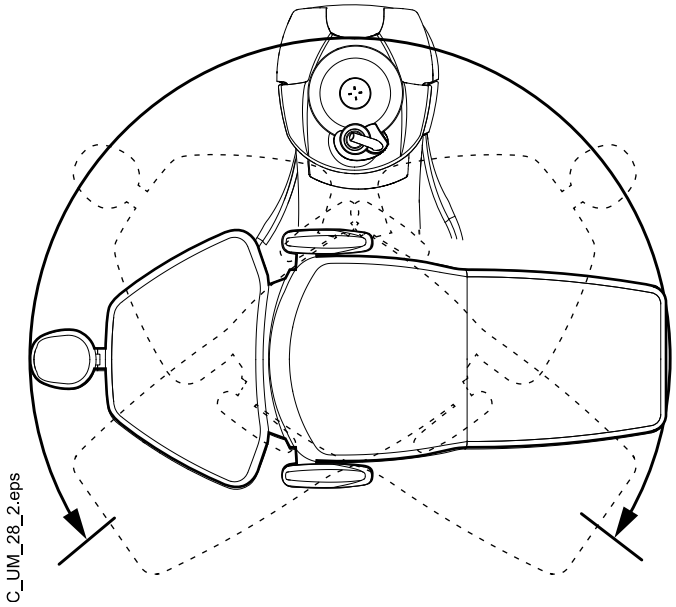
12.5 Chair swivel

The patient chair can be swivelled manually. Press either of the buttons on the chair underside (marked with arrows in picture) to release the lock and turn the chair to the desired position.



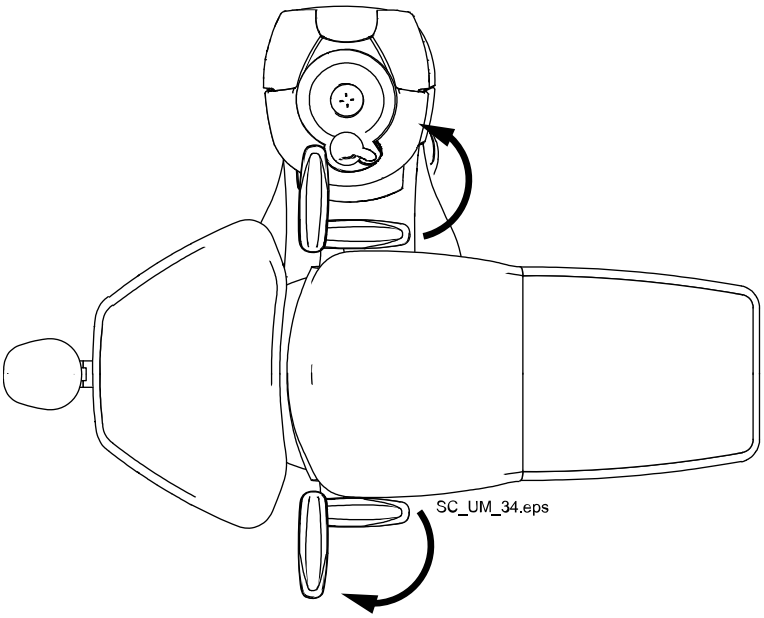
You can swivel the chair within the movement limits shown in the picture below.

The chair's home position is shown with solid black outlines.



12.6 Armrests

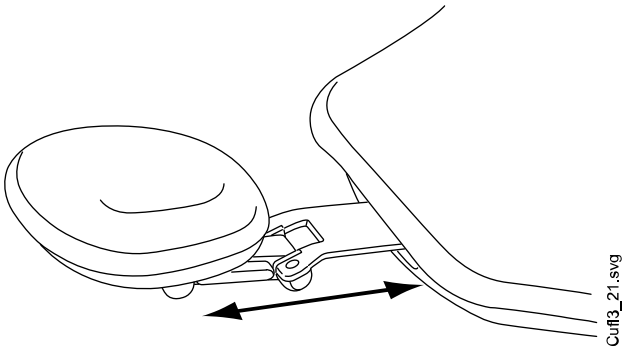
Both armrests can be moved 90° outwards. Before you move the armrest horizontally you must lift it slightly to unlock it. The armrest can be locked into the positions presented in the picture.



12.7 Headrest

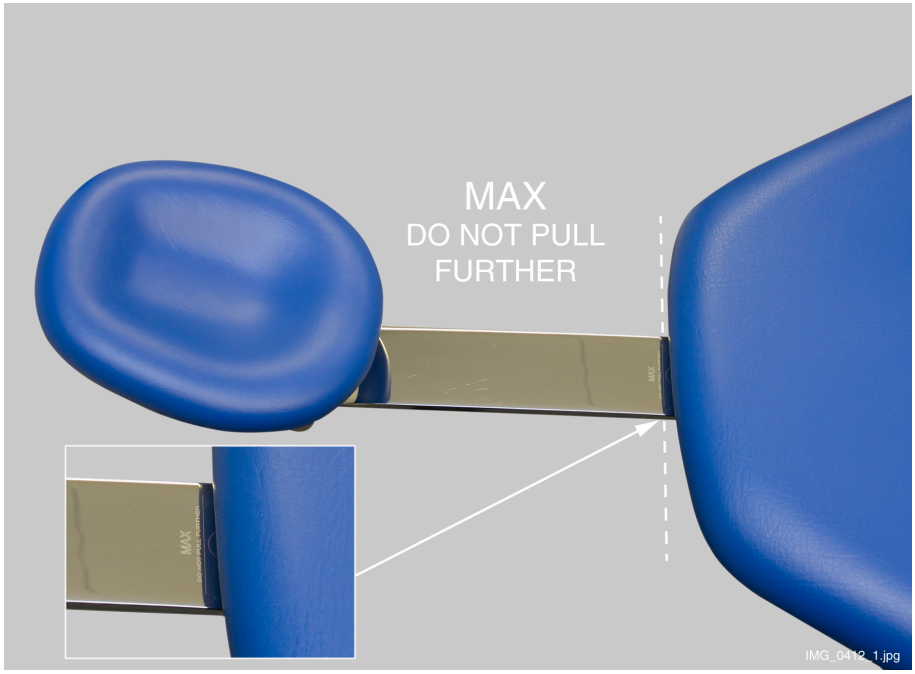
12.7.1 Adjusting height of headrest

The height of the headrest can be adjusted by sliding it manually.



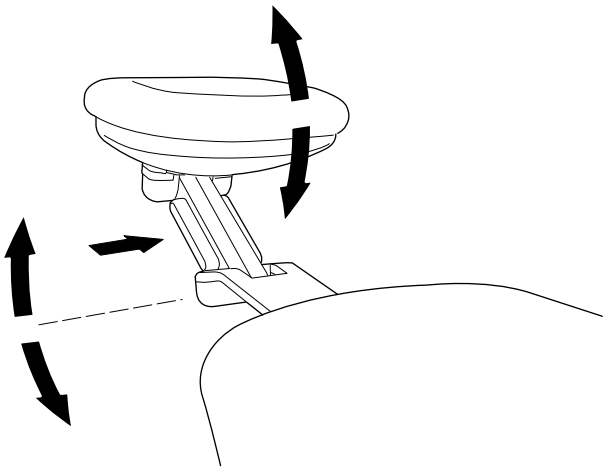
NOTE

The headrest can only be pulled out as far as to the MAX mark.



12.7.2 Adjusting headrest angle

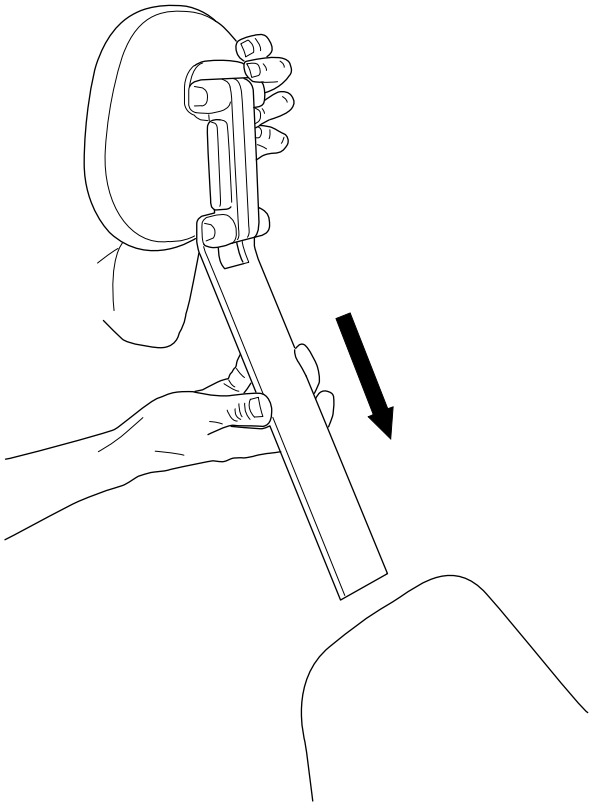
To adjust the angle of the headrest, press the bar on the side of the headrest support to release the locking mechanism. Manually set the headrest to the required angle and release the bar. When adjusting, the headrest should be supported by hand.



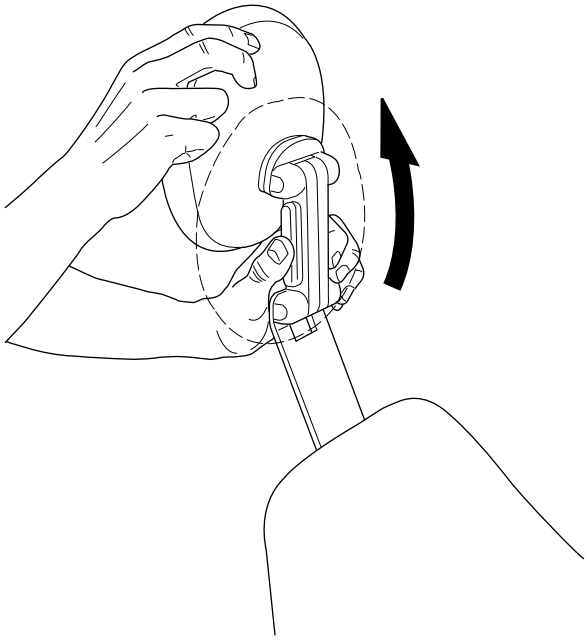
12.7.3 Adjusting headrest for children or short patients

The headrest can be turned around and repositioned for better head support for children or short patients.

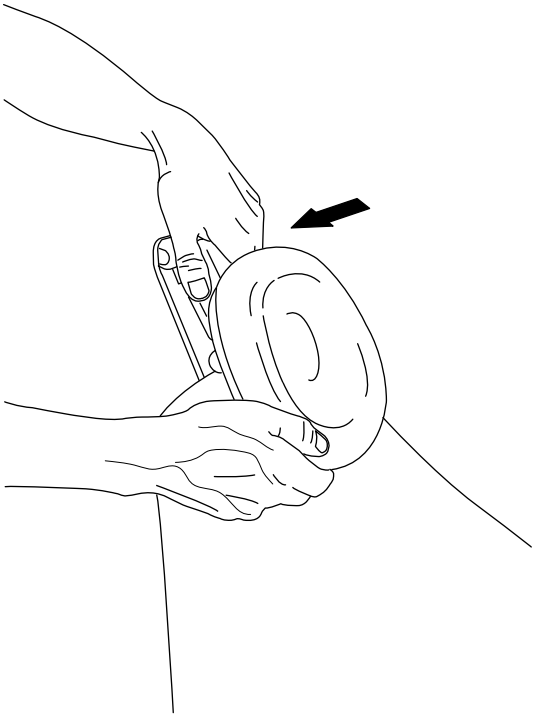
Pull the headrest out. Turn it around so that the cushion faces backward and push the headrest back into the chair.



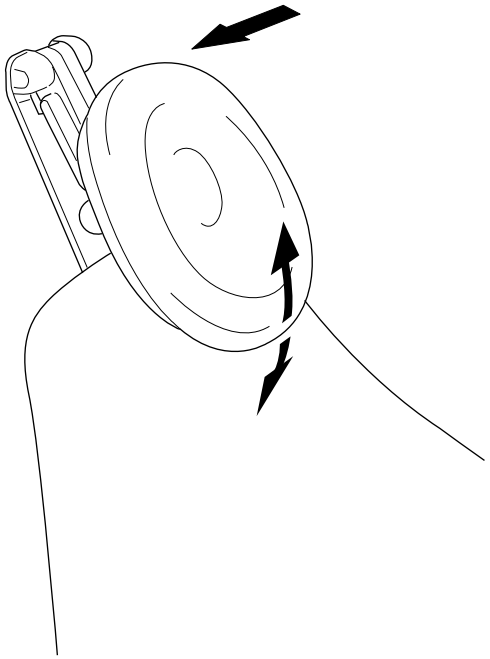
Turn the cushion around (180° counter-clockwise).



Press the bar on the side of the headrest support to release the locking mechanism and position the headrest at the top of the chair.



The headrest is now repositioned. To adjust the angle of the headrest, press the locking bar. Manually set the headrest into the required position and release the bar. When adjusting, support the headrest with your other hand.



13 Control panel

13.1 Two control panels

The Planmeca dental unit has two control panels. The main control panel is located on the instrument console and the other one on the Flexy-holder.

13.2 Control panel on instrument console

13.2.1 Overview

The control panel on the instrument console features a touch display and it can be used to control and program the instruments, the dental unit, and the chair. Also, maintenance procedures can be started from the control panel.

The control panel is attached by the quick locks to the instrument console.

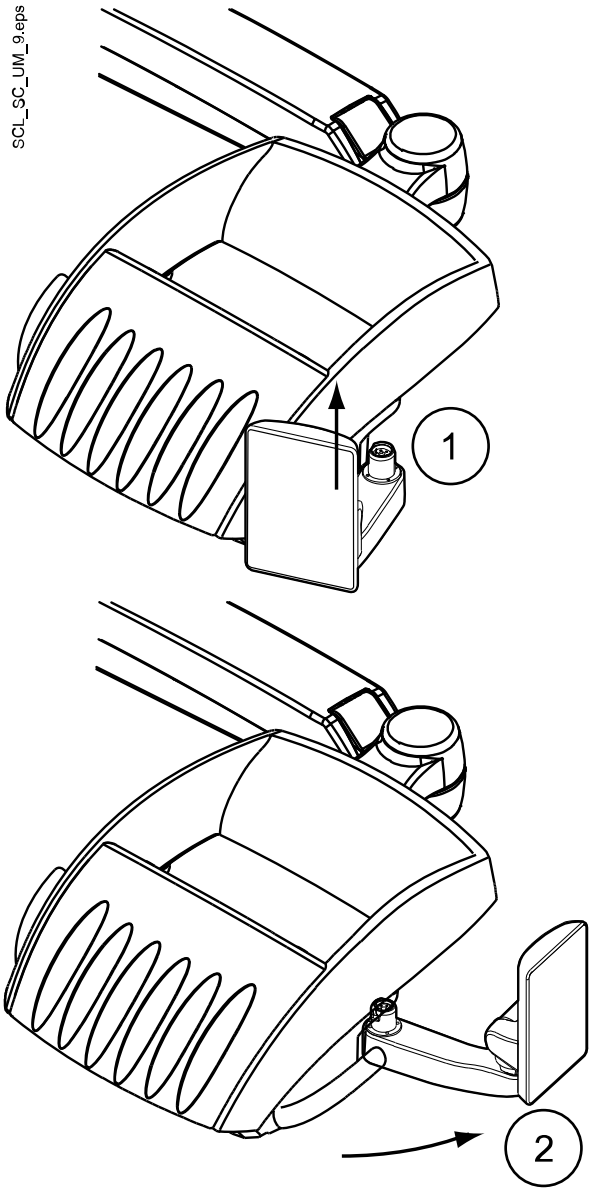
CAUTION

The control panel may break if it is dropped on the floor.

13.2.2 Attaching control panel

To make the attachment easier, turn the control panel away from the attachment arm.

Push the attachment arm into the attachment opening in a position where the attachment arm is rotated approx. 30° forward as shown in the figure (1). Attach the control panel to the instrument console by rotating the attachment arm counter-clockwise (when the control panel is placed on the right side of the console) or clockwise (when the control panel is placed on the left side of the console) until you hear a click (2).



CAUTION

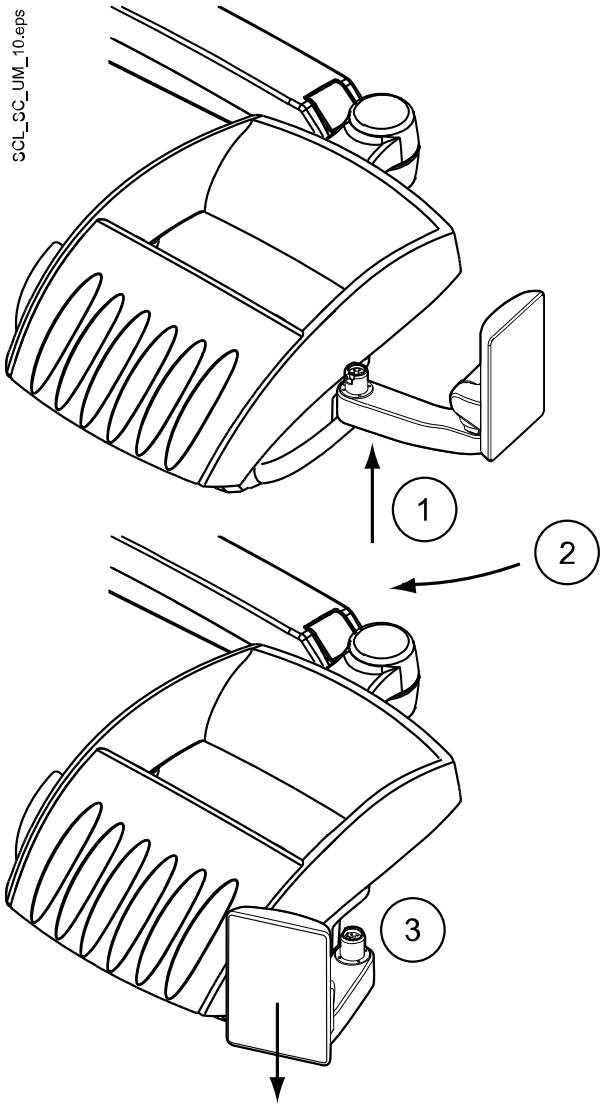
Ensure that the dental unit works correctly after attaching the control panel. If needed, restart the dental unit.

13.2.3 Detaching control panel

To make the detachment easier, turn the control panel outward (see figure).

Press the locking button located underneath the attachment arm (1) and turn the attachment arm approximately 30° clockwise (2) (when the control panel is placed on the right side of the console) or counter-clockwise (when the control panel is placed on the left side of the console).

Detach the control panel by pulling the arm out from the instrument console (3).



13.2.4 Touch display

You can control the touch display by touching it with your finger or with a soft stylus. The touch display is generally medical glove touch capable, but some glove types have limited functionality.

The control panel shows information related to the current operation and changes accordingly.

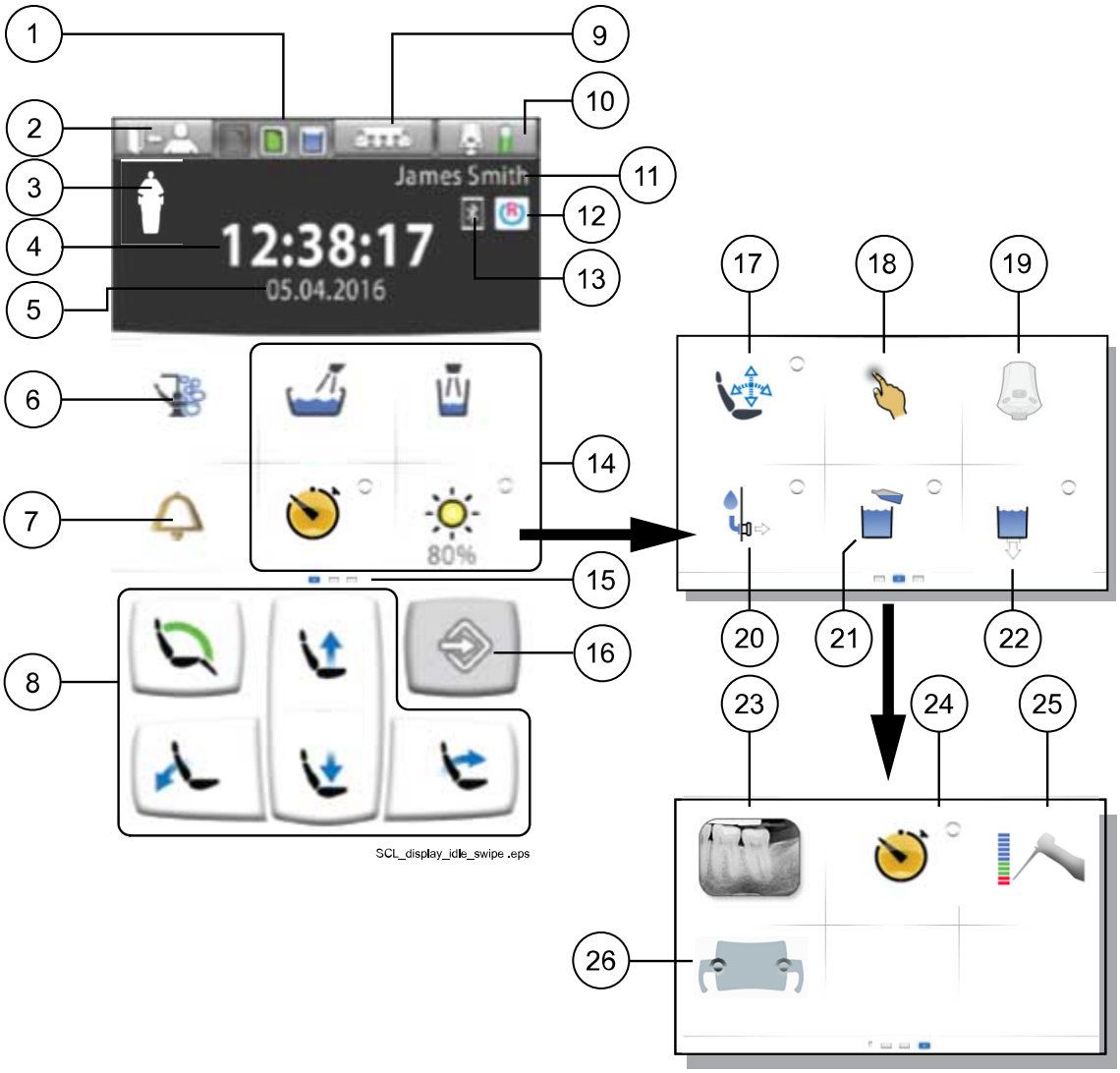
Some of the buttons have indicator lights that show the status of that specific function. When the unit is in programming mode, the **Program** button is blue.

In the programming mode, a disabled or unselected function is displayed in grey. To enable or select the function, press the grey button and it will turn blue. A blue button means that the function is enabled or selected.

When you make changes to, for example, the dental unit or instrument settings, you are required to save the changes by pressing **OK**. If you do not want to save the changes, you can close the window without saving the changes by pressing **Close**.

In case of malfunction, an error code or a help message is displayed, see section "Help and error messages" on page 253.

The picture below shows the main functions of the control panel when the dental unit is in idle state and no instrument is activated.



1. Maintenance icons from left to right, display only): • Container for Planmeca approved suction disinfectant • PlanClear container • Bottle water -mode, water container	10. Foot control button Wireless foot control battery (optional, displayed only if available)	19. Wireless foot control button (optional)

2. User sign-out button	11. User name	20. Water and air quick-connector button (optional)
3. Patient recognition (display only)	12. Romexis connection (optional, display only)	21. Bottle water button
4. Time (display only)	13. Bluetooth connection enabled (optional, display only)	22. Button for emptying water container
5. Date (if configured, display only)	14. Unit buttons	23. X-ray film viewer button
6. Maintenance button	15. Customisable swipe menu Swipe to the side to view more functions	24. Timer button
7. Assistant call (or alternatively Door open)	16. Program button	25. Apex locator button (optional)
8. Chair buttons	17. Specialist mode button	26. Solanna Vision button (optional)
9. Suction holder button	18. Touchpad button (optional)	

13.2.5 Touchpad functionality

NOTE

The Touchpad functionality is an optional feature.

The control panel can be used as a touchpad. Press the **Touchpad** button on the control panel to open the touchpad-view.

The touchpad-view provides you all the functionalities of a computer mouse and keyboard, so there is no need for an external mouse or keyboard.

NOTE

The touchpad function requires that the dental unit is connected to Planmeca Romexis software. The software version must be 4.1 or later.

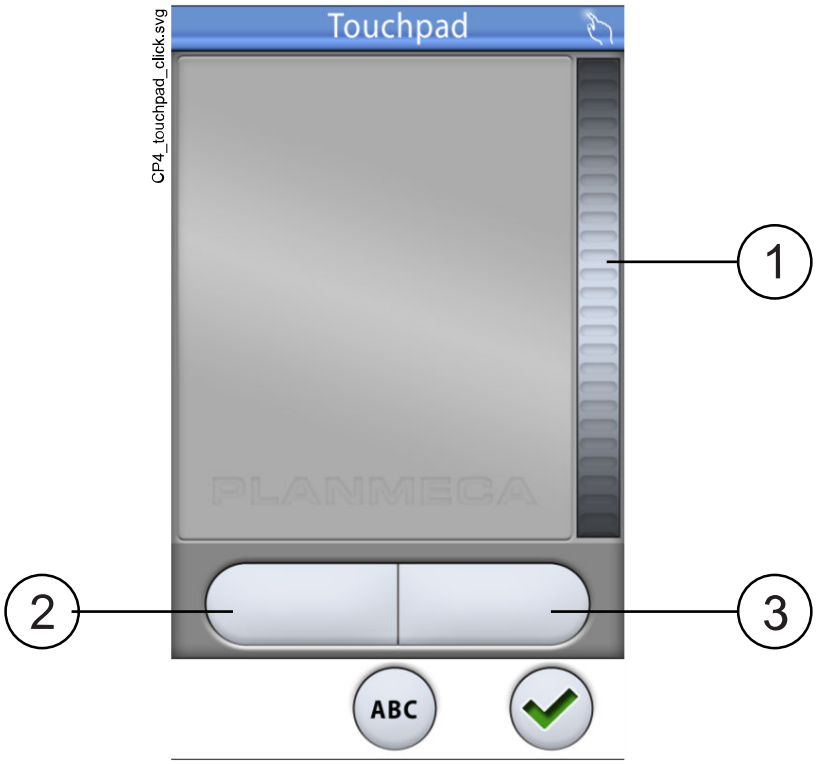
If there is no Planmeca Romexis connection, the function is disabled and the Touchpad button is grey.

Using control panel as computer mouse

In the the touchpad-view, press **Touchpad** to open the mouse-view on the control panel.

Move your finger on the control panel to move the cursor accordingly across the monitor or tablet screen. Scroll a list or text with the scroll wheel to the right and use the buttons at the bottom just like you would use the left and right mouse buttons.

A short press of the left and right button clicks an item on the screen. When you press the button for longer, the button stays activated until you release the button by pressing it again. The button is blue when it is activated.



1. Scroll wheel
2. Left button
3. Right button

When you want to exit the touchpad-view, press **OK**.

Example: Drag-and-drop

Use your finger on the touchpad to move the cursor on the screen to the item that you want to drag. When the cursor is on the item, press the left button for 1 second to activate it. The button turns blue. With your finger on the touchpad, drag the item to the correct location. Press the left button to release it (the button turns grey).

Using control panel as keyboard

In the the touchpad-view, press **ABC** to open the keyboard on the control panel.

An alphanumeric keyboard is displayed for entering text in a text field on the monitor or tablet screen.

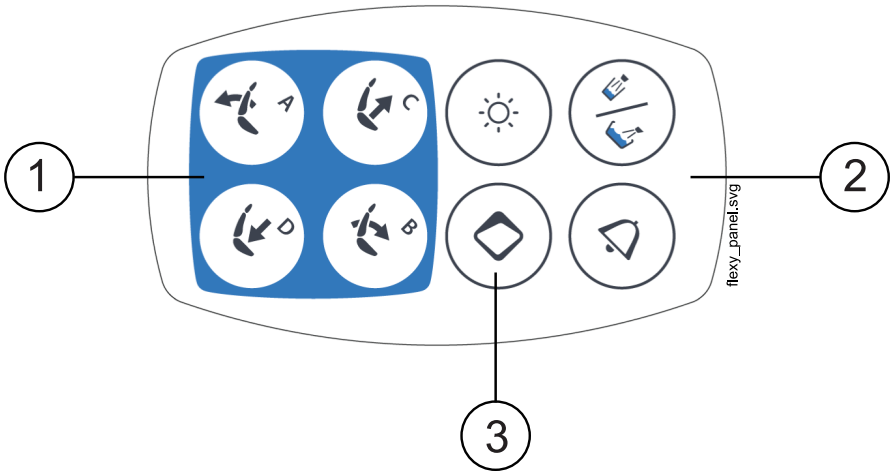
Use the arrows in the top row to move up and down, to the left and right in the text.

The symbols below the arrows in the top row can be used as they are, or as a shortcut to letters containing that symbol. For example, when you press **^** for about one second, letters with the symbol ^ are displayed. You will automatically return to the normal view when you enter one of the letters. To return to the normal view without entering a letter, press the symbol again.

To display special characters, press **Alt**. Press **Alt** again to return to the normal view.

13.3 Control panel on Flexy-holder

The control panel on the Flexy-holder is used for controlling the dental unit and the chair.



1. Chair buttons
2. Unit buttons
3. Flexy button

You can program the function behind the **Flexy** button. Depending on what has been programmed, you can do one of the following by pressing the **Flexy** button:

- activate/deactivate the intraoral scanner
- drive the chair to the rinsing position (default)
- lock/unlock the touch display
- turn the suction on/off
- turn the operating light's composite mode on/off (short press) or adjust its intensity (long press)
- activate/deactivate the apex locator
- change the light tone of the operating light
- turn Planmeca Solanna Vision video streaming on/off
- start/stop Planmeca Solanna Vision video recording
- capture an image with the Planmeca Solanna Vision camera
- open/close the Planmeca Solanna Vision window.

NOTE

When you are not signed in to the dental unit and the *Sign in* window is displayed, pressing the Flexy button signs you in as a guest user. This function can not be programmed.

For programming instructions, see section "Flexy button functions" on page 198.

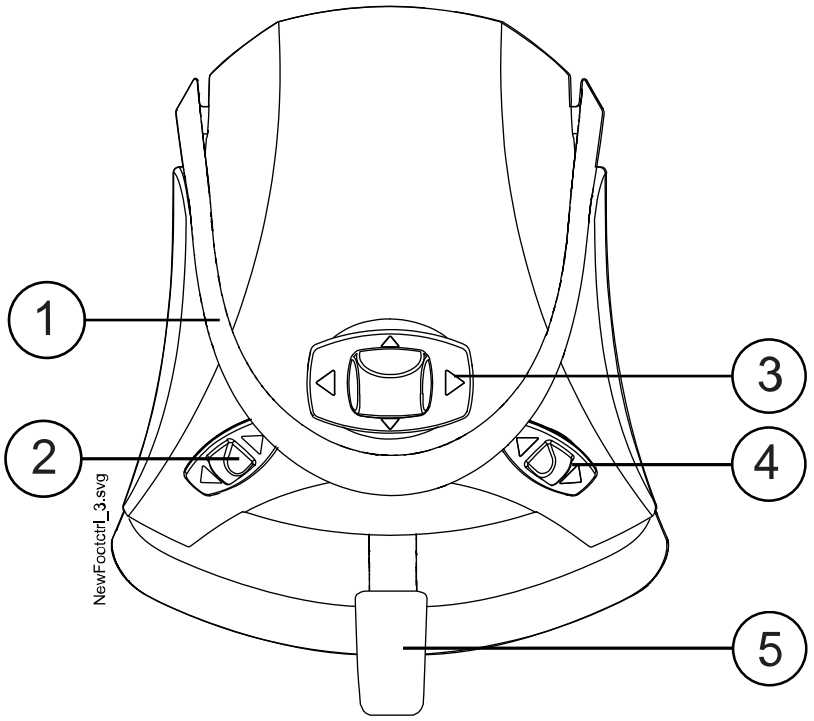
To open the Flexy function window and check which function is programmed to the **Flexy** button, press **Suction holder** at the top of the control panel.

14 Foot control

14.1 Introduction

The dental unit has one integrated foot control that operates the instruments, the unit and the chair.

The foot control is available as a wireless and a standard version.



1. Handle
2. Left-side knob
3. Centre knob
4. Right-side knob
5. Pedal

CAUTION

The foot control is a precision instrument. Do not stand on or apply unnecessary force to the foot control and its knobs.

CAUTION

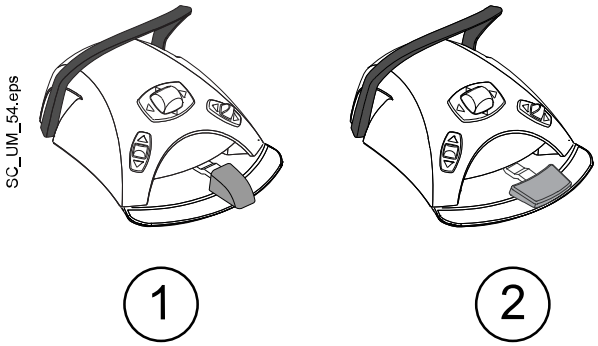
Do not use the foot control in areas where liquids are likely to be present on the floor.

NOTE

All the foot control functions except instrument drive and manual chip blow can be performed on the control panel, too.

14.2 Foot control pedal

Two foot control pedals are available: a standard pedal (1) and a wide pedal (2).



NOTE

If you want to change from a standard pedal to the wide pedal, or vice versa, contact your Planmeca dealer.

The two foot control pedals function differently. For example, to increase the instrument speed, you must push the standard pedal horizontally, either to the left or to the right. When you use the wide pedal, you increase the speed with a vertical movement: the further down you push the pedal, the higher the instrument speed is.

14.3 Foot control functions

14.3.1 Overview

You can program the dental unit and instrument operations that are performed from the foot control when you are signed in to the dental unit. For information on programming, see section "Foot control functions" on page 200.

NOTE

When you are not signed in to the dental unit and the *Sign in* window is displayed, the only operation that you can perform from the foot control is to sign in as a guest user by pressing the left-side knob down. This operation can not be programmed.

To view which functions are activated when you push the foot control knobs or pedal, press **Foot control** at the top of the control panel. This opens the *Foot control* window with a map of the foot control functions. The functions are grouped into three groups: Centre knob, side knobs and pedal. Select the group whose functions you want to view in the drop-down menu.

NOTE

If you want to view the functions for an instrument, you must first activate the instrument by picking it up from the instrument console.

When you program the foot control functions, you can select between the single-push mode and the short & long push mode.

- Single-push mode

  The foot control map shows only one function for each position. The functions are activated by pushing the knob or pedal once.

- Short & long push mode

  The foot control map shows two functions for each position. One of the functions is activated by pushing the knob or pedal briefly and the other by pushing the knob or pedal for slightly longer.

  The short and long push are indicated on the buttons on the foot control map.

NOTE

When the functions assistant call, door open, cup fill and manual chip blow are activated with a long push, the function is active for as long as the pedal is pushed. When you release the pedal, the function stops.

The functions that can be programmed to the foot control and their icons are listed below.

	None		Deactivate intraoral scanner		Automatic position G
	Assistant call		Scan		Consultation position
	Rinsing position		Generate model (intraoral scanner)		Trendelenburg position
	Door open		Navigate up (intraoral scanner)		Entry-Exit position
	Operating light		Navigate down (intraoral scanner)		Maxilla position
	Suction on/off		Take image with intraoral scanner		Mandible position
	Cup fill		Activate/deactivate intraoral camera		X-ray position
	Bowl rinse and cup fill		Freeze / unfreeze image (intraoral camera)		Cleaning position
	Change spray mode		Save still image (intraoral camera)		Intraoral scanner position
	Automatic chip blow on/off		Composite mode		Stream on/off (Vision)
	Manual chip blow		Automatic position A		Capture image (Vision)
	Instrument light on/off		Automatic position B		Recording on/off (Vision)
%	Power limit on/off		Automatic position C		Change Solanna operating light's light tone

	Quickstart on/off		Automatic position D		Open/close Vision menu
	Polymerisation light on/off		Automatic position E		Activate/deactivate apex locator
	Activate intraoral scanner		Automatic position F		

14.3.2 Centre knob functions

NOTE

The centre knob functions can be programmed only when the Automatic positions are extended, see section "Extended vs. traditional view" on page 110.

Centre knob functions

Action	Function
Centre knob left	Standard view: Chair to automatic position A Extended view: Chair to selected automatic position
Centre knob left, long activation	Backrest down
Centre knob right	Standard view: Chair to automatic position B Extended view: Chair to selected automatic position
Centre knob right, long activation	Backrest up
Centre knob up	Standard view: Chair to automatic position C Extended view: Chair to selected automatic position
Centre knob up, long activation	Chair up
Centre knob down	Standard view: Chair to automatic position D Extended view: Chair to selected automatic position
Centre knob down, long activation	Chair down

14.3.3 Side knob functions

Possible side knob functions

Instrument	Function
No instrument is activated (idle state)	• None • Assistant call • Drive chair to selected automatic position • Door open • Operating light on/off • Activate intraoral scanner • Activate/deactivate intraoral camera • Turn suction on/off • Cup fill • Bowl rinse and cup fill • Planmeca Solanna operating light’s composite mode on/off • Activate/deactivate apex locator • Change light tone of operating light • Turn Planmeca Solanna Vision video streaming on/off • Start/stop Planmeca Solanna Vision video recording • Capture image with Planmeca Solanna Vision camera • Open/close Planmeca Solanna Vision window

Possible side knob functions

Instrument	Function
Micromotor	• None • Assistant call • Drive chair to selected automatic position • Door open • Operating light on/off • Turn suction on/off • Change spray 1 / 2 / OFF • Automatic chip blow on/off • Instrument light on/off • Speed/power limit on/off • Instrument quickstart on/off • Forward rotation / reverse rotation • Torque limit on/off • Select preset • Cup fill • Bowl rinse and cup fill • Open/close Planmeca Solanna Vision window
Turbine	• None • Assistant call • Drive chair to selected automatic position • Door open • Operating light on/off • Turn suction on/off • Change spray 1 / 2 / OFF • Automatic chip blow on/off • Instrument light on/off • Speed/power limit on/off • Instrument quickstart on/off • Cup fill • Bowl rinse and cup fill • Open/close Planmeca Solanna Vision window

Possible side knob functions

Instrument	Function
Scaler	• None • Assistant call • Drive chair to selected automatic position • Door open • Operating light on/off • Turn suction on/off • Change spray 1 / 2 / OFF • Instrument light on/off • Change scaler mode • Cup fill • Bowl rinse and cup fill • Open/close Planmeca Solanna Vision window
Intraoral camera	• None • Assistant call • Drive chair to selected automatic position • Door open • Operating light on/off • Turn suction on/off • Freeze/unfreeze image • Save still image • Cup fill • Bowl rinse and cup fill • Open/close Planmeca Solanna Vision window

Possible side knob functions

Instrument	Function
Intraoral scanner	• None • Assistant call • Drive chair to selected automatic position • Door open • Operating light on/off • Turn suction on/off • Deactivate intraoral scanner • Start scanning • Generate model of scanned area • Move upward in the list of scan type selection tools • Move downward in the list of scan type selection tools • Cup fill • Bowl rinse and cup fill • Open/close Planmeca Solanna Vision window
Unit controlled polymerisation light	• None • Start/stop instrument • Assistant call • Drive chair to selected automatic position • Door open • Operating light on/off • Turn suction on/off • Cup fill • Open/close Planmeca Solanna Vision window

14.3.4 Pedal functions

Possible pedal functions

Instrument	Function
No instrument is activated (idle state)	• None • Assistant call • Door open • Cup fill • Bowl rinse and cup fill

Possible pedal functions

Instrument	Function
Micromotor	• None • Forward rotation • Reverse rotation • Change spray 1 / 2 / OFF • Manual chip blow
Turbine	• None • Forward rotation • Change spray 1 / 2 / OFF • Manual chip blow
Scaler	• None • Forward rotation • Change spray 1 / 2 / OFF
Intraoral camera	• None • Freeze/unfreeze image • Save still image
Intraoral scanner	• None • Start scanning • Generate model of scanned area • Move upward in the list of scan type selection tools • Move downward in the list of scan type selection tools
Unit controlled polymerisation light	• None • Start / stop instrument

14.3.5 Factory default functions

If the foot control functions are reset, the factory default functions are taken into use.

Factory default side knob functions

Action	Function
Left-side knob up	Operation light on/off
Left-side knob down	No instrument in use: Activate intraoral scanner Micromotor: Open preset list / exit list without selecting preset Intraoral scanner: Deactivate instrument view
Right-side knob up	Assistant call
Right-side knob down	Chair to rinsing position

Factory default standard pedal functions

Instrument	Direction	Activation	Function
No instrument is activated (idle state)	Left	Short	Assistant call
		Long	Assistant call
	Right	Short	Door open
		Long	Door open
	Down	Short	Bowl rinse and cup fill
		Long	Cup fill
Micromotor and turbine	Left	Long	Drive instrument forward
	Right	Long	Drive instrument forward
	Down	Short	Change spray 1 / 2 / OFF
		Long	Manual chip blow
Scaler	Left	Long	Drive instrument
	Right	Long	Drive instrument
	Down	Short	Change spray 1 / 2 / OFF
Intraoral camera	Left	Short	Freeze/unfreeze image
	Right	Short	Freeze/unfreeze image
	Down	Short	Save still image
Intraoral scanner	Left	Short	Move upward in the list of scan type selection tools
	Right	Short	Move downward in the list of scan type selection tools
	Down	Short	Start scanning
		Long	Generate model of scanned area
Unit controlled polymerisation light	Left	Short	Start / stop instrument
	Right	Short	Start / stop instrument
	Down	Short	Start / stop instrument

14.4 Wireless foot control

NOTE

The wireless foot control is an optional feature.

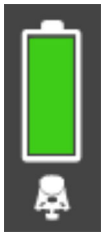
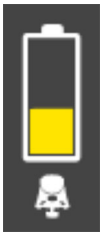
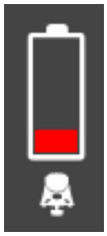
The standard foot control and the wireless foot control can not be used simultaneously. Should such a situation occur, the standard foot control overrides the wireless foot control.

When the wireless foot control has been idle for 2 hours (default value), it goes into sleep mode. To change the value, please contact your Planmeca dealer.

You can also put the wireless foot control into sleep mode by pressing the foot control handle.

When the foot control is in sleep mode, wake it by pressing the foot control handle.

Before using the wireless foot control, check the power level of its battery. The power level is indicated by a battery symbol on the control panel.

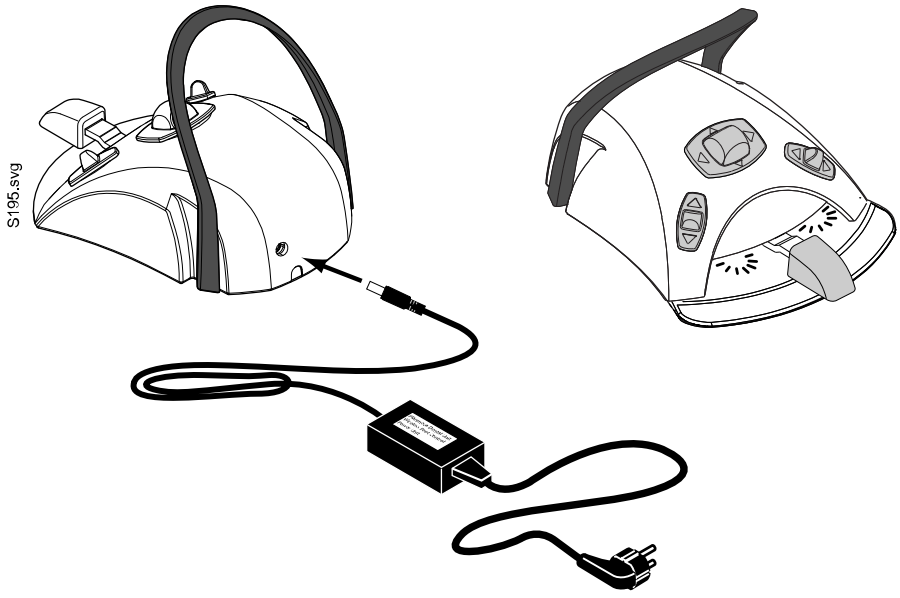
Power level	Sleep mode	Full	< 40% full	< 20% full
Symbol				

You can also view detailed battery charging information on the control panel. For instructions, see section "Viewing battery charging information" on page 204.

When the wireless foot control battery is running low, you need to recharge the battery.

To charge the foot control battery, connect the foot control to the power outlet using the provided cable and power adapter. The LEDs on the foot control blink green while the battery is being charged.

When the wireless foot control battery is full, and the foot control is connected to the power outlet, the LEDs on the foot control are a steady green.



CAUTION

Do not charge the foot control battery while treating a patient.

CAUTION

The battery charging area must be dry. Do not expose the charger to liquids.

NOTE

The power supply is marked and specified as a part of the Planmeca dental unit.

NOTE

The batteries must be replaced only by a qualified Planmeca service technician.

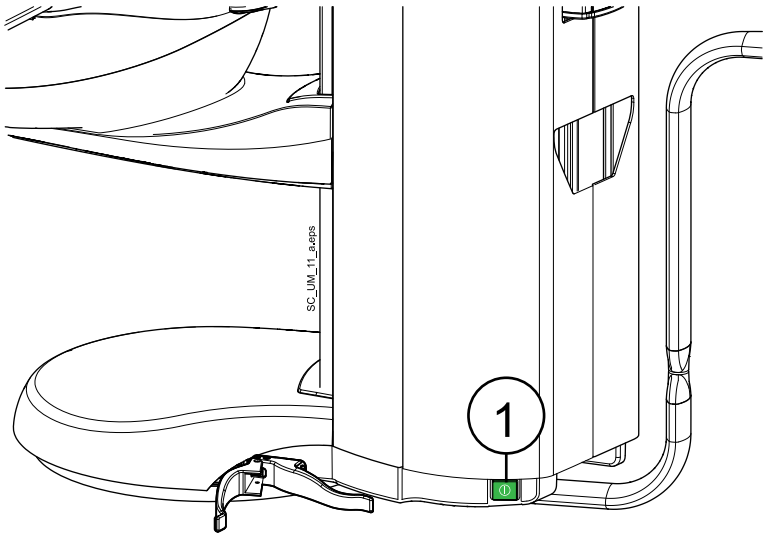
NOTE

The foot control batteries must be removed whenever the foot control is stored for a longer period. The batteries must be removed only by a qualified Planmeca service technician.

NOTE

The standard foot control contains a radio device FCC: YII002 and IC: 9050A-002, and the wireless foot control contains a radio device FCC: YII001 and IC: 9050A-001. See also section "FCC Class B Notice for wireless foot control" on page 285.

15 Switching unit on and off



The on/off switch (1) is located at the base of the cuspidor, next to the suction arm. Press the switch once to switch the unit on. Press the switch a second time to switch it off.

When the dental unit is switched on, the on/off switch light is on.

The control panel briefly shows the software version number.

NOTE

At start-up, with the exception of start-up during maintenance procedures, instruments and suction tubes have to be in their holders.

NOTE

After the unit is switched on, it will take a few seconds until the dental unit is ready for use.

16 Standby mode

Instead of completely turning off your dental unit, you can put it into standby mode. This mode helps conserve power when the dental unit is not in use without having to turn off and on the dental unit.

CAUTION

Do not pour anything into the bowl when the dental unit is in standby mode.

To put the dental unit into standby mode:

1. Sign out from the dental unit.

   For instructions, see section "Signing out" on page 85.

2. In the *Sign in* window, press **Standby**.

   When the dental unit is in standby mode, the following is displayed:

To wake the dental unit from standby mode:

1. Press anywhere on the touch display.

   You can now sign in to the dental unit. For instructions, see section "Signing in" on page 83.

NOTE

If the dental unit's Romexis user logs in to Planmeca Romexis, the dental unit will wake up from the standby mode.

To schedule when dental unit is in standby mode:

NOTE

This feature requires Planmeca Romexis software version 4.5 and Planmeca Romexis Clinic Management.

If your dental unit is connected to Planmeca Romexis, it is possible to schedule times when the dental unit or a group of dental units is in standby mode. To take this feature into use, contact your Planmeca dealer.

17 Signing in and out

17.1 Signing in

NOTE

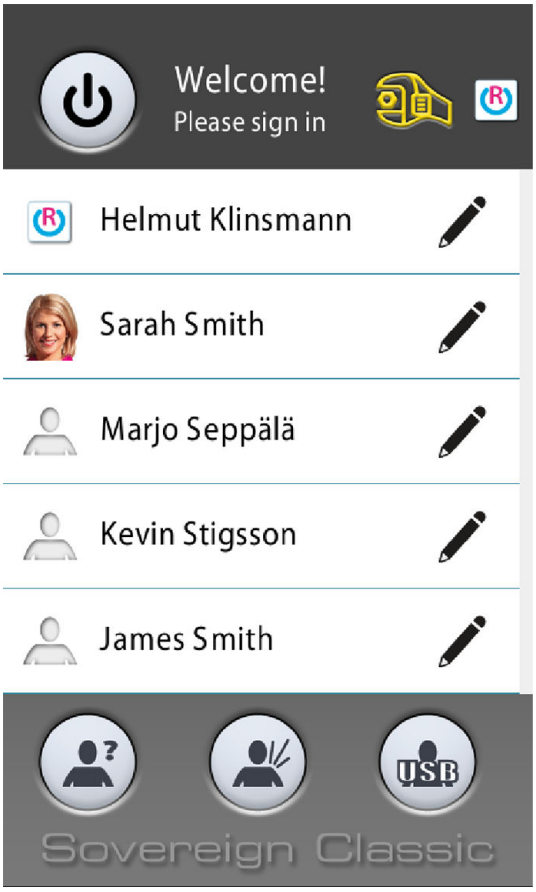
The sign in method depends on the user type. For more information, contact your Planmeca dealer.

NOTE

Before you can sign in with a PlanID card, you must assign a PlanID card to your user profile. For instructions, see section "Assigning PlanID card to user" on page 99.

If you have a PlanID card and the dental unit is equipped with a PlanID reader, sign in by showing the PlanID card to the PlanID reader on the instrument console. When the PlanID card is at reading distance, a rotating PlanID symbol shows on the display.

Alternatively, you can sign in from the *Sign in* window by pressing on your user name on the list. You can scroll the list of users either from the list itself or from the scroll bar to the right.



Once you have signed in, the treatment window opens and you can start using the dental unit with your own personal settings.

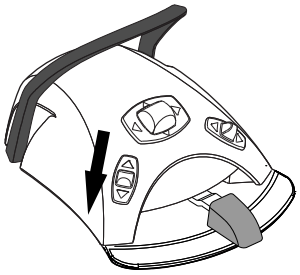
Depending on if you have configured the Romexis username into your personal settings, your personal settings are stored in the dental unit and/or in Planmeca Romexis software. If your personal settings are stored in Planmeca Romexis and the settings in Planmeca Romexis are newer than the settings on your dental unit, you will be asked whether you want to download the newer settings from Planmeca Romexis when you sign in to the dental unit.

It is also possible to sign in to the dental unit as a guest user or a USB user.

To sign in as a guest user, do one of the following:

- Press the **Guest user** button in the *Sign in* window.

- Press the **Flexy** button on the Flexy-holder.



- Press down the left-side knob of the foot control.

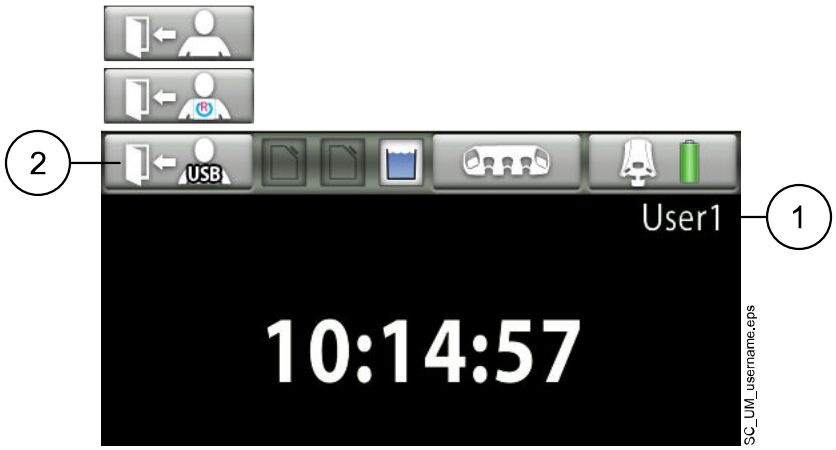
Factory settings are loaded for guest users. Changes that the guest users make to the settings during treatment are not saved.

To sign in as a USB user, first insert a USB memory stick with your user settings into the USB port on the cuspidor. Then, press the **USB user** button in the *Sign in* window.

The USB user's settings are loaded from the USB memory stick.

Depending on which type of user you sign in as, some functions may be unavailable to you. This is indicated by a greyed out button.

When you are signed in to the dental unit, your user name is displayed on the control panel. The Sign out button indicates where the user profile was loaded from: the dental unit, Planmeca Romexis or the USB memory stick.



1. User name
2. Sign out button

17.2 Signing out

1. In the top left corner of the treatment or maintenance window, press **Sign out**.

Depending on if you have configured the Romexis username into your personal settings, your personal settings are stored in the dental unit and/or in Planmeca Romexis software.

Any changes made to the personal settings during treatment are saved automatically in the dental unit. If your personal settings are stored in Planmeca Romexis, you will be asked whether you want to store your changed settings to Planmeca Romexis when you sign out from the dental unit. Saving the changed settings in Planmeca Romexis is useful, for example, when you want to use the same settings later in the same or another dental unit. However, if the changes you made to the personal

settings apply only to a specific case and you know that you have no use for these settings later, do not store these into Planmeca Romexis.

NOTE

If you want that personal settings are always transferred to Planmeca Romexis at sign-out without requesting a confirmation from you, uncheck the box *Always ask before transferring user settings?* in the *User settings* > *Romexis settings* window.

When the USB user signs out, they will be asked whether they want to save their personal settings to the USB stick.

Automatic sign-out

It is possible to configure the dental unit so that the user is automatically signed out from the dental unit when the unit has been idle for a pre-defined amount of time (the minimum being 15 minutes). Automatic user sign-out is disabled by default. To take it into use, contact your Planmeca dealer.

18 Managing users and personal settings

18.1 Introduction

When you sign in to the dental unit, you can start using the unit with your own personal settings. The settings are stored in the dental unit and/or in Planmeca Romexis software. For more information, contact your Planmeca dealer.

Your personal settings include the following:

- user settings (language, colour theme and automatic chair positions view)
- instrument settings
- timer settings
- operating light settings
- chair settings
- functions that are activated from the foot control

For information on how to edit your personal settings, see sections "Editing user settings" on page 89, "Automatic chair positions" on page 177, "Extended vs. traditional view" on page 110, "Operating instruments" on page 136, "Adjusting intensity of operating light" on page 124 and "Adjusting intensity of operating light in composite mode" on page 125.

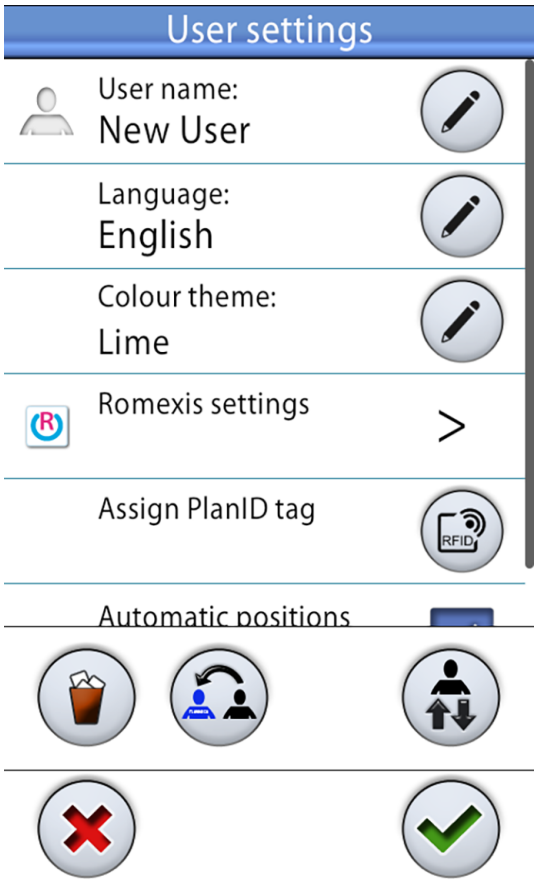
18.2 Creating new user

Steps

1. Press **New user** in the *Sign in* window.

   The *User settings* window opens.

2. Edit the user settings according to your preferences.



For information on how to edit the user settings, see section "Editing user settings" on page 89.

18.3 Deleting user

Steps

1. In the *Sign in* window, press **Edit** next to the user that you want to delete.

   The *User settings* window opens.
2. In the *User settings* window, press **Delete**.

   A confirmation message is displayed.
3. Confirm the deletion by pressing **OK**.

   Your user name is deleted from the user list in the *Sign in* window.

NOTE

The user profile optionally saved in Planmeca Romexis is not deleted. For more information, contact your Planmeca dealer.

18.4 Editing user settings

18.4.1 Editing user name

About this task

NOTE

Users who have configured a Romexis username to their personal settings and whose user profile is stored in Planmeca Romexis do not have to edit their user name, as it is downloaded from Planmeca Romexis.

Steps

1. In the *Sign in* window, press **Edit** next to the user whose settings you want to edit.

   The *User settings* window opens.
2. In the *User settings* window, press **Edit** next to *User name*.

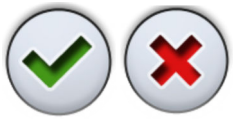
   The *Set user name* window opens.
3. Edit the user name.

An alphanumeric keyboard is displayed for editing the user name.

To display special characters, press **ALT**. Press **ALT** again to return to the normal view.

The symbols in the top row can be used as they are, or as a shortcut to letters containing that symbol. For example, when you press **^** for about one second, letters with the symbol ^ are displayed. You will

automatically return to the normal view when you enter one of the letters. To return to the normal view without entering a letter, press the symbol again.



4. When you have entered your user name, press **OK** to save the user name and return to the *User settings* window.

   Pressing **Close** exits the *Set user name* window without saving the user name.

5. When you have edited all the user settings (including language, colour theme, the automatic chair positions view, and optionally the Romexis username), save them to your user profile by pressing **OK** in the *User settings* window.

18.4.2 Editing language

About this task

Steps

1. In the *Sign in* window, press **Edit** next to the user whose settings you want to edit.

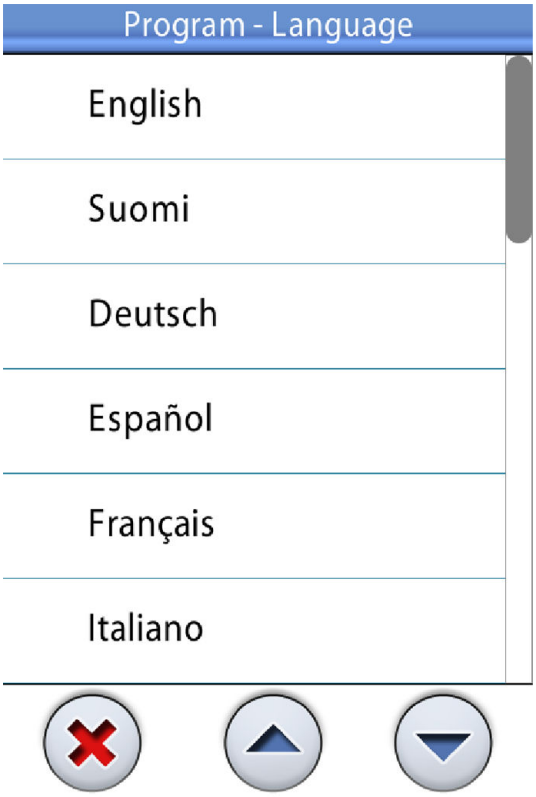
   The *User settings* window opens.

2. In the *User settings* window, press **Edit** next to *Language*.

   The *Program - Language* window opens.

3. Edit the used language.

   Select your preferred language from the list by pressing on the language. You can scroll the list of languages either from the list itself, from the scroll bar to the right, or by using the **Up** and **Down** buttons.



   When you press a language to select it, you will automatically return to the *User settings* window.

   Pressing **Close** exits the *Program - Language* window without making changes to the language.

   The available languages are:

   - English
   - Finnish
   - German
   - Spanish
   - French
   - Italian
   - Swedish
   - Hungarian
   - Czech
   - Danish
   - Norwegian
   - Russian
   - Japanese
   - Polish
   - Traditional Chinese
   - Simplified Chinese

- Romanian
- Arabic
- Dutch
- Portuguese
- Greek
- Turkish
- Estonian
- Latvian
- Lithuanian

4. When you have edited all the user settings (including user name, colour theme, the automatic chair positions view, and optionally the Romexis username), save them by pressing **OK** in the *User settings* window.

18.4.3 Editing colour theme

Steps

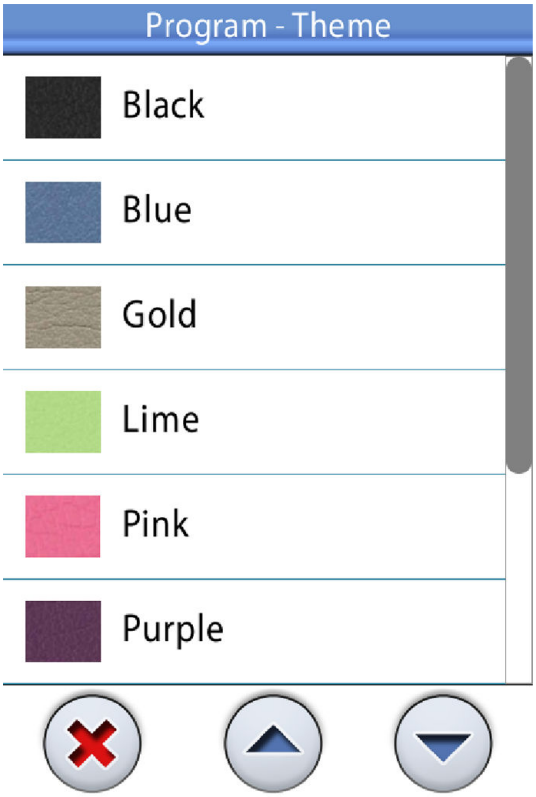
1. In the *Sign in* window, press **Edit** next to the user whose settings you want to edit.

   The *User settings* window opens.
2. In the *User settings* window, press **Edit** next to *Color theme*.

   The *Program - Theme* window opens.

3. Edit the used colour theme.

   Select your preferred colour theme from the list by pressing on the colour. You can scroll the list of colour themes either from the list itself, from the scroll bar to the right, or by using the **Up** and **Down** buttons.



   When you press a colour to select it, you will automatically return to the *User settings* window.

   Pressing **Close** exits the *Program - Theme* window without making changes to the colour theme.

4. When you have edited all the user settings (including user name, language, the automatic chair positions view, and optionally the Romexis username), save them by pressing **OK** in the *User settings* window.

18.4.4 Editing Romexis username

About this task

The Romexis username is used to identify the user profile in different dental units.

NOTE

One Romexis username can be connected to only one user profile.

Steps

1. In the *Sign in* window, press **Edit** next to the user whose settings you want to edit.

   The *User settings* window opens.

2. Press **Edit** next to *Romexis settings*.

   The *Romexis settings* window opens.

3. Press **Edit** next to *Romexis username*.

4. Edit the Romexis username and save the changes by pressing **OK**.

NOTE

The Romexis username must be the same that is entered in the *Add User* window in Planmeca Romexis.

NOTE

Only letters A-Z and a-z, period (.), hyphen (-), underscore (_) and the "at" sign (@) are allowed.

5. Close the Romexis settings window by pressing **OK**.
6. When you have edited all the user settings (including user name, language, colour, and the automatic chair positions view), save them to your user profile by pressing **OK** in the *User settings* window.

18.5 Transferring user settings

18.5.1 Transferring user settings to USB

About this task

When a USB memory stick is inserted into the USB port on the cuspidor marked "user settings and service", it is possible to transfer the user settings from the dental unit to the USB memory stick.

Steps

1. Insert an empty USB memory stick into the USB port on the cuspidor.

2. In the *Sign in* window, press **Edit** next to the user whose user settings you want to transfer.

   The *User settings* window opens.

3. Press **Transfer user settings**.

   The *Transfer user settings* window opens.

4. Press **Transfer to USB**.

   Transferring the settings to the USB memory stick will overwrite any user previously saved to the USB memory stick.

   A confirmation message is displayed.

5. Confirm the transfer by pressing **OK**.

   A help message is displayed when the settings have been transferred.

18.5.2 Transferring user settings from USB

About this task

When a USB memory stick is inserted into the USB port on the cuspidor marked “user settings and service”, it is possible to transfer the user settings from the USB memory stick to the dental unit.

Steps

1. Insert a USB memory stick with your user settings into the USB port on the cuspidor.

2. In the *Sign in* window, press **Edit** next to the user onto whose profile you want to transfer the user settings.

   The *User settings* window opens.

3. Press **Transfer user settings**.

   The *Transfer user settings* window opens.

4. Press **Transfer from USB**.

   Loading the settings from the USB memory stick will overwrite the current user settings.

   A confirmation message is displayed.

5. Confirm the transfer by pressing **OK**.

   A help message is displayed when the settings have been transferred.

18.5.3 Transferring user settings to Romexis

About this task

The user settings can be transferred from the dental unit to Planmeca Romexis.

NOTE

This feature requires that the Romexis username is in use. If the user does not have a Romexis username, the settings can not be transferred.

Steps

1. In the *Sign in* window, press **Edit** next to the user whose user settings you want to transfer.

   The *User settings* window opens.

2. Press **Transfer user settings**.

   The *Transfer user settings* window opens.

3. Press **Transfer to Romexis**.

   Transferring the settings to Planmeca Romexis will overwrite this user's previously stored user settings in Planmeca Romexis.

   A confirmation message is displayed.

4. Confirm the transfer by pressing **OK**.

   A help message is displayed when the settings have been transferred.

NOTE

The confirmation message is displayed only if the option *"Always ask before transferring user settings?"* option has been selected in the *Romexis settings* window. We recommend that you always keep this option selected. The *Romexis settings* window is accessed through the *User settings* window, see section "Editing Romexis username" on page 93.

18.5.4 Transferring user settings from Romexis

About this task

The user settings can be transferred from Planmeca Romexis to the dental unit.

Steps

1. In the *Sign in* window, press **Edit** next to the user onto whose profile you want to transfer the user settings.

   The *User settings* window opens.

2. Press **Transfer user settings**.

   The *Transfer user settings* window opens.

3. Press **Transfer from Romexis**.

   Transferring the settings from Planmeca Romexis will overwrite this user's previously stored user settings in the dental unit.

   A confirmation message is displayed.

4. Confirm the transfer by pressing **OK**.

   A help message is displayed when the settings have been transferred.

NOTE

The confirmation message is displayed only if the option *"Always ask before transferring user settings?"* option has been selected in the *Romexis settings* window. We recommend that you always keep this option selected. The *Romexis settings* window is accessed through the *User settings* window, see section "Editing Romexis username" on page 93.

18.6 Resetting personal settings

About this task

You can reset your personal settings (language, colour theme, instrument, foot control, timer, operating light and chair settings) to factory defaults. The reset does not affect your user name or your position on the user list in the *Sign in* window.

NOTE

The reset deletes also the Romexis username and the number of the PlanID tag from the dental unit. If you want to sign in to the dental unit with the PlanID card after a reset, you must again assign the PlanID card to the user.

NOTE

The user profile optionally saved in Planmeca Romexis is not affected by the reset. The reset profile must be explicitly loaded to Planmeca Romexis. Thus, if you do not want to reset the settings in Planmeca Romexis, make sure you do not upload your reset settings to Romexis when you sign out from the dental unit.

Steps

1. Open the *User settings* window.

   There are two alternative ways to open this window:

   In the *Sign in* window, press **Edit** next to the user whose settings you want to reset.

   OR

   Sign in to the dental unit and press **Program** > **User settings**.

   The *User settings* window opens.

2. Press **Reset**.

A confirmation message is displayed.

3. Confirm the reset by pressing **OK**.

19 Assigning PlanID card to user

Before you begin

Prerequisites:

- Planmeca Romexis version 4.6 or later installed
- Dental unit is connected to the Planmeca Romexis server
- Dental unit's PlanID reader has been enabled by a qualified Planmeca service technician.

For information on the dental unit's configuration requirements, contact your Planmeca dealer.

Before you assign the PlanID card to a user, the user must be created in the Admin module of Planmeca Romexis. This is typically done by a Planmeca Romexis administrator.

The following information must be supplied when creating the user:

- In *Add User* window, *User* tab
  - Username

    This username is later entered in the Romexis username field in the dental unit.
  - Member of Groups

    We recommend that you create a group for PlanID users and add all PlanID users to that group.
- In *Add User* window, *Personal* tab
  - First Name
  - Last Name

  These will be shown in the dental unit as your user name.

NOTE

If you have stored a picture of yourself in Planmeca Romexis software, the picture will show in the dental unit's *User settings* window and in the Welcome-message that is displayed when you sign in to the dental unit.

For instructions, see *Planmeca Romexis technical manual*, chapter *Administration*, section *Resource*.

About this task

Before you sign in to the dental unit with the PlanID card for the first time, you must assign the PlanID card to the user. This can be done either from the dental unit or from the Planmeca Romexis computer.

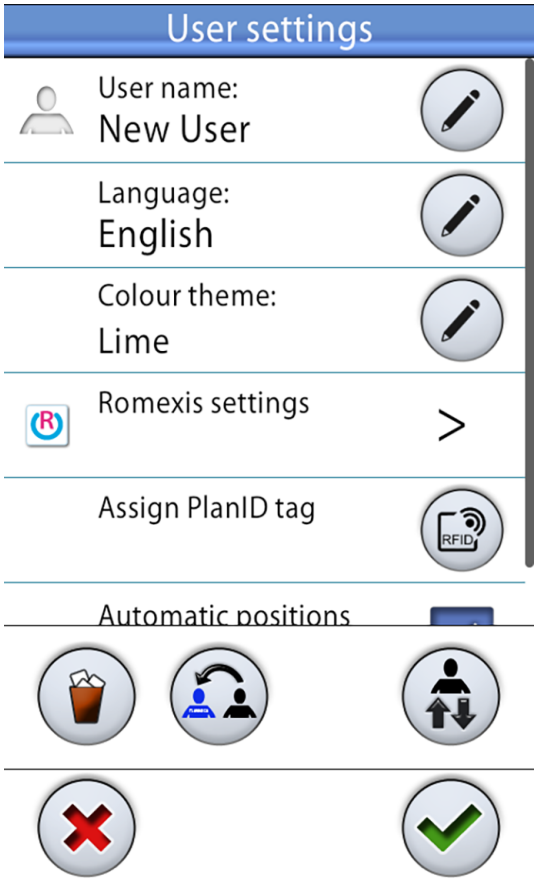
Especially if you must assign PlanID cards for several users, we recommend that you assign them from the Planmeca Romexis computer. For instructions, see *Planmeca PlanID quick guide* (30005120).

The following instructs how to assign the PlanID card from the dental unit.

Steps

1. Press **New user** in the *Sign in* window.

   The *User settings* window opens.



2. Press **Assign PlanID tag**.

   The *Assign PlanID tag* window opens.

3. Press **Edit** next to *Romexis username*.

   The *Set Romexis username* window opens.

4. Enter your Romexis username and save the changes by pressing **OK**.

   The username must be the same that you entered in the *Add User* window in Planmeca Romexis.

   Only letters A-Z and a-z, period (.), hyphen (-), underscore (_) and the “at” sign (@) are allowed.

   The *Set Romexis username* window closes.

5. Show the PlanID card to the PlanID reader on the dental unit.

   The text *PlanID tag detected* is displayed.

6. Close the *Assign PlanID tag* window by pressing **OK**.

7. Close the *User settings* window by pressing **OK**.

Results

You have now created a local user with Romexis username. Your PlanID card has been assigned to you and you have been signed in to the dental unit.

For more information on the different user types, see section "Signing in" on page 83.

20 Checking dental unit details

20.1 About this unit

About this task

The technical details about the dental unit are presented in the *About this unit* window.

This section describes how to access the *About this unit* window and the subsequent sections describe what information you can find in this window.

Steps

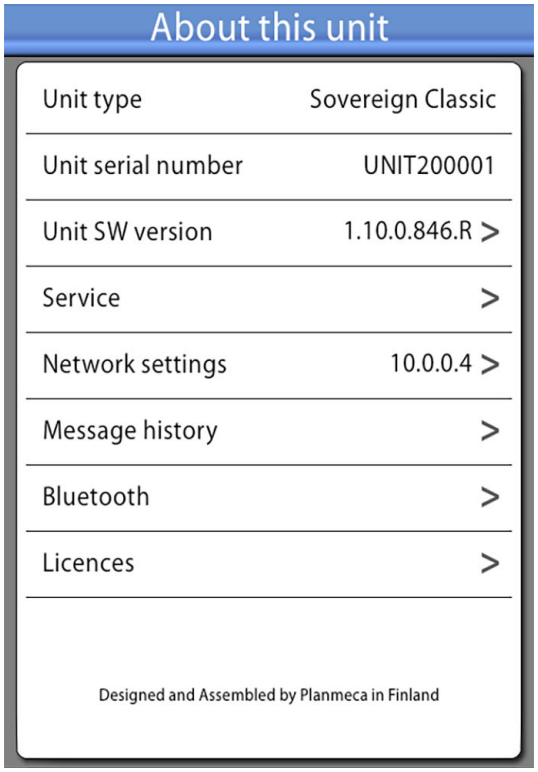
1. Press **Program**.

2. Press **About this unit**.

The *About this unit* window opens.

NOTE

The following is an example only and does not necessarily portray the actual situation.



> means that more information can be opened to a new window.

3. Press **OK** to close the window.

20.2 Unit type

Unit type tells you which type of dental unit you are working on.

20.3 Unit serial number

Unit serial number shows the serial number of your dental unit. If the dental unit's main control PCB is not equipped with a software licence dongle, no serial number is displayed.

20.4 Unit software version

Unit SW version shows the software version.

Press **>** to display detailed information on the different parts of the software.

20.5 Service

Service contains information for service situations.

Press **>** to display the following items:

- *Service contact details*
- *Annual maintenance*
- *Storage information*
- *GUI diagnostics*
- *PlanID*
- *Product registration*
- *Peripherals*
- *Dental unit model*

20.5.1 Service contact details

The service contact details give you information on whom to contact when you need technical assistance. The contact information can only be edited by a qualified Planmeca service technician.

20.5.2 Annual maintenance

Annual maintenance tells you

- when the annual maintenance was last performed
- how many days are left until the next annual maintenance.

The last item, *Confirm annual maintenance*, is for qualified Planmeca service technicians only.

20.5.3 Storage information

Storage information contains details on the mainboard SD card and control panel SD card.

Press **>** to display the relevant information.

20.5.4 GUI diagnostics

GUI Diagnostics shows the current hardware revision of the control panel and also contains tools for finding possible errors in the touch display.

CAUTION

GUI diagnostics is only meant to be used by a qualified Planmeca service technician.

20.5.5 PlanID

In the *Details* tab you can view details on the tag ID and the PlanID reader's region of operation. To change the region, contact your Planmeca dealer.

To enable/disable PlanID sounds, press **Sound**. A grey button means that sounds are disabled and a blue button that they are enabled.

To enable/disable notifications about unknown PlanID tags, press **ID**. A grey button means that notifications are disabled and a blue button that they are enabled.

CAUTION

The *Configuration* tab contains tools for enabling/disabling the PlanID reader as well as for adjusting its power level, and is only meant to be used by a qualified Planmeca service technician.

20.5.6 Product registration

For instructions on how to register your dental unit, see section "Registering your product" on page 5.

20.5.7 Peripherals

Peripherals contains information on and service tools for:

- Solanna operating light
- Capacitive patient sensor (Capsense)

CAUTION

Peripherals is only meant to be used by a qualified Planmeca service technician.

20.5.8 Dental unit model

Dental unit model shows the model of your dental unit.

20.6 Network settings

The front page of *About this unit* shows the dental unit's IP address next to *Network settings*. Press **>** to display the dental unit's network settings.

Press the *Romexis* tab to view network settings related to the Planmeca Romexis connection.

The following network settings are displayed:

- Romexis connection
- Name of dental unit

- MAC address
- DHCP
- IP address
- Network mask
- Gateway
- Romexis server IP address
- Romexis server port

Press the *Solanna Vision* tab to view network settings related to the Planmeca Solanna Vision operating light.

The following network settings are displayed:

- Name
- Serial number
- DHCP
- MAC address
- IP address
- Network mask
- Gateway

The Planmeca Solanna Vision settings can be reset to factory defaults by pressing the **Reset** button, but reset must only be performed by a qualified Planmeca service technician.

CAUTION

The network settings may only be edited by a qualified Planmeca service technician.

20.7 Message history

Message history displays help and error messages when you press **>**.

For information on how to use the message log, see section "Viewing help and error message history" on page 265.

20.8 Bluetooth

When you press **>** next to *Bluetooth*, you are directed to a window where you can enable or disable the Bluetooth connection.

Also, you can view information related to the Bluetooth connection.

20.9 Licences

Licences displays the licences used by the dental unit when you press **>**.

21 Switching dental unit handedness

About this task

Switching from right- to left-handed dentistry, or vice versa, is done in the following order.

NOTE

It is good to keep in mind that the chair should be in the same position in the room before you start moving the dental unit and when you are finished. For examples on how to position the dental unit in a room, see section "Cuspidor positions" on page 280.

Steps

1. Drive the patient chair to a position where the seat is as low as possible and the backrest is in an upright position.
2. Move the suction arm as close to the cuspidor as possible.
3. Move the foot control so that it is not in the way when you swivel the dental unit.
4. Pull the lever on the unit base to unlock the base.

   For instructions, see section "Unit swivel" on page 27.
5. Swivel the dental unit to the desired position.
6. Lock the unit base by pushing the lever back in.
7. Swivel the patient chair.

   For instructions, see section "Chair swivel" on page 55.
8. Drive down the chair's backrest.
9. Move the delivery arm to the correct position.
10. Move the operating light to the correct position.
11. Move the suction arm to the correct position.
12. If needed, move the control panel to the other side of the instrument console.
13. If needed, move the syringe to the other end of the instrument console.

What to do next

Also watch the Planmeca video Planmeca Sovereign® Classic Left/right conversion.

22 Operating patient chair

NOTE

All chair movements are blocked when an instrument, excluding syringe, is operated

NOTE

The operating light intensity will decrease slightly when the chair is moving.

NOTE

As an alternative to the control panel buttons described below, the chair buttons on the Flexy-panel can be used to drive the chair.

22.1 Manual operation

CAUTION

When driving the chair near the upper limit, make sure that the console arm does not press or hit the patient.

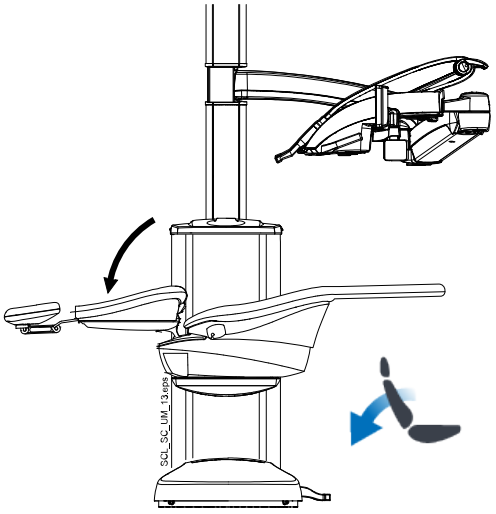
CAUTION

When driving the backrest up, make sure that the patient's hand or arm does not get squeezed between the armrest and the backrest.

NOTE

When the specialist mode is enabled, the manual chair movements are by default slower than in the normal mode. Also, the chair movement buttons look different, see section "Specialist mode" on page 115.

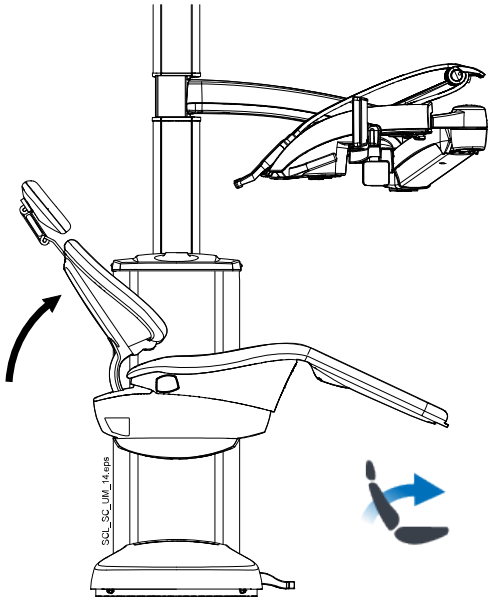
To drive the backrest down, press the **Backrest down** button until the chair reaches the required position.



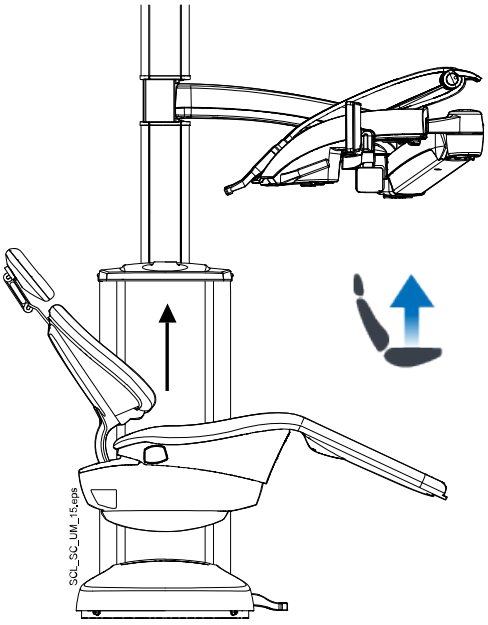
NOTE

If the chair is equipped with an optional automatic legrest, the legrest position is adjusted simultaneously with the backrest position.

To drive the backrest up, press the **Backrest up** button until the chair reaches the required position.



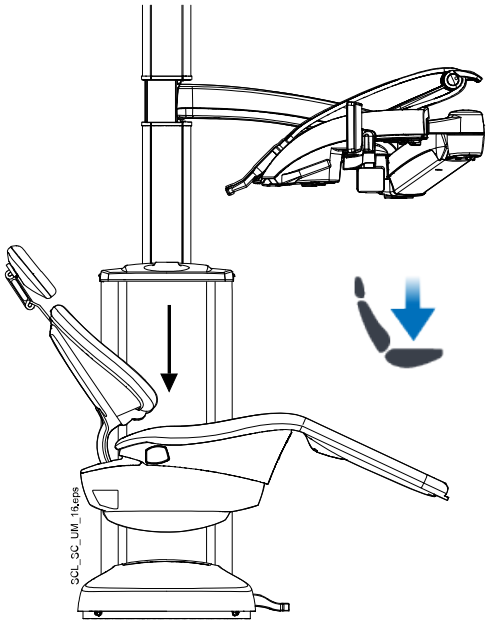
To drive the chair up, press the **Chair up** button until the chair reaches the required position.



NOTE

Make sure that the bowl is not above the patient chair when driving the chair up.

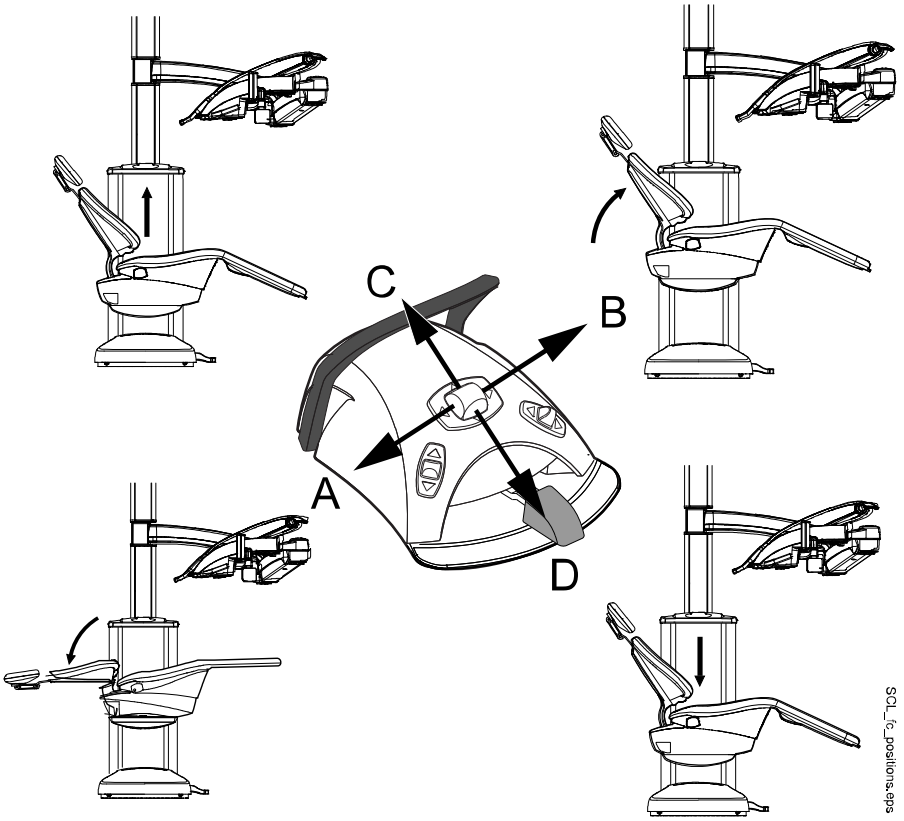
To drive the chair down, press the **Chair down** button until the chair reaches the required position.



NOTE

If your chair is equipped with an optional automatic legrest, the lowest possible position of the chair depends for safety reasons on the legrest position.

Alternatively, you can adjust the position of the chair with the foot control. Push and hold the centre knob in the desired direction (see picture below). When the chair reaches the desired position, release the centre knob. You can steer the chair only in one direction at a time.



22.2 Automatic operation

22.2.1 Overview

Automatic chair positions can be stored into memory.

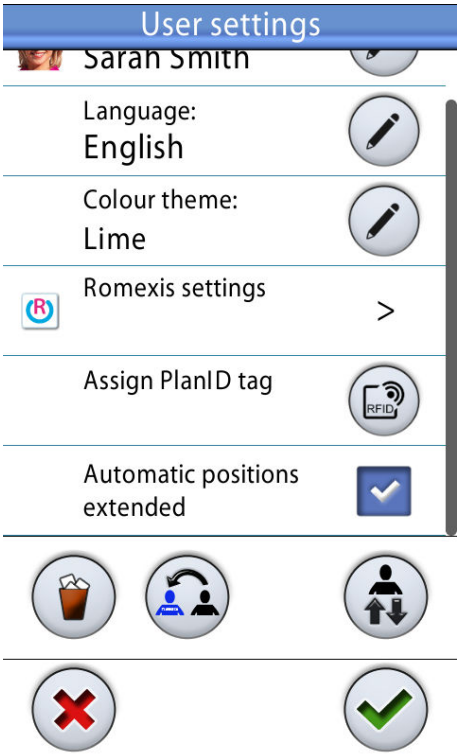
For more information on how to store the automatic positions, see section "Automatic chair positions" on page 177.

When automatic positions have been stored into memory you can select an automatic position from the control panel or the foot control and the chair automatically drives to the selected position. When the chair has reached its preprogrammed position, the position can be adjusted. To adjust the position manually, use the foot control's centre knob or the chair positioning buttons on the control panel in a non-automatic mode (see section "Manual operation" on page 107).

You can program the operating light to be on or off in preprogrammed positions. The light goes off when the chair begins to move to a position where the light has been programmed to be off, but goes on only after the chair has reached the programmed position, where the light has been programmed to be on. The operating light intensity can also be programmed to a certain value.

22.2.2 Extended vs. traditional view

In the *User settings* window, select whether you want to view the automatic positions in a traditional or an extended view.



- Extended view

  Includes numerous automatic positions in list-format.

  Also, automatic positions A - G can be renamed, the order of the automatic positions on the list can be rearranged, automatic positions can be hidden from the list, and automatic positions can be programmed to the foot control. For instructions, see sections "Extended view" on

page 177, "Traditional view" on page 178 and "Foot control functions" on page 200.

To take the extended view into use, check the checkbox next to *Automatic positions extended* in the *User settings* window.

- Traditional view

  Includes the automatic positions A, B, C, D and rinsing position.

  To take the traditional view into use, uncheck the checkbox next to *Automatic positions extended* in the *User settings* window.

22.2.3 Selecting automatic position

Extended view

Control panel: To move the chair to a preprogrammed position, first press the **Chair positions** button in the main window. Then, in the list that opens, select an automatic position by pressing it.

The position you are currently in is marked by a blue frame.

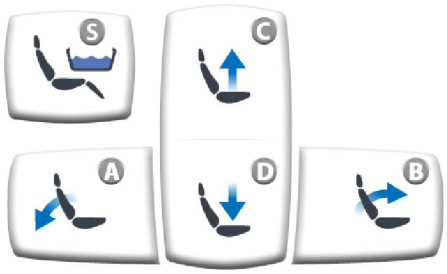
Foot control: When an automatic position has been programmed to the foot control, you can use the foot control to drive the chair to the programmed position. A foot control symbol on the right side of the automatic position on the list indicates in which direction you must push the left-side, right-side or centre knob to drive the chair to the automatic position.

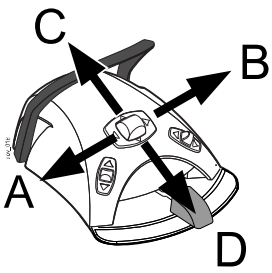
For information on how to program automatic positions to the foot control, see sections "Foot control functions" on page 69 and "Foot control functions" on page 200.

When the chair is in an automatic position, the current position is displayed on the **Chair positions** button in the main window.

Traditional view

Control panel: To move the chair to a preprogrammed position, press briefly the corresponding chair position button.





Foot control: Push the centre knob briefly to the position (A, B, C or D) where the preprogrammed chair position has been stored. The chair will move automatically to the preprogrammed position.

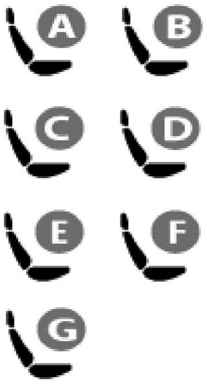
NOTE

The centre knob's preprogrammed chair positions can not be changed.

22.2.4 Automatic positions

NOTE

In the standard view, only automatic positions A - D and rinsing position are available. The chair can be driven manually to the Trendelenburg position.



Automatic position A - G

Rinsing position

For more information, see section "Rinsing position" on page 113.

Cleaning position

Consultation position

Entry-Exit position

Mandible position

Maxilla position

Intraoral scanner position

X-Ray position

Trendelenburg position

For information on how to drive the chair manually to the Trendelenburg position, see section "Trendelenburg position" on page 114.

22.2.4.1 Rinsing position

Extended view

When the chair moves to the rinsing position, the bowl on the **Chair positions** button flashes throughout the movement. Filling the cup starts automatically and the bowl is rinsed.

When the chair stops in the rinsing position, the bowl symbol on the **Chair positions** button stops flashing.

To return to the previous working position, press **Chair positions** again and select *Previous position* from the list that opens. Bowl rinsing starts automatically. An arrow on the button flashes throughout the movement.

Standard view

Press **Rinsing position** to move the chair to the preprogrammed rinsing position. The indicator light flashes throughout the movement. Filling the cup starts automatically and the bowl is rinsed.

When the chair stops in the rinsing position, the indicator light remains on and an arrow appears below the indicator light.

When you press **Rinsing position** again, the chair will return to the previous working position. Bowl rinsing starts automatically. The indicator light flashes throughout the movement.

NOTE

Alternatively, you can program the dental unit so that the chair moves to the preprogrammed rinsing position when you press the Flexy button.

NOTE

The water in the dental unit is intended for rinsing only, not for drinking.

NOTE

Alternatively, you can program the dental unit so that the chair returns to the previous working position when you press the Flexy button.

NOTE

If you press and hold the Rinsing position button when the chair is in the rinsing position, or if you drive the chair manually, the indicator light goes off, and the chair will forget the previous position (the return function is inactivated).

NOTE

The unit can be set up so that the Rinsing position indicator light goes off and the previous position is forgotten, when you are driving from the rinsing position to a preprogrammed position. Next time you press Rinsing position, the chair will move to the rinsing position. Contact your Planmeca dealer.

NOTE

The Drive chair to rinsing position -function is a factory default function on the foot control. If the function has not been programmed to be replaced by another function, you can drive the chair to the rinsing position by pushing down the right-side knob. To return to the working position, push down the right-side knob again. For more information on the foot control functions, see section "Foot control functions" on page 69.

22.2.4.2 Trendelenburg position

Extended view

First, press the **Chair positions** button in the main window. Then, in the list that opens, select the Trendelenburg position.

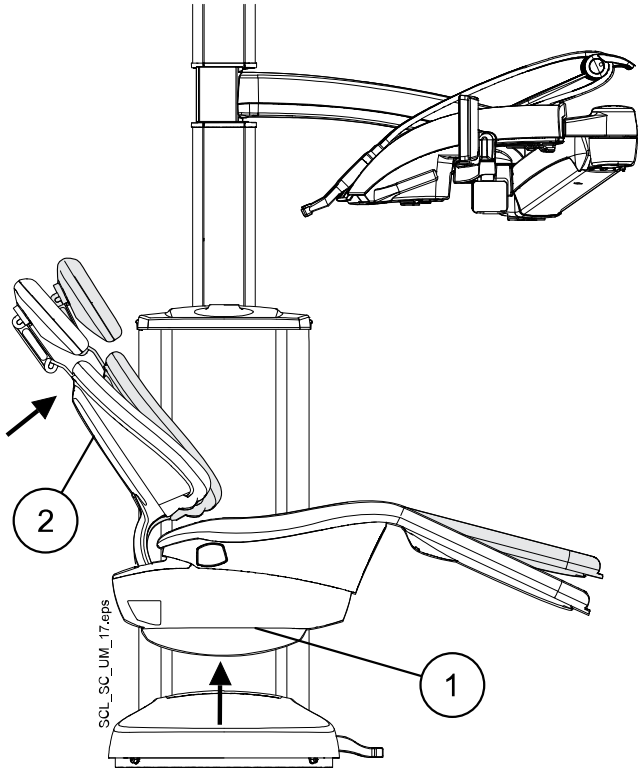
Standard view

To drive the patient chair to the Trendelenburg position, press the **Backrest down** button until the backrest reaches its lower movement limit, and then press the **Backrest down** button again. The chair is driven to a position where the patient's feet are higher than the head.

22.2.5 Stopping chair movements

To stop the chair from moving before it reaches the preprogrammed position, either press anywhere on the control panel display, press any chair button on the Flexy-holder, push the foot control pedal or the centre knob in any direction, or press the foot control handle.

The chair movement stops also when the stop plate is pushed or when the backrest is pressed upward. The chair can be driven normally after the possible obstruction has been removed.



1. Stop plate
2. Backrest

22.3 Specialist mode

The specialist mode is ideal for special treatment situations, for example when working with a microscope.

When the patient chair is operated in the specialist mode, the manual chair movements are by default slower than in the normal mode.

Toggle the **Specialist mode** button to enable/disable the specialist mode.

When the specialist mode is enabled, the button's indicator light is on. When it is disabled, the indicator light is off.

To mark the specialist mode, the arrows on the chair movement buttons are slightly different than in the normal mode. To drive the chair in the desired direction, press the corresponding chair movement button until the chair reaches the required position. At first, the movement is slow and after about 2 seconds, the speed increases.

The automatic chair positions are not available in the specialist mode.

The speed of the chair movements in the specialist mode can be programmed, see section "Specialist mode" on page 179.

23 Operating dental unit

23.1 Bowl rinse

Control panel on instrument console: Press **Bowl rinse** to rinse the bowl. Bowl rinsing can be stopped before it stops automatically by pressing **Bowl rinse** again.

If **Bowl rinse** is pressed and held for longer than 1 second, water flows for as long as the button is pressed.

Control panel on Flexy-holder: Press **Cup fill / Bowl rinse** to rinse the bowl. Bowl rinsing can be stopped before it stops automatically by pressing **Cup fill / Bowl rinse** again.

The flow rate of the bowl rinse can be adjusted by turning the black knob inside the unit, see section "Adjusting cup fill and bowl rinse flow rates" on page 188.

The duration of bowl rinsing can be programmed, see section "Duration of bowl rinsing" on page 189.

23.2 Cup fill

NOTE

The water in the dental unit is intended for rinsing only, not for drinking.

23.2.1 Automatic cup fill

If automatic cup fill is enabled, the cup will fill automatically when you place it underneath the tap. A built-in sensor makes sure the cup is filled correctly.

To take this feature into use, contact your Planmeca dealer.

23.2.2 Manual cup fill

NOTE

The cup fill is not activated unless the cup is positioned in its place under the cup fill tube.

Control panel on instrument console: Press **Cup fill** to fill the cup. Cup filling can be stopped before it stops automatically by pressing **Cup fill** again.

If **Cup fill** is pressed and held for longer than 1 second, water flows for as long as the button is pressed.

Control panel on Flexy-holder: Press and hold **Cup fill / bowl rinse** to fill the cup manually. Water flows for as long as the button is pressed.

Foot control: The cup fill function can be programmed to be activated from the foot control. For programming instructions, see section "Foot control functions" on page 200.

The instruments must be in their holders before you can start cup filling from the foot control. Cup filling stops automatically after a preset time. You can stop cup filling before it has stopped automatically by pushing the knob or pedal again.

If you activate the cup fill with a long push, water flows for as long as the knob or pedal is pushed.

23.2.3 Adjustments

The flow rate of the cup fill can be adjusted by turning the black knob inside the unit, see section "Adjusting cup fill and bowl rinse flow rates" on page 188.

The duration of the cup fill can be programmed, see section "Duration of cup filling" on page 189.

23.3 Timer

About this task

The timer memory contains six preprogrammed time settings. Follow the steps below to activate a timer.

NOTE

Other functionalities can be used while the timer is running.

NOTE

The timer can not be run from the foot control.

Steps

1. Press **Timer** to open a list of available timers.
2. Select a timer from the list.

   The **Timer** button's indicator light is lit and the duration of the timer is displayed on the control panel.The countdown begins immediately, but the selected time is displayed for four seconds before the actual countdown is displayed.

   If you wish to close the list without selecting a timer, press **Close**.

Results

When the timer reaches zero you will hear a short signal and the indicator light goes off.

The function can be cancelled by pressing **Timer** again.

The preset timers can be reprogrammed, see section "Timer settings" on page 188.

23.4 Door open

When the door open -function is enabled, the **Door open** button is displayed on the control panel and you can open the door from the control panel or the foot control.

NOTE

You can select whether the door open -function or the assistant call -function is enabled. Both of them can not be enabled at the same time. For instructions, see section "Door open / assistant call" on page 194.

Control panel: Press **Door open** to open the door. You will hear a short signal tone when the function starts.

Press the **Door open** button for more than 0.5 seconds to continue the function until the button is released.

Foot control: The door open function can be programmed to be activated from the foot control. For programming instructions, see section "Foot control functions" on page 200.

The instruments must be in their holders before you can open the door from the foot control.

If you activate the door open function with a long push, the signal continues for as long as the knob or pedal is pushed.

The duration of the signal can be programmed, see section "Door open / assistant call" on page 194.

23.5 Assistant call

When the assistant call -function is enabled, the **Assistant call** button is displayed on the control panel and you can call for the assistant from the control panel or the foot control.

NOTE

You can select whether the door open -function or the assistant call -function is enabled. Both of them can not be enabled at the same time. For instructions, see section "Door open / assistant call" on page 194.

Control panel: Press **Assistant call** to call for the assistant. You will hear a short signal tone when the function starts.

Press the **Assistant call** button for more than 0.5 seconds to continue the function until the button is released.

Foot control: The assistant call function can be programmed to be activated from the foot control. For programming instructions, see section "Foot control functions" on page 200.

The instruments must be in their holders before you can call for the assistant from the foot control.

If you activate the assistant call function with a long push, the signal continues for as long as the knob or pedal is pushed.

The duration of the signal can be programmed, see section "Door open / assistant call" on page 194.

23.6 Planmeca Solanna and Planmeca Solanna Vision operating light

NOTE

The light must be moved from the handles only. Do NOT move the light from the arm or from the light body.

NOTE

The light beam may speed up the hardening of some filling materials. Move the light so that the light beam is not directed towards the filling material or turn on the operating light's composite mode.

NOTE

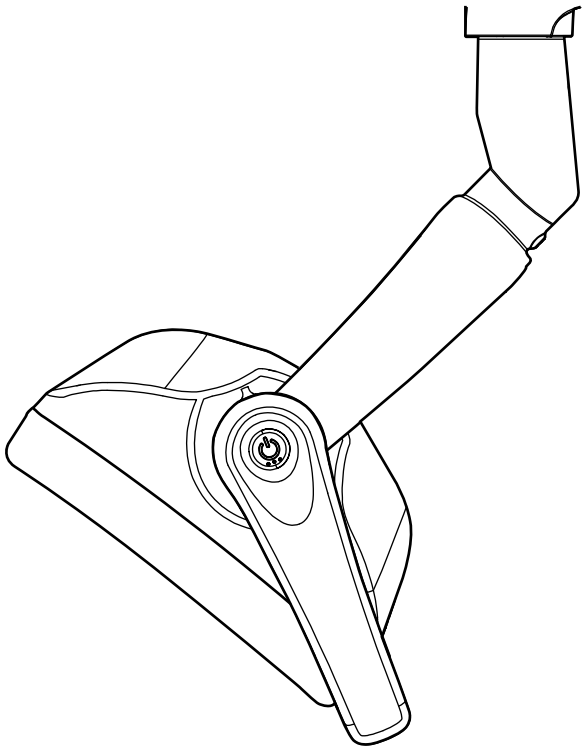
To be able to use the operating light hands-free with the gesture sensor, the sensor must be enabled.

NOTE

The sensor detects your hand movement at an approximate distance of 3 - 18 cm (1.2 - 7.1 in.) from the infrared sensor.
The distance can be adjusted, see section "Gesture sensor" on page 193.

23.6.1 Indicator lights

The indicator lights on the operating light’s handle buttons indicate the current state of the operating light.



Indicator lights

Colour	Meaning
White 	The operating light is on and the colour temperature is neutral.

Indicator lights

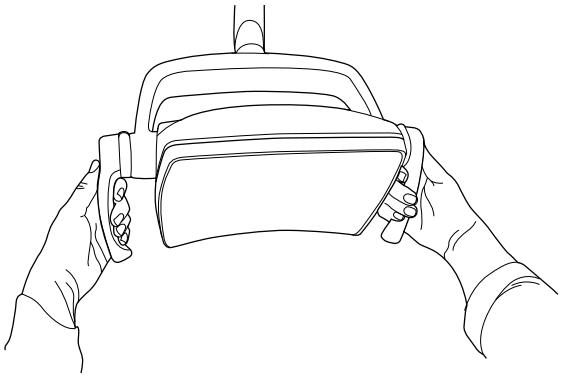
Colour	Meaning
Light blue 	The operating light is on and the colour temperature is cool.
Peach 	The operating light is on and the colour temperature is warm.
Orange 	The composite mode is on.
Green 	The operating light is off.
Yellow 	When the indicator light blinks yellow, the operating light is not functioning properly and full luminosity can not be reached. You can also hear a warning sound. Please contact your local Planmeca service technician.

23.6.2 Enabling gesture sensor

From both operating light handles

When the operating light is not on, press both handle buttons simultaneously to toggle the gesture sensor off/on. When the sensor turns off, you will hear a signal tone that goes down at the end. When the sensor turns on, you will hear a signal tone that goes up at the end.

By default, the gesture sensor is on.



From dental unit

You can program the gesture sensor to be on or off, see section "Gesture sensor" on page 193.

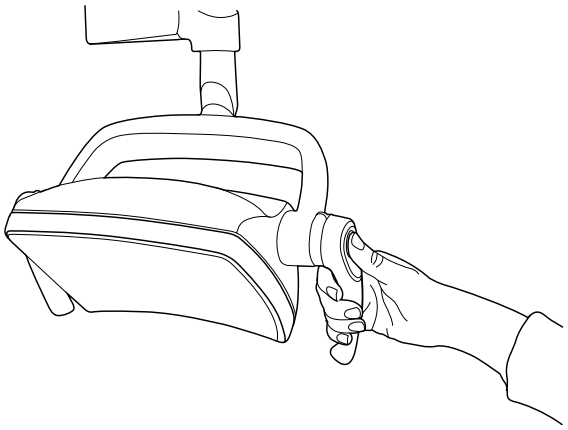
23.6.3 Switching operating light on/off

From operating light

From one handle

Briefly press the handle button on either handle to switch the light on. Press the handle button a second time to switch the light off.

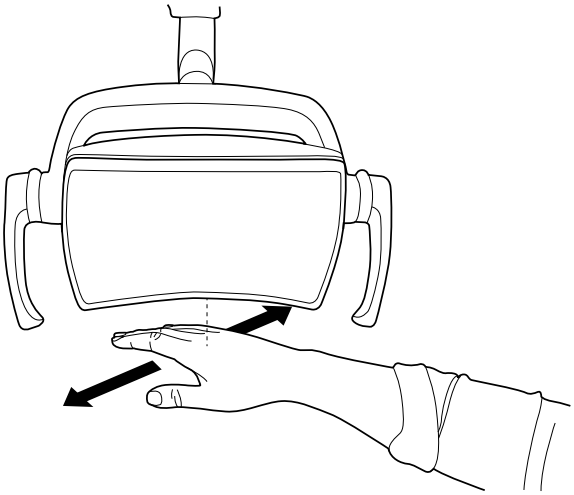
You will hear a clicking sound when you press the button.



Hands-free with sensor

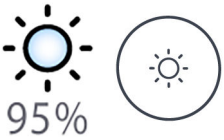
Wave your hand shortly in front of the sensor to switch on/off the operating light. The light will switch on/off **after** you have moved your hand away from the sensor activation area.

You will hear a clicking sound when you wave your hand in front of the sensor.



From dental unit

When you switch the operating light on, the indicator light on the **Operating light** button is lit.



Control panel: Press **Operating light** to switch the operating light on or off.

Foot control: The foot control can be configured so that you can switch the operating light on and off from the foot control. For programming instructions, see section "Foot control functions" on page 200.

23.6.4 Switching composite mode on/off

The composite mode allows you to work with composite materials with minimal risk of pre-polymerisation caused by the operating light.

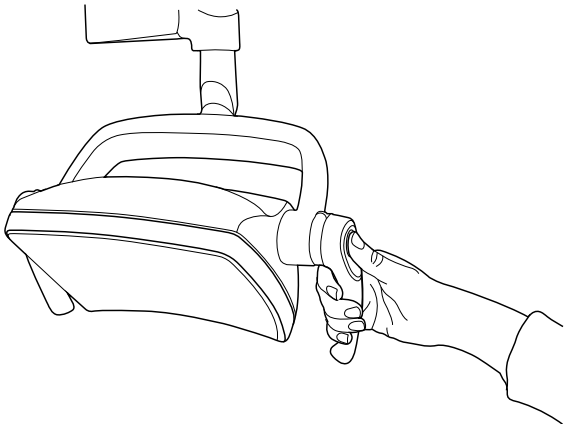
The composite mode turns off automatically when another instrument than the polymerisation light is picked up from the instrument console.

From operating light

From one handle

Press twice the handle button on either handle to switch to composite mode. Press the handle button twice again to switch the composite mode off.

You will hear a clicking sound each time you press the button.

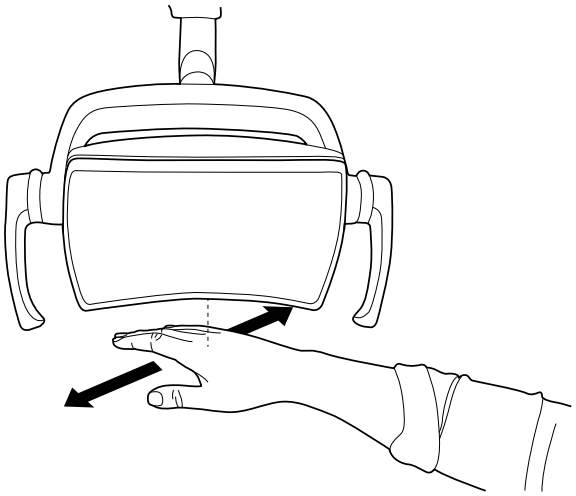


Hands-free with sensor

Wave your hand twice in front of the sensor to switch the composite mode on/off.

The light will switch to composite mode after you have moved your hand away from the sensor activation area for the second time.

You will hear a clicking sound each time you wave your hand in front of the sensor.



From dental unit

When you switch the composite mode on, the indicator light on the **Composite mode** button is lit.

Control panel: Press **Composite mode** to switch the operating light's composite mode on or off.

NOTE

You can program the dental unit so that you can switch the operating light's composite mode on or off by pressing the Flexy button. For instructions, see section "Flexy button functions" on page 198.

NOTE

When the polymerisation light is taken from the holder and returned to it, the composite mode is switched on. This feature is configurable; contact your Planmeca dealer.

Foot control: The foot control can be programmed so that you can switch the composite mode on and off from the foot control. For programming instructions, see section "Foot control functions" on page 200.

23.6.5 Adjusting intensity of operating light

The intensity adjustment range is from 30% to 100%.

Each time you adjust the intensity, the direction of the adjustment (increase/decrease) changes. Thus, if you first increase the intensity, the intensity will be decreased the next time you adjust it.

You will hear short successive clicking sounds while the intensity is being adjusted and a long signal tone when the maximum/minimum intensity is reached.

The operating light intensity can also be programmed, see section "Planmeca Solanna and Planmeca Solanna Vision operating lights" on page 191.

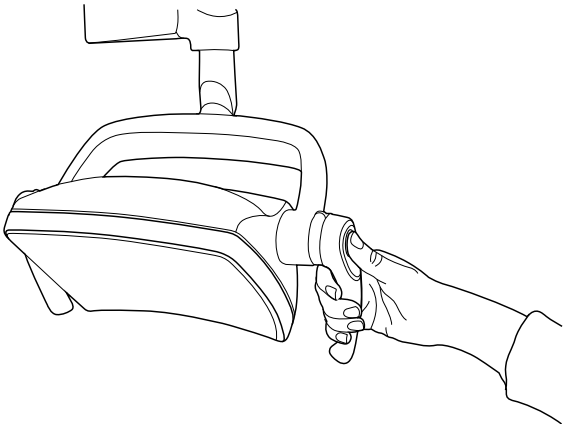
NOTE

The operating light intensity will decrease to 30% of the maximum intensity when the chair is moving.

From operating light

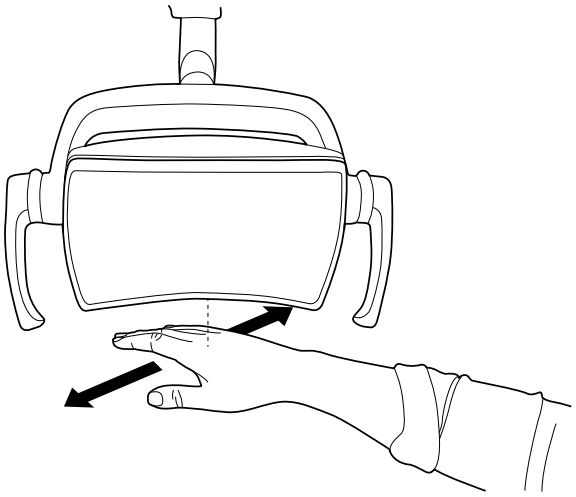
From one handle

Press and hold the handle button on either handle to adjust the intensity of the operating light. The intensity increases/decreases for as long as you press the button.



Hands-free with sensor

Once the operation light is lit, keep your hand longer in front of the sensor to adjust the intensity of the light.

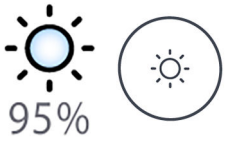


NOTE

If the operating light is installed to another manufacturer's dental unit, the intensity adjustment can be done only from the operating light.

From dental unit

The light intensity is displayed on the **Operating light** button. When you change the intensity, the information on the button changes accordingly.



Control panel: Press and hold the **Operating light** button to adjust the operating light intensity.

Foot control: The foot control can be programmed so that you can adjust the operating light intensity from the foot control. For programming instructions, see section "Foot control functions" on page 200.

After one second, the intensity will increase until you release the button/knob. When you press and hold the button/knob again, the intensity will start to decrease.

23.6.6 Adjusting intensity of operating light in composite mode

The intensity adjustment range is from 30% to 100%.

Each time you adjust the intensity, the direction of the adjustment (increase/decrease) changes. Thus, if you first increase the intensity, the intensity will be decreased the next time you adjust it.

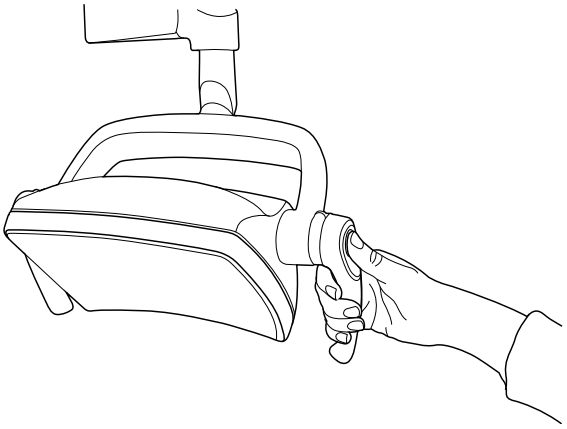
You will hear short successive clicking sounds while the intensity is being adjusted and a long signal tone when the maximum/minimum intensity is reached.

The operating light intensity can also be programmed, see section "Planmeca Solanna and Planmeca Solanna Vision operating lights" on page 191.

From operating light

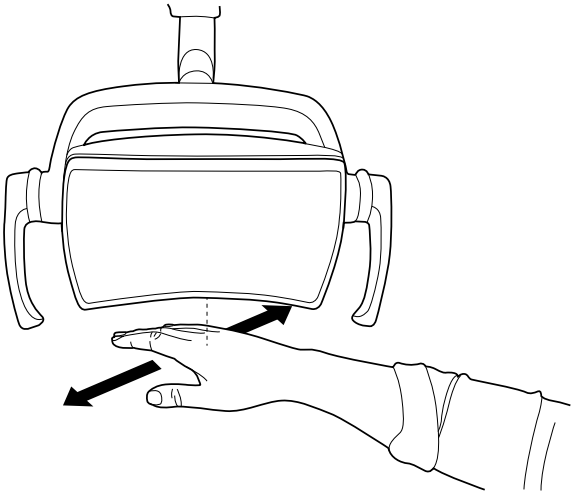
From one handle

Press and hold the handle button on either handle to adjust the intensity of the operating light. The intensity increases/decreases for as long as you press the button.



Hands-free with sensor

Once the operation light is lit, keep your hand longer in front of the sensor to adjust the intensity of the light.



NOTE

If the operating light is installed to another manufacturer's dental unit, the intensity adjustment can be done only from the operating light.

From dental unit

The light intensity of the composite mode is displayed on the **Composite mode** button. When you change the intensity, the information on the button changes accordingly.

Control panel: Press and hold the **Composite mode** button to adjust the light intensity of the composite mode.

NOTE

You can program the dental unit so that the operating light's intensity in the composite mode is adjusted when you press and hold the Flexy button. For instructions, see section "Flexy button functions" on page 198.

Foot control: The foot control can be programmed so that you can adjust the composite mode's light intensity from the foot control. For programming instructions, see section "Foot control functions" on page 200.

23.6.7 Changing light tone of operating light

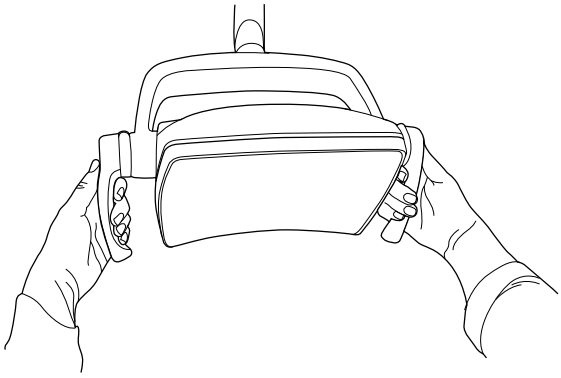
The white light tone of the operating light can be warm, neutral or cool.

From operating light

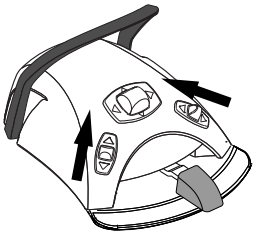
From both handles

When the light is on (and composite mode off), press and hold both handle buttons simultaneously to toggle between the three colour temperatures warm, neutral and cool.

You will hear a signal tone when you toggle the colour temperature from the handle buttons.



From dental unit



You can configure the foot control so that the light tone changes when you push the left-side or the right-side knob up. For programming instructions, see section "Foot control functions" on page 200.

Alternatively, you can configure the dental unit so that the light tone changes when you press the **Flexy** button. For programming instructions, see section "Flexy button functions" on page 198.

You can also change the light tone in the programming window, see section "Colour temperature and brightness" on page 192.

23.7 Planmeca Solanna Vision camera

Prerequisites

- Planmeca Romexis software version 6.0 or later must be installed. When Planmeca Romexis is running, the camera is continuously connected to the software.

- Planmeca Romexis and the dental unit have been paired by a Planmeca service technician.
- The connection between Planmeca Romexis and the dental unit has been enabled by a Planmeca service technician.

Solanna Vision button

The **Solanna Vision** button on the control panel features indicators for video streaming and recording, as well as an indicator light for each camera to mark the status of the camera.

NOTE

The left/right notation is as seen from behind the camera.

Button example	Status
	Right camera not selected; no connection between the camera and the control panel. Left camera selected but not activated.
	Right camera not selected; no connection between the camera and the control panel. Left camera selected, video streaming is on, no video is being recorded.
	Right camera not selected; no connection between the camera and the control panel. Left camera selected, video is being recorded. Recording time runs below button until recording is stopped.
	Planmeca Romexis has not identified the camera or the Planmeca Romexis client paired with the dental unit has been switched off.
	Solanna Vision software update is being loaded. Note that the blinking *i*-icon can also appear independently from the **Solanna Vision** button.
	Solanna Vision software has been loaded. Restart the dental unit to update the software. Note that the *software downloaded* icon can also appear independently from the **Solanna Vision** button.

After you have saved videos and images

The images and videos are automatically saved to the selected patient file in Planmeca Romexis software. The images can be viewed in the 2D module window and the videos as attachments in the *Patient data* window.

For more information on how to open these windows, see *Planmeca Romexis user's manual*.

To be able to view a recorded video, a separate video software, such as Windows Media Player, QuickTime Player or VLC Media Player must be installed on the computer and configured to open files with the .mp4 file extension. The videos can be edited in any 3rd party video editing program.

23.7.1 Starting to use cameras

23.7.1.1 Activating camera from Planmeca Romexis

Steps

1. Select a patient to open the patient file.
2. Select the *2D* module.
3. To activate the camera, click the **Solanna Vision** button.

NOTE

Alternatively, you can click the *Solanna Vision* button in the *File* module.

Video streaming starts and the live stream can be viewed in the *Solanna Vision* window in Planmeca Romexis. On the dental unit's control panel, the **Solanna Vision** button indicates that video streaming is on.

NOTE

This does not open the *Solanna Vision* window in the dental unit.

TIP

To switch full screen mode on/off, press the f key on the Planmeca Romexis keyboard.

To switch low latency mode on/off, press the l key on the Planmeca Romexis keyboard

23.7.1.2 Activating camera from dental unit

Before activating the Planmeca Solanna Vision camera from the dental unit you must do the following in Planmeca Romexis:

1. Select a patient to open the patient file.
2. Select the *2D* module.

To activate the camera, open the *Solanna Vision* window on the dental unit. When the window opens, video streaming automatically starts.

NOTE

When the *Solanna Vision* window is open on the dental unit, the indicator lights on the operating light handles are blue and the operating light can not be operated from the handle buttons. You can, however, use the operating light hands-free with the gesture sensor, if the sensor is enabled.

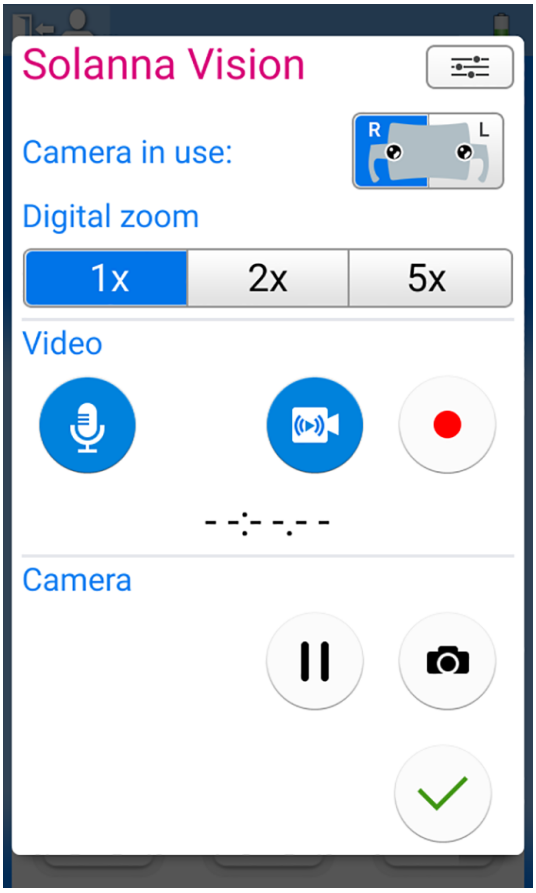
How to open Solanna Vision window on dental unit

Interface	Action
Planmeca dental unit: Control panel on instrument console	 Press **Solanna Vision** in the main window to open the *Solanna Vision* window.
Planmeca dental unit: Control panel on Flexy-holder	**Planmeca Sovereign Classic:** You can program the dental unit so that the *Solanna Vision* window opens when you press the **Flexy** button. For instructions, see section "Flexy button functions" on page 198.

How to open Solanna Vision window on dental unit

Interface	Action
Planmeca dental unit: Foot control	**Planmeca Sovereign Classic:** You can program the foot control so that the *Solanna Vision* window opens when you push one of the side knobs. For instructions, see section "Foot control functions" on page 200.

The *Solanna Vision* window gives you access to the Solanna Vision controls.



When the *Solanna Vision* dental unit window is not open, the operating light, instruments, dental unit and chair can be used normally, also when streaming or recording is running in the background.

Press **OK** to close the *Solanna Vision* dental unit window.

23.7.2 Adjusting camera settings from dental unit

23.7.2.1 Selecting camera and zoom level

About this task

Planmeca Solanna Vision has two cameras. Select which camera you want to use.

NOTE

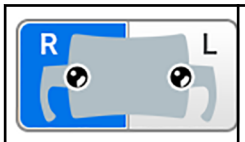
It is possible to select the camera also from the Planmeca Romexis keyboard by pressing keyboard buttons 1 and 2.

Steps

1. Open the *Solanna Vision* window in the dental unit.

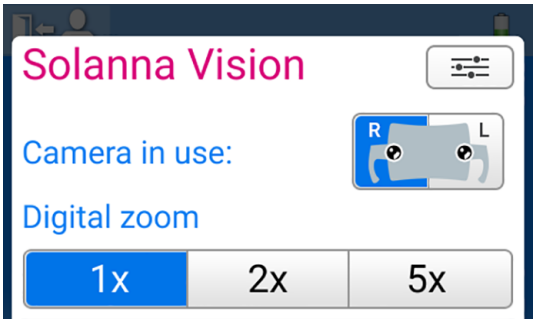
   For instructions, see section "Activating camera from dental unit" on page 129.

2. Select the camera by pressing the corresponding camera button.

	Right camera (as seen from behind the camera) selected. Press to unselect.
	Left camera (as seen from behind the camera) selected. Press to unselect.

3. Select the level of digital zoom by pressing the corresponding button.

   The options are 1x, 2x and 5x zoom. The selected option is indicated by a blue button.



23.7.2.2 Adjusting video settings

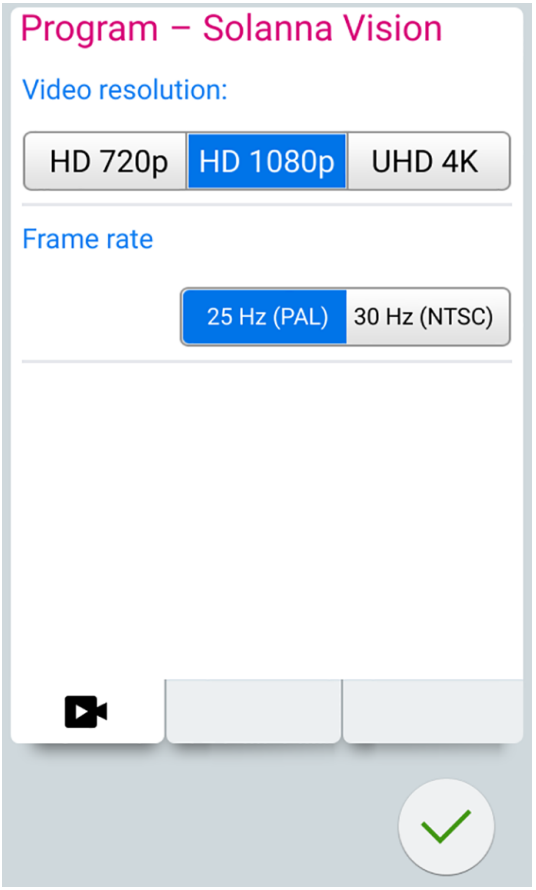
Steps

1. Open the *Solanna Vision* window in the dental unit.

   For instructions, see section "Activating camera from dental unit" on page 129.

2. In the *Solanna Vision* window, press **Settings**.

The *Video settings* programming window opens.



3. Select the video resolution by pressing on the preferred resolution.

   The options are:

   - HD 720p (1280x720)
   - Full HD 1080p (1920x1080)
   - UHD 4K (3840x2160)

   A blue background indicates the selected resolution.

4. Select the frame rate by pressing on the preferred frame rate.

   The options are 25 Hz (PAL) and 30 Hz (NTSC).

   A blue background indicates the selected frame rate.

5. Press **OK**.

23.7.3 Switching video streaming on/off

When video streaming is on, the live video stream is played in the *Solanna Vision* window in Planmeca Romexis.

When you turn streaming off, the *Solanna Vision* window in Planmeca Romexis closes. The window opens again when you turn streaming on.

Pausing streaming does not close the *Solanna Vision* window in Planmeca Romexis, it just freezes the picture.

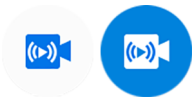
NOTE

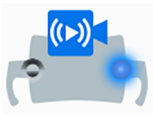
If streaming does not start when you switch video streaming on, check if you have selected a camera. For instructions, see section "Adjusting camera settings from dental unit" on page 130.

NOTE

In the *Solanna Vision* window, both in the dental unit and Planmeca Romexis, a blue button means that the function is on, and a grey button that the function is off.

How to switch video streaming on/off

Interface	Action
Planmeca dental unit: Control panel on instrument console	 In the *Solanna Vision* window, press **Video camera** to turn video streaming on/off.
	 In the *Solanna Vision* window, press **Pause** to pause video streaming. Press **Pause** again to resume streaming.
	 In the *Solanna Vision* window, press **Microphone** to mute/unmute the microphone.
Planmeca dental unit: Control panel on Flexy-holder	**Planmeca Sovereign Classic:** You can program the dental unit so that video streaming is switched on/off when you press the **Flexy** button. For instructions, see section "Flexy button functions" on page 198.
Planmeca dental unit: Foot control	**Planmeca Sovereign Classic:** You can program the dental unit so that video streaming is switched on/off when you push one of the side knobs. For instructions, see section "Foot control functions" on page 200.
Planmeca Romexis	 In the *Solanna Vision* window, click **Streaming** to turn video streaming on/off.
	 In the *Solanna Vision* window, press **Pause** to pause video streaming. Press **Pause** again to resume streaming.
	In the *Solanna Vision* window, check the **Sound** checkbox to turn on the microphone.
	When the *Solanna Vision* window is open, press the **Space** key on the Planmeca Romexis keyboard to pause streaming. Press **Space** again to resume streaming.



Planmeca dental unit: When video streaming is on, the camera indicator light on the **Solanna Vision** button in the main window indicates that streaming is going on.

Planmeca Romexis: When video streaming is on, a green streaming icon in the top right corner of the *2D* module and *File* module window indicates that streaming is going on.

23.7.4 Recording video

You can record a video only when video streaming is on.

By default, the length of the video is unlimited. To limit the length, contact your Planmeca dealer.

NOTE

In the *Solanna Vision* window, both in the dental unit and Planmeca Romexis, a blue button means that the function is on, and a grey button that the function is off.

How to record video

Interface	Action
Planmeca dental unit: Control panel on instrument console	 In the *Solanna Vision* window, press **Record** to start/stop recording.
	 In the *Solanna Vision* window, press **Microphone** to turn the microphone on/off.
Planmeca dental unit: Control panel on Flexy-holder	**Planmeca Sovereign Classic:** You can program the dental unit so that recording starts/stops when you press the **Flexy** button. For instructions, see section "Flexy button functions" on page 198.
Planmeca dental unit: Foot control	**Planmeca Sovereign Classic:** You can program the dental unit so that recording starts/stops when you push one of the side knobs. For instructions, see section "Foot control functions" on page 200.
Planmeca Solanna Vision	When the *Solanna Vision* window is open on the dental unit's control panel, press the handle button for >0.5 seconds to start/stop recording. A signal tone indicates the start of recording. The indicator light on the handle button blinks blue - light blue while recording is going on.
Planmeca Romexis	 In the *Solanna Vision* window, click **Video camera** to start/stop recording.
	When the *Solanna Vision* window is open, press the **r** key on the Planmeca Romexis keyboard to start/stop recording.

Planmeca dental unit: When recording is going on, the camera indicator light on the **Solanna Vision** button in the main window blinks to indicate that recording is going on.

Planmeca Romexis: When recording is going on, a red recording icon in the top left corner of the *Solanna Vision* window indicates that recording is going on.

Also, in the *2D* module and *File* module windows, a red video camera icon in the top right corner indicates that recording is going on.

23.7.5 Capturing image

You can capture an image only when video streaming is on.

How to capture image

Interface	Action
Planmeca dental unit: Control panel on instrument console	 In the *Solanna Vision* window, capture an image by pressing **Still camera**.
Planmeca dental unit: Control panel on Flexy-holder	**Planmeca Sovereign Classic:** You can program the dental unit so that an image is captured when you press the **Flexy** button. For instructions, see section "Flexy button functions" on page 198.
Planmeca dental unit: Foot control	**Planmeca Sovereign Classic:** You can program the dental unit so that an image is captured when you push one of the side knobs. For instructions, see section "Foot control functions" on page 200.
Planmeca Solanna Vision	When the *Solanna Vision* window is open on the dental unit's control panel, press the handle button to capture an image. You will hear a clicking sound when you press the button.
Planmeca Romexis	 In the *Solanna Vision* window, capture an image by clicking **Still camera**.
	When the *Solanna Vision* window is open, press the **Enter** or **p** key on the Planmeca Romexis keyboard to capture an image.

23.8 Water and air quick-connectors

NOTE

The water and air quick-connectors are an optional feature.

To enable the use of the water and air quick-connectors, please contact your Planmeca dealer.

When the quick-connectors are enabled, press **Quick-connector** to activate the pump for a pre-defined time. The remaining time is displayed on the control panel. When the time runs out, the pump stops automatically. If needed, press **Quick-connector** to activate the pump again.

When the pump is on, the indicator light on the **Quick-connector** button is lit.

You can program the pre-defined time, see section "Water and air quick-connectors" on page 196.

23.9 X-ray film viewer

The control panel display can be used for viewing X-ray films. To open the viewer, press **X-ray film viewer.**

When the display is used as an X-ray film viewer, its intensity is increased to the maximum value.

CAUTION

The X-ray film viewer is suited for X-ray films with an optical density of ≤1.2 OD. It is not a tool for diagnosis.

When you want to close the X-ray film viewer, press **OK**.

24 Operating instructions

24.1 Instrument logic

NOTE

If you use similar instruments at the same time, keep them in their own places. The memory operation does not recognise the parameters and settings of the similar instruments if their places are changed.

The dental unit contains an instrument logic with the principles described below. The active instrument can be operated with the foot control and its settings are displayed on the control panel and they can be changed.

If any settings are modified, the unit saves the settings when the instrument is returned to the instrument holder.

When the active instrument is operated, other instruments can be away from the instrument console, but they can not be operated.

The syringe can be operated independently of other instruments at any time.

1. When the dentist picks up instrument 1 from the instrument console, it becomes the active instrument. The dentist can drive it with the foot control pedal (a short push to the right/left or down is enough).
2. While the dentist drives instrument 1, the assistant can pick up instrument 2 for preparation. Picking up instrument 2 does not change the active instrument.
3. The dentist returns the active instrument (instrument 1) to the instrument console.
4. The assistant returns instrument 2 to the instrument console.
5. The dentist activates instrument 2 by picking it up from the instrument console. After this, it can be driven with the foot control as above.

The dental unit stores the settings of each instrument for each instrument slot separately. When an instrument is inserted into a specific instrument slot for the first time, the dental unit loads factory default settings for the instrument. When an instrument is inserted into an instrument slot where it has been previously, then the dental unit loads the previously saved instrument settings. The dental unit does not automatically copy instrument settings from one instrument slot into another.

Example:

The user inserts a Minendo micromotor into the 2nd instrument slot. The dental unit loads factory default settings for the instrument. The user then modifies the instrument settings and the dental unit stores the settings for instrument slot 2 when the user puts Minendo back into the instrument holder. The user then removes Minendo from instrument slot 2 and inserts a turbine into the same slot. The dental unit loads factory default settings for the turbine. The user modifies the settings of the turbine and the dental unit stores the settings for instrument slot 2. The user then removes the turbine from the slot and reinserts Minendo. The unit loads the modified and saved settings for Minendo. The user then inserts the turbine into the 3rd instrument slot and the unit loads factory default settings for the instrument.

Intelligent four-handed dentistry

In four-handed dentistry it is important to enable a smooth preparation and exchange of instruments between the dentist and the assistant. Therefore,

an alternative instrument logic can be taken into use for four-handed dentistry. Please contact your Planmeca dealer.

In intelligent four-handed dentistry one instrument can be left waiting in a queue so that it is ready for use when the dentist returns the active instrument to the instrument console.

The intelligent four-handed dentistry follows the principles described below. The active instrument can be operated with the foot control and its settings are displayed on the control panel and they can be changed.

The instrument logic does not control the syringe which can be used at any time.

1. When the dentist picks up instrument 1 from the instrument console, it becomes the active instrument. The dentist can drive it with the foot control pedal (a short push to the right/left or down is enough).
2. While the dentist drives instrument 1, the assistant can pick up instrument 2 for preparation and the instrument goes to the instrument queue.

   NOTE

   Only one instrument at a time can be in the queue. If two or three instruments are picked up while driving an instrument, only the instrument that was picked up last will remain in the queue.
3. The dentist returns the active instrument (instrument 1) to the instrument console and immediately the instrument in the queue (instrument 2) is activated and handed to the dentist by the assistant. Instrument 2 can be driven with the foot control as described above.

24.2 Micromotor

24.2.1 Micromotor presets

The current preset is displayed on the control panel. When you press the **Preset** button, a new window with a list of all presets opens. You can scroll the list either from the list itself, from the scroll bar to the right, or by using the **Up** and **Down** buttons. To select another preset, press the name of that preset.

The preset list can also be programmed to be opened from the foot control. For programming instructions, see section "Foot control functions" on page 200.

Push the foot control knob to open the list. Then, scroll the presets by pushing the pedal to the left or right and select a preset by pushing down the foot control pedal. To exit the list without selecting a preset, push down the same knob that you opened the list with.

The settings of the preset are shown on the display. The settings can be modified and saved. For instructions, see section "Modifying and saving micromotor presets" on page 185.

A red asterisk on the **Preset** button means that a preset has been modified without being saved. Once the modified preset is saved, the asterisk is cleared from the display. The asterisk is also cleared when you select another preset without saving the modified preset. The next time you select the preset that you had modified earlier, all unsaved modifications are lost.

You can also rename the preset, see section "Modifying and saving micromotor presets" on page 185.

NOTE

Always check the preset settings before using the micromotor.

24.2.1.1 Presets for Planmeca Minendo and Bien-Air MX2 brushless micromotors

15 presets are available for the Planmeca Minendo and the Bien-Air MX2 brushless micromotor:

1	i1	e1
2	i2	e2
3	i3	e3
4	i4	e4
5	i5	e5

The presets are user- and instrument model -specific. For usage examples, see section "Using micromotor presets" on page 146.

The following lists the factory presets for the Planmeca Minendo and the Bien-Air MX2 brushless micromotor:

Factory presets for Planmeca Minendo and Bien-Air MX2

Setting	Preset 1 - 5	Preset i1 - i5	Preset e1	Preset e2	Preset e3	Preset e4	Preset e5
Instrument spray	Water: 50 Air: 80 Momentary water: 100 Momentary air: 100 Sterile water 1: 40 Sterile water 2: 75	Water: 50 Air: 80 Momentary water: 100 Momentary air: 100 Sterile water 1: 40 Sterile water 2: 75	Water: 50 Air: 80 Momentary water: 100 Momentary air: 100 Sterile water 1: 40 Sterile water 2: 75	Water: 50 Air: 80 Momentary water: 100 Momentary air: 100 Sterile water 1: 40 Sterile water 2: 75	Water: 50 Air: 80 Momentary water: 100 Momentary air: 100 Sterile water 1: 40 Sterile water 2: 75	Water: 50 Air: 80 Momentary water: 100 Momentary air: 100 Sterile water 1: 40 Sterile water 2: 75	Water: 50 Air: 80 Momentary water: 100 Momentary air: 100 Sterile water 1: 40 Sterile water 2: 75

Factory presets for Planmeca Minendo and Bien-Air MX2

Setting	Preset 1 - 5	Preset i1 - i5	Preset e1	Preset e2	Preset e3	Preset e4	Preset e5
Automatic chip blow	On Water: 0 Air: 60	On Water: 0 Air: 60	Off	Off	Off	Off	Off
Manual chip blow	Water: 0 Air: 100	Water: 0 Air: 100	Water: 0 Air: 100	Water: 0 Air: 100	Water: 0 Air: 100	Water: 0 Air: 100	Water: 0 Air: 100
Rotation	Forward	Forward	Forward	Forward	Forward	Forward	Forward
Instrument light	On Brightness : 100	On Brightness : 100	On Brightness : 100	On Brightness : 100	On Brightness : 100	On Brightness : 100	On Brightness : 100
Rpm limit	Disabled; 36000 rpm Value range: 100 - 39500 rpm	Disabled; 36000 rpm Value range: 100 - 39500 rpm	Enabled; 250 rpm Value range: 100 - 500 rpm	Enabled; 250 rpm Value range: 100 - 500 rpm	Enabled; 250 rpm Value range: 100 - 500 rpm	Enabled; 250 rpm Value range: 100 - 500 rpm	Enabled; 250 rpm Value range: 100 - 500 rpm
Torque limit	Disabled; 3.0 Ncm, autoreverse Value range: 0.5 - 3.0 Ncm	Disabled; 3.0 Ncm, autoreverse Value range: 0.5 - 3.0 Ncm	Enabled; 3.0 Ncm, autoreverse Value range: 0.5 - 3.0 Ncm	Enabled; 2.0 Ncm, autoreverse Value range: 0.5 - 3.0 Ncm	Enabled; 1.5 Ncm, autoreverse Value range: 0.5 - 3.0 Ncm	Enabled; 1.0 Ncm, autoreverse Value range: 0.5 - 3.0 Ncm	Enabled; 0.7 Ncm, autoreverse Value range: 0.5 - 3.0 Ncm
Torque auto forward time	2000 (= 2 sec.) Value range: 500 - 5000 (0.5 - 5 sec.)	2000 (= 2 sec.) Value range: 500 - 5000 (0.5 - 5 sec.)	2000 (= 2 sec.) Value range: 500 - 5000 (0.5 - 5 sec.)	2000 (= 2 sec.) Value range: 500 - 5000 (0.5 - 5 sec.)	2000 (= 2 sec.) Value range: 500 - 5000 (0.5 - 5 sec.)	2000 (= 2 sec.) Value range: 500 - 5000 (0.5 - 5 sec.)	2000 (= 2 sec.) Value range: 500 - 5000 (0.5 - 5 sec.)

The presets can be programmed, see section "Modifying and saving micromotor presets" on page 185.

24.2.1.2 Presets for Implantmed surgical micromotor

10 presets are available for the Implantmed surgical micromotor:

i1	e1
i2	e2
i3	e3
i4	e4
i5	e5

The presets are user- and instrument model -specific. For usage examples, see section "Using micromotor presets" on page 146.

The presets can be programmed, see section "Modifying and saving micromotor presets" on page 185.

Implant presets for Implantmed surgical micromotor

Five exclusive implant presets are available for the Implantmed surgical micromotor:

- i1 for apical resection, osteotomy, apical pressure relief and bone modelling
- i2 for pilot drilling
- i3 for implant drilling
- i4 for forward implant tapping and implant insertion
- i5 for reverse implant tapping and implant removal

The i1 preset is a generic default preset for the instrument, and presets i2 - i5 are special factory presets that are meant to be used in different phases of the implant procedure.

CAUTION

The user must be familiar with implant procedures before using the Implantmed surgical micromotor for implantology.

CAUTION

Implant procedures should only be performed with W&H S-11, W&H WI-75 and W&H WS-75 handpieces.

CAUTION

The torque limit is accurate only for tested handpieces with an accuracy margin of <15%. If another handpiece than those listed above is used for implant treatment with the Implantmed surgical micromotor, the accuracy of the torque limit displayed on the control panel cannot be guaranteed.

CAUTION

Always check the preset settings before using the micromotor.

Factory presets for implantology, Implantmed surgical micromotor

Setting	Preset i1	Preset i2	Preset i3	Preset i4	Preset i5
Instrument spray type	N/A	N/A	N/A	N/A	N/A
Sterile water	Water 1	Water 1	Water 1	Water 1	Off
Automatic chip blow	N/A	N/A	N/A	N/A	N/A
Rotation	Forward	Forward	Forward	Forward	Reverse
Instrument light	N/A	N/A	N/A	N/A	N/A
Power curve	Linear	Linear	Linear	Full	Full
Rpm	Range: 300 - 40 000 Limit: 35 000	Range: 15 - 2 000 Limit: 1 200	Range: 15 - 2 000 Limit: 800	Range: N/A Limit: 15	Range: N/A Limit: 15

Factory presets for implantology, Implantmed surgical micromotor

Setting	Preset i1	Preset i2	Preset i3	Preset i4	Preset i5
Torque limit	Disabled	Disabled	Disabled	Range: 5 - 55 Ncm Limit: 20 Ncm Stopmode: Autostop	Range: 5 - 55 Ncm Limit: 15 Ncm Stopmode: Autostop
Handpiece	1:1 (W&H S-11)	20:1 (W&H WS-75 E/KM or W&H WI-75 E/KM)	20:1 (W&H WS-75 E/KM or W&H WI-75 E/KM)	20:1 (W&H WS-75 E/KM or W&H WI-75 E/KM)	20:1 (W&H WS-75 E/KM or W&H WI-75 E/KM)

Endodontic presets for Implantmed surgical micromotor

Five exclusive endodontic presets are available for the Implantmed surgical micromotor:

- e1
- e2
- e3
- e4
- e5

You can start the endodontic treatment with the endodontic preset e1 and progressively change to the next preset as you go deeper into the root canal.

When you use the endodontic presets, the micromotor rotates forward until a predefined torque limit is reached. After this, the motor rotates in the reverse direction at the same torque value until you stop the micromotor by allowing the foot control pedal to return to the rest position. The next time you drive the micromotor, the motor rotates forward again.

CAUTION

The user must be familiar with endodontic procedures before using the Implantmed surgical micromotor for endodontics.

CAUTION

Endodontic treatment using the Implantmed surgical micromotor should only be performed with the W&H EB-79 handpiece.

CAUTION

The torque limit is accurate only for tested handpieces with an accuracy margin of <15%. If another handpiece than those listed above is used for endodontic treatment with the Implantmed surgical micromotor, the accuracy of the torque limit displayed on the control panel cannot be guaranteed.

CAUTION

Always check the preset settings before using the micromotor.

Factory presets for endodontics, Implantmed surgical micromotor

Setting	Preset e1	Preset e2	Preset e3	Presete4	Preset e5
Instrument spray type	N/A	N/A	N/A	N/A	N/A
Sterile water	Off	Off	Off	Off	Off
Automatic chip blow	N/A	N/A	N/A	N/A	N/A
Rotation	Forward	Forward	Forward	Forward	Reverse
Instrument light	N/A	N/A	N/A	N/A	N/A
Power curve	Full	Full	Full	Full	Full
Rpm	300	300	300	300	300
Torque limit	Range: 0.7 - 6.0 Ncm Limit: 6.0 Ncm Stopmode: Autoreverse	Range: 0.7 - 6.0 Ncm Limit: 3.5 Ncm Stopmode: Autoreverse	Range: 0.7 - 6.0 Ncm Limit: 2.5 Ncm Stopmode: Autoreverse	Range: 0.7 - 6.0 Ncm Limit: 1.5 Ncm Stopmode: Autoreverse	Range: 0.7 - 6.0 Ncm Limit: 0.7 Ncm Stopmode: Autoreverse
Handpiece	2:1 (W&H EB-79)	2:1 (W&H EB-79)	2:1 (W&H EB-79)	2:1 (W&H EB-79)	2:1 (W&H EB-79)

24.2.1.3 Presets for Morita TORX micromotor

When coupled with the CA-10RC-ENDO 10:1 handpiece, the Morita TORX micromotor can be used together with the Morita Root ZX mini U apex locator to measure the root canal.

9 presets are available for the Morita TORX micromotor:

1	a1	t1
2	a2	t2
3	a3	t3

Presets 1 - 3 are generic default presets where the torque limit is not available, a1 - a3 are presets for measuring the apex, and presets t1 - t3 are torque presets where the torque limit can be enabled. Presets a1 - a3 can only be used with the Morita CA-10RC-ENDO 10:1 endo-contra handpiece.

The presets are user- and instrument model -specific. In addition, the Morita micromotor presets are instrument position specific. For usage examples, see section "Using micromotor presets" on page 146.

CAUTION

The user must be familiar with endodontic procedures before using the Morita TORX micromotor.

CAUTION

Endodontic treatment must only be performed using the Morita TORX micromotor's a1 - a3 presets and the Morita CA-10RC-ENDO 10:1 handpiece.

CAUTION

Always check the preset settings before using the micromotor.

The table below lists the factory presets for the Morita TORX micromotor.

Factory presets for Morita TORX micromotor

Setting	Preset 1 - 3	Preset a1	Preset a2	Preset a3	Preset t1 - t3
Instrument spray	Spray 1: Water: 50 Air: 80 Spray 2 (Dry): Water: 0 Air: 80 Default: Spray off	Disabled	Disabled	Disabled	Spray 1: Water: 50 Air: 80 Spray 2 (Dry): Water: 0 Air: 80 Default: Spray off
Sterile water	Available	N/A	N/A	N/A	Available
Cooling air	Enabled	Disabled	Disabled	Disabled	Enabled
Automatic chip blow	On/Off Water: 0 Air: 60 Default: Chip blow on	Disabled	Disabled	Disabled	On/Off Water: 0 Air: 60 Default: Chip blow on
Manual chip blow	Can be configured to be used from foot control Default: On	N/A	N/A	N/A	Can be configured to be used from foot control Default: On
Rotation	Forward/ Reverse Default: Forward rotation	Forward/ Reverse Default: Forward rotation	Forward/ Reverse Default: Forward rotation	Forward/ Reverse Default: Forward rotation	Forward/ Reverse Default: Forward rotation
Instrument light	On/Off Brightness: 100 Default: Instrument light on	N/A	N/A	N/A	On/Off Brightness: 100 Default: Instrument light on
Power curve	Linear/Full Default: Linear	Linear/Full Default: Full	Linear/Full Default: Full	Linear/Full Default: Full	Linear/Full Default: Linear
Rpm	Value range: 100 - 40 000 Default: 40 000	Value range: 100 - 1000	Value range: 100 - 1000	Value range: 100 - 1000	Value range: 100 - 2000

Factory presets for Morita TORX micromotor

Setting	Preset 1 - 3	Preset a1	Preset a2	Preset a3	Preset t1 - t3
Rpm limit	Enabled/ Disabled Value range: 100 - 36 000 rpm Default: Disabled	Enabled Value range: 100 - 1000 rpm Default: 400 rpm	Enabled Value range: 100 - 1000 rpm Default: 400 rpm	Enabled Value range: 100 - 1000 rpm Default: 1000 rpm	Enabled Value range: 100 - 2000 rpm Default: 2000 rpm
Torque limit	Disabled	Enabled/ Disabled; autoforward Value range: 0.5 - 5.0 Ncm Default: Enabled, 1.0 Ncm	Enabled/ Disabled; autoforward Value range: 0.5 - 5.0 Ncm Default: Enabled, 2.0 Ncm	Enabled/ Disabled; autoforward Value range: 0.5 - 5.0 Ncm Default: Disabled	Enabled; autoforward Value range: 0.5 - 2.5 Ncm Default: Enabled, 2.5 Ncm
Handpiece	1:1	10:1	10:1	10:1	1:1
Apical measurement	N/A	Available	Available	Available	N/A
Apical actions	N/A	Off/ Stop/ AutoForward Default: AutoForward	Off/ Stop/ AutoForward Default: AutoForward	Off/ Stop/ AutoForward Default: None	N/A
Apical beep volume	N/A	On/off Default: On	On/off Default: On	On/off Default: On	N/A

The presets can be programmed, see section Modifying and saving micromotor presets.

Presets a1 - a3

When you select one of the apical presets a1 - a3, a small *Apex locator* window automatically opens on the control panel. For information on using the apex locator, see section Apex locator.

When you use presets a1 - a3, the preset window also features an **Apical action** button. When an apex measurement is not going on, toggle the button to define what happens when the file tip reaches the point in the root canal defined by the flash bar. The button always shows the current apical action (thus, the symbol on the button changes according to the selected apical action).

NOTE

Also reaching the torque limit can make the micromotor to rotate counter-clockwise.

Apical action

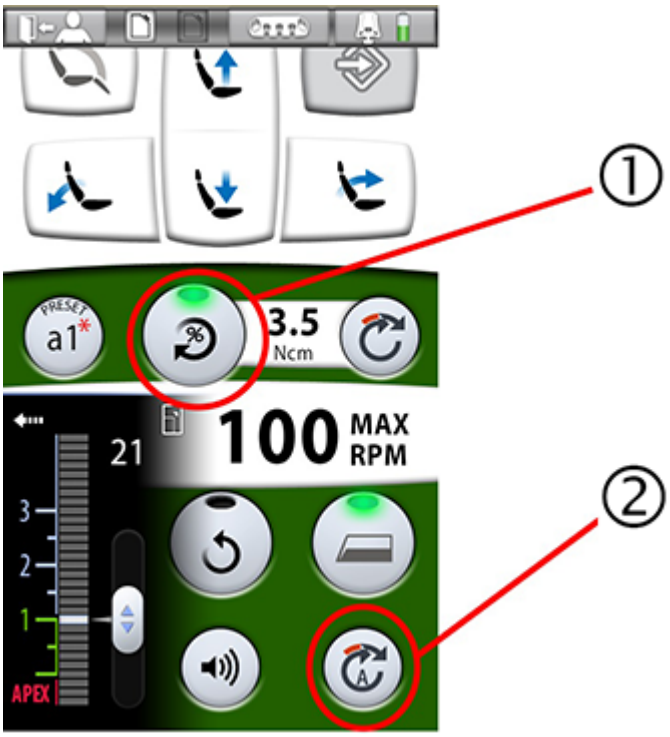
	No apical action When the file tip reaches the point in the root canal defined by the flash bar, this does not induce an action in the micromotor and the micromotor continues to rotate forward.
	Auto stop The micromotor stops when the file tip reaches the point in the root canal defined by the flash bar. When the micromotor has stopped, a thin file can simply be pulled out from the root canal by hand.
	Auto forward When the file tip reaches the point in the root canal defined by the flash bar, the micromotor will rotate counter-clockwise (auto reverse) until it has reversed three segments on the apex meter and then return to clockwise direction.

Torque action vs. apical action

Torque action defines the micromotor's rotation when the torque limit is reached. The only available torque action for the Morita micromotor is *autoforward*. When the torque limit is enabled and the torque limit reached, the micromotor will rotate counter-clockwise (reverse) until the torque value has decreased to 50% of the torque limit value and then return to clockwise rotation.

Apical action defines the micromotor's rotation when the file tip reaches the limit depth in the root canal (marked by a flash bar in the window). When the apical action *autoforward* is selected and the limit depth is reached, the micromotor will rotate counter-clockwise (reverse) until it has reversed three segments on the apex meter and then return to clockwise rotation.

Example of torque action vs. apical action



1 Torque action

Torque-based transition from reverse to forward rotation

2 Apical action

Apical depth-based transition from reverse to forward rotation

24.2.1.4 Using micromotor presets

Example - two Planmeca Minendo micromotors

The following cases describe how the presets can be used in a situation where two Planmeca Minendo brushless micromotors are in use. Both micromotors use the same presets. Micromotor 1 is installed to instrument slot 1 and micromotor 2 to instrument slot 2.

- You use micromotor 1 to modify the settings of preset 4 and save them. After saving them, the same settings can be used for micromotor 2 when you select preset 4.
- You use micromotor 1 to modify the settings of preset 4, but do not save them (variation x). These modified settings can not be downloaded to micromotor 2 unless they are saved first. However, you can use the unmodified preset 4 for micromotor 2 and modify the settings of preset 4 differently (variation y) than the modifications for micromotor 1.

Example - one Planmeca Minendo micromotor

The following cases describe how the presets can be used in a situation where one Planmeca Minendo brushless micromotor is in use. The micromotor is installed to instrument slot 1.

- You use the micromotor in slot 1 to modify the settings of preset 4, but do not save them. You move the micromotor to slot 2. The modified settings from slot 1 do not follow the micromotor to slot 2. Slot 2 does not recognise the micromotor and loads preset 1 for the instrument. When

you move the micromotor back to slot 1, it recognises the instrument and loads the modified settings of preset 4.

- You use the micromotor in slot 1 to modify the settings of preset 4 and save them. You move the micromotor to slot 2. Slot 2 does not recognise the micromotor and loads preset 1 for the instrument. When you select preset 4, it will contain the settings you modified when the micromotor was in slot 1.

24.2.2 Handpiece selection

CAUTION

Before using a handpiece, ensure that you have selected the correct handpiece from the control panel AND that the selected handpiece matches the handpiece that you are going to use.

NOTE

The handpiece can only be selected for the Implantmed surgical micromotor. When the Morita TORX micromotor is used, pressing the Handpiece button only displays the current handpiece, but no selection can be made.

The selected handpiece is displayed on the control panel once you have activated the instrument.

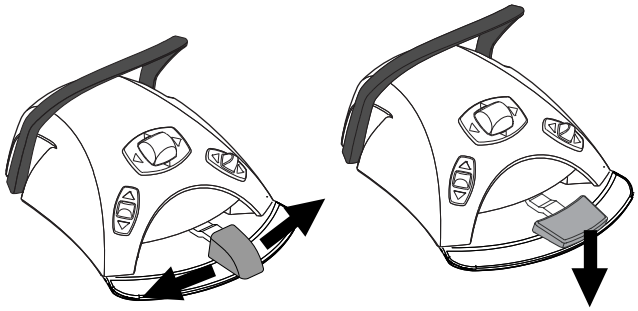
If the displayed handpiece does not correspond to the used handpiece, press **Handpiece**. This opens a new window where you can select the correct handpiece.

Press on the correct handpiece to select it. The window closes and the instrument settings and the handpiece information on the control panel change accordingly. To close the window without selecting a handpiece, press **Close**.

24.2.3 Speed/power

Standard pedal: To drive the instrument, push the foot control pedal to the right or to the left.

Wide pedal: To drive the instrument, push the foot control pedal down.



Pushing the pedal further to the right/left or down will increase the speed or power of the instrument. As you push the pedal, the power output is displayed on the control panel.

To stop the instrument, allow the pedal to return to the rest position.

CAUTION

Ensure that the pedal is in rest position when you activate the instrument.

NOTE

The speed/power level depends on the instrument.

24.2.4 Reverse rotation

In normal operation the micromotor rotates in a clockwise direction. Selecting reverse rotation is possible only when the micromotor is picked up from the instrument console, but not operated.

When the micromotor is set to rotate in the reverse direction, the indicator light is amber and you can hear a beeping sound.

Control panel: To reverse the direction of rotation, press **Reverse**.

Foot control: Reverse rotation can be programmed to be activated from the foot control. For programming instructions, see section "Foot control functions" on page 200.

NOTE

If Reverse rotation has been programmed to be activated from the foot control, the Reverse button on the touch panel's instrument view is inactivated.

NOTE

If Reverse rotation has been programmed to be activated from the foot control, but you are not yet driving the instrument, the indicator light on the Reverse button indicates in which direction you must push the pedal to start reverse rotation. When the right half of the indicator light is lit, push the pedal to the right to start reverse rotation. When the left half is lit, push the pedal to the left.

24.2.5 Speed/power limit

When the micromotor's speed/power limit is on and set to, for example, 36 000 rpm, the foot control pedal movement controls the speed/power between 100 - 36 000 rpm instead of the normal range of 100 - 39 500 rpm. The preset maximum value is displayed on the control panel when the micromotor is picked up from the instrument console.

When the speed/power limit is on, the indicator light on the control panel button is green.

Control panel: Press **speed/power limit** to reduce the micromotor's speed or power to a preset level. Press **speed/power limit** again to switch the power limit off.

The Morita TORX micromotor starts with full speed when preset a1 - a3 is selected. This is indicated by its **speed/power limit** button.

In the Morita TORX micromotor's presets t1 - t3, the limit is always on and can not be switched off. This is indicated by a greyed out button.

Foot control: The speed/power limit can be programmed to be activated from the foot control. For programming instructions, see section "Foot control functions" on page 200.

NOTE

The speed/power limit can be programmed. See section "Instrument speed/power limit" on page 180.

NOTE

Note that the speed/power limit depends on the instrument.

24.2.6 Quickstart

You can enable a quickstart for the micromotor in the presets e1 - e5. When the quickstart is enabled, the micromotor immediately starts with full speed.

The **quickstart** symbol on the display indicates that quickstart is available for this preset.

When quickstart is enabled, the **Instrument speed/power limit** button changes accordingly.

Quickstart disabled

Quickstart enabled

NOTE

Quickstart and instrument speed reduction can be enabled at the same time. When both are enabled, the micromotor immediately starts with the maximum rpm defined by the speed reduction setting.

The quickstart can be enabled either in the programming window or from the foot control. For instructions, see sections see sections "Quickstart for micromotor" on page 180 and "Foot control functions" on page 200.

24.2.7 Torque

Press **Torque** to enable the torque function and access the drive modes. The green indicator light means that torque is enabled.

When torque is enabled, you can select the drive mode by pressing **Drive mode**, which always shows the current drive mode (thus, the symbol on the button changes according to the selected drive mode).

NOTE

Only the drive mode Autoforward is available for the Morita TORX micromotor.

Possible drive modes

	Auto stop The micromotor stops when the torque limit is reached.
	Auto reverse In Auto reverse, the micromotor will operate counter-clockwise when the torque limit is reached. During the counter-clockwise operation, a beeping alarm sound is heard.
	Auto forward When the torque limit is reached, the micromotor will operate counter-clockwise (auto reverse) for a few seconds and then return to clockwise direction. During the counter-clockwise operation, a beeping alarm sound is heard. The length of the auto reverse cycle can be modified for all micromotors, except the Morita TORX micromotor, see section "Torque and RPM for micromotor" on page 183.

NOTE

Reverse rotation can not be enabled in the Auto reverse and Auto forward modes.

24.2.8 Instrument spray

The instrument cooling spray setting can be selected to be water & air, air or no spray.

NOTE

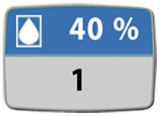
As a default, dry spray is enabled for Planmeca Minendo and Bien-Air MX micromotors. This means that you can only select between spray settings 'air' or 'no spray'. To disable dry spray, see section "Enabling/disabling dry spray" on page 181.

NOTE

When using an instrument without a waterline inside the handpiece you must either enable dry spray or switch off the instrument spray.

The spray flow rate can be programmed. See section "Instrument spray" on page 181.

The amounts of water and air for the currently used spray type are displayed on the control panel.



When sterile water is used, you can select between sterile water 1, sterile water 2 and sterile water off. The sterile water symbol is displayed on the control panel in addition to the water amount and spray water number.

For instructions on how to activate/deactivate the sterile mode, see section "Enabling/disabling sterile water mode" on page 182.

Control panel:

Press **Instrument spray** once to switch on the water & air spray. A green indicator light shows that the water & air spray is switched on.

When sterile water is used, this switches on sterile water 1.

Press **Instrument spray** a second time to switch the air spray on. A yellow indicator light shows that the air spray is switched on.

When sterile water is used, this switches on sterile water 2.

Press **Instrument spray** a third time to switch off the instrument cooling spray. The indicator light goes out.

When sterile water is used, this switches the sterile water off.

Foot control:

The spray setting can be programmed to be selected with the foot control. The indicator lights on the control panel are lit accordingly. For programming instructions, see section "Foot control functions" on page 200.

Push the knob or pedal once to switch on the water & air spray (or sterile water 1).

Push the knob or pedal a second time to switch on the air spray (or sterile water 2).

Push the knob or pedal a third time to switch off the instrument spray.

NOTE

The instrument spray operated with the foot control can be disabled in the service mode, in which case you can switch the spray on and off only from the control panel. Contact your Planmeca dealer.

24.2.9 Automatic chip blow

When the automatic chip blow is on, the indicator light on the control panel button is on and two short blows of water, air, or both will occur after the instrument is stopped.

Control panel: Press **Chip blow** to switch the automatic chip blow on or off.

Foot control: The automatic chip blow can be programmed to be switched on or off from the foot control. For programming instructions, see section "Foot control functions" on page 200.

The type of chip blow can be programmed, see section "Automatic chip blow" on page 183.

24.2.10 Manual chip blow

The manual chip blow can be programmed to be temporarily activated from the foot control. The function is activated by a long push and the flow of air will continue for as long as you push the pedal.

For programming instructions, see section "Foot control functions" on page 200.

NOTE

The type of manual chip blow does not depend on the type of the automatic chip blow, but is always dry. The manual chip blow can be set to be dependent on programming; contact your Planmeca dealer.

24.2.11 Instrument light

When the instrument light is on, the indicator light on the control panel button is green.

Control panel: Press **Instrument light** to switch the instrument light on/off.

Foot control: The instrument light can be programmed to be switched on/off from the foot control. For programming instructions, see section "Foot control functions" on page 200.

The instrument light intensity can be programmed, see section "Instrument light" on page 187.

24.3 Apex locator

The Morita Root ZX mini U apex locator can be used as a guide when measuring the root canal. It is available for the Morita TORX micromotor, the CA-10RC-ENDO 10:1 handpiece and for hand files.

The apex locator can be operated from the dental unit's control panel. More detailed information on how to measure the root canal can be found in the operation instructions provided by Morita.

WARNING

Do not simultaneously touch the patient and the USB ports, or any electrical connectors of external instrument modules.

WARNING

Do not use this apex locator on patients who have a pacemaker or ICD.

WARNING

Do not use this apex locator in conjunction with an electric scalpel.

CAUTION

The Morita Root ZX mini U is not recommended for use with children under 12 years of age.

CAUTION

Always check the measurement with an X-ray. In some cases, an accurate measurement cannot be made, for example, because of the canal shape.

NOTE

When the file is in the root canal and apex measurement is going on (>2 bars on the meter scale are blinking), the control panel is locked.

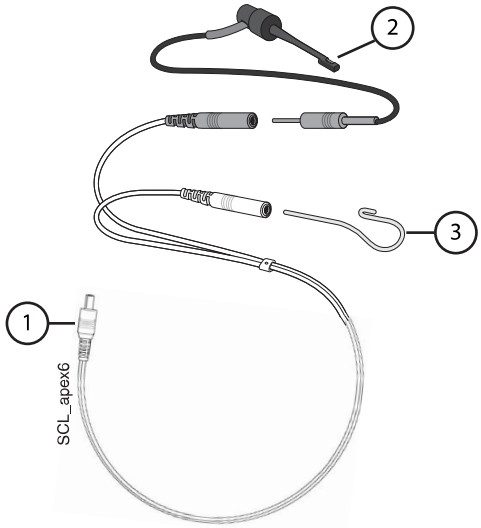
24.3.1 Before using apex locator

CAUTION

Before performing endodontic treatments with the Morita TORX micromotor and the CA-10RC-ENDO 10:1 handpiece, read the documentation provided by Morita.

CAUTION

Before using the Morita Root ZX mini U apex locator, read the documentation provided by Morita.



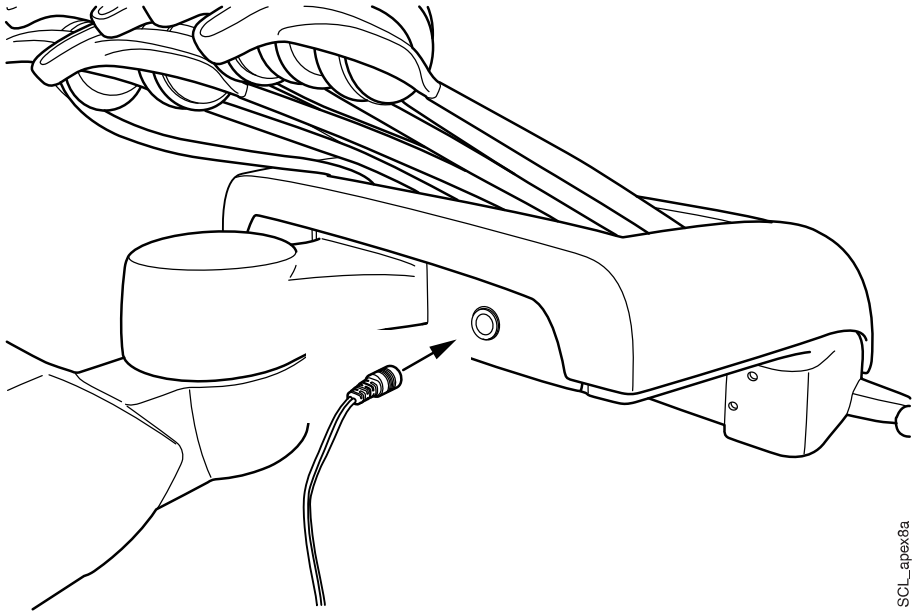
1. Probe cord	The probe cord is plugged into the jack on the back of the instrument console.
2. File holder	If you are using a hand file with the apex locator, insert the file holder's grey male plug into the grey female connector on the probe cord. If you are using the Morita TORX micromotor and the CA-10RC-ENDO 10:1 handpiece with the apex locator, do not use the file holder. Leave the grey female connector on the probe cord hanging.
3. Contrary electrode	Insert the contrary electrode into the white female connector on the probe cord.

NOTE

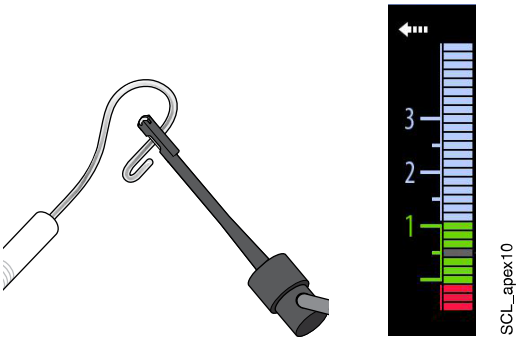
Always grip the connector to connect/disconnect the probe cord. Never pull or yank on the cord itself.

Before treating a patient:

- Make sure that the probe cord is securely plugged into the jack on the back of the instrument console.

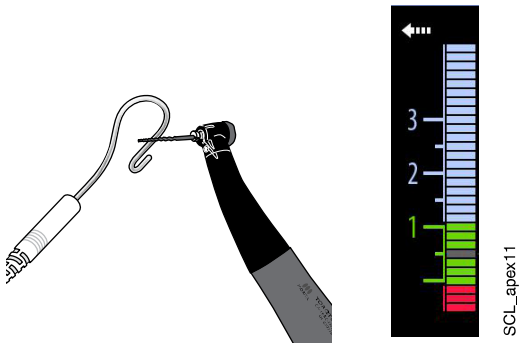


- Check that the file holder and contrary electrode are properly connected to the probe cord.
- If you are using a hand file with the apex locator, touch the metal part of the file holder with the contrary electrode. Check that all the meter indicator bars in the *Apex locator* window light up.



If the indicator bars do not appear normally, stop using the device and contact your Planmeca dealer.

- If you are using the Morita TORX micromotor and the CA-10RC-ENDO 10:1 handpiece with the apex locator, touch the file with the contrary electrode. Check that all the meter indicator bars in the *Apex locator* window light up.



If the indicator bars do not appear normally, stop using the device and contact your Planmeca dealer.

24.3.2 Using apex locator

The Morita Root ZX mini U apex locator can be used both with hand files and with the Morita TORX micromotor and the CA-10RC-ENDO 10:1 handpiece.

If you are using hand files, press **Apex locator** to open the *Apex locator* window.

NOTE

If the Apex locator button is not visible in your control panel's swipe menu, you must add it. See section "Organising items on control panel" on page 176.

If you are using the Morita TORX micromotor and the CA-10RC-ENDO 10:1 handpiece, the *Apex locator* window automatically opens on the control panel when you select one of the apical presets a1 - a3.

1	Meter scale for estimating the location of the apex. The numbers on the meter scale do not represent the actual distance to the apex and should be used only as an estimate of the distance. The numerals 1, 2 and 3 do not represent length in millimetres.
2	Press the arrow to close the *Apex locator* window. You can open the window again by pressing the **Apex locator** button.
3	Press to minimise the window. When the window is minimised, press the equivalent button to maximise the window.
4	Indicates the number of bars between the file tip and the flash bar.
5	Flash bar
6	Handle for dragging flash bar to desired location
7	**Sound** button for turning off/on the sound of the apex locator. The **Sound** button only turns off the sound of the apex locator. It has no effect on the beep signals of the torque function. We recommend that you keep the sound on at all times.

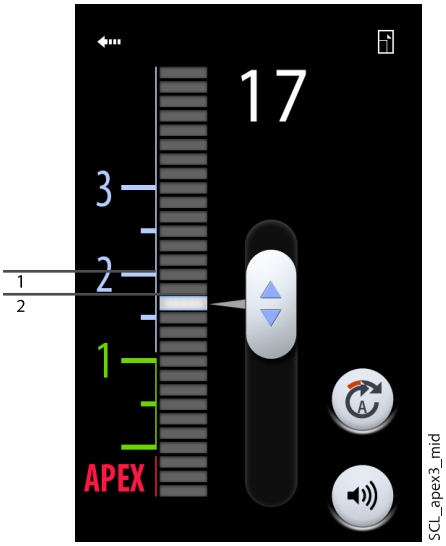
The flash bar is a reference for measurement and should be set between 2 and apex. Set the flash bar by dragging the handle to the desired location.

When you insert the file into the root canal, the flash bar starts blinking. When the file tip reaches the point in the root canal designated by the flash bar, the flash bar stops blinking and stays on.

As you progress down the root canal, a beep signal starts to sound when the file tip goes below 2 on the meter scale. For the 5 first bars, the beep signal is slow, after which the beep signal becomes fast, and finally becomes continuous when it reaches the flash bar.

1 Slow beep signal
2 Fast beep signal
3 Continuous signal

If the flash bar has been set within the 5 bars below 2 on the meter scale, the beep signal is slow at first and becomes continuous when the file tip reaches the flash bar. There is no fast beep signal.



1. Slow beep signal
2. Continuous signal

If the flash bar has been set at 2 on the meter scale, the only signal that is heard is the continuous signal when the file tip reaches the flash bar.

1. Continuous signal

24.3.3 Testing apex locator function

About this task

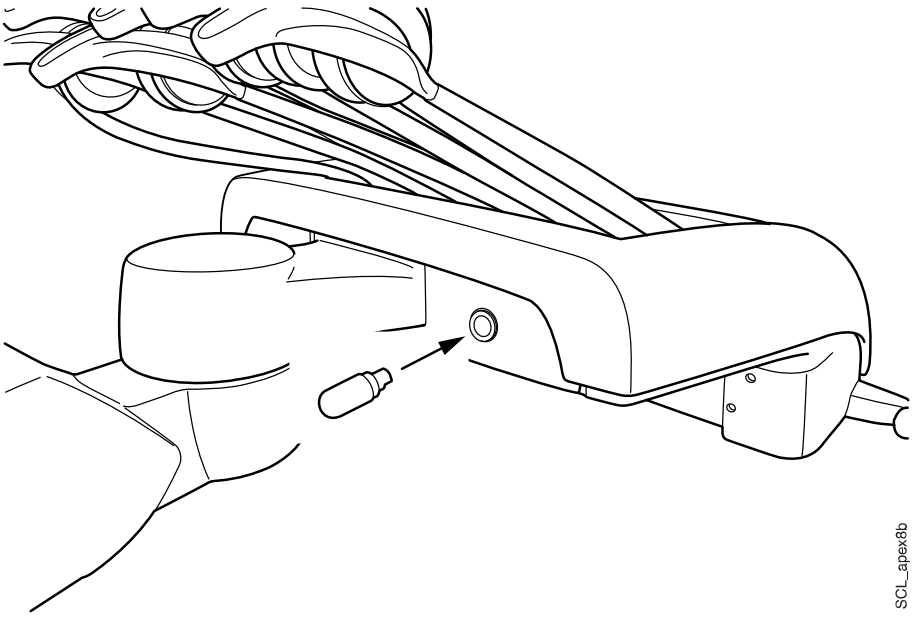
The apex locator function must be tested weekly.

NOTE

While the test is going on, the control panel is locked.

Steps

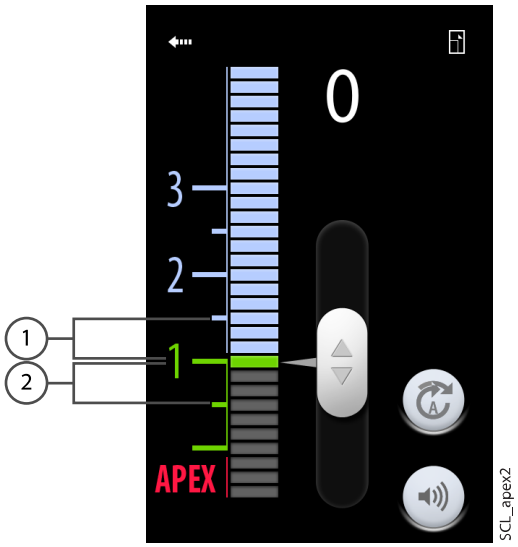
1. Open the *Apex locator* window either by pressing the **Apex locator** button or by activating the Morita TORX micromotor and selecting one of the apex presets (a1 - a3).
2. Insert the tester into the jack on the back of the instrument console.



3. Check that the meter indicates within 3 bars above or below 1.

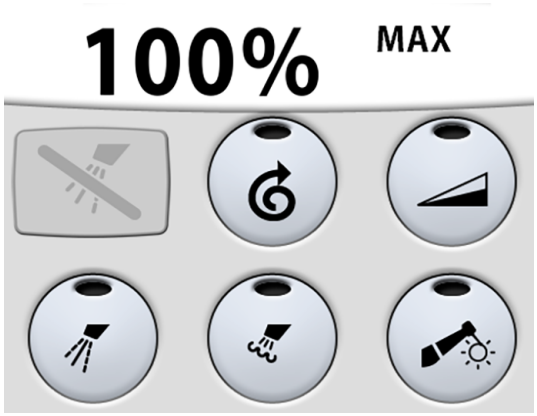
   The meter may jump when the tester is inserted. If it does, wait for about one second until the meter stabilises and then check the reading.

   If the reading is 4 or more bars away from 1, the unit will not make an accurate measurement. Contact your Planmeca dealer.



1 3 bars above 1
2 3 bars below 1

24.4 Turbine



The turbines supplied by Planmeca have a built-in backflow prevention system, which protects the water used in the instrument from contamination.

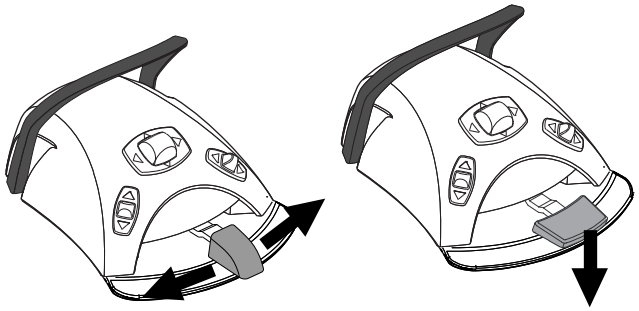
CAUTION

A power cut will shut down the software-controlled backflow prevention system. If you are using a turbine without a built-in backflow prevention system, contaminated water can enter into the turbine and turbine hose in the event of a power cut.

24.4.1 Speed/power

Standard pedal: To drive the instrument, push the foot control pedal to the right or to the left.

Wide pedal: To drive the instrument, push the foot control pedal down.



Pushing the pedal further to the right/left or down will increase the speed or power of the instrument. As you push the pedal, the power output is displayed on the control panel. The normal range is 5 - 100%.

To stop the instrument, allow the pedal to return to the rest position.

CAUTION

Ensure that the pedal is in rest position when you activate the instrument.

NOTE

The speed/power level depends on the instrument.

24.4.2 Quickstart

The turbine will start with maximum speed if the quickstart is enabled.

When quickstart is enabled, the indicator light on the control panel button is green.

Control panel: When the instrument is active, but not operated, press **Quickstart** to enable/disable the quickstart.

Foot control: Quickstart can be programmed to be activated from the foot control. For programming instructions, see section "Foot control functions" on page 200.

24.4.3 Speed/power limit

When the turbine's speed/power limit is on and the preset value is, for example, 50%, the foot control pedal movement controls the speed/power between 5 - 50% instead of the normal range of 5 - 100%. The preset maximum value is displayed on the control panel when the turbine is picked up from the instrument console.

When the speed/power limit is on, the indicator light on the control panel button is green.

Control panel: Press **Turbine speed/power limit** to reduce the turbine's speed or power to a preset level. Press **Turbine speed/power limit** again to switch the speed/power limit off.

Foot control: The speed/power limit can be programmed to be activated from the foot control. For programming instructions, see section "Foot control functions" on page 200.

NOTE

The speed/power limit can be programmed. See section "Instrument speed/power limit" on page 180.

NOTE

The turbine speed/power limit does not affect the air driven instruments for which quickstart has been selected.

NOTE

Note that the speed/power limit depends on the instrument.

24.4.4 Instrument spray

The instrument cooling spray setting can be selected to be water & air, air or no spray.

NOTE

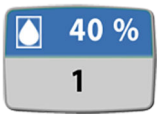
As a default, dry spray is enabled for the turbine. This means that you can only select between spray settings 'air' or 'no spray'. To disable dry spray, see section "Enabling/disabling dry spray" on page 181.

NOTE

When using an instrument without a waterline inside the handpiece you must either enable dry spray or switch off the instrument spray.

The spray flow rate can be programmed. See section "Instrument spray" on page 181.

The amounts of water and air for the currently used spray type are displayed on the control panel.



When sterile water is used, you can select between sterile water 1, sterile water 2 and sterile water off. The sterile water symbol is displayed on the control panel in addition to the water amount and spray water number.

Sterile water is meant to be used together with an air scaler.

For instructions on how to enable/disable the sterile mode, see section "Enabling/disabling sterile water mode" on page 182.

Control panel:

Press **Instrument spray** once to switch on the water & air spray. A green indicator light shows that the water&air spray is switched on.

Press **Instrument spray** a second time to switch the air spray on. A yellow indicator light shows that the air spray is switched on.

Press **Instrument spray** a third time to switch off the instrument cooling spray. The indicator light goes out.

Foot control:

The spray setting can be programmed to be selected with the foot control. The indicator lights on the control panel are lit accordingly. For programming instructions, see section "Foot control functions" on page 200.

Push the knob or pedal once to switch on the water & air spray (or sterile water 1).

Push the knob or pedal a second time to switch on the air spray (or sterile water 2).

Push the knob or pedal a third time to switch off the instrument spray.

NOTE

The instrument spray operated with the foot control can be disabled in the service mode, in which case you can switch the spray on and off only from the control panel. Contact your Planmeca dealer.

24.4.5 Automatic chip blow

When the automatic chip blow is on, the indicator light on the control panel button is on and two short blows of water, air, or both will occur after the instrument is stopped.

Control panel: Press **Chip blow** to switch the automatic chip blow on or off.

Foot control: The automatic chip blow can be programmed to be switched on or off from the foot control. For programming instructions, see section "Foot control functions" on page 200.

The type of chip blow can be programmed, see section "Automatic chip blow" on page 183.

24.4.6 Manual chip blow

The manual chip blow can be programmed to be temporarily activated from the foot control. The function is activated by a long push and the flow of air will continue for as long as you push the pedal.

For programming instructions, see section "Foot control functions" on page 200.

NOTE

The type of manual chip blow does not depend on the type of the automatic chip blow, but is always dry. The manual chip blow can be set to be dependent on programming; contact your Planmeca dealer.

24.4.7 Instrument light

When the instrument light is on, the indicator light on the control panel button is green.

Control panel: Press **Instrument light** to switch the instrument light on/off.

Foot control: The instrument light can be programmed to be switched on/off from the foot control. For programming instructions, see section "Foot control functions" on page 200.

The instrument light intensity can be programmed, see section "Instrument light" on page 187.

24.5 Scaler

CAUTION

Do not use the scaler on patients with cardiac pacemakers. The scaler can cause disturbance on the pacemaker's function.

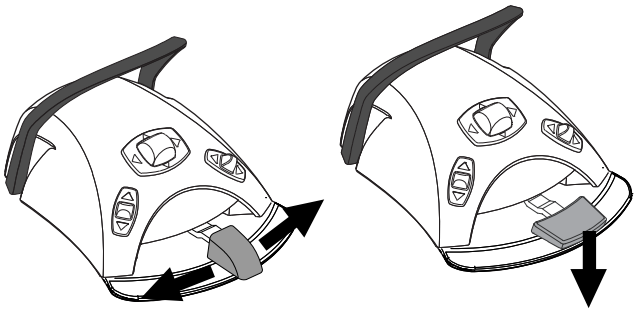
NOTE

A scaler requires additional electronics and the scaler type can not be changed without changing electronics.

24.5.1 Speed/power

Standard pedal: To drive the instrument, push the foot control pedal to the right or to the left.

Wide pedal: To drive the instrument, push the foot control pedal down.



Pushing the pedal further to the right/left or down will increase the speed or power of the instrument. As you push the pedal, the power output is displayed on the control panel.

To stop the instrument, allow the pedal to return to the rest position.

CAUTION

Ensure that the pedal is in rest position when you activate the instrument.

NOTE

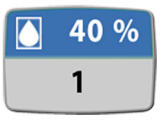
The speed/power level depends on the instrument.

24.5.2 Instrument spray

The spray setting for the scaler can be selected to be water 1, water 2 or no spray.

The amount of water that runs through the scaler can be set separately for water 1 and 2, see section "Instrument spray" on page 181.

The amount of water and the spray water number (1 or 2) are displayed on the control panel.



When sterile water is used, the sterile water symbol is displayed on the control panel in addition to the water amount and spray water number.

For instructions on how to enable/disable the sterile mode, see section "Enabling/disabling sterile water mode" on page 182.

Control panel:

Press **Instrument spray** once to switch on water 1. A green indicator light shows that water 1 is switched on.

When sterile water is used, this switches on sterile water 1.

Press **Instrument spray** a second time to switch on water 2. A yellow indicator light shows that water 2 is switched on.

When sterile water is used, this switches on sterile water 2.

Press **Instrument spray** a third time to switch off the instrument spray. The indicator light goes out.

When sterile water is used, this switches the sterile water off.

Foot control:

The spray setting can be programmed to be selected with the foot control. The indicator lights on the control panel are lit accordingly. For programming instructions, see section "Foot control functions" on page 200.

Push the knob or pedal once to switch on water 1 (or sterile water 1).

Push the knob or pedal a second time to switch on water 2 (or sterile water 2).

Push the knob or pedal a third time to switch off the instrument spray.

NOTE

The spray must be switched off when using an instrument without a waterline inside the handpiece.

NOTE

The instrument spray operated with the foot control can be disabled in the service mode, in which case you can switch the spray on and off only from the control panel. Contact your Planmeca dealer.

24.5.3 Satelec Newtron scaler

The Satelec Newtron scaler and the Satelec Newtron LED scaler have four modes:

- periodontics; power range 1 - 3
- endodontics; power range 3 - 5
- scaling; power range 5 - 8
- conservative dentistry; power range 8 - 10.

A coloured band at the base of the scaler tip helps you choose the proper scaler mode on the dental unit:

- Green - periodontics
- Yellow - endodontics
- Blue - scaling
- Orange - conservative dentistry (restoration)

When the scaler is the active instrument, the scaler mode can be changed by pressing **Power**.

24.5.4 LM scaler

CAUTION

Keep the patient's lips, cheeks and tongue out of the way of the activated scaler tip, as contact may cause burns.

The LM scaler has three modes:

- low (0 - 40)
- medium (0 - 70)
- full (0 - 100).

Start with the low mode and, if needed, gradually change to medium and full mode.

When the scaler is the active instrument, the scaler mode can be changed by pressing **Power**.

24.5.5 EMS No Pain scaler

The EMS No Pain scaler has three modes:

- endodontics; power range 1 - 50
- scaling; power range 1 - 100
- restoration; power range 50 - 100.

The power range for all three modes is displayed as 1 - 100 (for example, in the restoration mode, power range 50 is displayed as 1).

When the scaler is the active instrument, the scaler mode can be changed by pressing **Power**.

24.5.6 Instrument light

When the instrument light is on, the indicator light on the control panel button is green.

Control panel: Press **Instrument light** to switch the instrument light on/off.

Foot control: The instrument light can be programmed to be switched on/off from the foot control. For programming instructions, see section "Foot control functions" on page 200.

The instrument light intensity can be programmed, see section "Instrument light" on page 187.

24.6 Planmeca Lumion Plus polymerisation light

CAUTION

The polymerisation light generates optical radiation and proper safety measures should be taken when using the instrument. For detailed information, please refer to OEM documentation.

CAUTION

Do not use the polymerisation light on patients with cardiac pacemakers. The polymerisation light can cause disturbance on the pacemaker's function.

NOTE

When the polymerisation light is taken from the holder in the instrument console and returned to it, the operating light's composite mode is switched on. This feature is configurable; contact your Planmeca dealer.

To start the polymerisation cycle, first select the desired curing mode by pressing the navigation button on the handpiece. Then, start the polymerisation cycle by pressing the start button on the handpiece.

The polymerisation cycle can be interrupted by pressing the start button again.

The polymerisation cycle can also be programmed to be started from the foot control. For programming instructions, see section "Foot control functions" on page 200.

To start the polymerisation cycle from the foot control, first select the desired curing mode by pressing the navigation button on the handpiece. Then, push the foot control pedal or knob according to how you have programmed it. To interrupt the current polymerisation cycle, push the pedal or knob again.

The length of the cycle is programmable, see section "Planmeca Lumion Plus polymerisation light" on page 187.

When the polymerisation light is activated, the length of the polymerisation cycle is displayed on the control panel. When you start the cycle, you will hear a signal tone. This signal tone is repeated every 10 seconds, and also at 5 seconds. The progress of the polymerisation cycle is displayed on the control panel.

Independent mode

The Planmeca Lumion Plus polymerisation light can also be operated in the independent mode. The independent mode is typically used when the Planmeca Lumion Plus polymerisation light is attached to the assistant element, but the independent mode can also be configured to be used on the dentist side (the configuration is performed by a Planmeca service technician).

When the Planmeca Lumion Plus polymerisation light is in the independent mode, it can only be controlled by the buttons on the instrument itself, not over the control panel or the foot control.

To start the polymerisation cycle in the independent mode, first select the desired curing mode by pressing the navigation button on the handpiece. Then, briefly press the start button on the handpiece to start a 10-second exposure, or press and hold the start button for 2 seconds to start a 20-second exposure. The polymerisation cycle can be interrupted by pressing the start button.

In the 10-second cycle, a signal tone is heard at the beginning and the end of the cycle. In the 20-second cycle, a signal tone is heard as the cycle starts, after 2 seconds to confirm the start of the 20-second cycle, after 10 seconds and at the end of the cycle.

NOTE

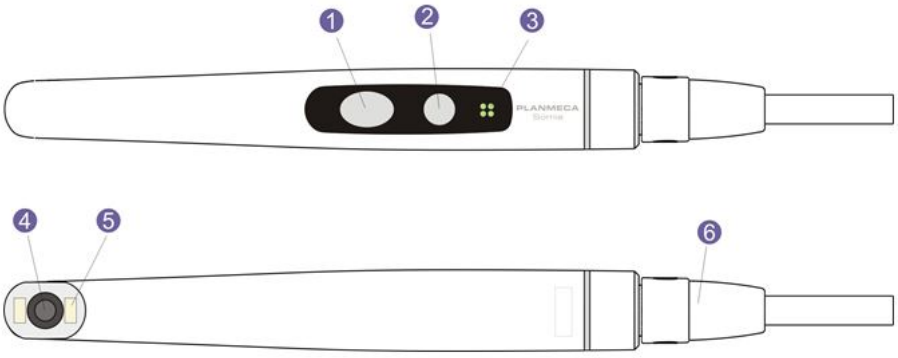
When the Planmeca Lumion Plus polymerisation light is in the independent mode, it can not be controlled over the foot control.

Refer to the Planmeca Lumion Plus manual of use and maintenance.

24.7 Intraoral camera and Planmeca Romexis

For detailed information on the Somia intraoral camera, please refer to *Planmeca Somia user's manual*.

Handpiece



1. Image control button
2. Power/macro button
3. Indicator light
4. Camera lens
5. Light source (LED)
6. USB cable

Prerequisites

- When the intraoral camera is placed in the instrument console, it is connected to its own dedicated position marked by a label.
- When the intraoral camera is placed in the suction holder, it is connected to the USB port on the cuspidor.
- Planmeca Romexis software must be installed and the connection between it and the dental unit must be enabled. When Planmeca Romexis is running, the intraoral camera is continuously connected to the software.

After you have saved the images

Once you have saved the images, you can browse through them in the Planmeca Romexis Image browser. Press the **Done** button at the bottom of the intraoral camera window in Planmeca Romexis to move to the Image browser. For more information on the Image browser, see the *Planmeca Romexis user's manual*.

24.7.1 Intraoral camera placed in instrument console

Starting intraoral camera

Before you turn on the intraoral camera, first select the patient and then select the 2D module in Planmeca Romexis.

To turn on the intraoral camera, pick it up from the instrument console.

Alternatively, you can turn the intraoral camera on by pressing either of the buttons on the camera handpiece (**Power/macro** or **Image control** button).

NOTE

If you turn on the intraoral camera from the buttons on the handpiece, the camera can not be operated from the dental unit's foot control.

When the intraoral camera turns on,

- the indicator light on the handpiece turns blue,
- you will hear a short sound signal,
- the Planmeca Romexis intraoral camera view is displayed on the monitor,
- the text “Intraoral camera active” is displayed on the dental unit's control panel.

Once the intraoral camera is activated, you can operate it

- from the dental unit's foot control, if the camera has been turned on by picking it up from the instrument console

  (requires programming, see section "Foot control functions" on page 200
- from the camera handpiece, or
- remotely from the Planmeca Romexis user interface.

You can use the camera in normal or macro mode, as well as freeze and save the image. The LED on the handpiece is turned on and off simultaneously with the intraoral camera.

Macro on/off

A short sound signal indicates that the macro mode is turned on/off. When the macro mode is on, autofocus is off and the indicator light on the handpiece is lilac.

Interface	Action
Handpiece	Press the **Power/macro** button to turn the macro mode on/off.

Freezing/unfreezing image

A short sound signal indicates the freeze/unfreeze of an image. When the image is frozen, the indicator light on the handpiece is green. When you unfreeze the image, the camera goes back to live stream (indicated by the blue indicator light on the handpiece).

Interface	Action
Foot control	In the Planmeca Sovereign Classic dental unit you can program the foot control so that the image is frozen/unfrozen when you push the pedal or one of the side knobs.
Handpiece	There are two ways to freeze/unfreeze the image from the handpiece. • Press the **Image control** button halfway and hold it to freeze the image. When you release the button, the image unfreezes. • Press the **Image control** button all the way down and release it to freeze the image. To unfreeze the frozen image, either press the **Image control** button halfway and then release it, or press the button all the way down and release it.

Interface	Action
Planmeca Romexis	Press the **Freeze** button to freeze the image. Press the **Resume** button to unfreeze the image. The buttons are located at the bottom of the intraoral camera window.

Saving image

A frozen image can be saved from the dental unit, the handpiece and Planmeca Romexis. From the handpiece you can save an image also without freezing the image first.

A long sound signal indicates that an image is saved. When the image is being saved, the indicator light on the handpiece blinks orange. After the image is saved, the camera goes back to live stream (indicated by the blue indicator light on the handpiece).

Interface	Action
Foot control	In the Planmeca Sovereign Classic dental unit you can program the foot control so that the frozen image is saved when you push the pedal or one of the side knobs.
Handpiece	Press the **Image control** button for two seconds. Note! When saving an image from the handpiece, you can, but do not have to freeze the image first.
Planmeca Romexis	When the image is frozen, press the **Save** button at the bottom of the intraoral camera window.

Turning off intraoral camera

When you return the intraoral camera to the instrument console, the camera is automatically turned off and the indicator light on the handpiece goes off.

The intraoral camera can also be turned off by

- closing the Planmeca Romexis intraoral camera view,
- pressing the **Power/macro** button on the handpiece for two seconds, or by
- not using the intraoral camera for 300 seconds.

24.7.2 Intraoral camera placed in suction holder

Starting intraoral camera

Before you turn on the intraoral camera, first select the patient and the 2D module in Planmeca Romexis. Then, start the camera from the dental unit.

1. Pick up the camera from the Flexy-holder.
2. Activate the intraoral camera with the foot control according to how you have programmed it.

   The indicator light on the handpiece turns blue. The text “Intraoral camera active” is displayed on the dental unit's control panel and the Planmeca Romexis intraoral camera view is displayed on the monitor.

   You can also program the dental unit so that the intraoral camera is activated when you press the **Flexy** button.

Once the intraoral camera is activated, you can operate it

- from the dental unit's foot control,

  (requires programming, see section "Foot control functions" on page 200
- from the camera handpiece, or
- remotely from the Planmeca Romexis user interface.

You can use the camera in normal or macro mode, as well as freeze and save the image. The LED on the handpiece is turned on and off simultaneously with the intraoral camera.

Macro on/off

A short sound signal indicates that the macro mode is turned on/off. When the macro mode is on, autofocus is off and the indicator light on the handpiece is lilac.

Interface	Action
Handpiece	Press the **Power/macro** button to turn the macro mode on/off.

Freezing/unfreezing image

A short sound signal indicates the freeze/unfreeze of an image. When the image is frozen, the indicator light on the handpiece is green. When you unfreeze the image, the camera goes back to live stream (indicated by the blue indicator light on the handpiece).

Interface	Action
Foot control	In the Planmeca Sovereign Classic dental unit you can program the foot control so that the image is frozen/unfrozen when you push the pedal or one of the side knobs.
Handpiece	There are two ways to freeze/unfreeze the image from the handpiece. • Press the **Image control** button halfway and hold it to freeze the image. When you release the button, the image unfreezes. • Press the **Image control** button all the way down and release it to freeze the image. To unfreeze the frozen image, either press the **Image control** button halfway and then release it, or press the button all the way down and release it.
Planmeca Romexis	Press the **Freeze** button to freeze the image. Press the **Resume** button to unfreeze the image. The buttons are located at the bottom of the intraoral camera window.

Saving image

A frozen image can be saved from the dental unit, the handpiece and Planmeca Romexis. From the handpiece you can save an image also without freezing the image first.

A long sound signal indicates that an image is saved. When the image is being saved, the indicator light on the handpiece blinks orange. After the image is saved, the camera goes back to live stream (indicated by the blue indicator light on the handpiece).

Interface	Action
Foot control	In the Planmeca Sovereign Classic dental unit you can program the foot control so that the frozen image is saved when you push the pedal or one of the side knobs.
Handpiece	Press the **Image control** button for two seconds. Note! When saving an image from the handpiece, you can, but do not have to freeze the image first.
Planmeca Romexis	When the image is frozen, press the **Save** button at the bottom of the intraoral camera window.

Turning off intraoral camera

Deactivate the intraoral camera from the dental unit when you have finished working with it.

Deactivate the intraoral camera with the foot control according to how you have programmed it.

You can also program the dental unit so that the intraoral camera is deactivated when you press the **Flexy** button.

When the camera is deactivated, the indicator light on the handpiece goes off. Return the intraoral camera to its holder.

24.8 Planmeca intraoral scanner

The Planmeca intraoral scanner is used together with Planmeca Romexis and Planmeca PlanCAD Easy software. The scanner is mainly operated with the software, but to make the scanning procedure easier, some of the operations can also be performed from the dental unit's foot control.

The intraoral scanner is placed in the Flexy-holder.

CAUTION

Make sure that you attach the intraoral scanner connector the right way into the USB 3.0 port for the scanner on the cuspidor. If the connector is turned the wrong way, it will not go into the port. Use of unnecessary force will break the connector.

NOTE

There are two ports on the cuspidor. Make sure you attach the connector to the port marked "Planmeca specified USB device only".

NOTE

To avoid splashes on the scanner, remove it from the dental unit after use and place it on the table stand.

For more information, see *Planmeca FIT user's manual*.

24.8.1 Operating intraoral scanner from foot control

The following scanner operations can be activated from the foot control:

- activate and deactivate the instrument view,
- select the scanning mode by moving up and down in the list of scan type selection tools in the Planmeca Romexis menu on the monitor,
- start scanning,

- generate a model of the scanned area, and
- take an image.

To view which functions are activated when you push the foot control knobs or pedal, press **Foot control** at the top of the control panel. For details, see section "Foot control functions" on page 69.

NOTE

In addition, you can program the dental unit so that the intraoral scanner is activated/deactivated when you press the Flexy button. For instructions, see section "Flexy button functions" on page 198.

25 Operating suction handpieces

NOTE

Remove the suction handpiece from the patient's mouth before stopping the suction.

NOTE

In addition to the instructions below, you can program the suction so that it is started/stopped by pushing the foot control's side knob, or by pressing the Flexy button. For instructions, see sections "Flexy button functions" on page 198 and "Foot control functions" on page 200.

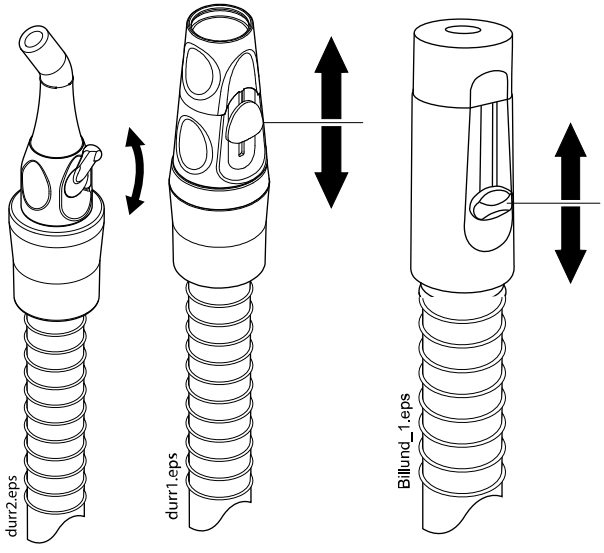
NOTE

If you have stopped the suction from the foot control or the Flexy button while the suction handpiece was in your hand, the suction will start for a while when you return the handpiece to the suction holder. The duration of this post-suction delay is configurable, contact your Planmeca dealer. This feature is not available for the tilting high-volume suction handpiece.

25.1 Saliva and high-volume suction

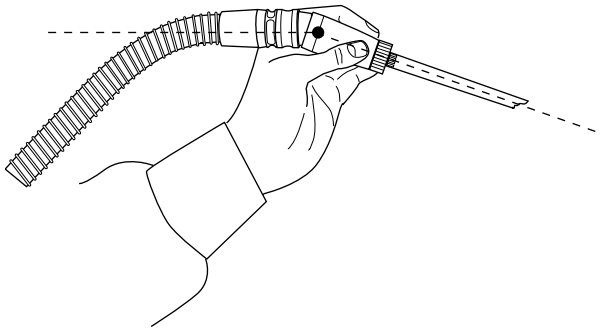
When a saliva or high-volume suction handpiece is lifted from its holder, the suction will automatically start. When the handpieces are returned, the suction will stop.

When you are using the suction handpiece, the suction can be controlled by sliding the adjuster up or down.



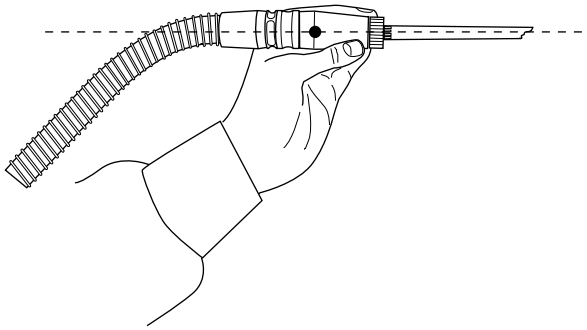
25.2 Tilting high-volume suction

When you lift the suction handpiece from its holder, the weight of the suction tube will cause the end of the handpiece to “tilt” slightly. This action opens the handpiece valve allowing the suction to start.



You can stop the suction temporarily by “straightening” the suction handpiece with your thumb and forefinger.

If you temporarily put the suction handpiece down during dental treatment, the suction will automatically stop as the force of the suction will straighten the handpiece.



26 Programming

26.1 Introduction

NOTE

If the instrument is operated during programming, the changes in settings are seen immediately.

NOTE

The air/water flow of the syringe can not be programmed.

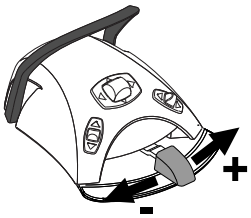
NOTE

To check a function setting (other than automatic position) without programming it, press Program and the button of the desired function. The setting is displayed on the control panel. Press OK to close the window without changing the setting.

Most of the programming follows the same pattern:

1. If you are programming an instrument, pick up the instrument from the instrument console.
2. Press **Program** to activate the programming mode.

   The button turns blue.
3. Select the desired function from the control panel.
4. A pop-up window opens where you can adjust the values with the **plus** (+) and **minus** (-) buttons.



NOTE

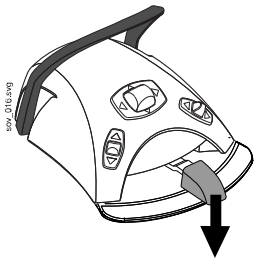
Alternatively, you can change the settings with the foot control. To increase the parameter value, push the pedal to the right. To decrease the parameter value, push the pedal to the left. When the pedal is pushed halfway (right or left) the parameter changes slowly. When the pedal is pushed to its extreme position (right or left) the parameter changes quickly.

5. Press **OK** to store the new setting into memory.

   The pop-up window closes.

NOTE

Alternatively, you can store the new setting by pushing the foot control pedal down.



When you press **Program**, you will also see the following symbols on the control panel:

service mode

clock

software update

about this unit

The **Service mode** and **Software update** buttons are reserved for service situations only.

26.2 Organising items on control panel

About this task

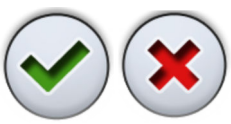
You can organise the items in the main window's swipe menu according to your preferences.

Steps

1. Press **Program**.

2. Press **Organise**. A pop-up window opens.

3. Organise the items.
   - To move an item, drag the item to the desired position on the menu.
   - To remove an item, drag the item to the field at the bottom of the window.
   - To add an item, press + and add an item from the selection.
   - The swipe menu contains several pages. To move an item to another page, drag the item to the edge of the page and hold it there until the new page opens.



4. Press **OK** to confirm the new order.

   If you do not wish to save the new order, press **Close**.

26.3 Automatic chair positions

When you have signed in to the dental unit with your own user name, all changes you make to the automatic chair positions and then save, are saved to your user profile. This means that whenever you sign in to the dental unit, you will use your last saved automatic chair positions.

26.3.1 Extended view

About this task

NOTE

If you only want to rename the automatic position or adjust its position on the list, start programming from step 4.

Steps

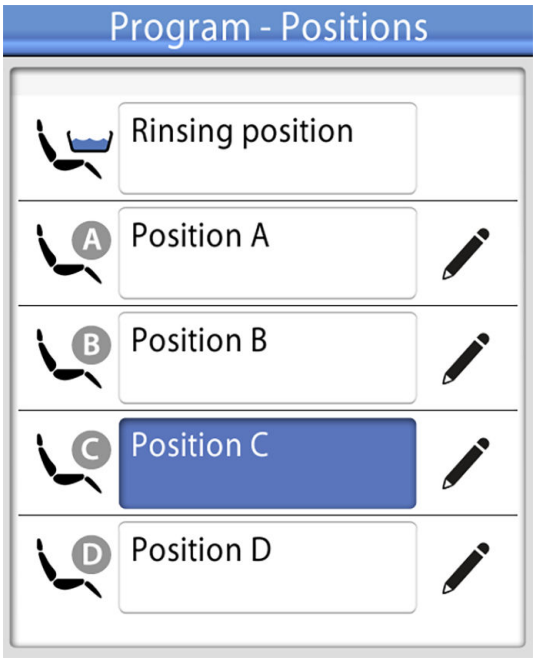
1. Move the chair to the required position by using the chair movement buttons on the control panel or by using the foot control.
2. If you want the operating light or its composite mode to be on (off) in this position, turn them on (off).
3. Adjust the intensity of the operating light and/or its composite mode as described in section "Intensity" on page 191.

4. Press **Program**.

5. Press the **Chair positions** button.

A list of automatic positions opens.

6. Select the wanted chair position by pressing it on the list.



The field of the position that you have selected from the list (position C in picture) turns blue.

7. Optionally, edit the name of the automatic position A - G by pressing **Edit** next to the name.

   This opens a new window with an alphanumeric keyboard where you can edit the name.

   Use the arrows in the top row to move up and down, to the left and right in the text.

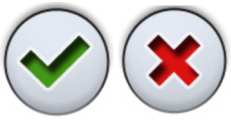
   The symbols below the arrows in the top row can be used as they are, or as a shortcut to letters containing that symbol. For example, when you press ^ for about one second, letters with the symbol ^ are displayed. You will automatically return to the normal view when you enter one of the letters. To return to the normal view without entering a letter, press the symbol again.

   To display special characters, press **Alt**. Press **Alt** again to return to the normal view.

   To save the new name, press **OK**. To exit the window without changing the name, press **Close**.

8. Optionally, move an automatic position up or down on the list by pressing **List order** and simultaneously dragging the automatic position to the new location.

9. Optionally, hide/unhide an automatic position from the list by unchecking/checking the checkbox next to the automatic position icon.



10. Press **OK** to confirm that you want to save the current position as an automatic position.

    If you do not wish to save the position as an automatic position, press **Close**.

26.3.2 Traditional view

Steps

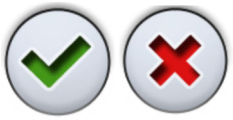
1. Move the chair to the required position by using the chair movement buttons on the control panel or by using the foot control.

   For instructions, see section "Manual operation" on page 107.

2. If you want the operating light or its composite mode to be on (off) in this position, turn it on (off).
3. Adjust the intensity of the operating light and/or its composite mode as described in section "Intensity" on page 191.

4. Press **Program**.

5. Press the desired chair position where to store the chair's position (**rinsing position**, **A**, **B**, **C** or **D**).



6. Press **OK** to confirm that you want to save the current position as an automatic position.

   If you do not wish to save the position as an automatic position, press **Close**.

26.4 Specialist mode

About this task

When you have signed in to the dental unit with your own user name, all changes you make to the chair movement speed and then save, are saved to your user profile. This means that whenever you sign in to the dental unit and use the specialist mode, you will use your last saved chair movement speed.

Steps

1. Press **Program**.

2. Press **Specialist mode**.

   A pop-up window opens.

3. Set the desired speed for the chair movements by pressing the corresponding item on the menu.

   The options are:

   - fast
   - medium
   - slow.

   The speed is saved to the dental unit and the pop-up window closes.

If you want to close the window without changing the setting, press **Close**.

26.5 Instrument settings

When you have signed in to the dental unit with your own user name, all changes you make to the instrument settings and then save, are saved to your user profile. This means that whenever you sign in to the dental unit, you will use your last saved instrument settings.

26.5.1 Instrument speed/power limit

About this task

Steps

1. Activate the instrument.
2. Press **Program**.

3. Press **Instrument speed/power limit**.

When you are programming the turbine, press **Turbine speed/power limit**.

A pop-up window opens.

4. Adjust the instrument speed/power limit.

   The minimum speed/power limit is 5 or 10% (depending on the instrument) and the maximum is 95%. The adjustment step is 5.

   If the preset value is, for example, 50%, the foot control pedal movement controls the speed/power between 5 - 50% instead of the normal range of 5 - 100%.

5. Press **OK**.

The pop-up window closes.

26.5.2 Quickstart for micromotor

Steps

1. Activate the instrument.
2. Press **Program**.

3. Press **Instrument speed/power limit**.

NOTE

This button looks different depending on whether quickstart is enabled or disabled.

A pop-up window opens.

4. Toggle the **Quickstart** button to enable/disable quickstart.

   A grey button means that quickstart is disabled, and a blue button that it is enabled.

5. Press **OK**.

   The pop-up window closes.

26.5.3 Instrument spray

Steps

1. Activate the instrument.

2. Press **Program**.

3. Press **Instrument spray**.

   A pop-up window opens.

4. Adjust the flow rates for water and air.

   Scaler: Adjust the flow rates for water 1 and water 2.

   The minimum value of all parameters is 0 (no flow) and maximum 100. The adjustment step is 1 in the value range 0 - 25% and 5 in the value range 25 - 100%.

5. Press **OK**.

   The pop-up window closes and the new values are displayed on the control panel.

26.5.4 Enabling/disabling dry spray

About this task

As a default, the dry spray is enabled, which means that no water comes out from the instrument. The dry spray is available only for Planmeca Minendo and Bien-Air MX micromotors, and for the turbine.

Steps

1. Activate the instrument.

2. Press **Program**.

3. Press **Instrument spray**.

   A pop-up window opens.

4. To enable the dry spray, check the checkbox next to *Enable dry spray*.

   To disable the dry spray, uncheck the checkbox next to *Enable dry spray*.

5. Press **OK**.

   The pop-up window closes.

26.5.5 Enabling/disabling sterile water mode

About this task

If the dental unit is equipped with the Planmeca Sterile water system, enable/disable the sterile water mode as described below.

Steps

1. Activate the instrument.

2. Press **Program**.

3. Press **Instrument spray**.

   A pop-up window opens.

4. Toggle the **Sterile water** button to enable/disable the sterile water mode.

   A grey button means that the sterile water mode is disabled, and a blue button that it is enabled.

   NOTE

   If you disable the sterile water mode for an instrument that uses sterile water, the flow rate for sterile water 1 and 2 automatically changes to 0%.

5. Press **OK**.

   The pop-up window closes.

26.5.6 Automatic chip blow

About this task

NOTE

The type of manual chip blow does not depend on the type of the automatic chip blow, but is dry as a factory default.

Steps

1. Activate the instrument.
2. Press **Program**.

3. Press **Chip blow**.

A pop-up window opens.

4. Adjust the flow rates for water and air.

   The minimum value of both parameters is 0 (no flow) and maximum 100. The adjustment step is 1 in the value range 0 - 25% and 5 in the value range 25 - 100%.

5. Press **OK**.

The pop-up window closes and the new values are displayed on the control panel.

26.5.7 Torque and RPM for micromotor

About this task

CAUTION

Before modifying the torque and RPM functions, please refer to the file manufacturer's instructions concerning torque and RPM value recommendations for the files.

Steps

1. Activate the instrument.
2. Select the micromotor's drive mode.

NOTE

This step does not apply for the Morita TORX micromotor (only drive mode Auto forward is available).

If no drive mode is displayed on the screen, press **Torque**. Then, toggle between the drive modes by pressing the current drive mode -button.

Toggle between the drive modes by pressing the current drive mode -button.

The modes are:

Auto stop

The micromotor stops when the torque limit is reached.

Auto reverse

When the torque limit is reached, the micromotor will operate counter-clockwise.

Auto forward

When the torque limit is reached, the micromotor will operate counter-clockwise (auto reverse) for 2 seconds and then return to clockwise direction.

3. Adjust the micromotor speed rate.

3.a. Press **Program**.

3.b. Press **RPM limit**.

A pop-up window opens.

3.c. Adjust the micromotor speed rate (RPM).

Alteration of RPM speed rate in different ranges

Range	In steps of:
100 - 200	10 (e.g. 110, 120 etc...)
200 - 500	20 (e.g. 220, 240, 260 etc...)
500 - 1 000	50 (e.g. 550, 600, 650 etc...)
1 000 - 2 000	100 (e.g. 1 100, 1 200 etc...)
2 000 - 5 000	200 (e.g. 2 200, 2 400 etc....)
5 000 - 10 000	500 (e.g. 5 500, 6 000, 6 500 etc...)
10 000 - 20 000	1 000 (e.g. 11 000, 12 000 etc....)
20 000 - 38 000	2 000 (e.g. 22 000, 24 000 etc....)

3.d. Press **OK**.

The pop-up window closes and the new value is displayed on the control panel.

4. Adjust the torque limit rate.

4.a. Press **Program**.

4.b. Press **Torque**

A pop-up window opens.

4.c. Adjust the torque limit rate.

The adjustment range is 0.5 - 6.0 Ncm.

NOTE

The maximum value depends on the used handpiece.

4.d. Press **OK**.

The pop-up window closes and the new value is displayed on the control panel.

5. Adjust the counter-clockwise rotation time of the micromotor in the Auto forward mode.

NOTE

This step does not apply for the Morita TORX micromotor.

5.a. Press **Program**.

5.b. Press **Auto forward**

A pop-up window opens.

5.c. Adjust the Auto forward time.

The maximum time is 5 seconds and the minimum 0.5 seconds, and the time can be adjusted in steps of 0.2 seconds.

5.d. Press **OK**.

The pop-up window closes and the new value is displayed on the control panel.

What to do next

The procedure for saving the modified preset settings is explained in section "Modifying and saving micromotor presets" on page 185.

26.5.8 Modifying and saving micromotor presets

About this task

For information on how to use presets, see section "Micromotor presets" on page 137.

Steps

1. Press **Preset** to open a list of presets.
2. Select the preset that you want to modify (or use as basis for your new preset (this option is not available for the Implantmed and Morita TORX micromotors)) from the list by pressing on the preset name.
3. Modify the settings of the preset.

   When you have modified the settings of a preset, but have not saved them, a red asterisk (*) is displayed next to the preset name on the control panel.

4. Press **Program**.

5. Press **Preset** to open the list of presets.
6. On the list, press the name of the preset to which you want to save the modified settings. This can either be the preset that you originally modified, or another one.

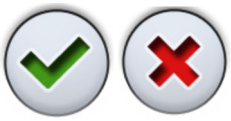
   NOTE

   The modified settings of the Implantmed surgical micromotor and the Morita TORX micromotor can only be saved to the originally modified preset, not to another preset.

7. Optionally, rename your preset.

   Press the **Edit** button next to the preset name.

   An alphanumeric keyboard is displayed for editing the preset name. To display special characters, press **ALT**. Press **ALT** again to return to the normal view. The symbols in the top row can be used as they are, or as a shortcut to letters containing that symbol. For example, when you press **^** for about one second, letters with the symbol ^ are displayed. You will automatically return to the normal view when you enter one of the letters. To return to the normal view without entering a letter, press the symbol again.



   When you have entered the preset name, press **OK** to save the user name and return to the list of presets. Pressing **Close** exits the *Set preset name* window without saving the preset name.

8. Press **OK**.

   The pop-up window closes and the new settings are stored to your user profile.

26.5.9 Instrument light

Steps

1. Activate the instrument.
2. Press **Program**.

3. Press **Instrument light**.

A pop-up window opens.

4. Adjust the light intensity.

   The minimum value is 70% of the maximum intensity and the maximum 100%, and the adjustment step is 2.

5. Press **OK**.

The pop-up window closes and the new values are displayed on the control panel.

26.5.10 Planmeca Lumion Plus polymerisation light

About this task

NOTE

The duration of the polymerisation cycle can be programmed only for the Planmeca Lumion Plus polymerisation light.

Steps

1. Activate the instrument.
2. Press **Program**.

3. Press **Polymerisation cycle**.

A pop-up window opens.

4. Adjust the length of the polymerisation cycle.

   The value range is 5 - 100 seconds. The adjustment step is 5 sec. and the default value is 10 sec.

5. Press **OK**.

The pop-up window closes and the new values are displayed on the control panel.

26.6 Timer settings

About this task

Up to six timer settings can be programmed into the timer memory.

When you have signed in to the dental unit with your own user name, all changes you make to the timer settings and then save, are saved to your user profile. This means that whenever you sign in to the dental unit, you will use your last saved timers.

Steps

1. Press **Program**.

2. Press **Timer**.

   A pop-up window opens.
3. Press the timer that you want to adjust.

   A new pop-up window opens.
4. Adjust the length of the timer.

   The minimum value is 5 sec. and the maximum 20 min. The adjustment step is 5 sec.

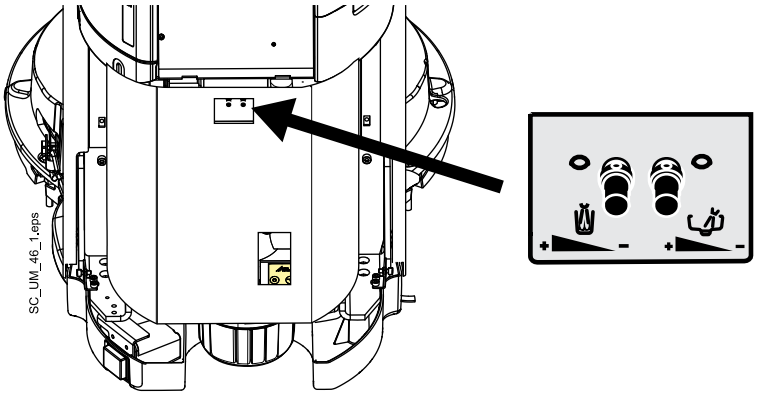
5. Press **OK**.

   The pop-up window closes.

26.7 Bowl rinse and cup fill

26.7.1 Adjusting cup fill and bowl rinse flow rates

The flow rates of the bowl flush and cup fill can be adjusted with the two black knobs located inside the dental unit.



When you have adjusted the flow rates, you might need to adjust the duration of the bowl rinse and cup fill. For instructions, see sections "Duration of bowl rinsing" on page 189 and "Duration of cup filling" on page 189.

26.7.2 Duration of bowl rinsing

Steps

1. Press **Program**.

2. Press **Bowl rinse**.

   A pop-up window opens.

3. Adjust the duration of the bowl rinsing.

   The minimum value is 5 seconds and the maximum 240 seconds, and it is adjusted in steps of 5.

4. Press **OK**.

   The pop-up window closes.

26.7.3 Duration of cup filling

About this task

NOTE

By default, the cup fill is not activated unless the cup is positioned in its place under the cup fill tube. To change this setting, contact your Planmeca dealer.

NOTE

The water in the dental unit is intended for rinsing only, not for drinking.

Steps

1. Press **Program**.

2. Press **Cup fill**.

   A pop-up window opens.

3. Adjust the duration of the cup filling.

   The minimum value is 2 seconds and the maximum is 10 seconds. The duration is adjusted in steps of 1 second.

4. Press **OK**.

   The pop-up window closes.

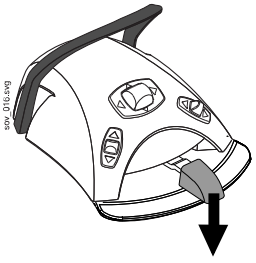
What to do next

The duration of the cup filling can also be programmed as follows:

1. Place an empty cup to the cup holder.

2. Press **Program**.

3. Press **Cup fill**.



4. Push the foot control pedal down. The cup filling time will first be set to 2 seconds and will start to increase after pushing the foot control pedal for 2 seconds. The pedal can be released and then pushed again, and the time continues to increase. Continue until the cup is filled to the desired level.

5. Press **Program**.

26.8 Planmeca Solanna and Planmeca Solanna Vision operating lights

26.8.1 Intensity

About this task

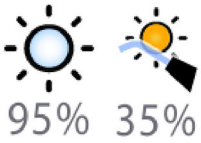
NOTE

The light intensity can also be adjusted from the operating light, see sections "Adjusting intensity of operating light" on page 124 and "Adjusting intensity of operating light in composite mode" on page 125.

When you have signed in to the dental unit with your own user name, all changes you make to the light mode settings and then save, are saved to your user profile. This means that whenever you sign in to the dental unit, you will use your last saved light mode settings.

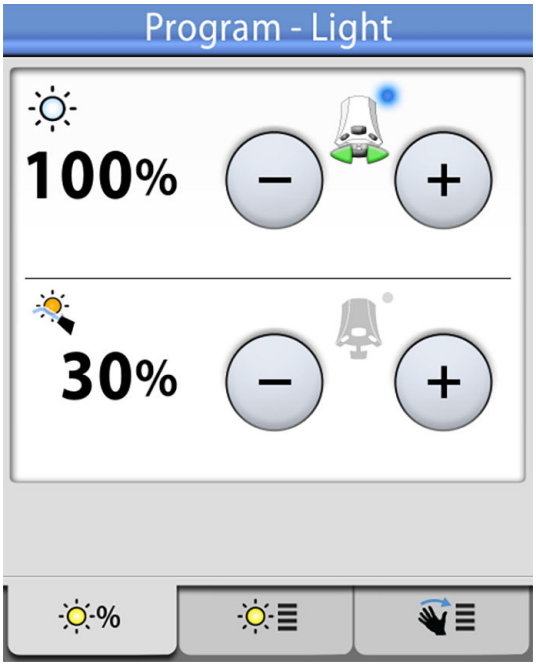
Steps

1. Press **Program**.



2. Press **Operating light** or **Composite mode**. Both buttons open the same pop-up window.

3. Open the *Intensity* tab.



4. Adjust the intensity of the operating light or the composite mode.

The active foot control icon shows which value can be adjusted by pushing the foot control pedal to the left or right. To activate the inactive value, press down the foot control pedal or press the **plus** (+) or **minus** (-) button of the inactive value.

The minimum value is 30% of the maximum intensity and the maximum 100%, and the adjustment step is 5.

5. Press **OK**.

The pop-up window closes and the new values are displayed on the control panel.

26.8.2 Colour temperature and brightness

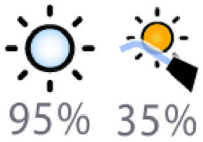
About this task

NOTE

The colour temperature can also be adjusted from the operating light, see section "Changing light tone of operating light" on page 127.

Steps

1. Press **Program**.



2. Press **Operating light** or **Composite mode**. Both buttons open the same pop-up window.

3. Open the *Colour temperature* tab.

4. Select the white light tone by pressing it.

   The selected tone is highlighted in blue.

5. Select the maximum brightness by pressing it.

   The selected brightness is highlighted in blue.

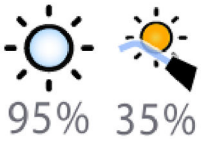
6. Press **OK**.

The pop-up window closes.

26.8.3 Gesture sensor

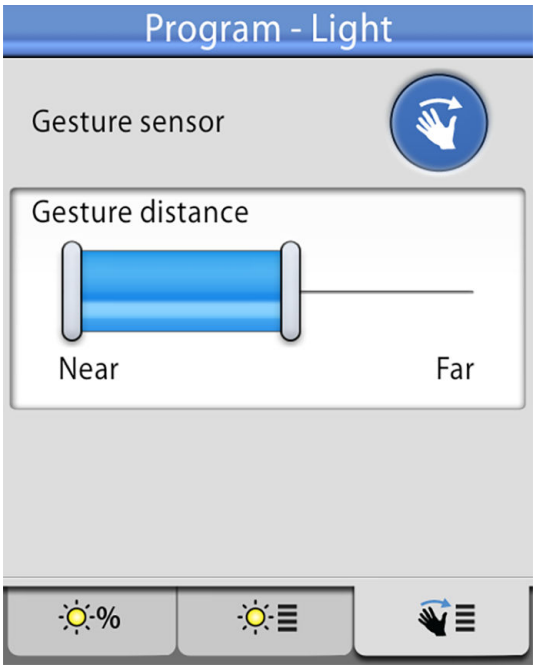
Steps

1. Press **Program**.



2. Press **Operating light** or **Composite mode**. Both buttons open the same pop-up window.

3. Open the *Sensor* tab.



4. Toggle the gesture sensor button to enable/disable the gesture sensor.

A grey button means that the function is disabled, and a blue button that the function is enabled.

5. Adjust the distance at which the gesture sensor on the operating light reads your hand movements by dragging the handles to a suitable position.

6. Press **OK**.

The pop-up window closes.

26.9 Door open / assistant call

Steps

1. Press **Program**.

2. Press **Door open** or **Assistant call**, depending on which function is enabled.

   A pop-up window opens.

   A grey button means that the function is disabled, and a blue button that the function is enabled.

3. Optionally, enable the function that is currently disabled by pressing the grey button of the function you wish to enable. The button turns blue.

   For example, instead of being able to open the door from the control panel you want to call for the assistant. In the programming pop-up window, press the grey **Assistant call** button. The button turns blue, which means that the assistant call -function is enabled. At the same time, the **Door open** button turns grey, which means that the door open -function is disabled.

   NOTE

   If so configured, you can activate the disabled function from the foot control. Please contact your Planmeca dealer.

4. Optionally, adjust the door open / assistant call time.

   NOTE

   Only the value of the enabled function can be adjusted.

   The minimum value is 1 seconds, the maximum 240 seconds. The value is adjusted in steps of 1 and the default value is 5.

5. Press **OK**.

   The pop-up window closes.

26.10 Clock

About this task

NOTE

If Planmeca Romexis Clinic Management software is used together with this dental unit, you do not need to adjust the clock settings. The dental unit clock is synchronised with the Planmeca Romexis clock every time the dental unit is booted up.

Steps

1. Press **Program**.

2. Press **Clock**.

   A pop-up window opens.

3. Select the clock programming view by pressing **Clock** at the bottom of the programming window.

4. Press **12/24** to change the mode (12-hour / 24-hour clock).

5. Adjust the time.

6. Press **OK**.

   The pop-up window closes and the new time is displayed on the control panel.

26.11 Date

Steps

1. Press **Program**.

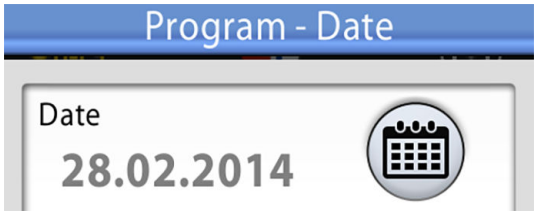
2. Press **Clock**.

A pop-up window opens.

3. Select the date programming view by pressing **Date** at the bottom of the programming window.

When the date is not visible on the control panel, the items in the programming window are grey. This means that they are disabled.

To show the date on the control panel and to enable programming, press the **Date** button at the top of the programming window.



The button will turn blue and all items in the window will turn black (which means that programming is enabled).

4. Select the date format.

Press the arrow to scroll through the different format options:

- dd.mm.yyyy (day, month, year)
- mm.dd.yyyy (month, day, year)
- yyyy.mm.dd (year, month, day)

5. Adjust the day, month and year.

6. Press **OK**.

The pop-up window closes and the new date is displayed on the control panel.

26.12 Water and air quick-connectors

Steps

1. Press **Program**.

2. Press **Quick-connector**.

A pop-up window opens.

3. Adjust the duration for how long the pump is on.

   The value range is 0 - 480 minutes and the adjustment step is 1. If the value is 0, it means that the pump is on continuously.

4. Press **OK**.

   The pop-up window closes.

26.13 Bottle water -mode

About this task

In the bottle water -mode, bottle water is manually fed to the water container. For filling instructions, see section "Filling water container" on page 207.

To be able to use the bottle water -mode, you must enable the use of bottle water.

1. Toggle the **Bottle water** button to enable/disable the bottle water -mode.

   When the indicator light on the button is lit, the bottle water -mode is enabled.

   When the bottle water -mode is enabled, the water container icon is displayed on the control panel.

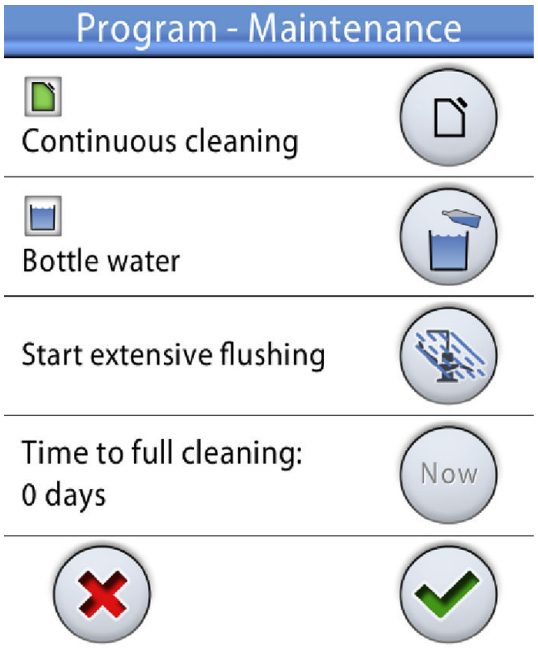
Alternatively, you can enable/disable the bottle water -mode as follows:

Steps

1. Press **Program**.

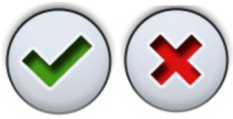
2. Press **Maintenance**.

The *Program - Maintenance* window opens.



3. Toggle the **Bottle water** button to enable/disable the bottle water -mode.

   A grey button means that the bottle water -mode is disabled, and a blue button that it is enabled.



4. Press **OK**.

   The changes are saved and the pop-up window closes. If you want to close the window without changing the setting, press **Close**.

26.14 Flexy button functions

About this task

You can program which function is activated when you press the **Flexy** button.

Steps

1. Press **Program**.

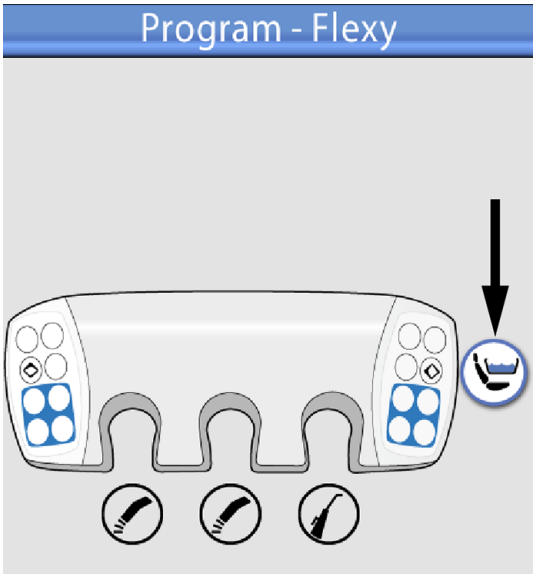
2. Press **Suction holder** in the top of the control panel.

   A pop-up window opens.

3. Press **Flexy**.

NOTE

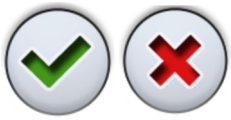
The icon on the button shows the function that is currently programmed to the button and changes accordingly.



4. Select the function in the list that opens.

   The functions are:

   - None
   - Activate/deactivate intraoral scanner
   - Activate/deactivate intraoral camera
   - Drive chair to rinsing position
   - Lock/unlock touch display
   - Turn suction on/off
   - Turn Planmeca Solanna operating light's composite mode on/off and adjust its intensity
   - Open/close Planmeca Solanna Vision window
   - Turn Planmeca Solanna Vision video streaming on/off
   - Start/stop Planmeca Solanna Vision video recording
   - Capture image with Planmeca Solanna Vision camera
   - Open the apex locator window



5. Press **OK**.

   The changes are saved and the Flexy programming window closes. If you want to close the window without changing the setting, press **Close**.

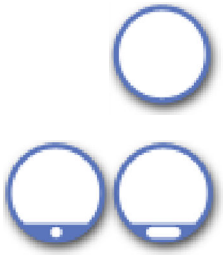
26.15 Foot control functions

About this task

The functions that are activated when you push the side knobs or the pedal can be programmed. The available options depend on the selected instrument model and are displayed in the programming window.

The options are described in section "Foot control functions" on page 69.

When you program the foot control functions, you can select between the single-push mode and the short & long push mode.



- Single-push mode

  You can only program one function for each position.

- Short & long push mode

  You can program two functions for each position. One of the functions is activated by pushing the knob or pedal briefly and the other by pushing the knob or pedal for slightly longer.

NOTE

The Drive chair to rinsing position -function is a factory default function on the foot control, but can not be programmed to the side knobs or pedal. If you program another function to replace the Drive chair to rinsing position -function you must later reset the foot control functions if you want to return the Drive chair to rinsing position -function to the foot control.

NOTE

The functions programmed for a certain instrument model apply to all instruments of the same model.

NOTE

Programming the rotation direction for one micromotor will affect all micromotors.

NOTE

If Reverse rotation has been programmed to be activated from the foot control, the Reverse button on the touch panel's instrument view is inactivated.

NOTE

The intraoral scanner activation is programmed in the idle view and deactivation in the instrument view.

Steps

1. If you are programming foot control functions for an instrument, activate the instrument.
2. Press **Program**.

3. Press **Foot control** in the top of the control panel.

   A pop-up window opens.

4. In the *Selected group* drop-down menu, select the group whose functions you want to program.

   The groups are:

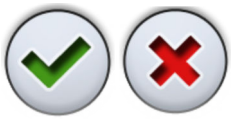
   - Centre knob
   - Side knobs
   - Pedal

   When you have selected a group, the programming window changes to display the editable functions for the selected group.

5. For the side knobs and pedal, select whether you want to program the function for a single push or for a short & long push by pressing on the field. The selected field is blue.

6. Press the function button next to the position you want to edit (for example, left-side knob down) to open a list of available functions.
7. Select a function for this position from the list. You can scroll the list either from the list itself or from the scroll bar to the right.
8. Press **OK**.



   The changes are saved and the programming window closes. If you want to close the window without changing the setting, press **Close**.

What to do next

Resetting foot control functions

If you need to reset the foot control functions, you can do this in the foot control programming window by pressing Reset **foot control functions**. The settings are reset to factory default settings, see section "Factory default functions" on page 76.

26.16 Wireless foot control

26.16.1 Pairing wireless foot control

About this task

If no wireless foot control is connected to your dental unit, or if you want to change the current wireless foot control to another, you must pair the dental unit and the foot control.

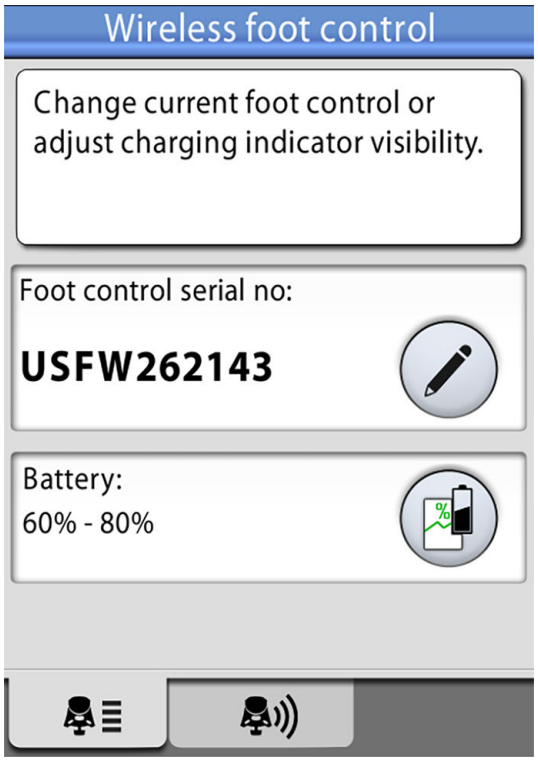
Steps

1. Press **Program**.

2. Press **Foot control**.

   The *Wireless foot control* window opens.

3. Open the *Configuration* tab.



4. The *Foot control serial no* field displays the current foot control's serial number. If you want to change the foot control, press **Edit**.

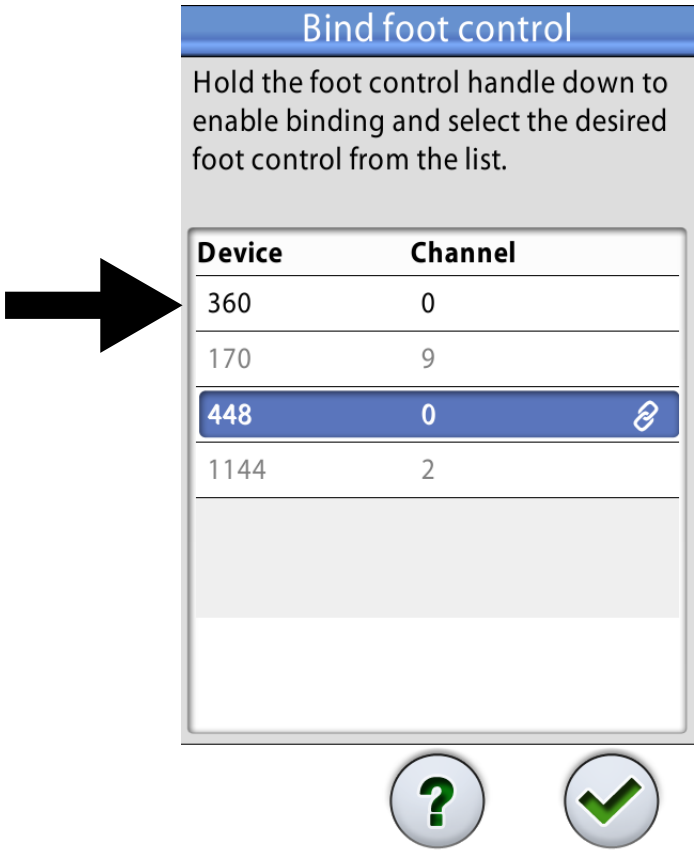
   NOTE

   On the foot control, the serial number can be found on its underside.

   The *Bind foot control* window opens.

5. Press and hold down the handle of the foot control that you want to pair your dental unit with to select it.

   The selected foot control is shown with a black font on the list (marked with arrow in the picture below).



The foot control that is highlighted in blue is the currently paired foot control.

NOTE

For information on the different markings in the *Bind foot control* window, press Questionmark.

6. While holding the handle down, start pairing by touching the name of the selected foot control (black font) on the list.

   A confirmation message is displayed on the dental unit's control panel.

7. Press **OK** to confirm the start of the pairing process.

8. Release the foot control handle.

   Once the pairing is done, a message is displayed on the dental unit's control panel and the paired foot control is highlighted in blue on the list.

   If the pairing is not successful, you will receive a notification, after which you can retry to perform the pairing.

9. Press **OK** to close the window.

26.16.2 Viewing battery charging information

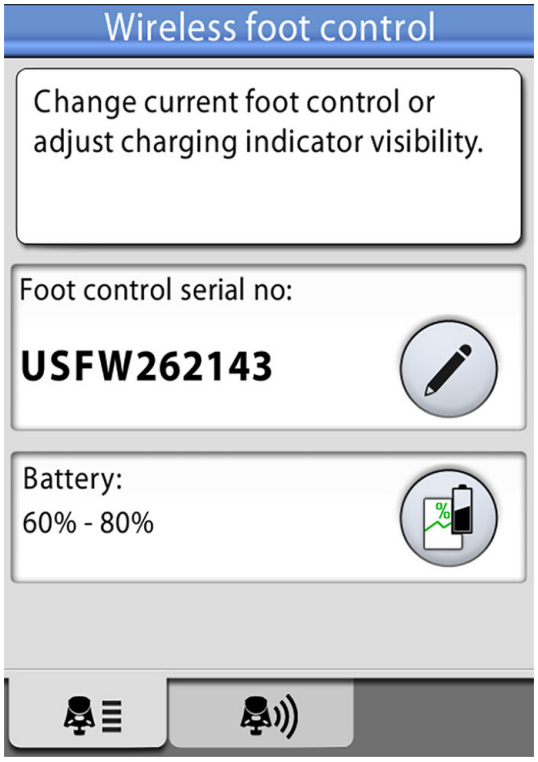
Steps

1. Press **Program**.

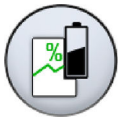
2. Press **Foot control**.

   The *Wireless foot control* window opens.

3. Open the *Configuration* tab.



   The *Battery* field shows the current charging level of the battery.



4. Press **Battery** to open the battery's charging history log.

   If no graph is displayed, press the foot control handle.

5. Press **OK** to close the window.

26.16.3 Adjusting radio settings

About this task

The following describes how to optimise the communication between the dental unit and the wireless foot control.

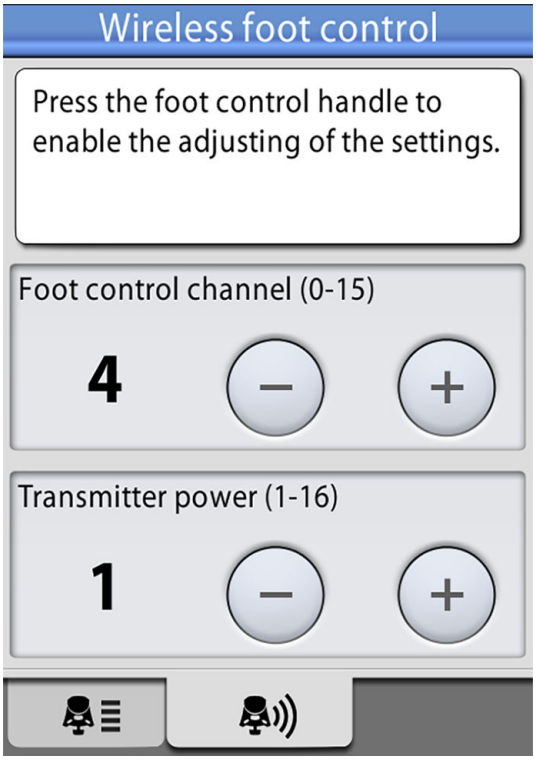
Steps

1. Press **Program**.

2. Press **Foot control**.

   The *Wireless foot control* window opens.

3. Open the *Radio* tab.



NOTE

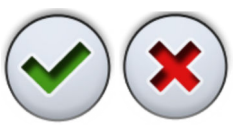
If the Foot control channel and Transmitter power fields are inactive, you must press the foot control handle to enable the adjusting of the settings.

4. Select the foot control channel.

   You can freely choose between the channels 1 and 16, but, to minimise radio signal interference, no two foot controls within 10 meters of each other should have the same channel.

5. Adjust the transmitter power.

   Select the lowest power level and increase it, if needed. The value range is 1 (lowest) to 6 (highest).

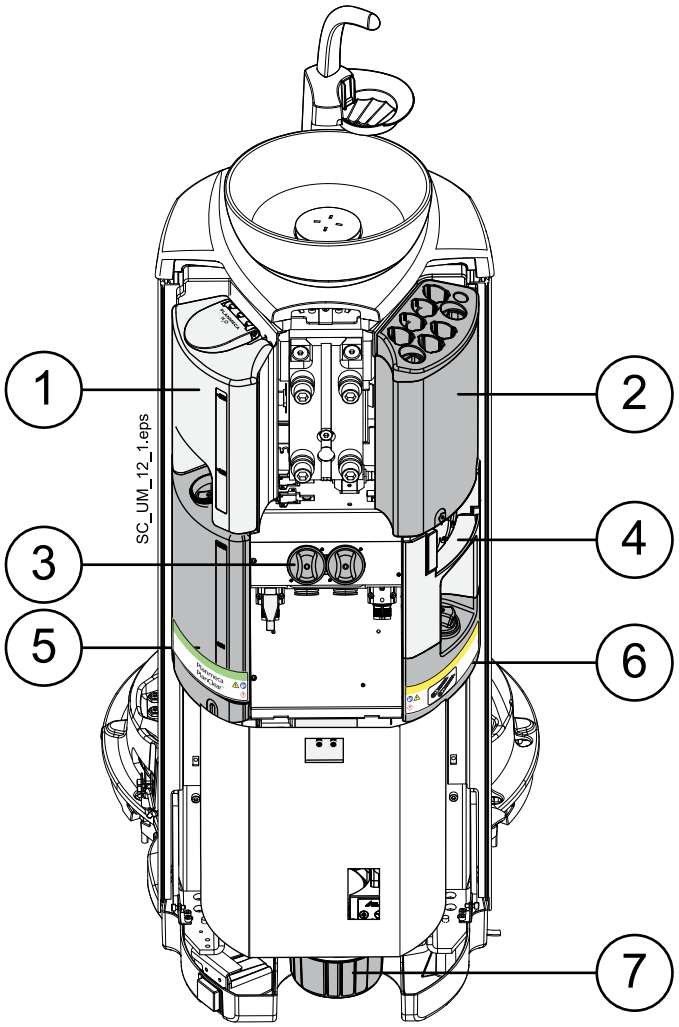


6. Press **OK** to confirm your selections and exit the programming mode.

   To exit the programming mode without confirming, press **Close**.

27 Cuspidor parts

The different parts of the cuspidor that require maintenance and cleaning are presented in the picture below.



1. Water container with automatic filling
2. Instrument flushing holder
3. Disposable filters
4. Suction tube cleaning holder
5. PlanClear container
6. Suction disinfectant container
7. Amalgam collector / deposit cup (units with no suction system or with Dürr CAS1 or CS1 suction system)

28 Maintenance

28.1 Filling water container

CAUTION

The water container must be filled with water only.

NOTE

If your dental unit uses domestic water for the instruments and dental unit waterlines, the water container is filled automatically.

If your dental unit has been configured to use bottle water for the instruments and the cup fill line, you must fill the water container manually.

The water level must be between the minimum and maximum markings on the container. When the water level is low, help message HE4064 is displayed and the container icon at the top of the control panel flashes. Fill the container as soon as possible.

The container volume is 1.1 litres.

Fill the water container as follows:

1. Open the cap of the water container.
2. Fill the container with clean water up to the maximum marking.
3. Close the cap of the water container.

28.2 Filling disinfectant containers

Two different disinfectants are used for the dental unit's flushing and cleaning programs:

- Planmeca PlanClear for instrument flushing and dental unit waterline cleaning
- Planmeca approved suction disinfectant for suction tube cleaning.

The disinfectant containers are filled manually according to the instructions in sections "Filling PlanClear container" on page 207 and "Filling suction disinfectant container" on page 208.

For more information on the flushing and cleaning programs, see section "Flushing and cleaning programs" on page 209.

28.2.1 Filling PlanClear container

CAUTION

The PlanClear container must be filled with Planmeca PlanClear disinfectant only.

CAUTION

Wear protective gloves and glasses when you fill the container.

NOTE

If help message HE4011 is displayed during a cleaning cycle, you can still perform the cleaning before filling the PlanClear container.

The PlanClear level must be between the minimum and maximum markings on the container. When the PlanClear level is low, help message HE4011 is displayed and the container icon at the top of the control panel flashes.

Fill the container as soon as possible. The fill interval is approximately four weeks, depending on how often the instruments and waterlines are flushed and cleaned.

The PlanClear container is marked with a label. The container volume is 1.3 litres.

Fill the container as follows:

1. Open the cap of the PlanClear container.
2. Fill the container with Planmeca PlanClear up to the maximum marking.
3. Close the cap of the PlanClear container.

28.2.2 Filling suction disinfectant container

CAUTION

The container must only be filled with Planmeca approved suction disinfectant.

CAUTION

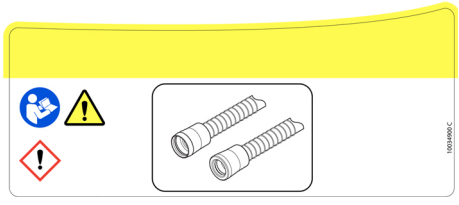
Wear protective gloves and glasses when you fill the container.

Planmeca approved suction disinfectant is used for cleaning the suction tubes and suction system.

When the disinfectant level is low, help message HE4015 is displayed and the container icon at the top of the control panel flashes.

Fill the container as soon as possible. The fill interval is approximately four weeks, depending on how often the suction tubes and system are cleaned.

The container for Planmeca approved suction disinfectant is marked with a label. The container volume is 0.4 litres.



Fill the container as follows:

1. Open the cap of the suction disinfectant container.
2. Fill the container with Planmeca approved suction disinfectant up to the maximum marking.
3. Close the cap of the container.

29 Flushing and cleaning programs

29.1 When to use cleaning programs

We recommend that you run the flushing and cleaning programs as follows.

Recommended cleaning intervals

Icon	Cleaning program	When		Duration
	Short flushing	After every patient		30 seconds / instrument
	Long flushing	In the morning and after the working day		2 minutes (default; can be programmed)
	Suction flushing	In the morning		< 3 minutes
	Suction cleaning	After the working day		< 5 minutes
	Waterline cleaning	Continuous cleaning enabled	When needed. We recommend that waterline cleaning be performed once a month after the working day (but not over the weekend).	Cleans the dental unit's waterlines. The amount of disinfectant concentrate used in a cleaning cycle depends on whether continuous cleaning is enabled or disabled. For more information, see table Water and waterline disinfection in section "Technical specifications" on page 274. Duration: < 10 minutes in the evening + min. 8 hours affect time + < 30 minutes in the morning
		Continuous cleaning disabled	When needed. We recommend that waterline cleaning be performed once a week after the working day (but not over the weekend).	

Recommended cleaning intervals

Icon	Cleaning program	When	Duration
	Extensive flushing	When prompted by the dental unit	Extensive flushing rinses excess disinfection solution from the waterlines. The program should be used, for example, when waterline cleaning has been interrupted because of a power failure, or when turning off continuous cleaning. The dental unit tells you when you need to run extensive flushing by displaying help message HE4018 on the control panel. Duration: < 30 minutes

NOTE

When the dental unit is equipped with a water heater, the duration of all cleaning programs is slightly longer.

29.2 Introduction

CAUTION

Ensure that the suction hoses are NOT in the suction tube cleaning holder when you perform waterline cleaning.

NOTE

When continuous cleaning is disabled, make sure that the water container is clean before starting the cleaning program. If necessary, clean the container according to the instructions in section "Water container" on page 243.

NOTE

Always feed cold water to the dental unit.

NOTE

The water in the dental unit is intended for rinsing only, not for drinking.

NOTE

If cleaning solution is splashed on the surfaces of the dental unit, remove the splashes instantly with water and mild soap to avoid stains.

NOTE

The water must flow properly through the cup fill line, otherwise the unit will not be flushed. Make sure that the cup fill line is not totally closed. The flow through the cup fill line is recommended to be approximately 1 dl/5 sec.

NOTE

If you run the cleaning programs in the Bottle water -mode and the water container becomes empty during the cleaning cycle, the cycle is interrupted. The cycle will continue when you have filled the water container with bottle water up to the max limit.

NOTE

The main water tap must be turned off when the dental unit is not in use.

NOTE

Turn off the main water feed at the end of the day.

NOTE

Before switching on the dental unit in the morning, make sure that the main water feed is turned on.

In the Maintenance mode you can perform instrument and suction flushing as well as cleaning of the suction tubes and the dental unit's waterlines.

To enter the Maintenance mode, press the **Maintenance** button.

The *Maintenance* window that opens has three tabs:

- Flushing

  For performing short flushing, long flushing and suction flushing.

  NOTE

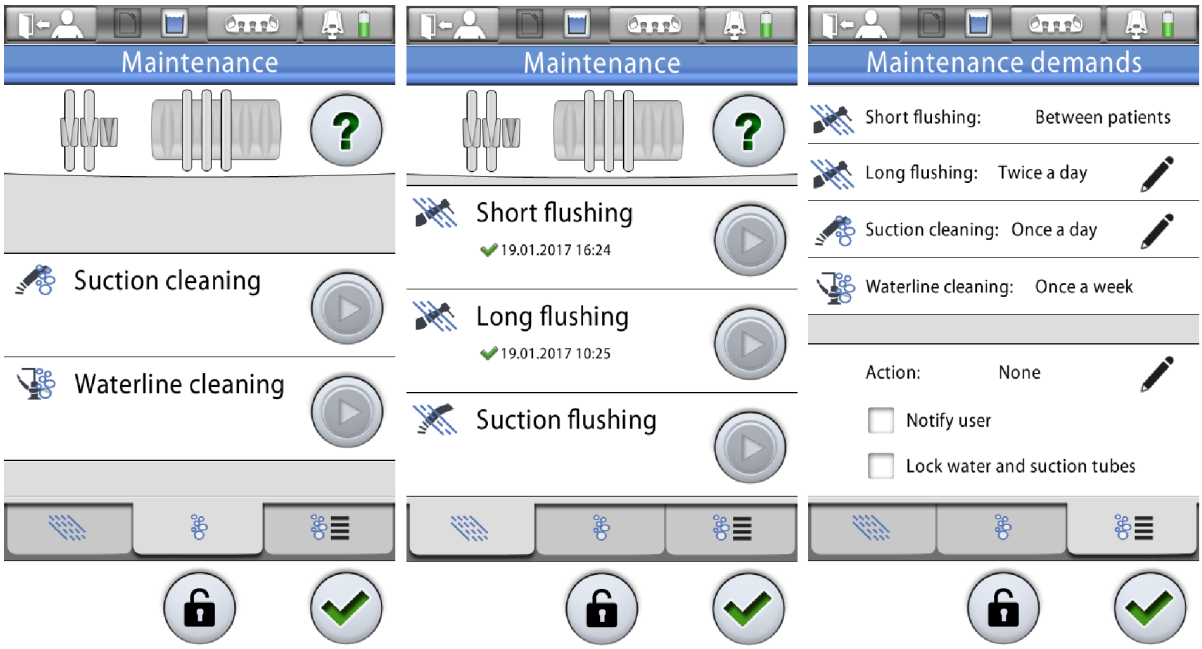
  The flushing programs can be started simultaneously, that is, you do not have to wait until one flushing program has stopped before you start the next one. They will still, however, be performed in sequence.

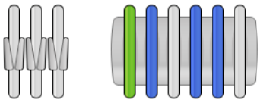
- Cleaning

  For performing suction cleaning and waterline cleaning.

- Maintenance demands

  Tells you when the different flushing and cleaning programs should be performed.





The instrument and suction tube positions on the control panel correspond to their positions on the instrument console and in the Flexy-holder. A selected item is displayed in blue, an item that is being cleaned is displayed in a blinking green, and an item that has already been cleaned is displayed in a steady green. If the cleaning procedure for some reason is interrupted or not successful (for example, there is no water flow), the item is displayed in yellow.

The time stamp under the cleaning program name is an easy way to check when the cleaning program was last performed. The success of the cleaning program can also be checked from the message history log.

While performing the flushing / cleaning, follow the instructions displayed on the control panel. When the cleaning program runs without problems, the messages only show briefly, but all messages can be viewed in the message history log.

During the cleaning programs, the progress of the cleaning cycle is displayed on the control panel.

To view the message history log, see section "Viewing help and error message history" on page 265.

Some control panel buttons are common for all cleaning programs, see table below.

Common cleaning program functions

Button	Function
	Starts the cleaning function. When the instrument and/or suction handpiece is in the instrument console or the suction holder, the button is disabled.
	Displays additional information about the cleaning program when you press the button during the cleaning cycle.

Common cleaning program functions

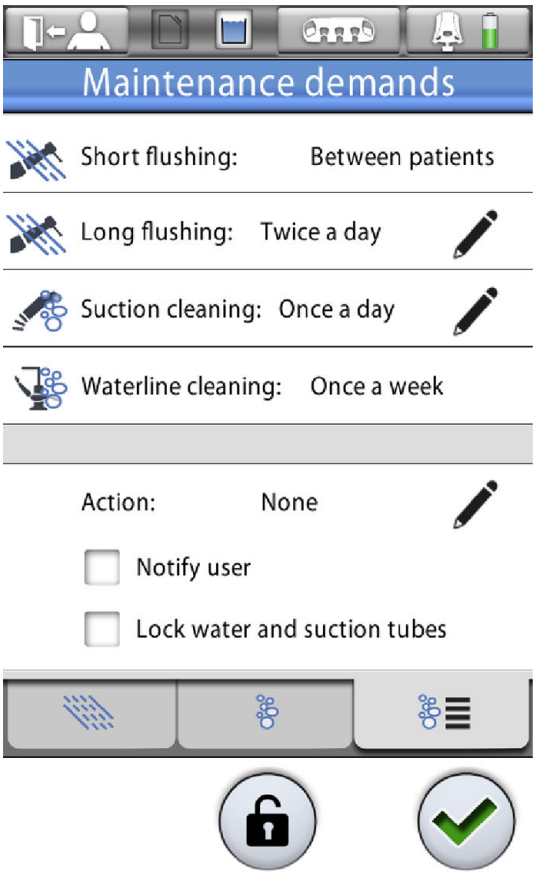
Button	Function
	Closes the pop-up window.
	Minimises the pop-up window.
	Cancels the selected action.
	Indicates that the touch display is unlocked. Press to lock. Useful, for example, when cleaning the touch display or when using a table-top instrument.
	Indicates that the touch display is locked. Press for 1 second to unlock. A progress bar is displayed while you press.
	VS/A button for dental units with a VS/A suction system. For instructions, see section "Weekly cleaning procedures" on page 250.

NOTE

Alternatively, you can program the dental unit so that the touch panel is locked/unlocked when you press the Flexy button. For instructions, see section "Flexy button functions" on page 198.

29.3 Maintenance protocol

On the *Maintenance demands* tab you can view and, in some cases, modify the maintenance protocol of your dental unit.



If your dental unit is connected to Planmeca Romexis, the maintenance protocol is downloaded from Planmeca Romexis. You can temporarily override the downloaded protocol by modifying the flushing/cleaning intervals on the Maintenance demands tab. However, the next time the dental unit connects with Planmeca Romexis, the maintenance protocol set in Planmeca Romexis is downloaded and taken into use. For information on how to set the maintenance protocol in Planmeca Romexis, see *Planmeca Romexis technical manual*, section *Maintenance scheduling and Demands*.

To change the long flushing and suction cleaning intervals, press **Edit** next to the maintenance procedure and then select the desired interval (1/2/3 times a day).

The waterline cleaning interval depends on whether continuous cleaning is enabled or disabled.

Action defines what action the dental unit takes when it notices that flushing and cleaning programs have not been performed as defined in the maintenance protocol. Press **Edit** to select or unselect actions.

The actions are:

- Notify

  When this action is selected, a notification is displayed on the control panel whenever the maintenance protocol is not followed.

- Lock water and suction tubes

  When this action is selected, the waterlines and suction tubes are locked whenever the maintenance protocol is not followed.

If your dental unit has been locked because the maintenance protocol has not been followed, unselect this action to unlock the dental unit.

NOTE

The primary and recommended measure for unlocking the dental unit is to run the outstanding or uncompleted flushing or cleaning cycle.

29.4 Starting cleaning programs remotely from Planmeca Romexis

NOTE

This feature requires Planmeca Romexis software version 4.5 and Planmeca Romexis Clinic Management.

If your dental unit is connected to Planmeca Romexis, it is possible to schedule the cleaning programs so that they start at a time convenient for you, for example, when you are not in the clinic. To schedule the remote start-up of cleaning programs for your dental unit or group of dental units, contact your Planmeca dealer.

When a remote start-up of cleaning programs has been scheduled for your dental unit, you must do the following before the scheduled cleaning program starts:

- Sign out from the dental unit.
- Remove the cup from the cup holder.
- Ensure that the tray is not under the cup fill tube.
- Place all water consuming instruments firmly in the openings in the flushing holder.
- Place the suction tubes firmly in the openings in the suction tube cleaning holder.

CAUTION

To avoid water leaks, ensure that all instruments and suction tubes are firmly in the holders.

When the cleaning program is started remotely by Planmeca Romexis, a pop-up window is displayed on the control panel. The pop-up window has a counter indicating the delay before the cleaning program actually starts. During the delay you can either cancel the cleaning program or start it immediately. If the cleaning program is cancelled, there is no retry and the scheduled cleaning will not be performed.

29.5 After cleaning

When the monthly (or weekly, if continuous cleaning is disabled) waterline cleaning program is finished, measure the concentration of hydrogen peroxide in the water that comes from the instruments and the cup fill line with a test strip. The hydrogen peroxide concentration must be <250 ppm.

Testing water with a test strip

Before testing the water, read the information provided by the test strip manufacturer.

1. Add water in a clean cup from an instrument or the cup fill tube.
2. Dip the test strip into the water.
3. Wait for a while before reading the result on the test strip.

   The affect time is specified by the test strip manufacturer.

Result

For information on how to interpret the results on the test strip, see the information provided by the test strip manufacturer.

In normal operation the hydrogen peroxide concentration is <250 ppm. Concentration levels higher than 250 ppm means that the water can not be used when treating patients. If the concentration level is too high, perform long flushing and test the water again. If the hydrogen peroxide concentration is still not <250 ppm, perform long flushing once more.

29.6 Short and long flushing

About this task

NOTE

Instrument flushing for both the dentist's and the assistant's instruments are started at the same time.

NOTE

The duration of short flushing is 30 seconds / instrument.

NOTE

The duration of the long flushing cycle is configurable. (The factory default is 2 minutes.) Please contact your Planmeca dealer.

NOTE

In units equipped with a water heater, the long flushing fills the water lines and water heater with cool water and switches the water heater off.

NOTE

The flushing cycle can be interrupted by pressing Cancel on the Flushing tab. After the interruption, the dental unit can be used normally if it has not been configured to be locked after an uncompleted flushing cycle.

Steps

1. Turn the cup fill tube so that it is above the bowl and not above the cup holder.

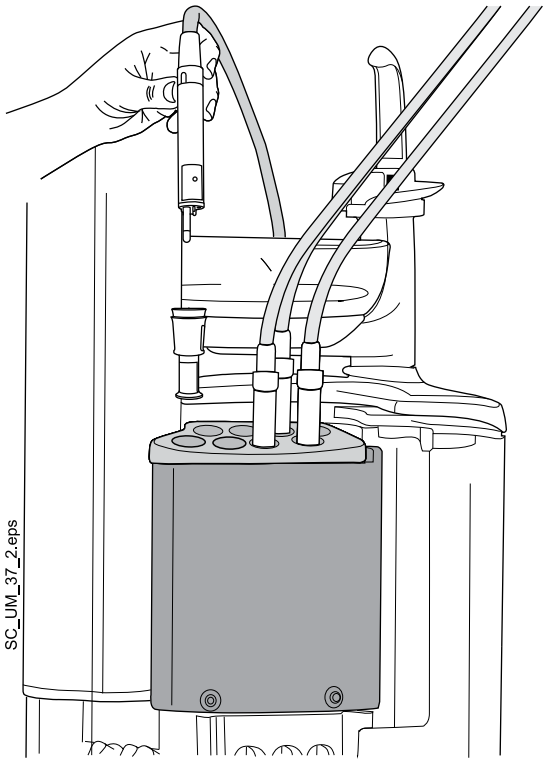
2. Press **Maintenance** to go into maintenance mode.

3. Open the *Flushing* tab.

4. Remove the instrument handpieces from the instruments and clean them according to the manufacturer's instructions.
5. Open the cuspidor door.

6. Place the instruments into the openings in the flushing holder.

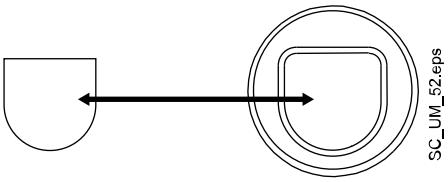
   The slot in the flushing holder into which the DCI or the Luzzani Minibright syringe is inserted must be equipped with an adapter for the syringe. The adapter keeps the syringe in position during flushing.



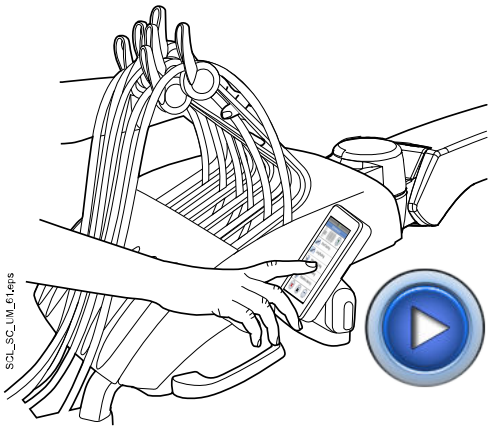
   DCI syringe: Remove the syringe cover and place the syringe in the flushing holder. Lock the syringe into place with a rotating movement when the syringe is in the holder.

   Luzzani Minibright syringe: Remove the metallic syringe cover and place the syringe in the flushing holder. Lock the syringe into place by pushing it downwards until you hear a click.

   Luzzani Ergo syringe: Remove the metallic syringe cover and place the syringe in the flushing holder. Note the orientation of the syringe. It does not require an adapter and must be placed in the holder as shown below.



7. Start the flushing cycle.



Balanced instrument arms: Start the flushing cycle by bending the instrument arms of all water consuming instruments to an angle of at least 90° and simultaneously pressing **Start** next to *Short flushing* or *Long flushing* on the control panel.

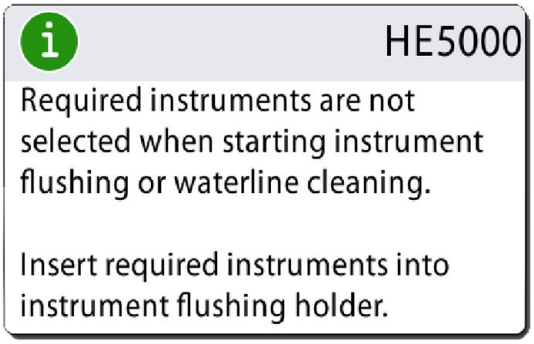
Hanging-tube instruments: Start the flushing cycle by pressing **Start** next to *Short flushing* or *Long flushing* on the control panel.

8. Release the instrument arms (if your dental unit is equipped with balanced instrument arms).
9. Follow the messages on the control panel that inform you of the cleaning cycle progress.

   In short flushing, the system will first identify the instruments and then each instrument hose is flushed for 30 seconds in its turn.

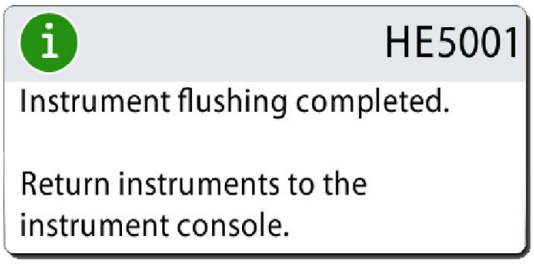
   In long flushing the system flushes the water container, the instruments, the cup fill tube and bowl.

   If you have not inserted all water consuming instruments in the instrument flushing holder, help message HE5000 is displayed. Depending on your dental unit configuration, this message may interrupt the cleaning program until you have inserted the required instruments.



10. When the flushing cycle is completed, help message HE5001 is displayed on the control panel. Remove the instruments from the

flushing holder and place them in the instrument console. Close the cuspidor door.



Results

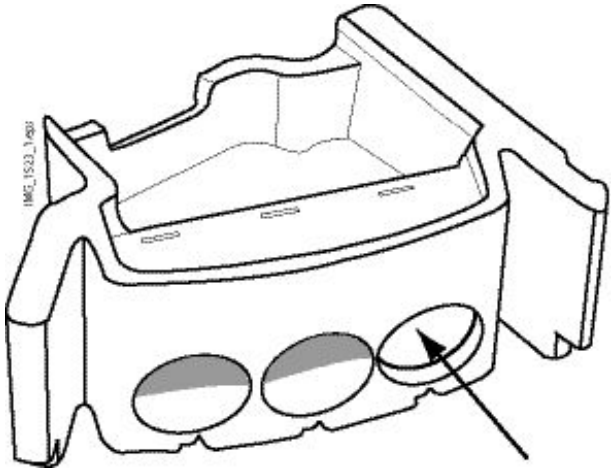
The dental unit is now ready for normal operation.

29.7 Suction flushing

About this task

NOTE

Make sure there is a plug in the empty holder(s) in the cleaning holder to prevent water from spilling. Also, make sure there is a cap on the empty suction tube connector(s).



NOTE

Suction flushing can be performed simultaneously with the short or long flushing.

NOTE

The duration of suction flushing is < 3 minutes.

NOTE

The flushing cycle can be interrupted by pressing Cancel on the Flushing tab. After the interruption, the dental unit can be used normally if it has not been configured to be locked after an uncompleted flushing cycle.

Steps

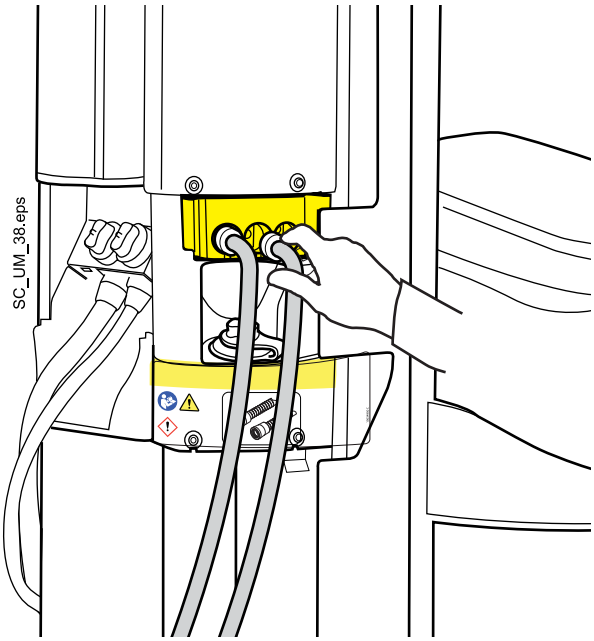
1. Press **Maintenance** to go into maintenance mode.

2. Open the *Flushing* tab.

3. Remove the suction handpieces from the suction tubes and clean them according to the manufacturer’s instructions.

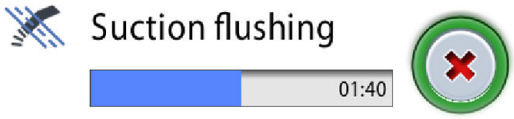
4. Open the cuspidor door and insert the suction tubes into the suction tube cleaning holder.

   Each suction tube can be placed in any position in the holder.

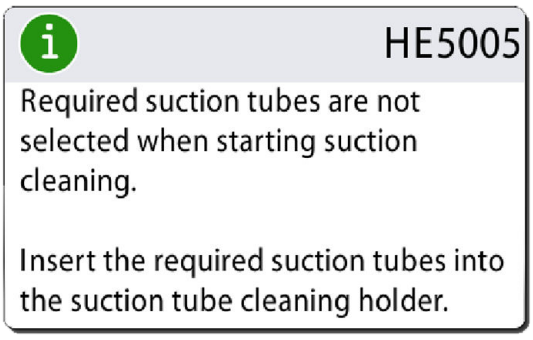


5. Press **Start** next to *Suction flushing* on the control panel.

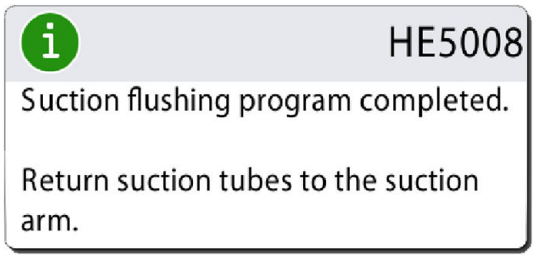
6. Follow the messages on the control panel that inform you of the flushing cycle progress.



   If you have not inserted all required suction tubes in the cleaning holder, help message HE5005 is displayed.



7. When the flushing program is completed, help message HE5008 is displayed on the control panel. Return the suction tubes to the Flexy-holder and close the cuspidor door.

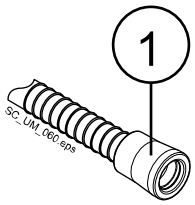


Results

The dental unit is now ready for normal operation.

NOTE

Before attaching the handpieces back on the suction tubes, wipe the identification bushings (1) with Planmeca approved surface disinfectant.

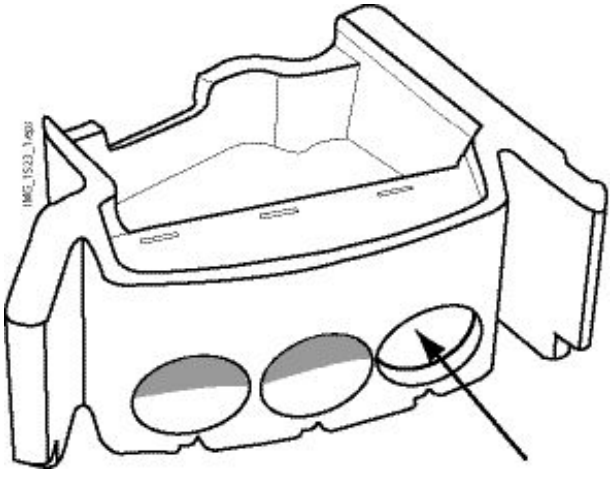


29.8 Suction cleaning

About this task

NOTE

Make sure there is a plug in the empty holder(s) in the cleaning holder to prevent water from spilling. Also, make sure there is a cap on the empty suction tube connector(s).



NOTE

The duration of suction tube cleaning is < 5 minutes.

NOTE

You can interrupt the cleaning program by pressing Cancel on the Cleaning tab. After the interruption, you must perform suction tube cleaning before you can use the dental unit again. Help messages on the control panel guide you through this procedure.

Steps

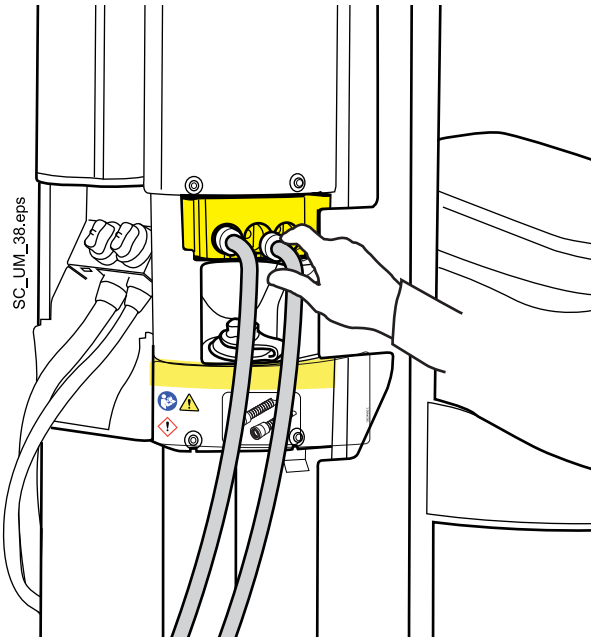
1. Press **Maintenance** to go into maintenance mode.

2. Open the *Cleaning* tab.

3. Remove the suction handpieces from the suction tubes and clean them according to the manufacturer's instructions.

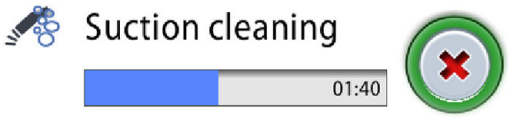
4. Open the cuspidor door and insert the suction tubes into the suction tube cleaning holder.

   Each suction tube can be placed in any position in the holder.

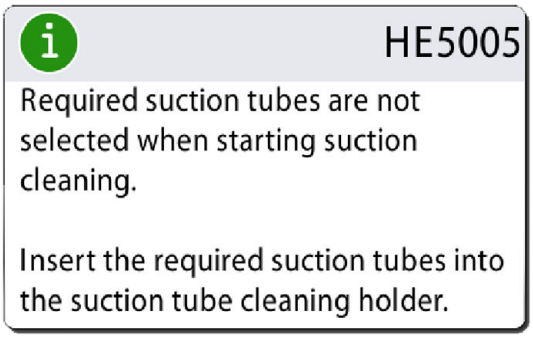


5. Press **Start** next to *Suction cleaning* on the control panel.

6. Follow the messages on the control panel that inform you of the cleaning cycle progress.

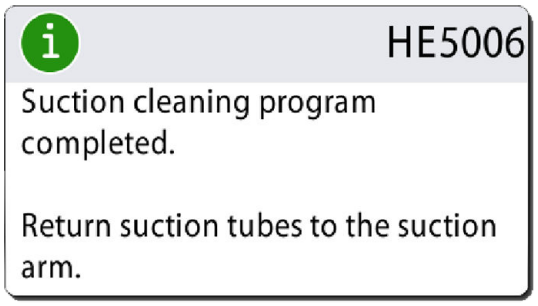


   If you have not inserted all required suction tubes in the cleaning holder, help message HE5005 is displayed.



   The suction tubes are cleaned with Planmeca approved suction disinfectant. When suction disinfectant is pumped to the suction cleaning system, the yellow suction disinfectant icon is displayed on the control panel.

7. When the cleaning program is completed, help message HE5006 is displayed on the control panel. Return the suction tubes to the Flexy-holder and close the cuspidor door.

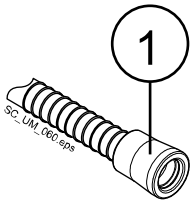


Results

The dental unit is now ready for normal operation.

NOTE

Before attaching the handpieces back on the suction tubes, wipe the identification bushings (1) with Planmeca approved surface disinfectant.



29.9 Waterline cleaning

29.9.1 Introduction

The dental unit's water system is fully isolated from the inlet waterline according to the requirements of EN1717 standard and the specific regulations of the German water authorities.

Waterlines are a breeding ground for biofilm. Biofilm may contain bacteria that are harmful to the patient and to the dental team. This is why the waterlines of the dental unit should be cleaned regularly with a waterline disinfectant.

29.9.2 Intelligent waterline cleaning

Two approaches to waterline cleaning are available:

- Continuous cleaning

  The dental unit's waterlines are kept clean by continuously feeding Planmeca PlanClear disinfectant solution from the water container to the waterlines, instruments and cup fill. The user performs waterline cleaning once a month after the working day.

- Periodical cleaning

  Planmeca PlanClear disinfectant solution is not automatically fed into the treatment water. The user performs waterline cleaning once a week after the working day.

29.9.3 Continuous cleaning

About this task

The disinfectant solution is mixed in the water container: A small amount of Planmeca PlanClear disinfectant concentrate is regularly dosed to the water container where it is mixed with water and fed further to the waterlines, the instruments and the cup fill. For information on the disinfection concentration, see section "Technical specifications" on page 274.

When continuous cleaning is enabled (factory default), it is shown as a small green icon at the top of the control panel. When continuous cleaning is disabled, the icon is grey.

NOTE

Even if continuous cleaning is enabled, you must still run the cleaning programs as described in section "Flushing and cleaning programs" on page 209.

NOTE

When you disable continuous cleaning, a message is displayed that advises you to perform long flushing to remove excess disinfectant solution from the waterlines. However, negligence to perform long flushing does not prevent dental unit operation.

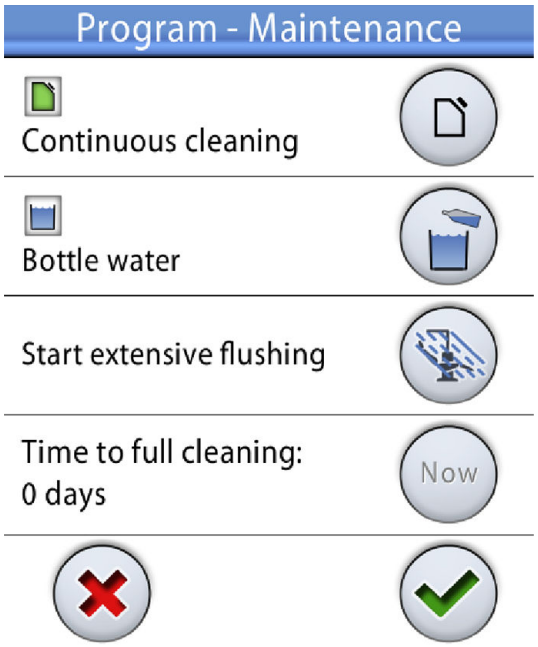
To disable/enable the continuous cleaning, follow the steps below:

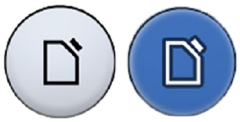
Steps

1. Press **Program**.

2. Press **Maintenance**.

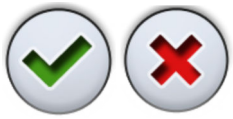
The *Program - Maintenance* window opens.





3. Toggle the **Continuous cleaning** button to enable/disable continuous disinfection.

A grey button means that disinfection is disabled, and a blue button that disinfection is enabled.



4. Press **OK**.

The changes are saved and the pop-up window closes. If you want to close the window without changing the setting, press **Close**.

29.9.4 Cleaning interval

The recommended interval for running a periodical waterline cleaning cycle depends on whether continuous cleaning is enabled or not.

- Continuous cleaning enabled:

  Perform waterline cleaning once a month after the working day.

- Continuous cleaning disabled:

  Perform waterline cleaning once a week after the working day.

The disinfectant is left in the unit overnight and the waterlines of the unit are flushed with water the next morning. You can leave the disinfectant in the waterlines for longer than one night, for example over the weekend, but not for a longer period (for example, a holiday).

At a regular interval a full cleaning of the waterlines is performed. A full cleaning lasts about two minutes longer than the regular cleaning cycle, and cleans the waterlines more thoroughly than the regular cycle. The dental unit has a counter that keeps track of when to perform the next full cleaning, so

the user always performs the same cleaning procedure irrespective of whether the next cleaning is full or regular.

The counter counts the days that are left until the next full cleaning. When the counter reaches 0 days, it means that the next time you start waterline cleaning, a full cleaning of the waterlines is initiated. The counter can be reset to 0, for example for maintenance purposes. For instructions, see section "Resetting counter" on page 229.

After installation, or if the dental unit has not been used for a long time, you must perform waterline cleaning before starting dental treatment.

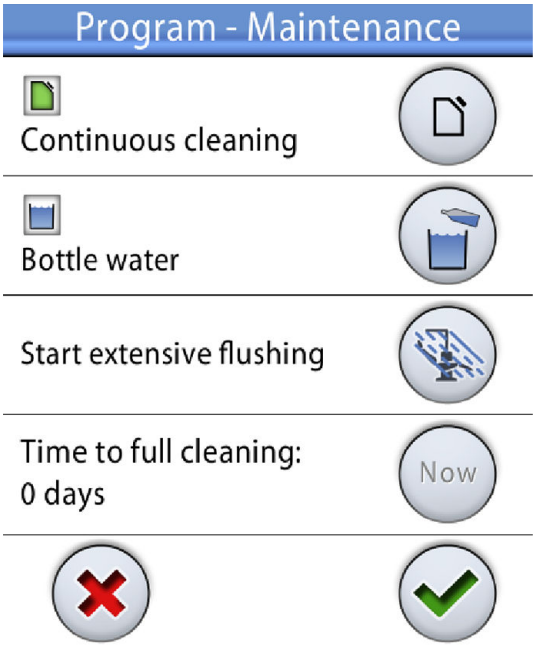
29.9.5 Resetting counter

Steps

1. Press **Program**.

2. Press **Maintenance**.

The *Program - Maintenance* window opens.



3. In the pop-up window, press **Now** to reset the counter to 0 days. The next time you start Waterline cleaning, a full cleaning cycle is run.

Pressing the **Now** button does not start the waterline cleaning. For instructions on how to start the waterline cleaning, see section "Starting waterline cleaning cycle" on page 230.

If you want to close the window without resetting the counter, press **Close**.

29.9.6 Starting waterline cleaning cycle

About this task

WARNING

Even though every effort has been taken to ensure patient safety, even in case of malfunction or misuse, always make sure that the unit is properly flushed before taking it into use. For instructions on how to flush the waterlines, see section "Suction cleaning" on page 223.

CAUTION

Only Planmeca PlanClear disinfectant must be used. Planmeca does not guarantee the suitability of and is not liable for damages caused by other disinfectants.

CAUTION

The flushing cycle is performed using domestic water, which might reduce the effect of Planmeca PlanClear, if the domestic water is not clean.

CAUTION

Ensure that the suction hoses are NOT in the suction tube cleaning holder when you perform waterline cleaning.

NOTE

Adjust the water flow of the cup fill tube so that the water does not splash into the bowl.

NOTE

The duration of waterline cleaning is < 10 minutes in the evening + an affect time of min. 8 hours + < 30 minutes in the morning.

NOTE

The flushing cycle can be interrupted by pressing Cancel on the Cleaning tab. After the interruption, you must flush the waterlines before the dental unit can be used normally.

NOTE

Immediately remove any Planmeca PlanClear splashes from the dental unit.

Steps

1. Remove the cup from the cup holder. Turn the cup fill tube so that it is above the bowl and not above the cup holder.

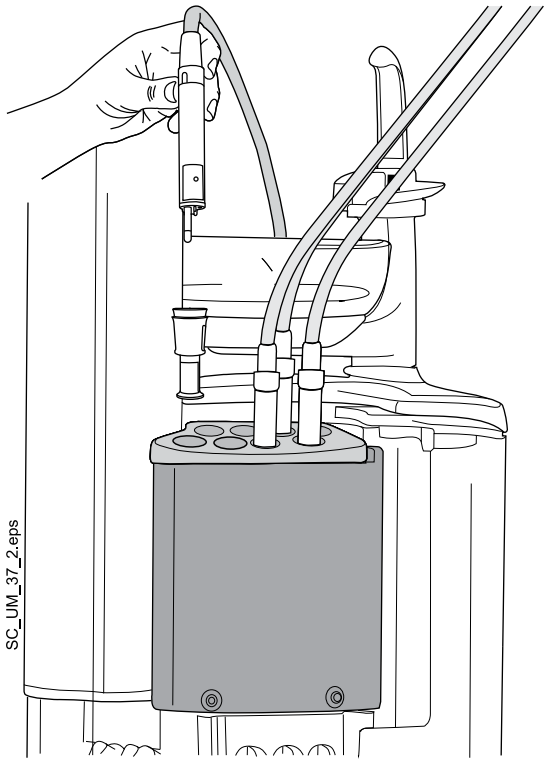
2. Press **Maintenance** to go into maintenance mode.

3. Open the *Cleaning* tab.

4. Remove the instrument handpieces from the instruments and clean them according to the manufacturer's instructions.
5. Open the cuspidor door.

6. Place the instruments into the openings in the flushing holder.

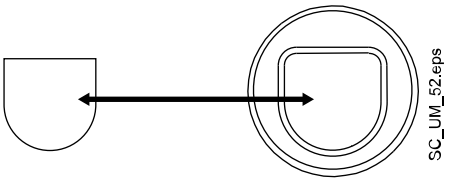
   The slot in the flushing holder into which the DCI or the Luzzani Minibright syringe is inserted must be equipped with an adapter for the syringe. The adapter keeps the syringe in position during flushing.



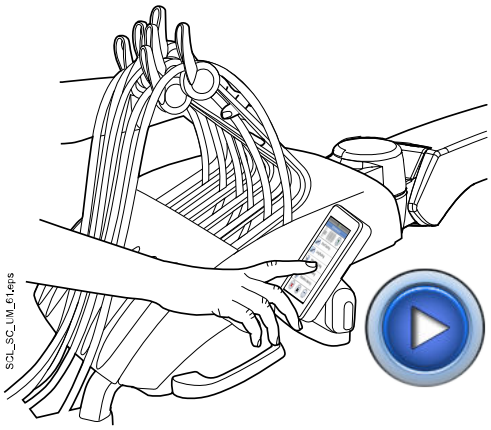
   DCI syringe: Remove the syringe cover and place the syringe in the flushing holder. Lock the syringe into place with a rotating movement when the syringe is in the holder.

   Luzzani Minibright syringe: Remove the metallic syringe cover and place the syringe in the flushing holder. Lock the syringe into place by pushing it downwards until you hear a click.

   Luzzani Ergo syringe: Remove the metallic syringe cover and place the syringe in the flushing holder. Note the orientation of the syringe. It does not require an adapter and must be placed in the holder as shown below.



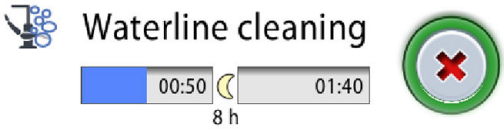
7. Start waterline cleaning.



Balanced instrument arms: Start the waterline cleaning by bending the instrument arms of all water consuming instruments to an angle of at least 90° and simultaneously pressing **Start** next to *Waterline cleaning* on the control panel.

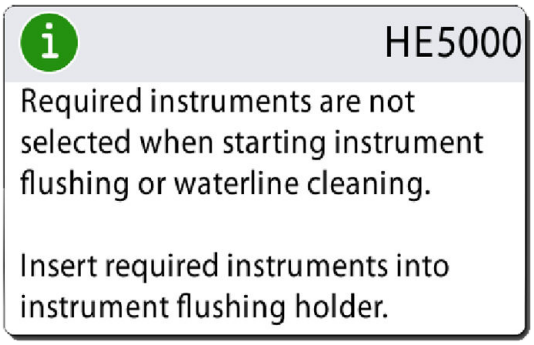
Hanging-tube instruments: Start the waterline cleaning by pressing **Start** next to *Waterline cleaning* on the control panel.

8. Release the instrument arms (if your dental unit is equipped with balanced instrument arms).
9. Follow the messages on the control panel that inform you of the cleaning cycle progress.



The system identifies the instruments and fills all waterlines with a mixture of Planmeca PlanClear disinfectant and water.

If you have not inserted all water consuming instruments in the instrument flushing holder, help message HE5000 is displayed. Depending on your dental unit configuration, this message may interrupt the cleaning program until you have inserted the required instruments.



10. Help message HE4012 is displayed. Shut down the dental unit for the night. Also turn off the main water feed for the night.

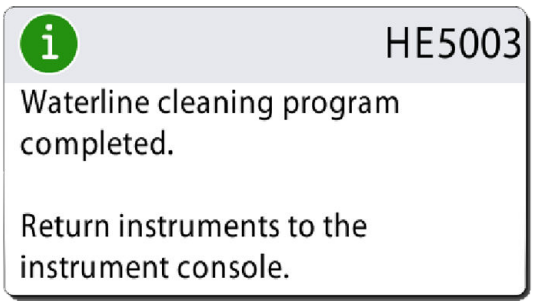
NOTE

Planmeca PlanClear disinfection solution can be left in the dental unit waterlines over a weekend, but not for a longer period (not, for example, over a holiday).

11. In the morning, turn the main water feed and the unit back on. Waterline flushing starts automatically.

    When the procedure is completed, a message is displayed on the control panel.

12. When the cleaning program is completed, help message HE5003 is displayed on the control panel. Remove the instruments from the flushing holder and place them in the instrument console. Close the cuspidor door.



13. Test the concentration of hydrogen peroxide in the water.

    For instructions, see section "After cleaning" on page 216.

    The concentration of hydrogen peroxide in the water must be <250 ppm. If it is higher (>250 ppm), perform long flushing. Long flushing takes 9 minutes (default).

    For instructions on long flushing, see section "Suction flushing" on page 220.

Results

The dental unit is now ready for normal operation.

29.10 Extensive flushing

About this task

WARNING

Even though every effort has been taken to ensure patient safety, even in case of malfunction or misuse, always make sure that the unit is properly flushed before taking it into use.

NOTE

Extensive flushing takes < 30 minutes to complete.

NOTE

Adjust the water flow of the cup fill tube so that the water does not splash into the bowl. For instructions, see section "Adjusting cup fill and bowl rinse flow rates" on page 188.

NOTE

The flushing cycle can be interrupted by pressing Close. After the interruption, make sure that the water is clean before using the dental unit again.

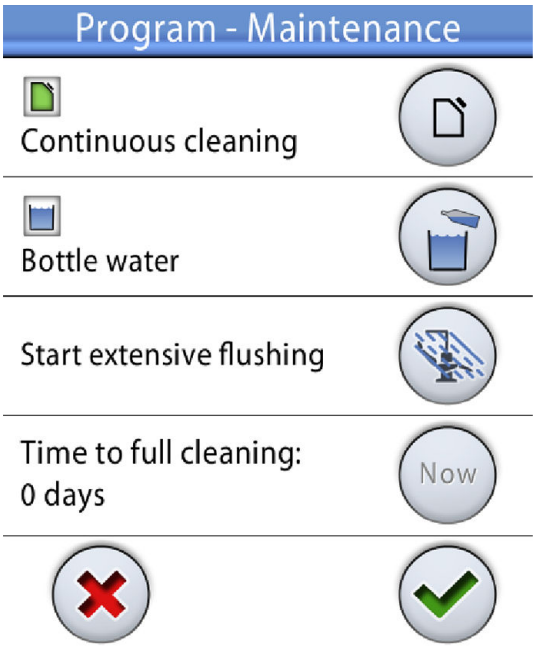
Steps

1. Turn the cup fill tube so that it is above the bowl and not above the cup holder.

2. Press **Program**.

3. Press **Maintenance**.

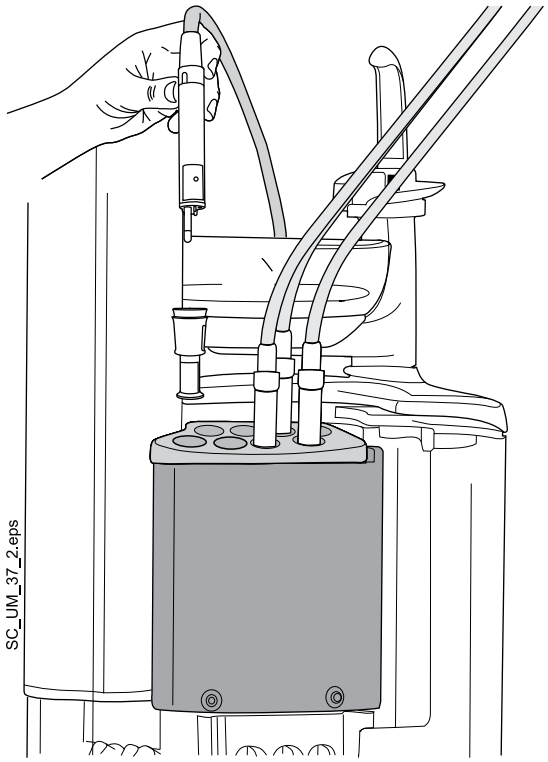
The *Program - Maintenance* window opens.



4. Remove the instrument handpieces from the instruments and clean them according to the manufacturer’s instructions.
5. Open the cuspidor door.

6. Place the instruments into the openings in the flushing holder.

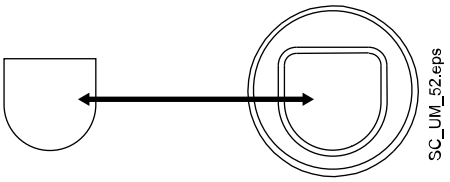
   The slot in the flushing holder into which the DCI or the Luzzani Minibright syringe is inserted must be equipped with an adapter for the syringe. The adapter keeps the syringe in position during flushing.



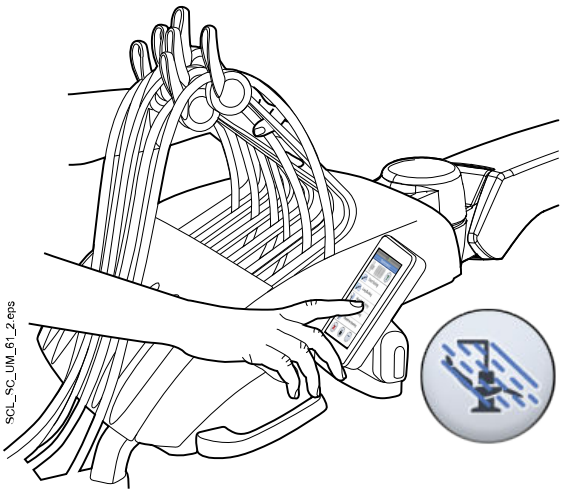
   DCI syringe: Remove the syringe cover and place the syringe in the flushing holder. Lock the syringe into place with a rotating movement when the syringe is in the holder.

   Luzzani Minibright syringe: Remove the metallic syringe cover and place the syringe in the flushing holder. Lock the syringe into place by pushing it downwards until you hear a click.

   Luzzani Ergo syringe: Remove the metallic syringe cover and place the syringe in the flushing holder. Note the orientation of the syringe. It does not require an adapter and must be placed in the holder as shown below.



7. Start extensive flushing.



Balanced instrument arms: Start the extensive flushing by bending the instrument arms of all water consuming instruments to an angle of at least 90° and simultaneously selecting **Extensive flushing** on the control panel.

Hanging-tube instruments: Start the extensive flushing by selecting **Extensive flushing** on the control panel.

The button turns blue, which means that extensive flushing is selected.

8. Press **OK**.

Extensive flushing starts and the main maintenance window opens.

9. Release the instrument arms (if your dental unit is equipped with balanced instrument arms).
10. Follow the messages on the control panel that inform you of the cleaning cycle progress.
11. Once the flushing cycle is finished, remove the instruments from the flushing holder and place them in the instrument console. Close the cuspidor door.

Results

The dental unit is now ready for normal operation.

30 Cleaning and disinfection

30.1 Introduction

Planmeca approved surface disinfectants, upholstery disinfectants, dental unit water and waterline disinfectants, and suction disinfectants are listed in the document *Planmeca approved disinfectants* (30007097). The document can be found in the Planmeca Material bank.

NOTE

Do not use cleaning agents in aerosol or spray form directly on any surfaces.

NOTE

All parts must be cleaned before disinfecting or autoclaving them.

NOTE

If disinfectant or cleaning solution is splashed on the surfaces of the dental unit, remove the splashes instantly with water and mild soap to avoid stains.

30.2 Dental unit surfaces

The table below lists when and how to clean the dental unit surfaces.

Parts that should be cleaned daily

When	Part	Cleaning agent	Additional cleaning method		
			Dish-washer (65°C)	Washer-disinfector (93°C)	Autoclave (134°C)
After every patient and after the working day	Metal parts of headrest	Planmeca approved surface disinfectant			
	Metal parts of armrests	Planmeca approved surface disinfectant			
	Front cover of operating light	Planmeca approved surface disinfectant			
	Handles of operating light	Planmeca approved surface disinfectant		X	X
	Patient mirror of operating light	Mild soap- and water solution			
	Instrument console	Planmeca approved surface disinfectant			
	Hygienic membrane	Planmeca approved surface disinfectant		X	X
	Instrument hoses	Planmeca approved surface disinfectant			

Parts that should be cleaned daily

When	Part	Cleaning agent	Additional cleaning method		
			Dish-washer (65°C)	Washer-disinfector (93°C)	Autoclave (134°C)
	Balanced instrument arms	Planmeca approved surface disinfectant			
	Hanging-tube instrument holders	Planmeca approved surface disinfectant		X	X
	Control panel	Planmeca approved surface disinfectant			
	Cup fill tube	Planmeca approved surface disinfectant			
	Bowl surfaces	Mild soap- and water solution Planmeca approved surface disinfectant	X		
	Cuspidor	Planmeca approved surface disinfectant			
	Trays	Planmeca approved surface disinfectant			
	Flexy-holder, tablet holder and suction arm	Planmeca approved surface disinfectant			
	Suction handpieces	Planmeca approved surface disinfectant	X		X
	Suction tubes	Planmeca approved surface disinfectant			
	Monitor	Planmeca approved surface disinfectant			
	Upholstery	Mild soap- and water solution			
	Bowl filter	Mild soap- and water solution	X	X	

Parts that should be cleaned daily

When	Part	Cleaning agent	Additional cleaning method		
			Dish-washer (65°C)	Washer-disinfector (93°C)	Autoclave (134°C)
After the working day	Upholstery	Planmeca approved upholstery disinfectant			
	On Flexy-holder: Suction tube holders (incl. rollers), instrument holder and supplementary holders	Planmeca approved surface disinfectant		X	
	On Flexy-holder: Holder for intraoral scanner	Planmeca approved surface disinfectant			

Parts that should be cleaned weekly or monthly

When	Part	Cleaning method
Weekly	Upholstery	Treatment with Dürr FD 360. Wipe away any excess oil after treatment.
	Water container, if continuous cleaning is disabled	Washer-disinfector (93°C). See also section "Water container" on page 243.
Monthly	Instrument flushing holder	Washer-disinfector (93°C) or autoclave (134°C). See also section "Instrument flushing holder" on page 244.
	Suction tube cleaning holder	Washer-disinfector (93°C). See also section "Suction tube cleaning holder and separation tank" on page 245.
	Water container, if continuous cleaning is enabled	Washer-disinfector (93°C). See also section "Water container" on page 243.

30.3 Instruments

Clean and service the instruments according to the information supplied with the instrument.

NOTE

After cleaning the instrument, let the oil run from it for at least 10 minutes before replacing it on the console.

Do not use lubricating oil on the Morita TORX micromotor (with the exception of its O-rings).

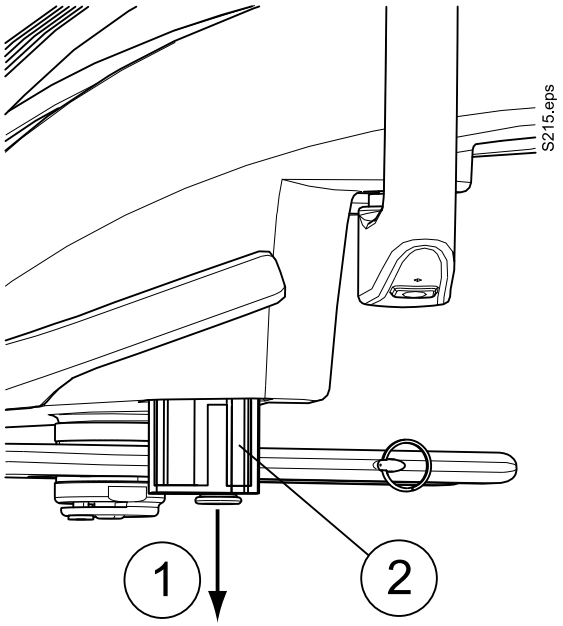
Throw away the intraoral camera’s disposable hygiene sleeve after use.

30.4 Instrument console

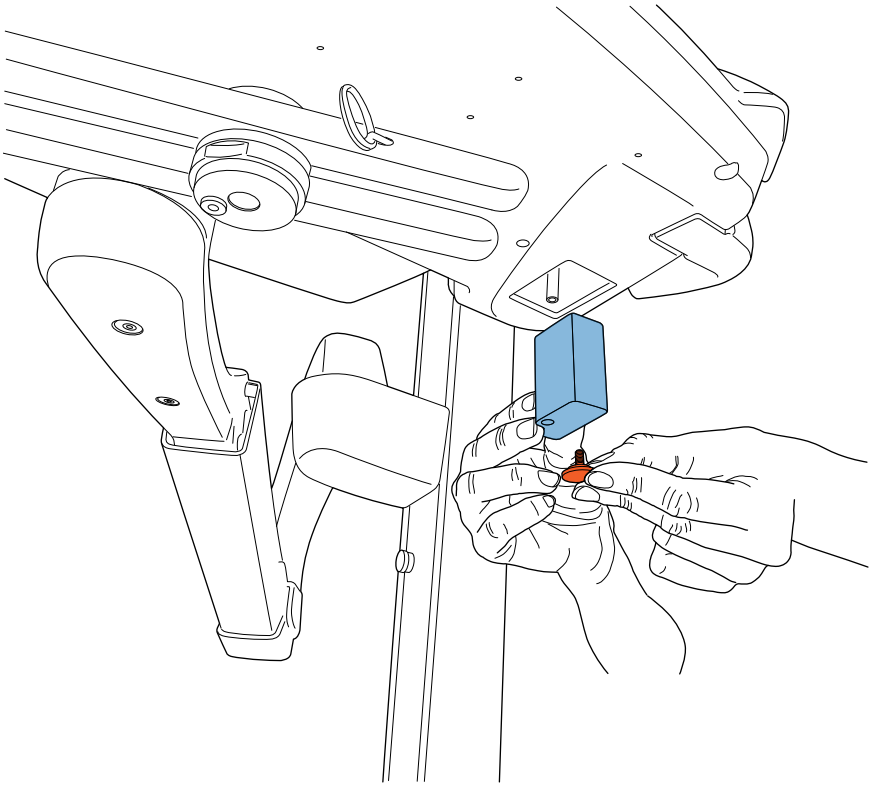
30.4.1 Oil collector

The oil collector underneath the instrument console has to be checked weekly and emptied when full.

You can check how full the oil collector is without removing it completely. Pull the oil collector downward from the attachment knob (1) and check the oil level in the narrower chamber (2). If it has started to fill, it is time to empty the oil collector.



To remove the oil collector from the instrument console, unscrew the oil collector attachment knob and carefully pull the collector out.



30.5 Cuspidor

30.5.1 Bowl

The glass bowl should be cleaned after every patient and after the working day.

Empty and clean the bowl filter after each patient and replace it when necessary.

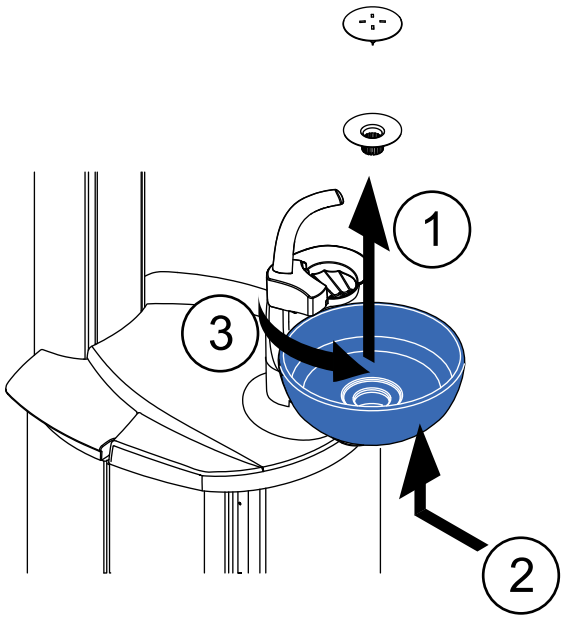
Clean the bowl as follows:

1. Clean the bowl with a soft brush.
2. Rinse the bowl by pressing the **Bowl rinse** button on the control panel (or by using the foot control).

3. The outside of the bowl can be wiped clean or disinfected with a cloth.

If required, the bowl can be removed for rinsing under tap water or washing in a dishwasher at 65°C.

1. Remove the bowl filter and the cover cap of the filter.
2. Turn the bowl out from the cuspidor and push the bowl fastening clip carefully down.
3. Rotate the bowl counter-clockwise and slightly upward. You can now remove the bowl by pulling it horizontally away from the cuspidor.



NOTE

The cover cap of the filter makes the removal of the filter easier, but the filter can also be used without the cover cap.

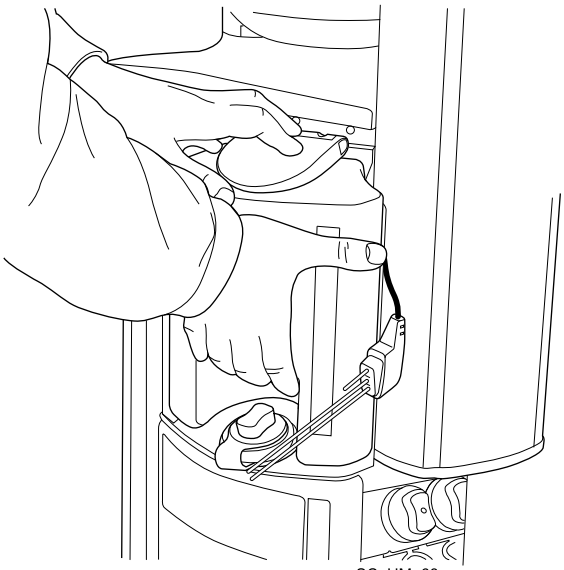
NOTE

Do not empty the bowl filter to the drain.

30.5.2 Water container

If continuous cleaning is disabled, disinfect the water container in a washer-disinfector once a week at 93°C. Otherwise, clean the water container once a month.

1. Switch off the dental unit.
2. Detach the sensor and leave it hanging next to the container.
3. Remove the cap, including the hose attached to it, from the container. Disinfect the cap and hose in a washer-disinfector.
4. Carefully lift the water container upward to remove it from the cuspidor. Disinfect the container in a washer-disinfector.



CAUTION

Be careful not to splash the contents of the water container when removing it, as it may contain traces of Planmeca PlanClear disinfectant. Immediately remove any Planmeca PlanClear splashes from the dental unit.

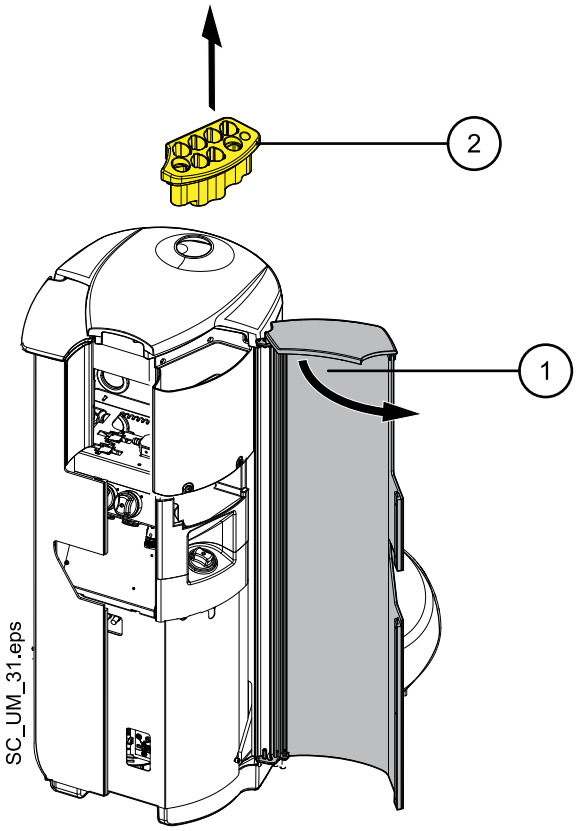
When you place the water container back in the cuspidor, make sure to place the three adjacent openings in the container carefully over the three pipes in the cuspidor. Attach the sensor and make sure you place the cap back properly so that it is tightly closed.

30.5.3 Instrument flushing holder

Disinfect the instrument flushing holder once a month in a washer-disinfector at 93°C. If needed, autoclave it at 134°C.

To remove the instrument flushing holder, follow the steps below:

1. Open the cuspidor door.
2. Lift up the instrument flushing holder from the cuspidor.



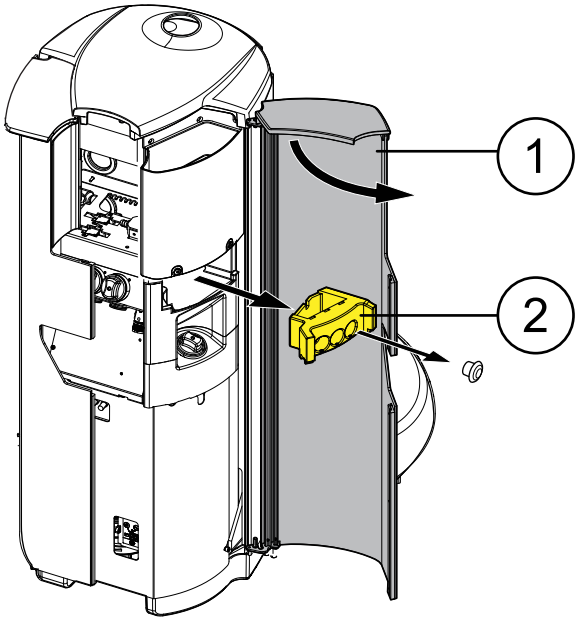
Remove the syringe adapter from the flushing holder before cleaning. The adapter is cleaned in the same way as the instrument flushing holder.

30.5.4 Suction tube cleaning holder and separation tank

Clean the suction tube cleaning holder and the separation tank behind it once a month.

1. Open the cuspidor door.
2. Pull out the suction tube cleaning holder.

   The plug can be detached from the cleaning holder prior to cleaning, but you can just as well clean the cleaning holder with the plug still attached.
3. Disinfect the suction tube cleaning holder in a washer-disinfector at 93°C.
4. When the suction tube cleaning holder is removed you can access the separation tank. Clean the separation tank using water and a brush. Be careful not to dislocate the tubes in the tank.



NOTE

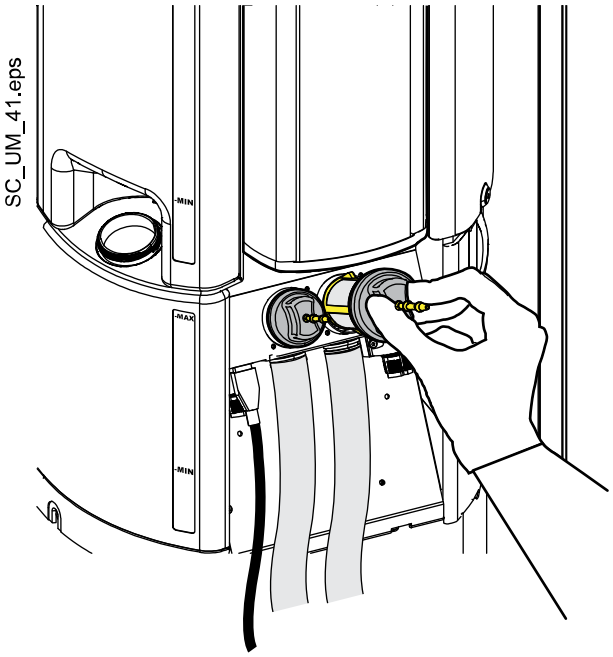
When you place the suction tube cleaning holder back in the cuspidor after cleaning, make sure it is pushed firmly into its position in the cuspidor.

30.5.5 Disposable filters

Empty the disposable filters daily or when they are full. Replace them weekly.

NOTE

The disposable filters must be emptied/disposed into a separate amalgam container.



30.5.6 Spittoon valve coarse filter

If your dental unit is equipped with a VS/A compatible suction system, empty the spittoon valve coarse filter when it is full. The filter is located below the disposable filters, behind the cuspidor lower cover.

NOTE

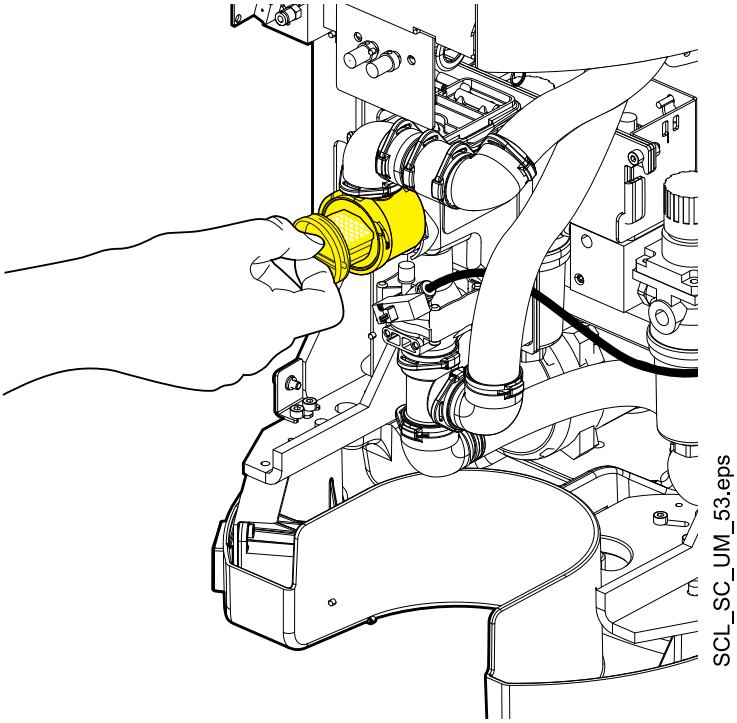
Before emptying the spittoon valve coarse filter you must empty the bowl (spittoon) valve of any excess water by pressing the VS/A button in the *Maintenance* main menu. The suction starts and the valve closes automatically after about 15 seconds, or when the button is pressed again.

NOTE

The spittoon valve coarse filter must be emptied into a separate amalgam container.

When you have emptied the filter, make sure you place it properly back in its holder to prevent the water from leaking onto the floor.

When the filter is clogged, the dental unit will instruct you to empty the filter. In some error situations, the dental unit may also restrict the water flow to prevent leakage.



30.5.7 Amalgam collector

CAUTION

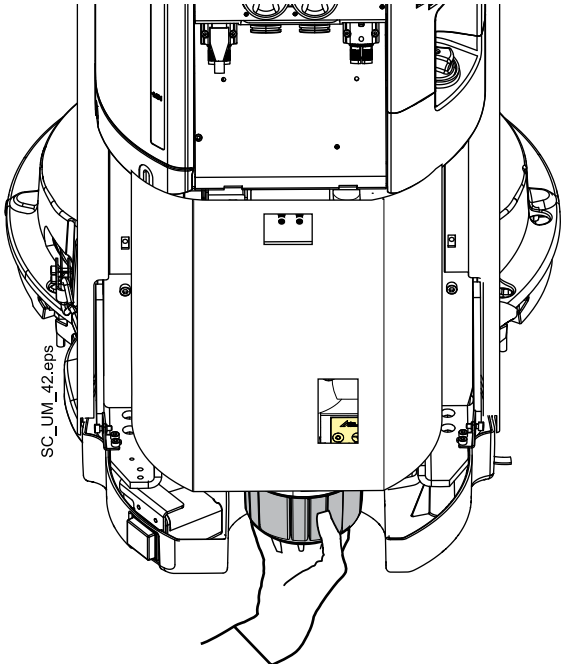
Switch the unit off before removing the amalgam collector from the dental unit.

DÜRR CAS1 suction system

Replace the amalgam collector as soon as possible after help message HE4040 is displayed, or at least before the next patient.

The degree of fullness of the amalgam collector can also be checked from the indicator light next to the collector on the Dürr CAS1 suction system.

Yellow indicator light	≥ 90 % full
Red indicator light	100 % full



30.5.8 Deposit cup

CAUTION

Switch the unit off before removing the deposit cup from the dental unit.

DÜRR CS1 suction system

Check the deposit cup weekly and clean or replace it when it is 70% full.

Refer to the instructions supplied with the Dürr separator.

30.6 Suction system

NOTE

Dry the suction tube holders and the tube bushings properly after cleaning. Wet surfaces might disturb suction tube recognition.

30.6.1 In the morning

Steps

1. Perform suction flushing. For instructions, see section "Suction flushing" on page 220.
2. Wipe the suction handpieces with Planmeca approved surface disinfectant.

30.6.2 After each patient

Steps

1. Remove the used aspirating tips.
2. For hygienic and operational reasons, empty one glass of water (100 - 200 ml) with each suction tube by aspirating water and air through the suction handpiece. Do this even if only the saliva suction tube has been used.

3. Wipe the suction handpieces with Planmeca approved surface disinfectant.
4. Wipe the suction holder / Flexy-holder, including the tablet holder, with Planmeca approved surface disinfectant.

Results

NOTE

Do not use a spray disinfection solution for the suction arms and holders.

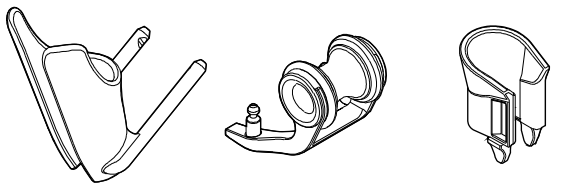
NOTE

Clean the tablet according to the instructions given by the manufacturer.

30.6.3 After each working day

Steps

1. Disinfect the suction system by running Suction cleaning, see section "Suction cleaning" on page 223.
2. When the suction system has been rinsed, disinfect the suction handpieces in a washer-disinfector at 93°C, then optionally autoclave them at 134°C.
3. Flexy-holder: Disinfect the supplementary holders, suction tube holders (including rollers) and instrument holder in a washer-disinfector at 93°C.



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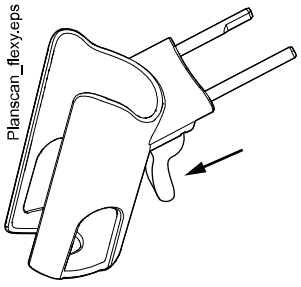
4. Flexy-holder: Wipe the holder for the intraoral scanner with Planmeca approved surface disinfectant.



30.6.4 Weekly cleaning procedures

30.6.4.1 During working day

About this task

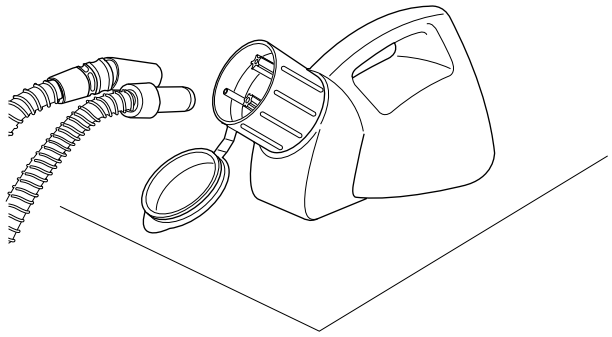
Clean the suction system with Dürr MD 555 cleaner 1 - 2 times a week to prevent the buildup of deposits in the suction system, especially if you are using dental air polishers.

This procedure is mandatory for dental units with a Dürr amalgam separator or Dürr VS/A separator.

For more information on Dürr MD 555 cleaner, please visit http://www.duerrdental.com.

Steps

1. Pour 50 ml of Dürr MD 555 cleaner into a rinsing bottle (for example OroCup). Add 1 l water and mix well.
2. Place the rinsing bottle on a flat surface (table or floor).



3. Remove the suction handpieces from their holders and push them onto the inserts inside the cap of the rinsing bottle.
4. Remove the suction handpieces from the rinsing bottle when there is 250 ml of the solution left in the bottle.
5. Return the suction handpieces immediately back to the holder. Do not use suction only for air.

6. Open the bowl valve to remove any excess water by pressing the **VS/A** button in the *Maintenance* main menu. The suction starts and the valve closes automatically after about 15 seconds, or when the button is pressed again.
7. When the valve has closed, pour the 250 ml that is left of the solution into the bowl.
8. Let the solution affect for 30 - 120 minutes.

9. Rinse the bowl by pressing **Bowl rinse**.
10. Rinse the suction tubes either by manually aspirating water through the suction handpieces or by performing suction flushing.

    For instructions on how to perform suction flushing, see section "Suction flushing" on page 220.

30.6.4.2 After working day

About this task

If your dental unit is equipped with a Dürr amalgam separator or Dürr VS/A separator, you must clean the suction system with Planmeca approved suction disinfectant once a week.

Steps

1. Mix 5 ml of Planmeca approved suction disinfectant with 250 ml water and stir well.

2. Open the bowl valve to remove any excess water by pressing the **VS/A** button in the Maintenance main menu. The suction starts and the valve closes automatically after about 15 seconds, or when the button is pressed again.
3. When the valve has closed, pour the suction disinfectant solution into the bowl.
4. Let the solution affect overnight. Rinse the suction system the next morning with 2 l of water.

5. Rinse the bowl with water the next morning by pressing **Bowl rinse**.

30.7 Planmeca ProX

For information on how to clean the Planmeca ProX X-ray unit, see *Planmeca ProX user's manual*.

30.8 Planmeca ProSensor

For information on how to clean the Planmeca ProSensor sensor, see *Planmeca ProSensor user's manual*.

30.9 Planmeca intraoral scanner

For information on how to clean the Planmeca intraoral scanner, see *Planmeca FIT user's manual*.

30.10 External PC

The external PC together with its mouse and keyboard can be wiped with a dry cloth, or according to the manufacturer's instructions.

CAUTION

When cleaning the external PC, always disconnect the PC from the mains electricity supply.

30.11 Zeiss OPMI pico

For cleaning instructions, refer to the manufacturer's documentation.

31 Help and error messages

31.1 Overview

The dental unit displays three types of safety messages: notifications, help messages and error messages.

Notifications are typically issued for guidance in maintenance situations, for example, when instruments are flushed. Notifications are blue in colour.

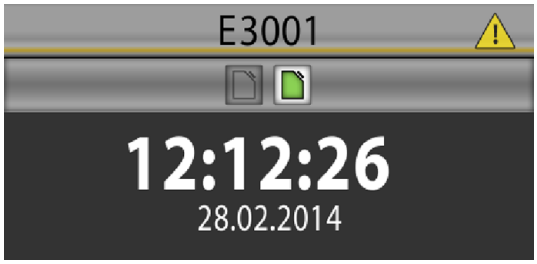
Help messages are green and provide helpful information for the user. They are displayed, for example, if you are using the unit or instrument incorrectly, or if the function is not allowed for some reason. The help message disappears automatically when the situation is corrected.

Error messages warn of a fault in the dental unit and require actions from the user. To correct the error situation, and thus to close the error message, follow the instructions in the message.

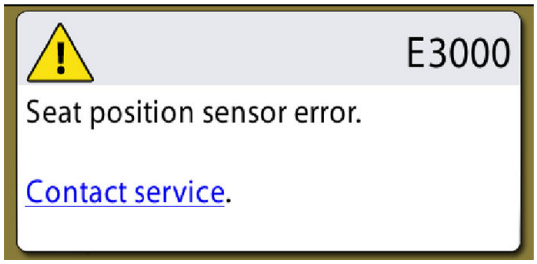
NOTE

The level of detail displayed in the error messages is configurable. Contact your Planmeca dealer.

When a help or error message is issued, it is displayed as a semi-transparent bar at the top of the control panel. Press the bar to open the message. If more than one help or error message is active at the same time, you can browse them by pressing the arrow buttons on the message.



When you press the hyperlink *Contact service* in the help or error message, the service contact details are displayed. The details are only to be changed by a qualified Planmeca service technician.



31.2 Help messages in short form

Help messages

HELP CODE	MEANING	ACTION OR EXPLANATION
HE1000	Exhibition mode enabled.	The unit operates normally, but help and error messages caused by missing water and air are not reported and pumps are disabled. Use service mode 9100 to enable/disable the exhibition mode. See service mode 9100 in chapter "Service mode" (Technical Manual) for details.
HE1014	Failed to add user.	A user could not be added, for example, because the maximum number of users has been reached.
HE1015	Failed to copy user settings to USB.	The unit failed to copy user settings to the USB stick.
HE1016	Failed to copy user settings from USB.	The unit failed to copy user settings from the USB stick.
HE1017	Two or more USB sticks attached.	Two or more USB sticks with software updates are attached. Attach only one USB stick that has updates.
HE1018	Yearly maintenance in <#> days.	Contact service for yearly maintenance.
HE1020	Yearly maintenance complete.	Yearly maintenance has been performed.
HE1021	User not found.	User not found with this PlanID tag. Create a new user or select an existing user and assign the PlanID tag.
HE1023	PlanID tag already in use.	PlanID tag assigned to another user.
HE1024	Failed to copy settings.	The unit failed to copy settings.
HE1025	Failed to modify a setting.	The unit failed to modify a setting.
HE1040	Foot control is not connected.	No foot control or wireless foot control receiver is connected.
HE1042	Settings copied to USB.	Settings have been copied to the USB stick. The USB stick can be removed.
HE1043	Settings copied from USB.	Settings have been copied from the USB stick. The USB stick can be removed.
HE1044	Romexis error; using local user profile.	The unit has failed to get the user profile from Romexis and uses the local user profile.
HE1045	Romexis error; using temporary local user profile.	The unit has failed to get the user profile from Romexis and uses a temporary local user profile.
HE1046	Romexis timeout.	The unit has sent a request to Romexis but has not received a response within the timeout period.
HE1047	Failed to copy user profile from Romexis.	Failed to copy user profile from Romexis.
HE1048	Failed to assign PlanID tag to user.	Check if user already has another PlanID tag assigned.

Help messages

HELP CODE	MEANING	ACTION OR EXPLANATION
HE1049	PlanID tag assigned to user successfully.	PlanID tag assigned to user successfully.
HE1050	Login to Romexis failed.	Login to Romexis failed.
HE1051	User already logged in.	User already logged in.
HE1052	User profile copied from Romexis.	User profile copied from Romexis.
HE1053	Incompatible Romexis version.	Incompatible Romexis version.
HE1054	Unknown Romexis user.	Unknown Romexis user.
HE1055	Failed to send user profile to Romexis.	Failed to send user profile to Romexis.
HE1056	Romexis offline.	Romexis is offline. The requested operation could not be completed.
HE1057	Romexis error; using local user profile.	Romexis is offline. The unit uses the local user profile.
HE1058	Romexis offline; using temporary local user profile.	Romexis is offline. The unit uses a temporary local user profile.
HE1059	Romexis offline; could not find user.	Romexis is offline. The unit could not find either a local or a temporary local user profile.
HE1060	Romexis version mismatch; using local user profile.	Romexis version does not support user profiles. The unit is using the local user profile.
HE1061	Romexis version mismatch; using temporary local profile.	The current Romexis version does not support user profiles. The unit uses a temporary local user profile.
HE1062	Romexis version mismatch; could not find user.	The current Romexis version does not support user profiles. The unit could not find either a local or a temporary local user profile.
HE1063	Settings copied to Romexis.	Settings have been copied to Romexis.
HE1064	Settings copied from Romexis.	Settings have been copied from Romexis.
HE1065	Romexis user ID already in use.	The Romexis user ID is already in use by some other user.
HE1066	Login already in progress.	The unit has rejected a login request because login is already in progress.
HE1067	Different user already logged in.	The unit has rejected a login request because a different user is already logged in.
HE1068	Romexis version mismatch.	Romexis version does not support the requested operation.
HE1069	Failed to load user settings.	The unit has failed to load user settings and has replaced them with factory defaults. Check your user settings before continuing.
HE1070	Wrong Romexis user name for the PlanID tag.	Correct the Romexis username.
HE1073	Assigning in progress, please wait.	Assigning in progress, please wait.

Help messages

HELP CODE	MEANING	ACTION OR EXPLANATION
HE1092	The unit has created a new user profile automatically.	The unit has created a new user profile automatically. Check your user settings.
HE1093	Failed to identify patient.	The unit failed to identify the RFID of the patient.
HE1094	Patient already identified.	The patient RFID was rejected, because the treatment session of the previous patient had not been ended yet.
HE1095	Patient identification required.	Show the patient RFID to the PlanID reader.
HE1096	Patient identification not enabled.	The unit has detected a patient RFID, but patient identification is not enabled in user settings.
HE1097	RFID unknown.	The RFID is unknown to the system.
HE1098	SSL required.	SSL required. Enable SSL to pass confidential data between the unit and Romexis.
HE1099	Unit settings have been modified.	Unit settings have been modified. Reboot the unit.
HE1100	Invalid Romexis username.	Romexis username of the user contains characters not supported by the unit.
HE1101	Adding a user to Romexis not allowed.	Romexis does not allow creating new users. Check Romexis configuration.
HE1102	Reassigning PlanID not allowed.	Romexis does not allow reassigning the PlanID tag. Check the user settings in Romexis.
HE2000	Wrong scaler module installed.	This scaler does not have the correct module installed. Install the correct scaler module.
HE2001	Unsupported instrument.	This instrument is not recognised. Software upgrade may be needed.
HE2002	Unsupported assistant syringe.	This instrument is not recognised. Connect only supported instruments.
HE2003	Unsupported assistant instrument.	This instrument is not recognised. Connect only supported instruments.
HE2012	Instrument hose memory checksum error.	Invalid checksum read from the instrument hose memory.
HE2013	Syringe in unsupported slot.	The syringe is connected to a slot that does not support syringes. Consult the user's manual.
HE2018	Wrong instrument connected to the slot with Bien-Air MX2 electronics.	Only the Bien-Air MX2 instrument can be connected to a slot with Bien-Air MX2 electronics. The slot is marked with a label. Consult the user's manual.
HE2026	Reverse drive not possible because of torque drive mode.	Micromotor cannot be driven in reverse direction because torque drive mode is either autoreverse or autoforward.

Help messages

HELP CODE	MEANING	ACTION OR EXPLANATION
HE2037	Wrong instrument connected to the slot with Morita TR-S2 electronics.	Only the Morita TR-S2 instrument can be connected to a slot with Morita TR-S2 electronics. The slot is marked with a label. Consult the user's manual.
HE2050	RFID article read.	Please remove article.
HE2051	No connection to instrument database.	Connection to instrument database could not be established, therefore instrument information is unavailable.
HE2060	RFID article read.	Unspecified error.
HE2061	RFID article read.	Activity not allowed for this item.
HE2062	RFID article read.	Invalid activity sequence.
HE2063	RFID article read.	Article(s) missing from defined set.
HE2064	RFID article read.	Article not part of the current set.
HE2065	RFID error	Invalid user.
HE2066	RFID article read.	Activity not valid (server configuration changed).
HE2067	RFID article read.	Unknown item, please register it first.
HE2068	RFID article read.	This activity may not be repeated.
HE2069	RFID article read.	This activity cannot be forced.
HE2070	RFID article read.	Article is disabled.
HE2071	RFID article read.	Article already registered.
HE2072	RFID article read.	Article not registered, please register first.
HE2073	RFID article read.	Template set incomplete.
HE2074	RFID article read.	Article expired.
HE2075	RFID article read.	Article sterile period expired.
HE2090	RFID article read.	Unspecified warning.
HE2091	RFID article read.	Usage limit exceeded, maintenance recommended.
HE2092	Instrument settings fixed.	The unit has set some of the current settings of an instrument to factory default values.
HE3015	Collision risk.	The distance between the backrest and the cuspidor or bowl is too small. Or the legrest is too close to the floor. Move the bowl to the home position. Or turn the chair away from the cuspidor or operate the chair upwards.
HE3020	Upward chair movement prevented.	The chair cannot be driven up because a safety switch is activated. Make sure that nothing blocks the movement.
HE3021	Downward chair movement prevented.	The chair cannot be driven down because a safety switch is activated. Make sure that nothing blocks the movement.

Help messages

HELP CODE	MEANING	ACTION OR EXPLANATION
HE3030	Chair lift sensor is not moving.	The chair lift sensor is not moving with the desired speed.
HE3031	Backrest sensor is not moving.	The backrest sensor is not moving with the desired speed.
HE3040	Armrests are swivelled out.	Chair movements are prevented. Turn the armrests to the home position.
HE3050	Chair durability test active.	Chair movements are used with timed control.
HE3051	Upward chair movement limited.	The bowl position prevents chair upward movements. Return the bowl to home position.
HE4004	Water leak sensor active.	Water leak detected. The water container is not filled, but instruments can be used as long as there is water in the container. Close the main water to prevent any damage to the property and contact service.
HE4010	No cup in cup holder.	Cup not detected while using cup fill function. Place a cup in the cup holder.
HE4011	PlanClear container almost empty.	Fill the container with PlanClear waterline disinfectant.
HE4012	Shut down unit.	Shut down the unit for the disinfection effect time.
HE4013	Operation not supported.	Enable bowl rinsing and cup filling functionality before use.
HE4014	Water container almost empty.	Unable to fill the water container. Make sure the main water is on. If necessary, fill the container manually.
HE4015	Orotol container almost empty.	Fill the container with Orotol Plus suction line disinfectant.
HE4016	Cup in cup holder.	The hygiene procedure requires that the cup holder is empty. Remove the cup from the holder.
HE4017	Too strong content in water container.	Perform long instrument flushing to change the water in the waterlines.
HE4018	Water use is prohibited.	The waterlines contain disinfectant. Perform waterline flushing.
HE4019	Water container content changed.	To ensure the validity of the waterline content, perform long instrument flushing.
HE4040	Amalgam collector is almost full.	Replace or empty the collector as soon as possible.
HE4041	Amalgam collector is full.	Replace or empty the collector immediately. The suction system cannot be used before the collector is emptied or replaced.
HE4050	Activation of suction tubes is prohibited.	Return suction tubes to holders.

Help messages

HELP CODE	MEANING	ACTION OR EXPLANATION
HE4058	Use of suction tubes is prohibited.	The suction tubes contain Orotol Plus. Empty the suction tubes by selecting Suction cleaning from the Maintenance page.
HE4064	The water container is almost empty.	Fill the water container.
HE4065	Water container not detected.	The water container is missing or not properly connected. Attach or check the container.
HE5000	Required instruments are not selected when starting instrument flushing or waterline cleaning.	Insert required instruments into the instrument flushing holder.
HE5001	Instrument flushing completed.	Return instruments to instrument console.
HE5002	Instrument flushing has been interrupted.	Restart instrument flushing or return instruments to instrument console.
HE5003	Waterline cleaning completed.	Return instruments to instrument console.
HE5004	Waterline cleaning has been interrupted.	Waterlines must be flushed or cleaned before the instruments can be used. Select a flushing or cleaning operation from below to continue.
HE5005	Required suction tubes are not selected.	Insert the required suction tubes into the suction tube cleaning holder before starting the cycle.
HE5006	Suction cleaning completed.	Return suction tubes to the suction arm.
HE5007	Suction cleaning has been interrupted.	Restart suction cleaning or return suction tubes to the suction arm.
HE5008	Suction flushing completed.	Return suction tubes to the suction arm.
HE5009	Suction flushing has been interrupted.	Restart suction flushing or return suction tubes to the suction arm.
HE5010	Long instrument flush due.	Instruments are locked, as instruments were not flushed properly on previous work day. Perform long instrument flushing to unlock.
HE5011	Waterline cleaning cycle due.	Instruments are locked, as WCS cycle was not performed. Perform WCS to unlock.
HE5012	Suction cleaning cycle due.	Suction is locked, as suction tubes were not cleaned properly on previous work day. Perform suction tube cleaning to unlock.
HE6000	Foot control calibration 1/6, top left.	Move the foot control pedal to the top left position, then push and release one of the foot control knobs.
HE6001	Foot control calibration 2/6, top centre.	Move the foot control pedal to the top centre position, then push and release one of the foot control knobs.

Help messages

HELP CODE	MEANING	ACTION OR EXPLANATION
HE6002	Foot control calibration 3/6, top right.	Move the foot control pedal to the top right position, then push and release one of the foot control knobs.
HE6003	Foot control calibration 4/6, bottom right.	Move the foot control pedal to the bottom right position, then push and release one of the foot control knobs.
HE6004	Foot control calibration 5/6, bottom centre.	Move the foot control pedal to the bottom centre position, then push and release one of the foot control knobs.
HE6005	Foot control calibration 6/6, bottom left.	Move the foot control pedal to the bottom left position, then push and release one of the foot control knobs.
HE6006	Foot control calibration successful.	The foot control was calibrated successfully and is ready for use.
HE6007	Foot control pedal calibration encountered out-of-range signal values.	One of the pedal signals was too high or too low. The calibration may have been performed in the incorrect order. The foot control may need mechanical adjustments. There might be a PCB fault or some debris between the pedal and the PCB. There might be water or significant moisture inside the foot control.
HE6008	Foot control button calibration encountered out-of-range signal values.	One of the button signals was too high or too low. The foot control may need mechanical adjustments. The case or magnets inside may be damaged. Hall effect sensors mounted on the PCB below the buttons might be faulty or misaligned.
HE6009	Connecting to wireless foot control was successful.	Connection was established with the requested foot control.
HE6010	Connecting to wireless foot control failed.	Connection with the requested foot control could not be established. Make sure the foot control is active (connect to a charger, if possible), is in the vicinity of the unit, and try again.
HE6011	Wireless foot control configuration was successful.	Wireless foot control channel and power settings were successfully changed.
HE6012	Wireless foot control configuration failed.	Wireless foot control channel and power settings could not be changed. Make sure the foot control is active (connect to a charger, if possible), is in the vicinity of the unit, and try again.
HE7003	Control panel is temporarily disabled due to interference on touch screen.	Make sure the touch screen is clean and dry. If the problem continues, contact service.
HE8000	Romexis connection lost.	Make sure the Ethernet cable is attached and Romexis is running.
HE8091	Romexis patient not selected.	Select patient.

Help messages

HELP CODE	MEANING	ACTION OR EXPLANATION
HE9001	Update halted because wireless foot control is sleeping.	Software update halted. Activate the wireless foot control by pressing the handle.

31.3 Error messages in short form

The error messages are mainly intended to assist the technician.

For more detailed information on the error messages, see *Planmeca Sovereign Classic technical manual*

31.3.1 General error messages

General

ERROR CODE	EXPLANATION
E1001	Failed to load settings.
E1002	Control panel version mismatch.
E1003	Software update package corrupted.
E1004	Incompatible wireless foot control software.
E1005	Incompatible foot control software.
E1006	Incompatible wireless foot control receiver software.
E1007	Incompatible SingLED software.
E1008	Incompatible instrument console software.
E1009	Incompatible Mamco B software.
E1010	Incompatible Mamco S software.
E1011	Incompatible Water Management System software.
E1012	Incompatible control panel software.
E1013	Incompatible headrest control software.
E1019	Annual maintenance overdue.
E1030	Reserved.
E1031	Reserved.
E1032	Reserved.
E1033	Reserved.
E1034	Instrument console board missing.
E1035	Base motor control board missing.
E1036	Seat motor control board missing.
E1037	Water management control board missing.
E1038	Reserved.
E1039	Reserved.
E1041	Flexy-board missing.

General

ERROR CODE	EXPLANATION
E1071	Reserved.
E1072	Incompatible RFID reader software.
E1074	Main circuit board is untested.
E1075	Wireless foot control circuit board is untested.
E1076	Wired foot control circuit board is untested.
E1077	Wireless transceiver circuit board is untested.
E1078	Operating light circuit board is untested.
E1079	Instrument control circuit board is untested.
E1080	Base motor control circuit board is untested.
E1081	Seat motor control circuit board is untested.
E1082	Water management circuit board is untested.
E1083	Control panel circuit board is untested.
E1084	Headrest motor control board is untested.
E1085	RFID reader circuit board is untested.
E1086	Reserved.
E1087	Reserved.
E1088	Reserved.
E1089	Operating light board is missing.
E1090	Incompatible operating light software.
E1091	Operating light circuit board is untested.

31.3.2 Instrument error messages

Instruments

ERROR CODE	EXPLANATION
E2000	Wrong scaler module installed.
E2004	Instrument power-on failed.
E2005	Scaler current leakage.
E2006	Drive air pressure too low.
E2007	Spray air pressure too low.
E2008	Spray water pressure too low.
E2009	Drive air pressure too high.
E2010	Spray air pressure too high.
E2011	Spray water pressure too high.
E2014	IPS voltage too low.
E2015	AUX voltage too low.
E2016	Proportional valve open error.

Instruments

ERROR CODE	EXPLANATION
E2017	Bien-Air MX2 electronics not found.
E2019	ICON IMUX board missing.
E2020	ICON IMUX board is incompatible.
E2021	ICON IMUX board is missing +32V.
E2022	ICON XASP board is not found.
E2023	ICON drive air proportional valve missing or faulty.
E2024	ICON spray air proportional valve missing or faulty.
E2025	ICON spray water proportional valve missing or faulty.
E2027	Instrument unspecified error.
E2028	Instrument power protection error.
E2029	Micromotor error; phase missing.
E2030	Instrument data communication error.
E2031	Instrument EEPROM error.
E2032	Instrument overtemperature error.
E2033	Instrument undervoltage error.
E2034	Instrument overvoltage error.
E2035	Incompatible scaler module version.
E2036	Morita TR-S2 electronics not found.
E2038	ICON inverter overcurrent detected.
E2039	ICON buck overcurrent detected.
E2040	Invalid ICON6 xASP sensor count.
E2041	Instrument setting error encountered.
E2042	Instrument hardware error.
E2043	Incompatible Morita module version.

31.3.3 Patient chair error messages

Patient chair

ERROR CODE	EXPLANATION
E3000	Chair lift position sensor error.
E3001	Chair lift motor error.
E3002	Chair lift movement error.
E3005	Backrest position sensor error.
E3006	Backrest motor error.
E3007	Backrest movement error.
E3010	Rotation position sensor error.

31.3.4 Water system error messages

Water system

ERROR CODE	EXPLANATION
E4000	Water pressure error.
E4001	Water pump current error.
E4002	PlanClear pump error.
E4003	Orotol pump error.
E4005	Water container fill timeout.
E4006	PlanClear container level sensor error.
E4007	Orotol container level sensor error.
E4008	Water container level sensor error.
E4020	Main air pressure too low.
E4021	Main air pressure sensor error.
E4022	VS/A water level.
E4059	Suction system error.

31.3.5 Foot control error messages

Foot control

ERROR CODE	EXPLANATION
E6007	Foot control calibration error.
E6008	Foot control calibration error.

31.3.6 Control panel error messages

Control panel

ERROR CODE	EXPLANATION
E7000	Control panel connection error.

31.3.7 CAN error messages

CAN

ERROR CODE	EXPLANATION
E7001	Control panel CAN bus off error.
E7002	Control panel CAN controller restarted.
E7011	ACCU2 CAN bus off error.
E7012	ACCU2 CAN controller restarted.

31.4 Viewing help and error message history

About this task

The dental unit keeps a log of all help and error messages. It can be viewed in the *About this unit* window.

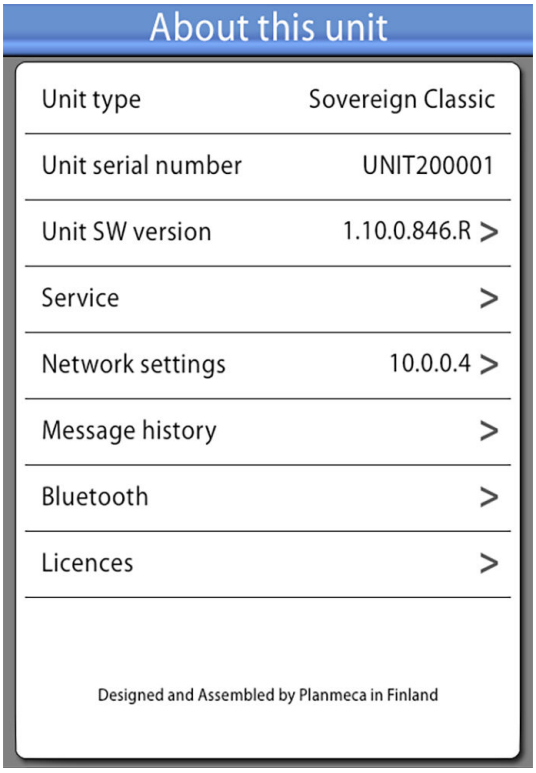
Steps

1. Press **Program**.

2. Press **About this unit**.

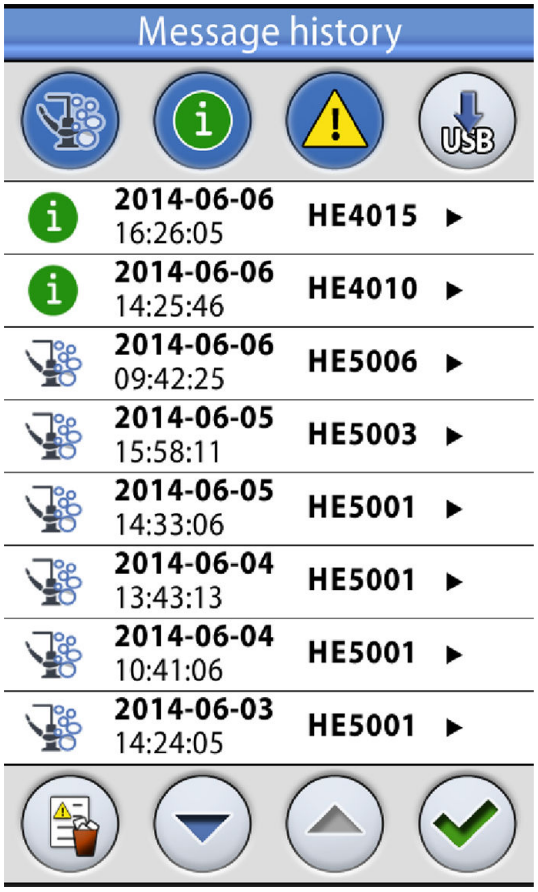
NOTE

The following is an example only and does not necessarily portray the actual situation.



3. Press **Message history**.

   The following window opens.



Move up and down on the list with the arrow buttons.

When you click on a message, the message is opened into a new window.

The message history window can be filtered by message type.

In the picture above, all types are listed:

Messages related to cleaning cycles

Help messages

Error messages

4. Optional: Filter messages by toggling the **Message type** buttons.

A grey button means that the message type is not listed, and a blue button that it is listed.

5. Optional: Delete the message history by pressing **Delete message history**.

   A confirmation message is displayed. Confirm the deletion by pressing **OK**.

   NOTE

   Carefully consider when the deletion of message history is appropriate as it contains information that is valuable to the Planmeca service technician.

6. Press **OK** to close the window.

NOTE

The Save message history to USB -option is meant to be used only by a qualified Planmeca service technician.

32 Consumables

Consumables are detachable parts of the dental unit that the user can change.

Suction handpieces

Part		Order number	Material
	Saliva suction nozzle	00221015	PU/ABS
	Suction tip Universal Cannula Protect, Dürr, 5 pcs	10034007	PBT
	Suction tip Prophylaxis Cannula, Dürr, 4 pcs	10034009	PBT
	Billund saliva suction handpiece assembly	10039175	PP, POM, stainless steel
	Dürr saliva suction handpiece assembly	10039173	PSU, PP, POM, stainless steel
	Billund high-volume suction handpiece assembly	10039176	PP, POM, stainless steel
	Dürr high-volume suction handpiece assembly	10039172	PSU, PP, POM, stainless steel
	Tilting high-volume suction handpiece assembly	10022870	PSU, PP, POM, stainless steel

Sterile water hoses

Part		Order number	Material
	Sterile water hose with 3.2 x 1.6 mm pump hose	10022953	Silicone, PVC

Infection control parts

Part		Order number	Material
	Dürr disposable filter 0725-041-00, 1 piece Dürr disposable filter 0725-041-00, 12 pcs NOTE! 2 filters needed Filters retain solid particles with a diameter of ≥ 2 mm	00221013 10005741	PP PP
	Handle of Planmeca Solanna operating light, 1 piece NOTE! 2 handles needed	30005173	Silicone rubber
	Hygiene membrane	30019621	Silicone rubber
	Silicone mat for tray, size 1	10029421	Silicone rubber
	Silicone mat for tray, size 2	10029413	Silicone rubber

Infection control parts

Part		Order number	Material
	Silicone mat for tray, size NA	10029400	Silicone rubber
	Water container	10033776	PE HD
	Water container technical cap assembly	10035657	Silicone rubber
	Cover cap for bowl filter	10005746	PSU
	Bowl filter Filter retains solid particles with a diameter of >= 1.9 mm	10005329	PSU
	Extension for cup fill tube	10033868	Silicone rubber, ASA

Infection control parts

Part		Order number	Material
	Instrument flushing holder	10034033	Silicone rubber
	Suction tube cleaning holder	10033859	Silicone rubber
	Amalgam collector, Dürr	10013485	PBT
	Dürr OroCup	00004883	PE
	Foot cover for Comfy upholstery	02500000	PVC
	Foot cover for Ultra Relax upholstery	10009142	PVC

Disinfectants

Part		Order number
	Planmeca PlanClear water and waterline disinfectant, 6 x 1 litre	10034680
	Test strips for measuring hydrogen peroxide concentration, 100 pieces	10035749

33 Disposal

In order to reduce the environmental load over the product's entire lifecycle, Planmeca products are designed to be as safe as possible to dispose of. Planmeca products fulfil the requirements of Directives 2011/65/EU (RoHS) and 2012/19/EU (WEEE).

Disposal of obsolete units is the responsibility of the waste possessor. The risks involved and the necessary precautions must be taken into account when handling waste products.

Parts which can be recycled should always be taken to the appropriate processing centres, after hazardous waste has been removed. All parts and components containing hazardous materials must be disposed of in accordance with waste legislation and instructions issued by the local environmental authorities.

The following parts contain hazardous waste:

- Amalgam separators in dental units, including filters and amalgam collector /deposit cup (amalgam)

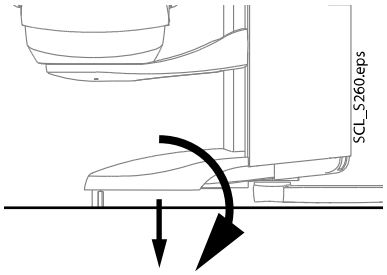
Batteries must be disposed of following the requirements of Directive 2006/66/EEC and in accordance with waste legislation and instructions issued by the local environmental authorities.

The following parts contain batteries:

- Dental unit wireless foot control
- Circuit boards (may contain)

34 Technical information

34.1 Technical specifications

Original manufacturer	
PLANMECA Oy, Asentajankatu 6, 00880 Helsinki, FINLAND Phone: +358 20 7795 500, fax: +358 20 7795 555, www.planmeca.com	
Colours	
Painted parts:	RAL-9016
Upholstery colours:	Please consult your dealer for availability
Mechanical dimensions	
Installed:	(H x D x W) 1930 mm x 1175 mm x 1930 mm (see template for details)
Weight	
300 kg (661 lbs)	
Maximum lifting capacity of chair, excluding weight of unit	
135 kg (298 lbs)	
Maximum loads	
Patient chair	135 kg (298 lbs)
Tray	2 kg (4.4 lbs)
Cuspidor	 Maximum normal load (nominal value) ≈ 485 kg. Maximum moment load (nominal value) ≈ 2227 Nm, in all cuspidor directions.
Environmental conditions	
Transportation conditions	
Temperatures:	-20°C to +60°C (-4°F to +140°F)
Relative humidity:	5% RH to 95% RH; non-condensing humidity
Air pressure:	700 hPa to 1060 hPa (10 psi to 15 psi)
Storage conditions	
Temperatures:	-5°C to +60°C (+23°F to +140°F)
Relative humidity:	5% RH to 95% RH; non-condensing humidity
Air pressure:	700 hPa to 1060 hPa (10 psi to 15 psi)
If the unit has been stored at temperatures below +10 °C (+50 °F) for more than a few hours, time must be allowed for the unit to reach room temperature in the original packing before connecting the unit to the mains voltage.	

Operating conditions	
Temperatures:	+15°C to +35°C (+59°F to +95°F)
Relative humidity:	5% RH to 95% RH; non-condensing humidity
Air pressure:	800 hPa to 1060 hPa (12 psi to 15 psi)
Altitude:	< 2000 m (less than 1.25 miles)
Mains voltage and frequency	
Mains voltage setting:	100V~ - 240V~
Fuse rating & type:	F 10A H 250V
Mains frequency:	50 or 60 Hz
Fuse rating and type	
Mains fuse, F12, F13 = Schurter SP 0001.1014 F10AH/250V	
Power consumption	
Idle unit:	100 W (unit not in use, OP-light turned on)
Typical average:	150 W (during patient treatment)
Maximum:	1000 W (135 kg (298 lbs) patient; both chair motors are running, and chair and backrest are driven upwards)
Maximum load of optional MSO:	300 VA
Electrical classification	
Class I, type B (chair), B (instruments), BF (intraoral camera)	
IP classification	
IPX1; protected against falling water (foot control)	
Operation of chair lift and backrest motors	
Intermittent operation, ED 6%, 25 sec "ON", 400 sec. "OFF"	
Water supply	
Pressure range:	min. 180 kPa (26 psi), max. 900 kPa (130 psi)
Flow rate:	≥ 3 l / min (maximum consumption at any instance)
Quality:	hardness; ≤ 8°dH (1°dH = 20mg Ca / 3 litres of water)
Connection:	1/4”
Information on the materials used for the water path is available upon request.	
Air supply	
Pressure range:	min. 550 kPa (80 psi), max. 900 kPa (130 psi)
Flow rate:	≥ 55 litres / minute (maximum consumption at any instance)
Quality:	medical grade, dry and oil-free
Connection:	1/4”
Water and air filters	
Water filter:	Camozzi 25 µm, material PE
Air filter:	Camozzi 5 µm, material PE
Filter maintenance must be performed according to the manufacturer’s instructions.	
Suction connection	
Vacuum:	≥ 150 mbar
Flow rate:	≥ 550 l/ min

Connection:	Ø 50 / 46 mm (2.0” / 1.8”)
Drain connection	
Capacity:	min. 10 l/min
Connection:	Ø 50 / 46 mm (2.0” / 1.8”) (or copper Ø 35 / 32 mm (1.4” / 1.3”))
Foot control power supply (optional)	
Type:	MENB1010A0903F01
Wireless foot control (optional)	
Battery size:	AA, LR6
Battery type:	NiMH 1.2V, min 2050mAh, low self-discharge, UL-listed (USA, Canada only)
Planmeca ProSensor power supply (optional)	
Phihong Single Port Injector	
Type:	PSA16U-480 (POE)
Input voltage:	100-240 VAC (50-60 Hz)
Output voltage:	48VDC
Max. output current:	0.35 A
Insulation voltage	
Primary-secondary	3000VDC

Water and waterline disinfection, PlanClear

Procedure	Disinfection concentrate	Affect time
Continuous disinfectant feed. (Feed can also be disabled.)	Hydrogen peroxide concentration is 0.02% (in normal operation the concentration should be between 150 and 250 ppm).	Continuous
Dental unit waterline cleaning when continuous cleaning is enabled.	Hydrogen peroxide concentration is 0.25%.	Min. 8 h (monthly cycle).
Dental unit waterline cleaning when continuous cleaning is disabled.	Hydrogen peroxide concentration is 2.5%.	Min. 8 h (weekly cycle).
Cleaning of primary water lines: Bowl rinse, suction rinse, water feed line to water container.	Hydrogen peroxide concentration is 7.5% (undiluted PlanClear).	Min. 8 h (monthly cycle).

Suction system cleaning, Planmeca approved suction disinfectan

Procedure	Disinfection concentrate	Affect time
Suction system cleaning.	Suction disinfectant concentration is 3.6%.	Min. 2 minutes; can be adjusted

Planmeca approved disinfectants for the suction system are Dürr Orotol Plus and Orbis Evacuation System Disinfection Concentrate (193087, 193088). For more information on these disinfectants, please refer to the manufacturer’s documentation.

34.2 Dimensions

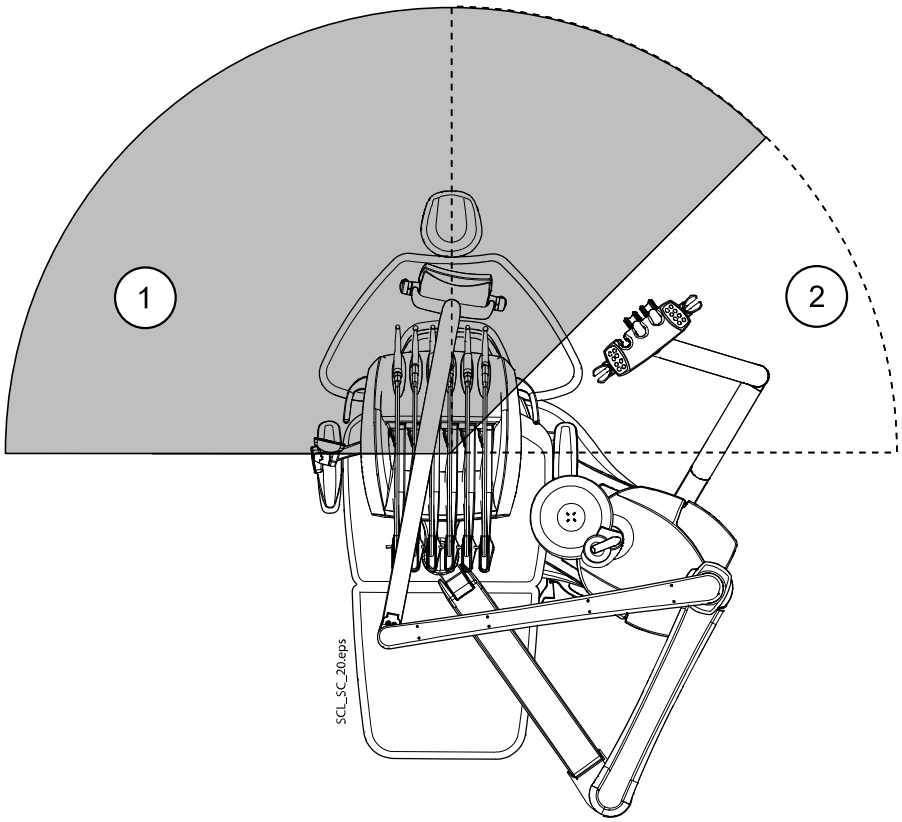
34.2.1 Positioning of patient, dentist and assistant

The following picture shows an example of how to position the dentist and assistant during treatment.

The patient must always be positioned in the patient chair, with arms and legs resting on the upholstery. The dentist and assistant can move within the areas marked in the picture below.

NOTE

The following picture is an example only and presents one possible scenario. The actual positioning of dentist and assistant depends on the used working method, treatment situation, region etc. and can therefore not be explicitly stated in this manual.



1. Dentist's area
2. Assistant's area

34.2.2 Patient area

The patient area is 1.5 m (59.1") in each direction from the dental unit.

The external PC, its keyboard and mouse, as well as Planmeca ProSensor's power supply and the Planmeca ProX generator assembly must be located outside the patient area. The dentist, assistant and patient must not touch the equipment outside the patient area during treatment.

CAUTION

Use only Planmeca specified devices inside the patient area.

CAUTION

The floor of the patient area must be dry.

NOTE

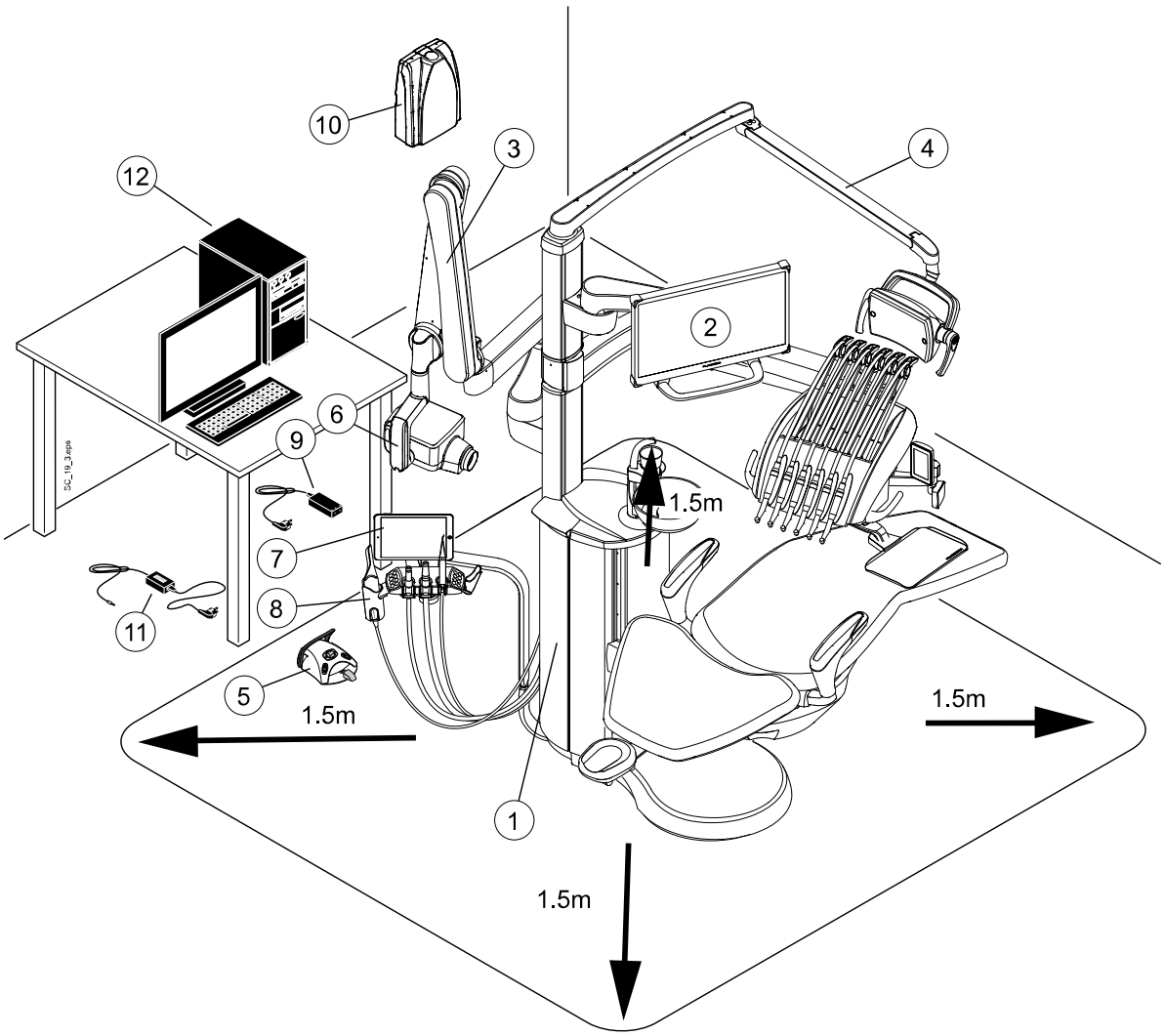
Connect only Planmeca specified devices to the dental unit.

NOTE

The external PC must be protectively earthed and IEC 60950 -approved (CE marked).

NOTE

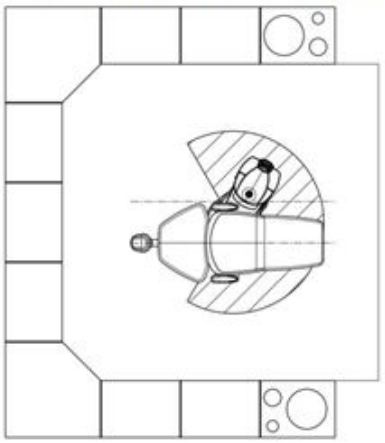
The monitor must fulfil IEC 60601-1 ed.3 requirements.



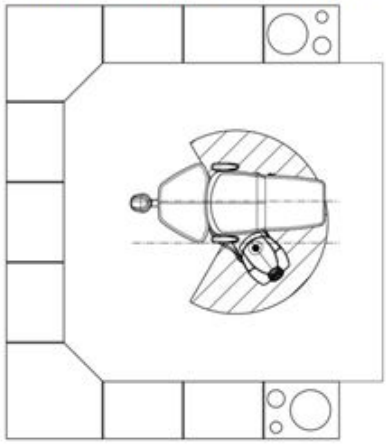
Inside patient area:	Outside patient area:
1. Dental unit	9. Planmeca ProSensor PoE port and power cable
2. Planmeca monitor	10. Planmeca ProX generator assembly
3. Planmeca ProX X-ray tube head and arm assembly	11. Foot control battery charger
4. Planmeca operating light	12. External PC
5. Foot control. Use only IEC 60601-1 approved power source supplied by Planmeca	
6. Planmeca ProSensor control box	
7. Tablet	
8. Planmeca intraoral scanner	

34.2.3 Cuspidor positions

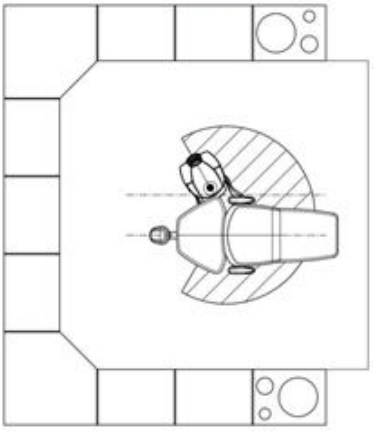
Cuspidor at 4 o'clock
(Common right handed care situation)



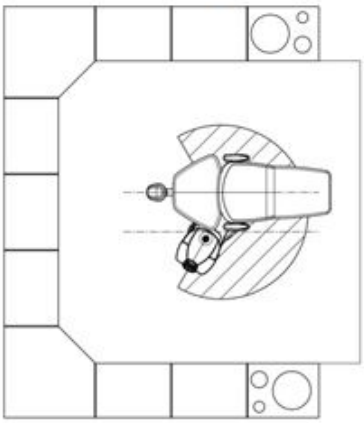
Cuspidor at 8 o'clock
(Common left handed care situation)



Cuspidor at 2 o'clock
(Maximum swivel, right)



Cuspidor at 10 o'clock
(Maximum swivel, left)

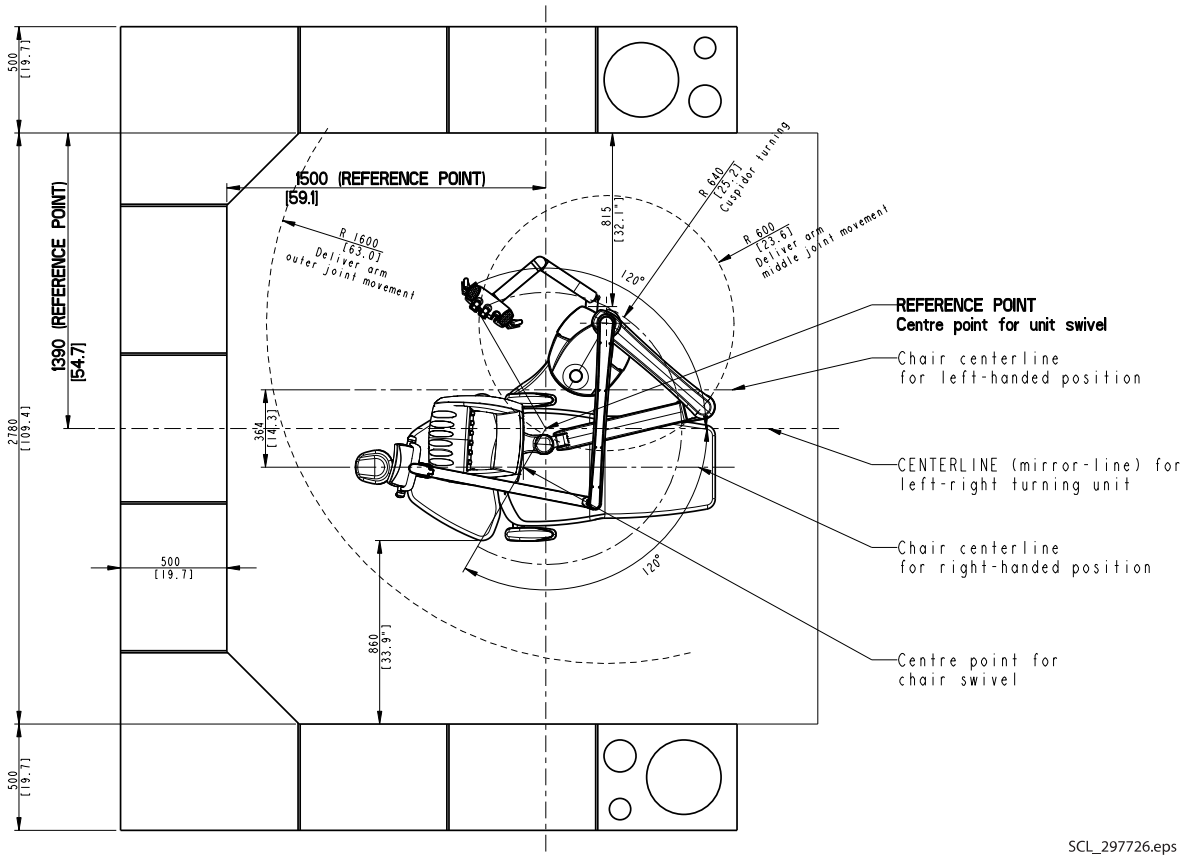


34.2.4 Space requirements

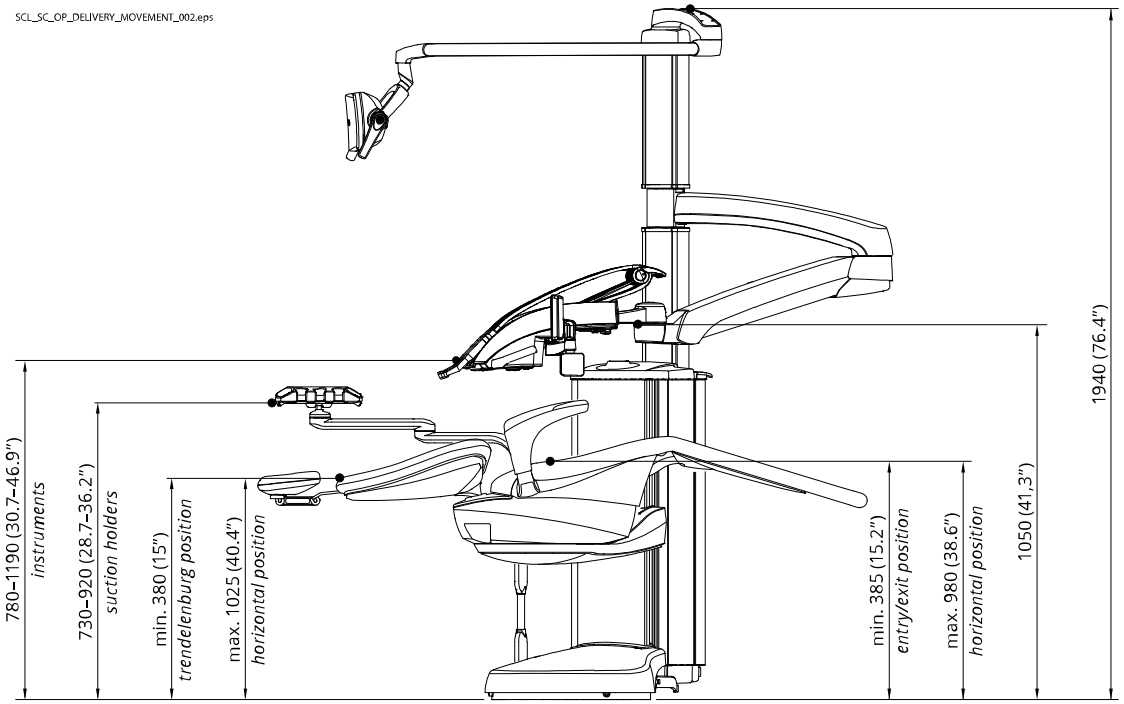
Minimum space requirements

2200 mm x 2000 mm x 2700 mm (H x D x W)

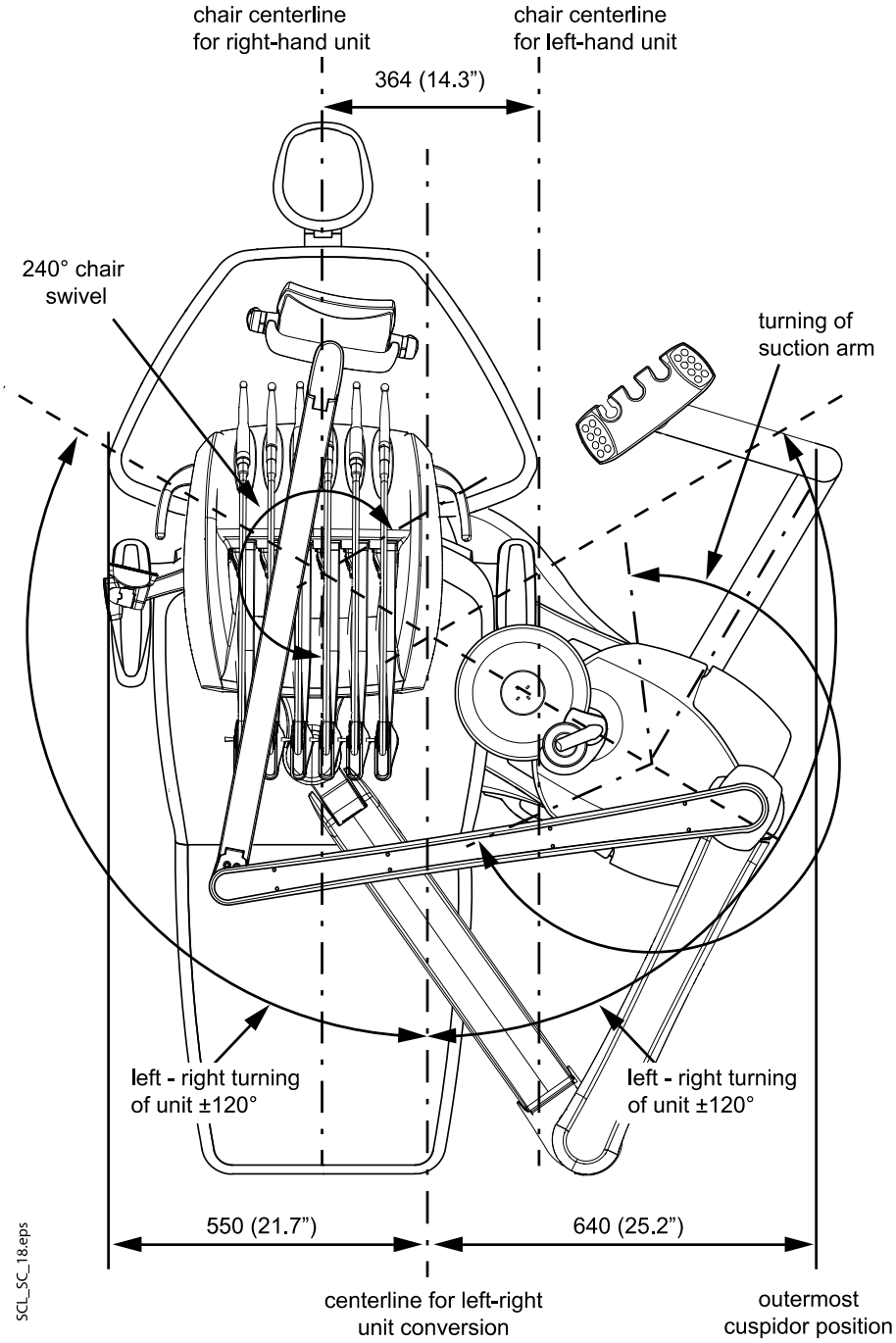
Optimal space requirements

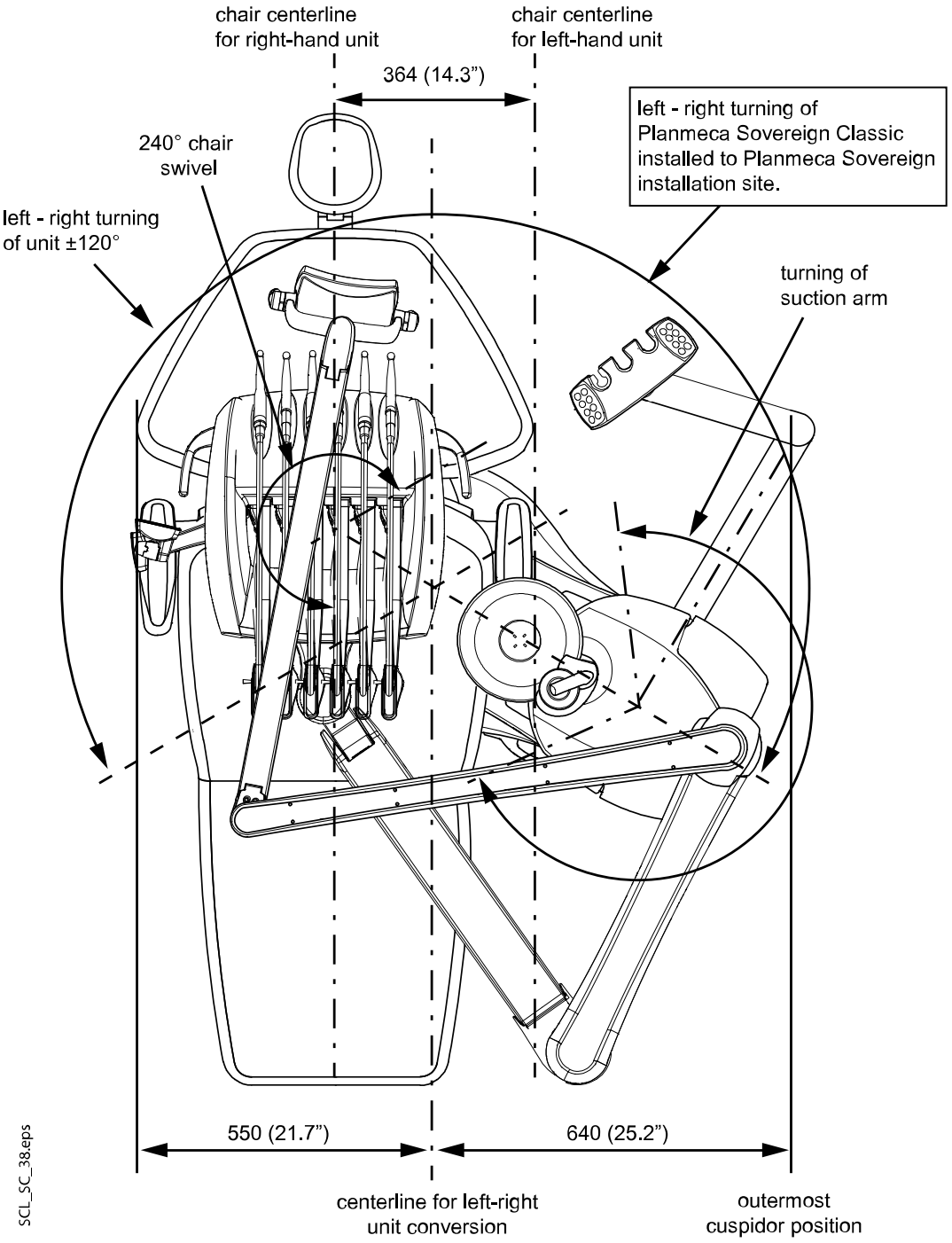


34.2.5 Side view



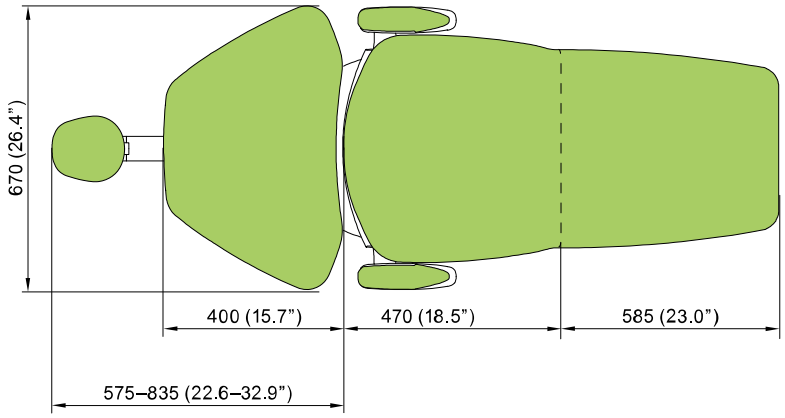
34.2.6 Top view




chair centerline
for right-hand unit
chair centerline
for left-hand unit
364 (14.3”)
left - right turning of
Planmeca Sovereign Classic
installed to Planmeca Sovereign
installation site.
240° chair
swivel
left - right turning
of unit ±120°
turning of
suction arm
550 (21.7”)
640 (25.2”)
centerline for left-right
unit conversion
outermost
cuspidor position
SCL_SC_38.eps

34.2.7 Patient chair

Adaptive legrest



Automatic legrest

35 Certifications

35.1 CE

Hereby, Planmeca Oy declares that the radio equipment type PlanID™ is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available upon request.

35.2 EU Declaration of Conformity for PlanID RFID-reader

Hereby, Planmeca Oy declares that the radio equipment type PlanID™ is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available upon request.

35.3 EAC Declaration of Conformity for PlanID RFID-reader

This device has been tested to comply with the applicable standards. The full text of the EAC declaration of conformity is available upon request.

If an operational failure of the device is detected, consult your local Planmeca dealer for assistance.

For date of manufacture of the device please see type label on device.

35.4 FCC Class B Notice for wireless foot control

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Modifications: Any modifications made to this device that are not approved by Planmeca may void the authority granted to the user by the FCC to operate this equipment.

35.5 FCC Class B Notice for PlanID RFID-reader

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Modifications: Any modifications made to this device that are not approved by Planmeca may void the authority granted to the user by the FCC to operate this equipment.

35.6 Industry Canada (IC) Compliance Statement

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

(1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

35.7 Industrie Canada (IC) Déclaration de conformité

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

(1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

35.8 RF Exposure

This device has been tested for compliance with FCC RF exposure limits in a portable configuration. At least 15 cm of separation distance between the PlanID device and the user's body must be maintained at all times. This device must not be used with any other antenna or transmitter that has not been approved to operate in conjunction with this device.

PLANMECA

Planmeca Oy | Asentajankatu 6 | 00880 Helsinki | Finland

tel. +358 20 7795 500 | fax +358 20 7795 555 | sales@planmeca.com | www.planmeca.com