PLANMECA

Planmeca Pro50™

EN

user's manual

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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Table of contents

1 Introduction

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

This manual is valid for software revision 1.1 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 Medical Device Regulation (EU) 2017/745, RoHS, REACH and WEEE.

BASIC UDI-DI (Global Model Number): 6430035420225M

All button illustrations indicate that the button on the touch screen 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 Intended use

1.1.1 Indications for use

Planmeca Pro50 is a Planmeca dental unit. The system is intended for use in dental care medical operations. The system is to be used by authorised professionals within the scope of his/her education, training and experience.

The system provides the dental practitioner a motorised patient chair, dental instruments and suction system for removal of bodily fluids.

Intended patient population

Age	Both children and adults, no specific age limitations
Weight	Less than or equal to 185 kg + 15 kg accessories

Intended healthcare user

Education	Dental care professionals

Intended service user

Education	Planmeca authorised dental unit service and maintenance professionals

1.1.2 Contraindications

There are no known contraindications other than the patient weight limit.

2 Associated documentation

The Planmeca Pro50 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 unit.

- Technical manual

  For service personnel. Gives instructions for service situations.

- Installation manual

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

  NOTE

  Use the installation template included in the delivery to position the dental unit correctly in the treatment room. A 1:1 installation template (30056190) can be downloaded from Planmeca One.

- Installation quick guide

  For service personnel. Gives illustrated instructions for installing the dental unit.

- Wiring diagram (30025192)

  For service personnel.

- Fluid and pneumatic diagrams (D0020755)

  For service personnel.

- AC 166 GSTPF-GBUPF socket assembly instructions (30042821)

  For service personnel.

- Planmeca Pro50 dental unit IEC 62353 measurements (D0020966)

  For service personnel. Contains electrical safety measurements that must be performed after installation and electrical parts replacement, and during annual maintenance.

- Approved device combinations for Planmeca dental units (30062063)

  Lists instruments and equipment approved by Planmeca that may be connected to the Planmeca Pro50 dental unit.

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 manuals:

- 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 user's manuals are also available in the Planmeca Material bank > Manuals > Dental units.

The installation and technical manuals are also available in Planmeca One > Documents and downloads > Documents.

Before using surface disinfectants or upholstery 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 Product registration

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

Read the QR code on the dental unit with a QR code reader to enter the registration website, or navigate to the registration website www.planmeca.com/register/ in your Internet browser. Follow the instructions on the website to register your dental unit.

To find the QR code on your dental unit:

1. Open the *Dental unit* view.

2. Press **Settings menu**.

3. In the Settings menu, press *Registration*. The QR code view opens.

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.

The expected service life of this Planmeca dental unit as defined in standard IEC 60601-1 is 10 years.

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 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.

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

6 Symbols

6.1 Symbols on product labels

Fulfils the requirements of Medical Device Regulation (EU) 2017/745.

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

Manufacturer (Standard ISO 15223-1).

Date of manufacture (Standard ISO 15223-1).

Reference (Standard ISO 15223-1).

Serial number (Standard ISO 15223-1).

Medical Device (Standard ISO 15223-1).

Type B applied part (Standard IEC 60417).

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

On/Off switch (Standard IEC 60417).

Alternating current (Standard IEC 60417).

Consult electronic instructions for use (Standard ISO 15223-1).

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

General warning (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.

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

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

No access for people with active implanted cardiac devices (Standard ISO 7010).

Use by date (Standard ISO 7000).

Separate collection for electrical and electronic equipment according to Directive 2012/19/EU (WEEE).

IPX1 Protected against dripping water (Standard IEC 60529).

Protective earth (ground) (Standard IEC 60417).

Radio certification label (Japanese Radio Law).

Universal Serial Bus (USB) ports.

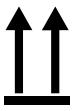
Polymerisation light.

Multifunction syringe (air-water).

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

6.2 Symbols on package

Stack height



This way up (Standard ISO 7000).

Fragile; handle with care (Standard ISO 15223-1).

Keep dry (Standard ISO 15223-1).

Temperature limit (Standard ISO 15223-1).

Humidity limitation (Standard ISO 15223-1).

Atmospheric pressure limitation (Standard ISO 15223-1).

General symbol for recovery/recyclable (Standard ISO 7000).

7 For your safety

7.1 Safety precautions

WARNING

No modification of this dental unit is allowed.

WARNING

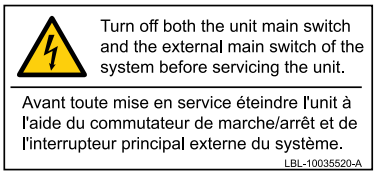
Do not make any unauthorised repairs or modifications to the system software or hardware. This includes installing unauthorised software, or altering or bypassing any safety switches or mechanisms. Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

WARNING

Only instruments or equipment approved by Planmeca may be connected to this dental unit. Refer to document *ME EQUIPMENTS forming ME SYSTEMS*, available from Planmeca Material bank > Manuals > Dental units.

WARNING

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.)

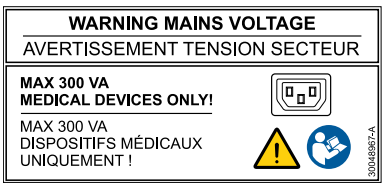


WARNING

The mains power supply has capacitors that remain charged with dangerous voltage. Wait one hour after disconnection before operating the mains power supply.

WARNING

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.



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.

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 parts inside the unit, always switch the unit off.

CAUTION

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

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

Monitor the patients and their physical condition at all times during treatment to promote infection control and to prevent the patients from acting in a way that would cause injury to themselves or breaking of the unit.

CAUTION

When the dental unit is used in conjunction with other equipment that can move, make sure that no harm is caused by trapping between the dental unit and other equipment.

CAUTION

The patient must not drink the procedural water. Procedural water may contain harmful substances.

CAUTION

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

CAUTION

Drops of water on the touch screen might disturb the functioning of the screen.

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 4 minutes.

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 3rd party equipment that is not part of the Planmeca ME system, read the equipment manufacturer's own documentation regarding safety. To avoid interference with dental unit functionalities, lock the dental unit's touch screen or switch off the dental unit when using such 3rd party equipment.

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

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, a notification is issued. 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.

NOTE

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

NOTE

In addition to the Planmeca dental unit's technical requirements, national regulations concerning the quality of dental water and dental air must be followed when using the Planmeca dental unit.

NOTE

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

NOTE

If your dental unit is not equipped with an internal water/waterline cleaning system, you must connect the dental unit to an external water/waterline cleaning system. The waterlines must be regularly cleaned and disinfected due to risk of infection. The use of any other waterline disinfectant than instructed here, or the use of an external waterline cleaning system is the operator's sole responsibility.

NOTE

The user must monitor the microbial load of the water used by the dental unit. The water supply must fulfil local drinking water quality requirements at all times.

NOTE

If using air abrasives with the air polisher, 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

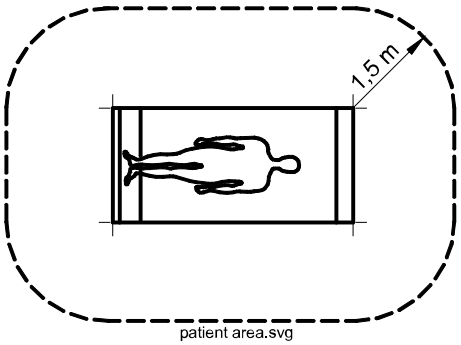
EMC requirements have to be considered, and the equipment must be installed and put into service according to the specific EMC information provided in the accompanying documents.

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.

NOTE

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.

7.2 Safety mechanisms

Stop plate and safety switches

When driving the patient chair from one position to another care should be taken. Obstructions in the patient chair's line of movement activate safety features or safety switches that stop the motorised movements. When the chair stops, a sound indication is given.

The safety mechanisms and their functions are described below.

1. Bowl

   The bowl has a safety feature that stops upward chair movements when the bowl is above the patient chair. Move the bowl into home position to resume normal operation.

2. Backrest safety switch

   An obstruction under the backrest prevents the chair and backrest from being driven downward. Remove the obstruction to resume normal operation.

3. Suction arm safety switch

   An obstruction under the suction arm prevents the chair and backrest from being driven downward. Remove the obstruction to resume normal operation.

4. Chair bottom safety switch

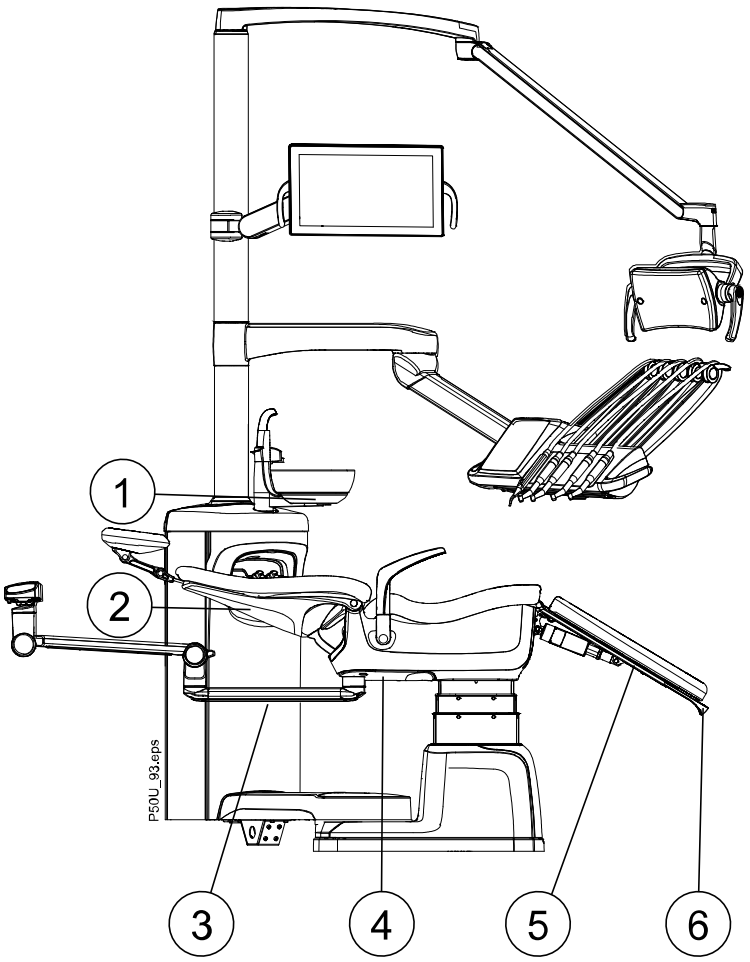
   An obstruction between the chair and the floor stops downwards chair and backrest movements. Remove the obstruction to resume normal operation.

5. Legrest safety switch

   An obstruction between the legrest and the floor or chair stops downward chair movements. Remove the obstruction to resume normal operation.

6. Legrest extension safety switch

   An obstruction between the legrest extension and the floor stops downward chair movements. Remove the obstruction to resume normal operation.



Safety nut on chair motors

The chair lift motor, backrest motor and legrest motor feature a safety nut that supports the chair load in the event of a main nut breakdown. The safety nut allows the motor to function, but only to lower the load; thereby signalling that repair is required.

In the event of a motor breakdown, immediately stop using the dental unit and contact your local Planmeca dealer.

7.3 Stopping chair movements quickly

The chair movements can be stopped quickly by:

- pressing the backrest upwards,
- pressing the chair's stop plate upwards,
- lifting the legrest upwards,
- touching anywhere on the instrument console touch screen,
- touching anywhere on the Planmeca Halo touch screen (if equipped)
- pressing any chair button on the Flexy holder,
- pushing any of the chair driving knobs on the foot control, or by
- pressing the handle of the foot control.

7.4 Reporting serious incidents

Serious incidents that have occurred in relation to the equipment must be reported to the manufacturer and the local competent authority.

8 MSO and ME Systems

Optionally, the Planmeca Pro50 dental unit is equipped with a Multiple Socket Outlet (MSO). When Planmeca Pro50 and some other medical device are inter-connected by the use of an MSO, the combination is recognised as a Medical Electrical System (ME System). ME Systems have a whole set of requirements and restrictions to consider. The rules given below help to maintain patient/operator safety and ensure compliance with the medical device regulation.

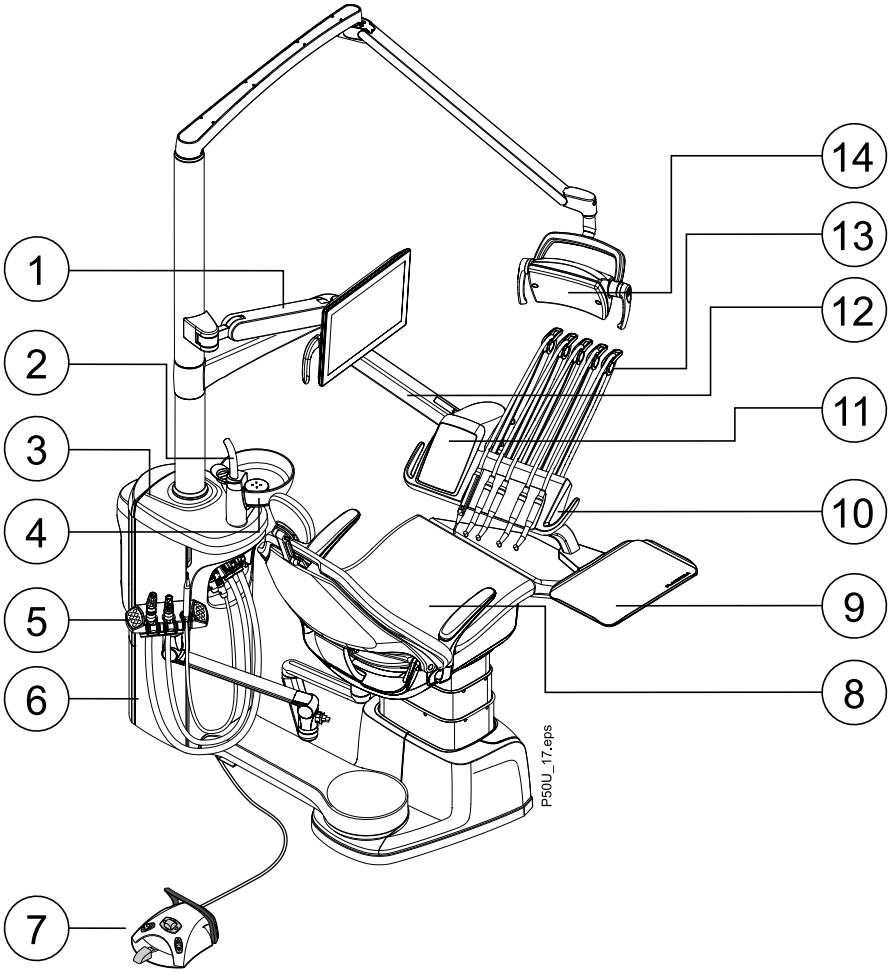
- Only Planmeca recognised devices may be connected to Planmeca Pro50. Otherwise, the organisation making the inter-connection between Planmeca Pro50 and the other device becomes the responsible manufacturer of the ME System and is responsible for the SYSTEM to comply with IEC 60601-1:ed3.2 (or later edition).
- Only one device may be connected to the MSO at a time.
- Only the device forming the ME System may be powered from the MSO.
- The device connected to the MSO shall meet safety requirements set in the standard IEC 60601-1 edition 3.1 or later.
- The maximum allowed load power is 300 VA.
- The connected device shall not feed power to Planmeca Pro50.
- The maximum cord length of the device is 1.5 m and the minimum wire cross section is 1.5 mm^2.
- It is absolutely forbidden to connect an extension cord or additional MSOs to the Planmeca Pro50 MSO.
- The cord shall be inspected before connection and use. A cord showing any marks of damage shall be replaced with an intact cord.
- Contact your local Planmeca dealer for service if the MSO is damaged or becomes loose.
- To separate the other device from the mains, disconnect the cord from the MSO.
- Never connect the cord to the MSO when the other end of the cord is detached from the device.

If given rules are not followed, patient/operator safety may be compromised and the risk of electric shock is substantially increased. All devices connected with a cord having a maximum length of 1.5 m are within the patient area and are considered as medical equipment.

9 Planmeca Pro50 dental unit

9.1 Unit configuration

9.1.1 Over-the-patient delivery with balanced instrument arms

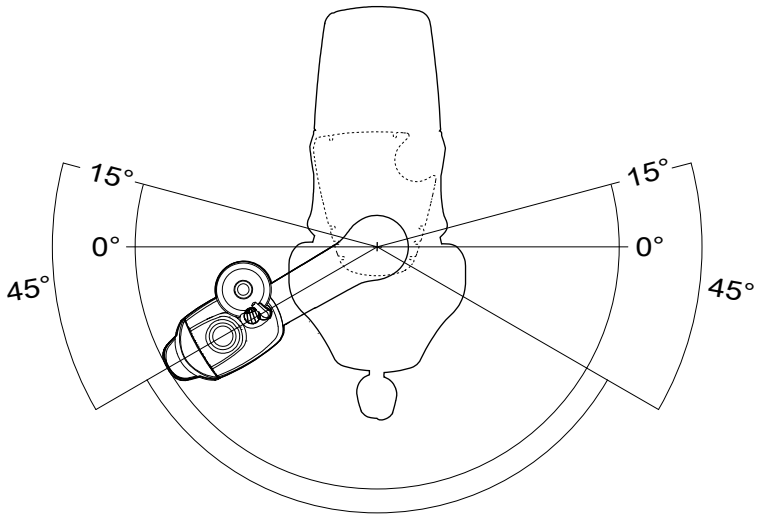


1. Planmeca Halo interactive touch screen	8. Patient chair
2. Cup fill tube	9. Tray
3. Indicator light	10. Instrument console
4. Bowl	11. Touch screen
5. Flexy holder	12. OP delivery arm
6. Cuspidor	13. Balanced instrument arms
7. Foot control	14. Planmeca Solanna operating light

9.2 Cuspidor placement during treatment

To ensure safe patient treatment, the cuspidor shall be placed in the areas that are 45° on each side of the patient chair during patient treatment. The safe zone is shown below.

Treatment shall not be performed when the cuspidor is in the 120° area behind the patient chair.



No patient treatment when cuspidor is in this area.

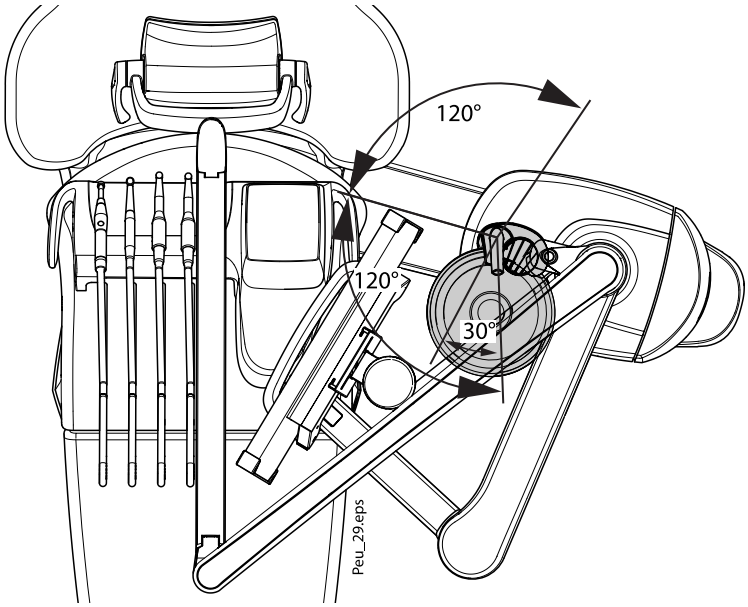
9.3 Bowl

CAUTION

After using the bowl, place the bowl in the home position and ensure that the bowl is not above the patient chair when you drive the chair upward.

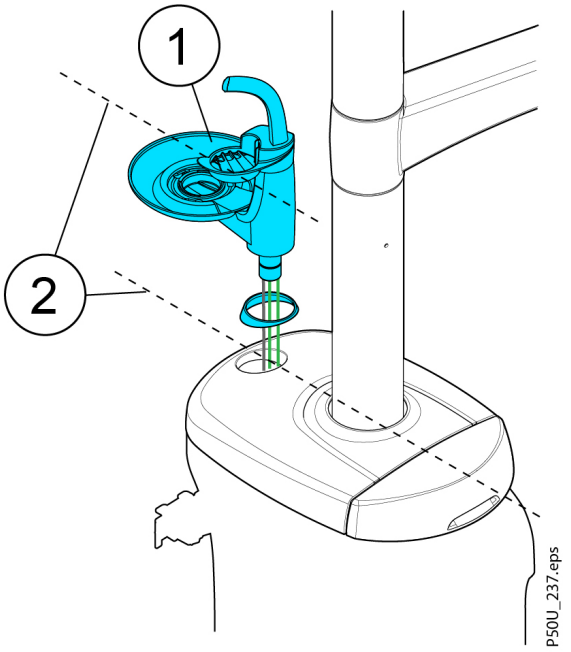
The glass bowl is attached to the top of the cuspidor.

The bowl can be rotated 240° around its axis; 120° to either side of the installation position, as shown in the picture below. In the picture, the bowl is in its home position. To avoid a collision between the patient chair and the bowl when driving the chair upward, the bowl must be positioned in the home position. The home position has an angle of 30°.



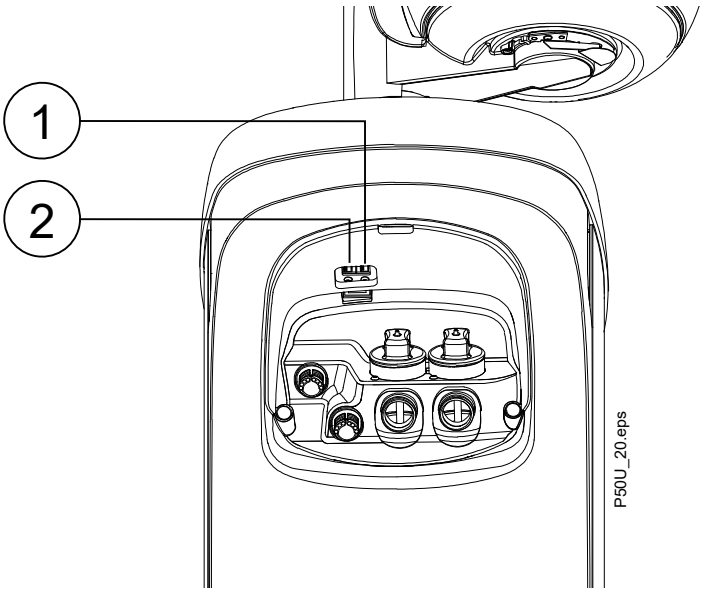
If the bowl assembly for some reason comes off the cuspidor, you can put it back as follows:

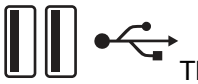
1. Place the ring to the underside of the bowl assembly
2. Push the bowl (1) downwards in a vertical position (2) so that the bowl faces away from the dental unit post. At the same time, ensure that no cables are squeezed.
3. Turn the bowl assembly to the home position. You will know that it is in place when you hear the clicking sound of the micro switch.



9.4 USB connectivity

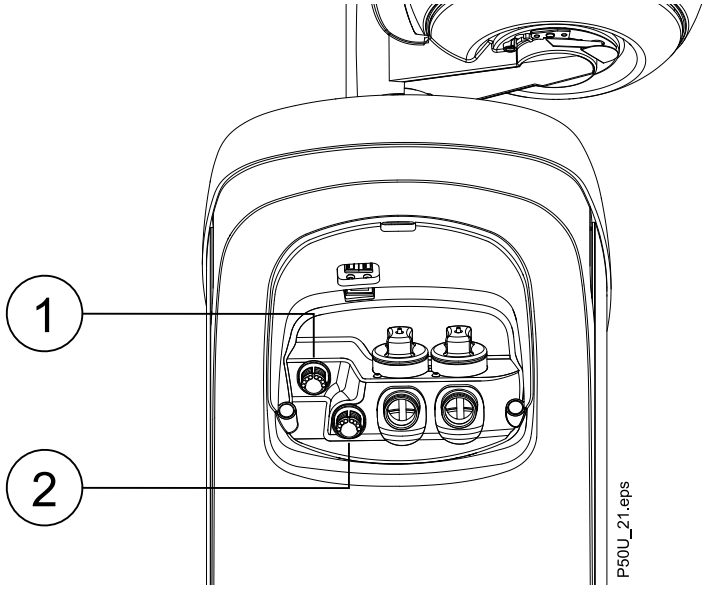
There are two optional USB ports (1 & 2) on the cuspidor. They can be used for connecting the intraoral camera or for a USB memory stick. Connect only intraoral cameras supplied by Planmeca to the USB port.




The ports are marked with a USB symbol.

9.5 Quick-connectors for assistant's instruments

The quick-connectors on the cuspidor can be used with the assistant's syringe and polymerisation light. When you connect a syringe to the quick-connector, water/air flows to the device.

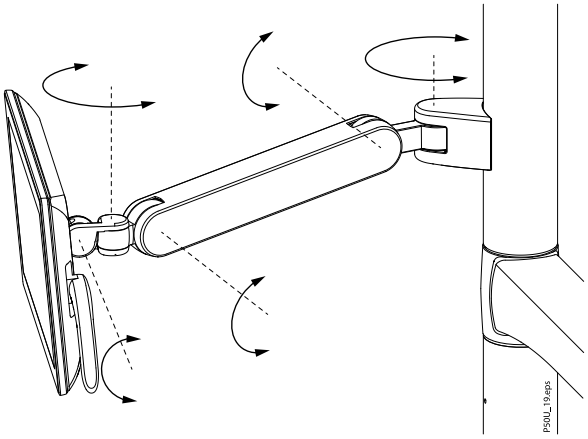


1  Quick connector for polymerisation light

2  Quick connector for assistant's syringe

9.6 Planmeca Halo

Planmeca Halo is an interactive touch screen that can be accessed by the assistant, doctor and patient. The rotation movements of the display and its arm are presented below. The items do not need to be locked into position.

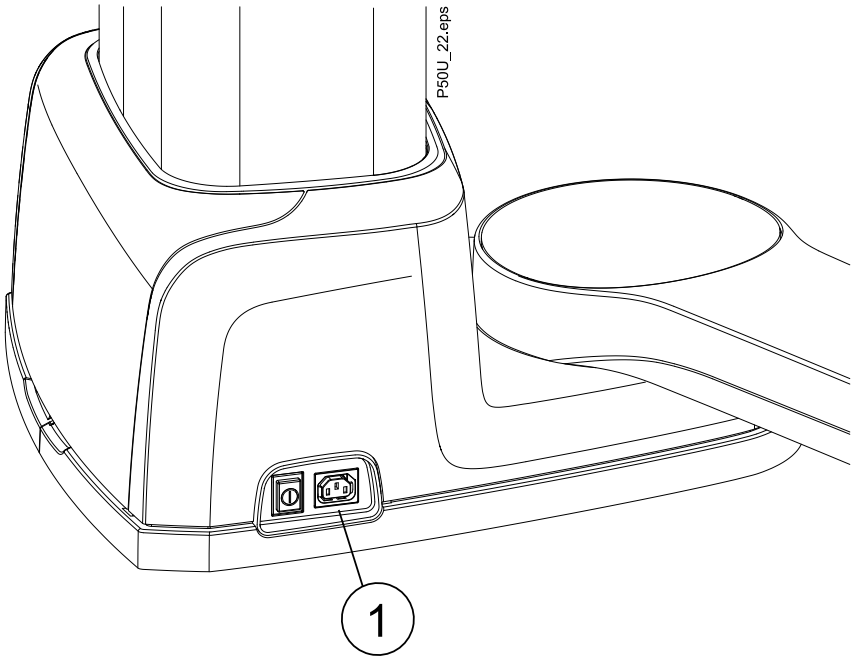


9.7 Multiple socket outlet

CAUTION

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

The multiple socket outlet for medical devices is located on the chair base.



1 Multiple socket outlet

9.8 Planmeca Romexis connection

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

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
	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 the connection is disabled (no symbol displayed on control panel), contact your Planmeca dealer.

Remote desktop function (optional)

It is possible to connect to a supported Planmeca Romexis client PC remotely. The remote desktop connection is configured by a qualified Planmeca service technician; contact your Planmeca dealer.

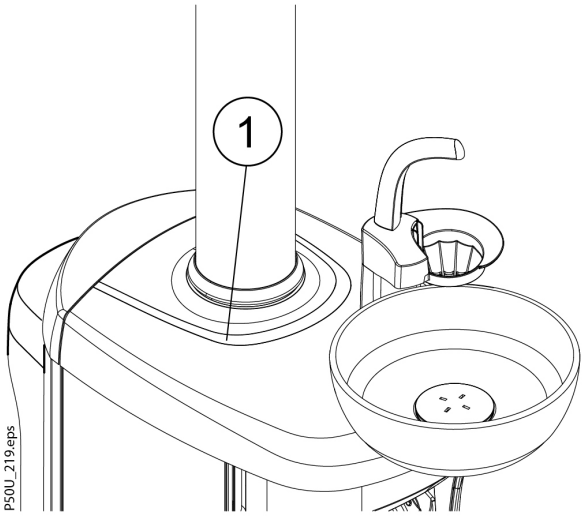
Touch screen: When the connection is enabled, you can start a remote desktop connection on the Planmeca Halo interactive touch screen by pressing the **Remote desktop** button in the *Unit functions* view. When the remote desktop connection is activated, you can control the Planmeca Romexis client PC from the Planmeca Halo interactive touch screen.

Flexy holder: The **Flexy** button can be configured so that pressing the button starts a remote desktop connection. Contact your Planmeca dealer.

10 Dental unit indicator lights

The indicator light on the cuspidor top cover (1) provides information on, for example, unit status, error situations and cleaning cycle progress at a quick glance.

The colour theme of the indicator light follows your selected colour theme on the touch screen. To switch off the indicator lights, contact your local Planmeca dealer.



The indicator light LED strip is divided into functional areas:

1. **Bowl area**

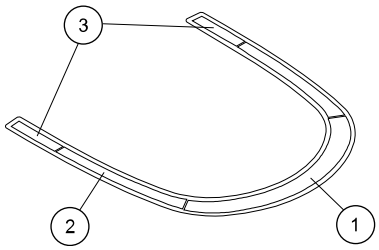
   Area closest to bowl

2. **Suction cleaning area**

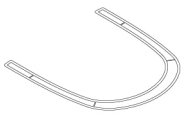
   Area above the suction cleaning door, excluding the very end of the LED strip

3. **Instrument/waterline cleaning area**

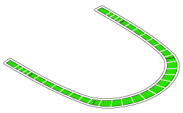
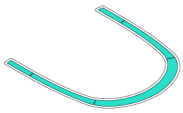
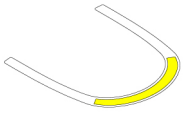
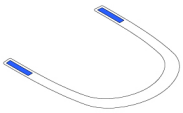
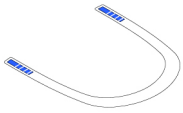
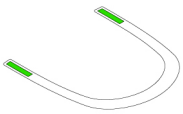
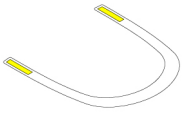
   Both ends of the LED strip



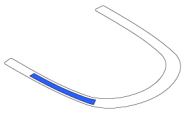
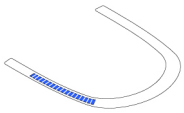
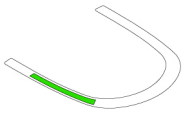
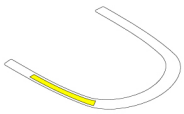
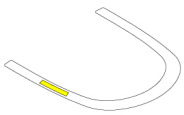
Indicator light indications

Event	Indicator light	
Dental unit off		None

Indicator light indications

Event	Indicator light	
Dental unit starting up		The green light rolls from the bowl area towards both ends of the LED strip.
Login view		Entire LED strip is in dental unit's theme colour (static).
User logged in		Entire LED strip is in dental user's theme colour (static).
Bowl out, cuspidor in danger zone, or safety circuit active		The bowl area is a static yellow when the bowl is out, when the cuspidor is not in the safe patient treatment area, or when a safety circuit is active.
Instrument/waterline cleaning is starting		Static blue in instrument/waterline cleaning area.
Instrument/waterline cleaning is running		Rolling blue in instrument/waterline cleaning area.
Instrument/waterline cleaning is ready		Static green in instrument/waterline cleaning area.
Problem with instrument/ waterline cleaning		Static yellow in instrument/waterline cleaning area.

Indicator light indications

Event	Indicator light	
Suction tube cleaning is starting		Static blue in suction cleaning area.
Suction tube cleaning is running		Rolling blue in suction cleaning area.
Suction tube cleaning is ready		Static green in suction cleaning area.
Problem with suction tube cleaning		Static yellow in suction cleaning area.
Fill suction disinfectant container		Narrow static yellow in suction cleaning area.

11 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*.

For instructions on how to program the operating light, see section *Planmeca Solanna operating light*.

12 Instrument system

12.1 Over-the-Patient (OP) delivery arm

The Over-the-Patient (OP) delivery arm is attached to the top of the dental unit and swings over the chair.

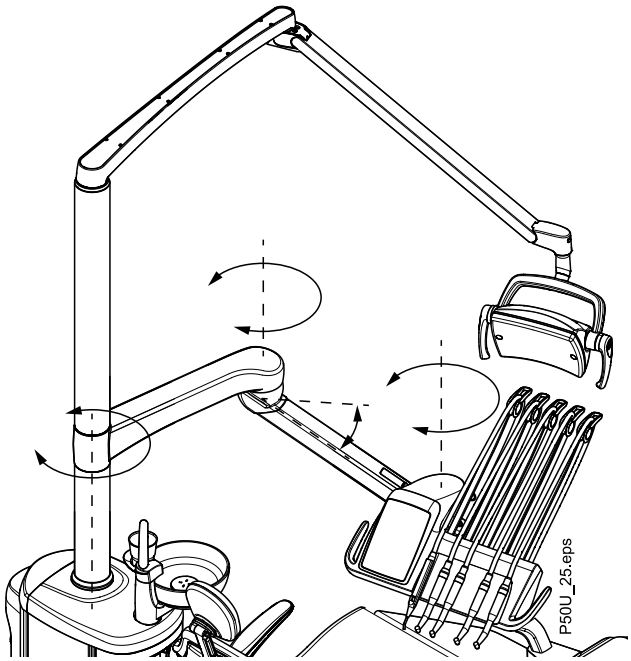
CAUTION

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.

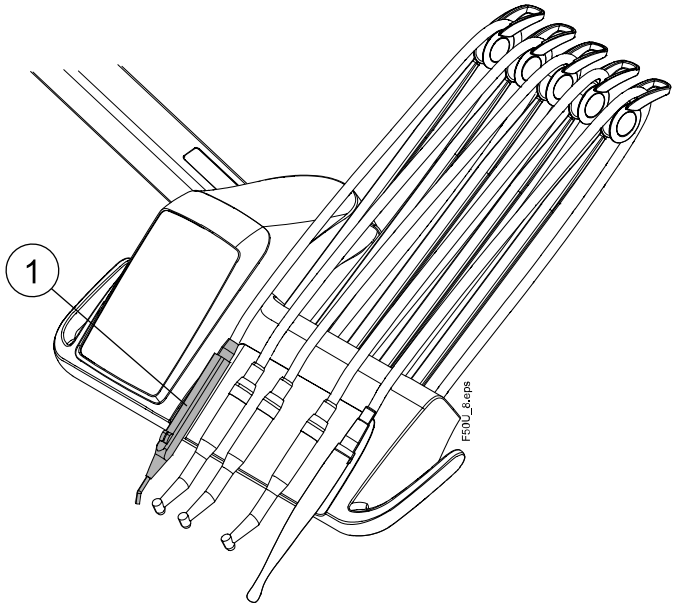
The instrument console can be positioned using the handles on the console. The rotation area of the delivery arm is presented below. The items do not need to be locked into position.



12.2 Instrument console

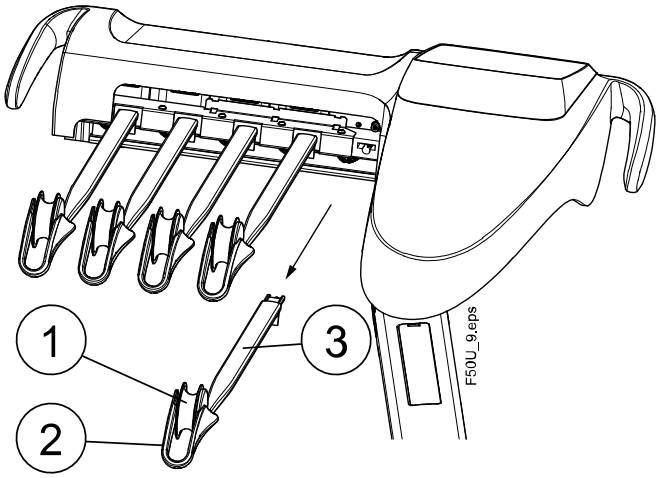
The console can be equipped with up to five instruments.

The leftmost position is reserved for the syringe only. The other instruments can be positioned in any order in the four remaining positions.



1 Syringe

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.

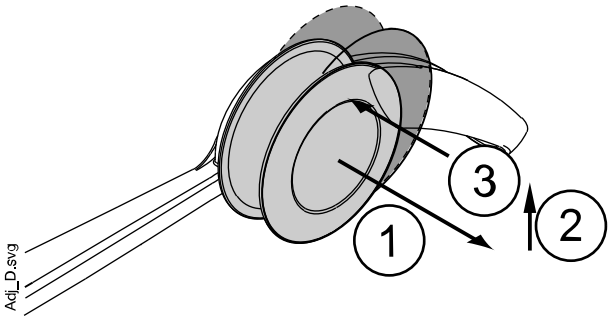


1 Roller
2 Hose guide
3 Instrument arm

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



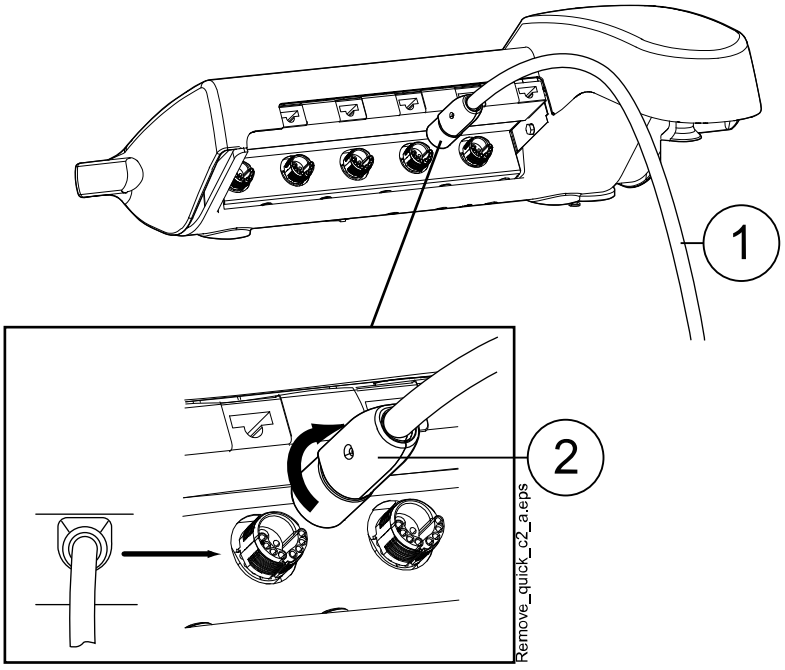
NOTE

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

12.3 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.

The hose is connected into place by turning the connector locker clockwise, and removed by turning the connector counter-clockwise. Make sure that the flat side of the connector is upward when connecting the quick-connector hose to the dental unit.



1. Instrument hose
2. Quick-connector

Switch the unit off before opening the quick-connectors. When disconnecting the syringe, empty the water and air from the hose before opening the connector.

The instrument location on the instrument console can be changed simply by removing the instrument with its hose and reconnecting it to the new slot. The user-specific settings of all instruments that have been used in

a particular slot are stored in the memory, and are recalled when the instrument is reconnected into that slot. If an instrument is moved into a new slot that it has not previously been connected to, the edited settings from the old slot are not available in the new slot.

NOTE

Make sure that the hoses are properly connected 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.

12.4 Instrument functions

The instrument console has five instrument positions. You can set each instrument so that the following functions will, where applicable, either be on or off when the instrument is active (i.e. picked up from the instrument console):

- instrument spray
- automatic chip blow
- instrument light
- reverse rotation (micromotors)
- quickstart (air driven instruments)
- instrument speed/power limitation
- RPM limit (micromotors)
- torque limit (micromotors)

The type or magnitude of the following functions can be adjusted:

- instrument spray
- automatic chip blow
- instrument light
- instrument speed/power reduction
- torque limit

For information on how to edit the instrument settings, see section "Editing dental unit and instrument settings" on page 129.

12.5 Trays

12.5.1 Quick-connect tray

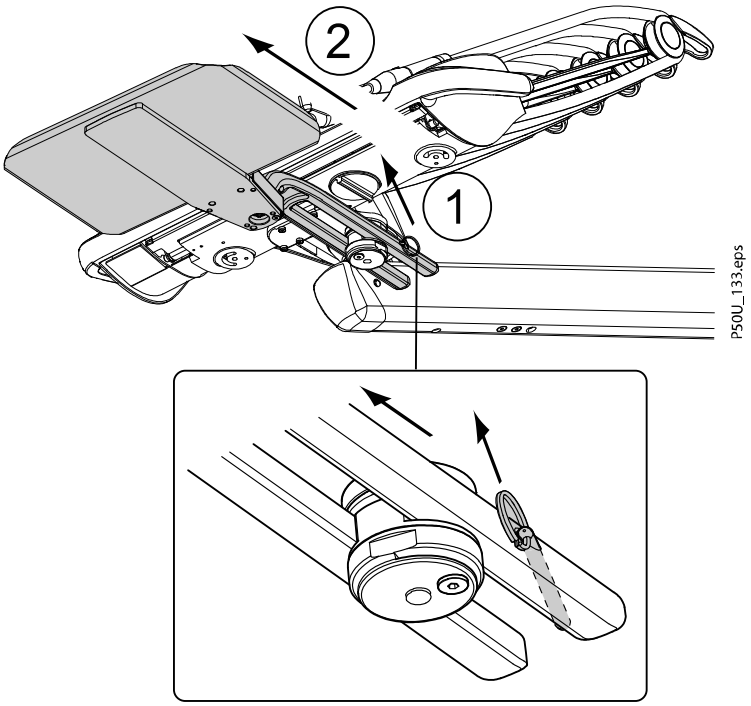
CAUTION

Strong magnet. Remove the tray assembly when treating patients who have a cardiac pacemaker.

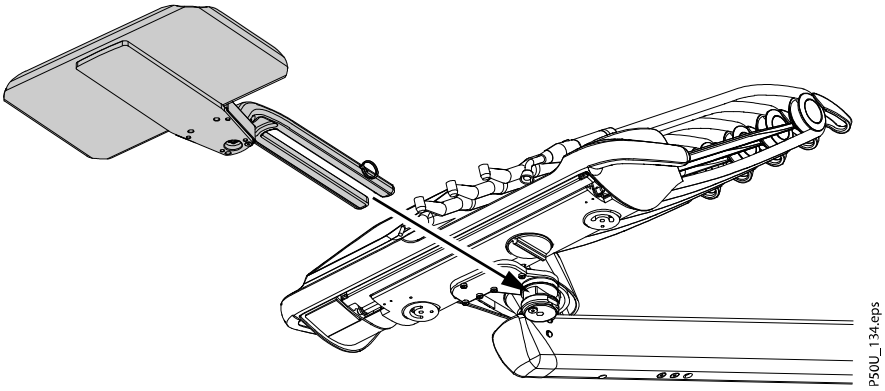
The quick-connect tray is available for the instrument console with balanced instrument arms.

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

The tray mounting arm is attached to the instrument console with a quick-connector. To remove the tray assembly from the instrument console, pull the ring of the locking mechanism outwards (1) and then 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.



12.6 Sterile water system

12.6.1 Introduction

Before using the sterile water bag and the sterile water tube, read the manufacturer's documentation.

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.

NOTE

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

12.6.2 Setting up sterile water system

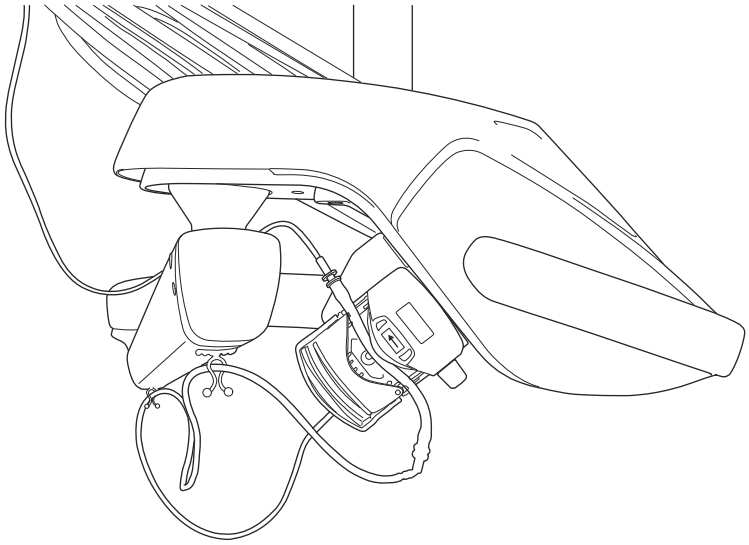
About this task

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.

Steps

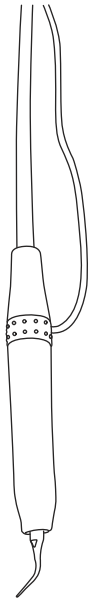
1. Hang the sterile water bag on the holder.
2. Open the lid of the water pump and place the silicone part of the sterile water tube in the pump.

   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.



3. Close the lid of the pump.
4. Connect the sterile water tube to the sterile water bag by pushing the nozzle firmly into the opening at the bottom of the sterile water bag.
5. Route the other end of the tube to the instrument hose.

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



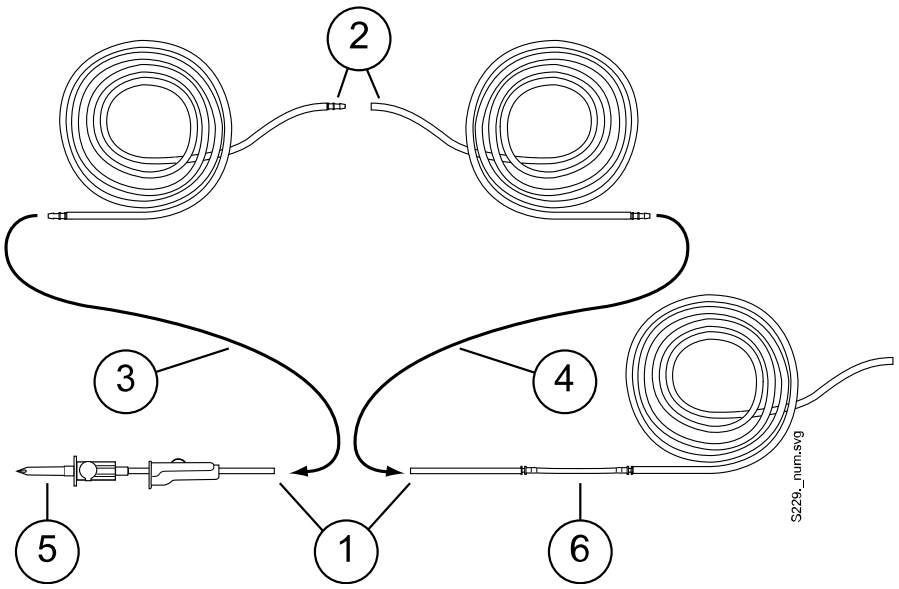
7. Attach the long end of the sterile water tube to the OP delivery arm with the clips included in the sterile water tube package.
8. Enable sterile water from the instrument spray settings as described in section "Editing instrument spray" on page 142).

12.6.3 Extending sterile water tube

If the sterile water tube is too short, you can extend it with one or two extension tubes, depending on how long a sterile water tube you need.

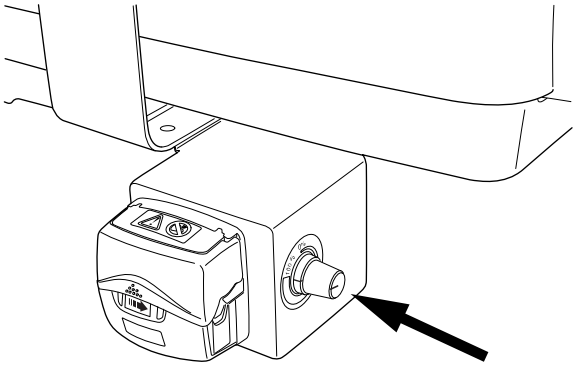
The following instructs how to join two extension tubes with the sterile water tube before routing the tube from the instrument to the sterile water bag, but note that you may well use only one extension tube, provided it gives you the required length. You may also cut the extension tube shorter, if needed.

1. Cut the sterile water tube at location marked with (1) in picture.
2. Attach the two extension tubes to each other with a tube joint (provided with extension tube pack) (2). This creates the joint extension tube.
3. Attach one end of the joint extension tube to the sterile water tube with nozzle (3).
4. Attach the other end of the joint extension tube to the sterile water tube with pump part (4).
5. This part (5) goes into the sterile water bag.
6. This part (6) goes into the pump.



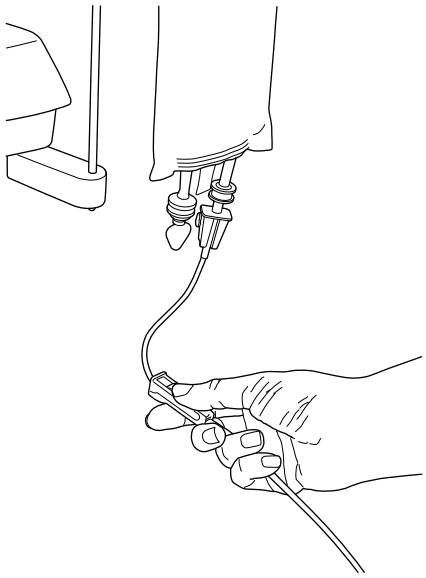
12.6.4 Adjusting sterile water flow rate

Turn the black knob on the instrument console to adjust the sterile water flow rate.



12.6.5 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.



13 Suction system

13.1 Suction arm

CAUTION

When driving the backrest down, make sure that nothing gets squeezed between the suction arm and the backrest (area marked with a warning triangle in picture below).

NOTE

Ensure that there is nothing under the suction arm when driving the chair down. Remove the obstruction to resume normal operation.

NOTE

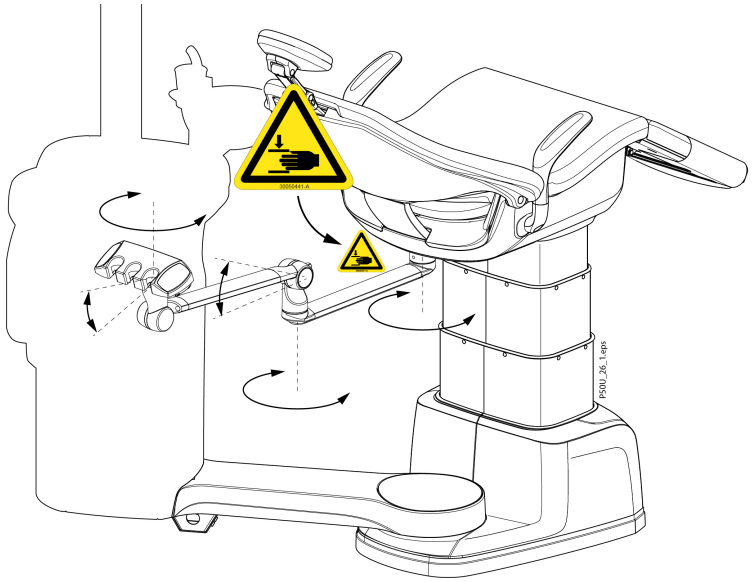
Ensure that the Flexy holder does not hit the cuspidor when driving the chair up.

NOTE

Ensure that the Flexy holder is not above the cuspidor when driving the chair down. If the chair does not move downward and an error is displayed, check that the suction arm is not in the upmost position. This arm position prevents the chair from moving downward.

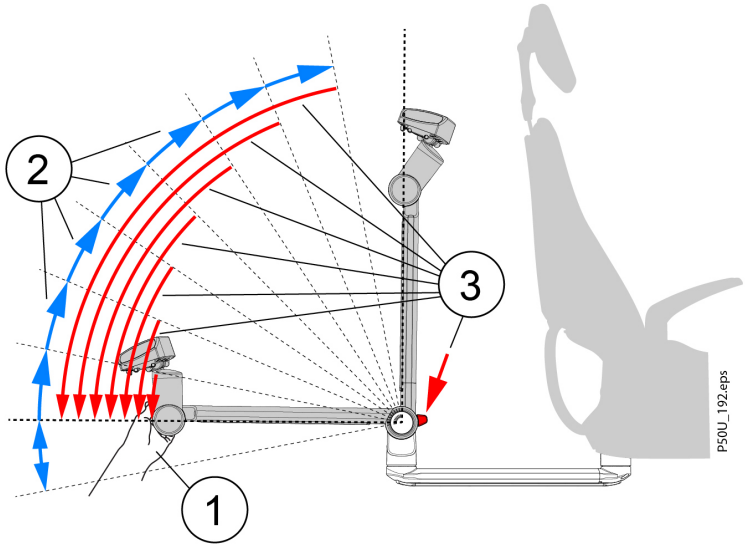
The suction arm with a Flexy suction holder is mounted to the underside of the patient chair.

The rotation movements of the suction arm and the Flexy holder are shown below.

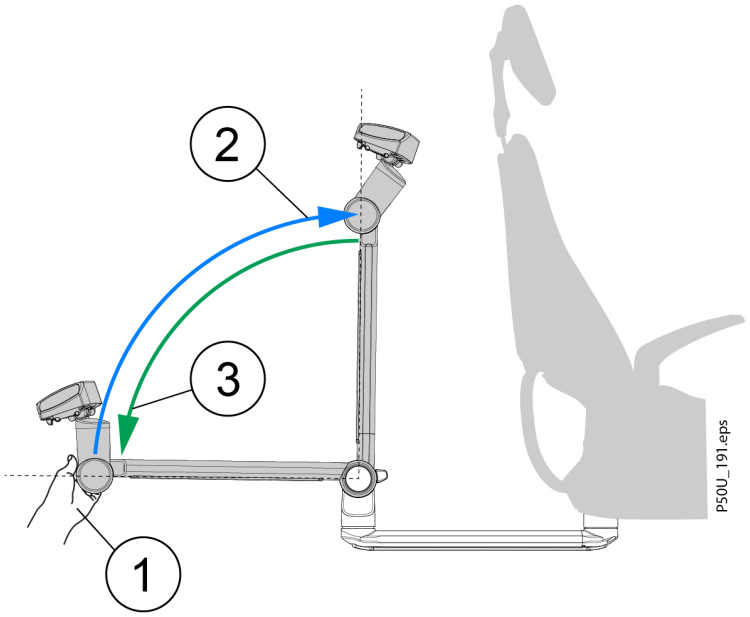


The suction arm can be tilted upward in seven steps (2). A locking mechanism keeps the suction arm in place and prevents any downward movement.

To return the suction arm to the horizontal position, lift the suction arm slightly (1) and press the release knob downward (3). Lower the suction arm in a controlled manner while supporting it with your hand. When the arm is in the horizontal position, you can lower it one more step by supporting the suction arm with your hand and pressing the release knob downward (3).



Alternatively, you can release the locking mechanism by bringing the suction arm to a vertical position (2) and then return the suction arm to the horizontal position (3) in a controlled manner while supporting the arm with your hand (1).



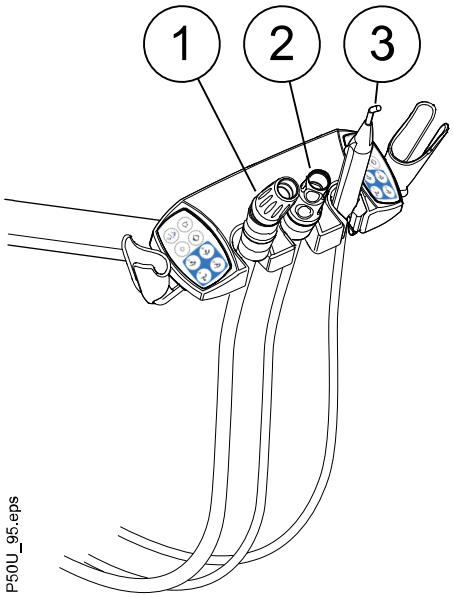
13.2 Flexy holder

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

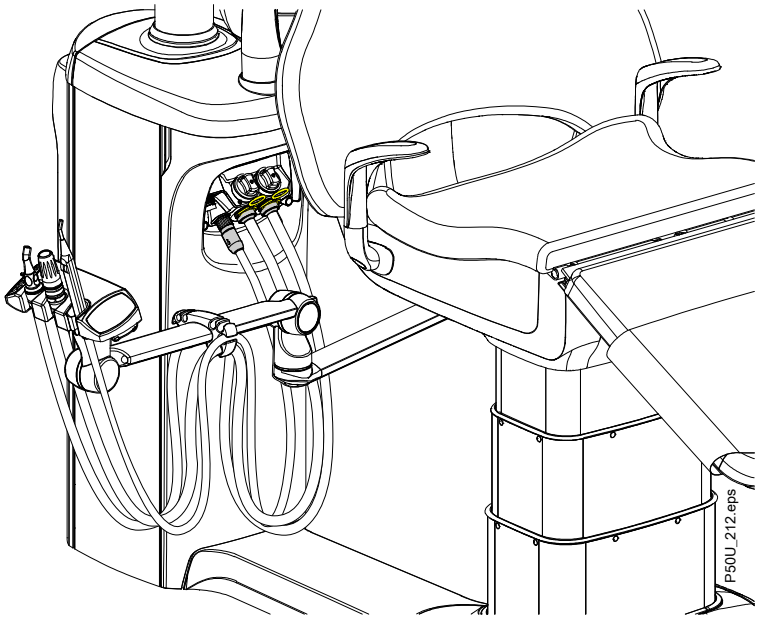
dental unit. For more information on the control panel, see section "Control panel on Flexy holder" on page 61.

The Flexy holder has three openings. The default position for the assistant syringe is the right-most opening, but a Planmeca service technician can configure it to be placed also in the left-most or middle opening. 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.



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

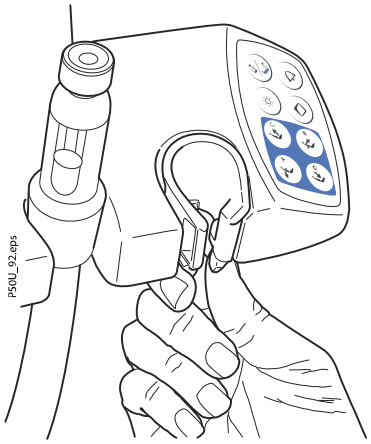
To promote hygiene and ergonomics, attach the suction tubes and instrument cables to the holder on the suction arm as shown in the picture below.



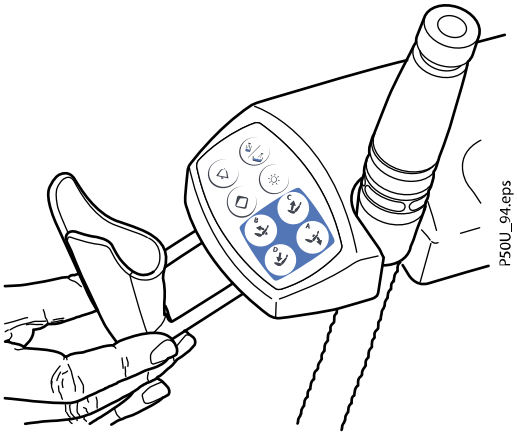
Removing holders

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

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.



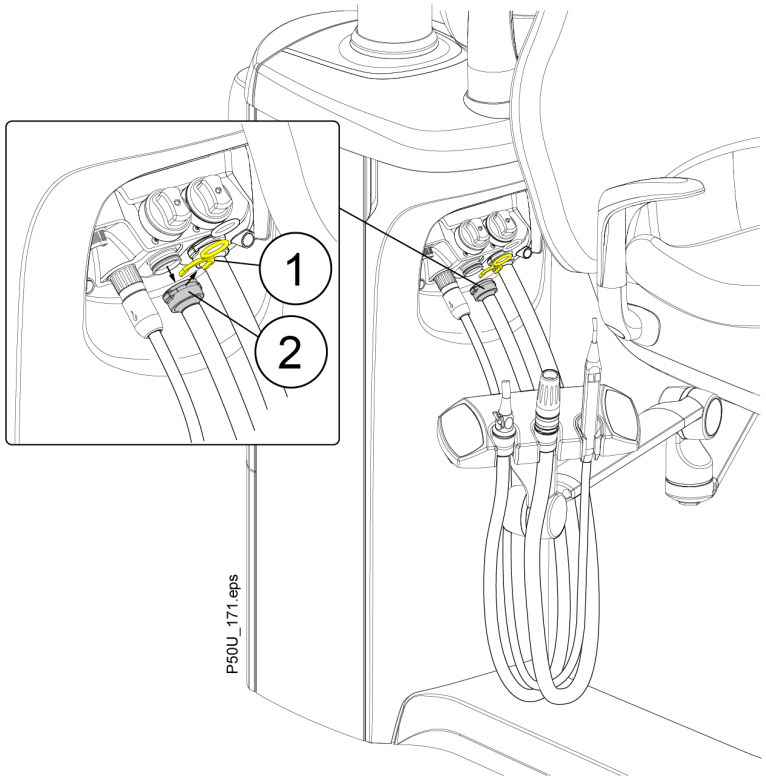
13.3 Removing and replacing suction tubes

Steps

1. To minimise contamination risk, perform suction cleaning.

   For instructions, see section "Suction flushing or suction cleaning" on page 188.
2. Remove the suction cover by pulling it out from the cuspidor.
3. Detach the securing ring (1) from the suction tube.

4. Remove the suction tube (2) from the coarse filter connector.



5. Detach the suction tubes from the tube holder on the suction arm and remove the tubes from the Flexy holder.
6. Replace the suction tubes in the reverse order.

NOTE

You can grease the connector of the new suction tube with non-toxic silicone grease to make it easier to remove.

14 Patient chair

CAUTION

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

CAUTION

The detachable legrest protection sleeve is not intended to be in contact with bare skin.

NOTE

The patient chair can be equipped with a fixed or an automatic legrest. The automatic legrest moves synchronously with the movements of the backrest, whereas the fixed legrest is fixed to one position.

NOTE

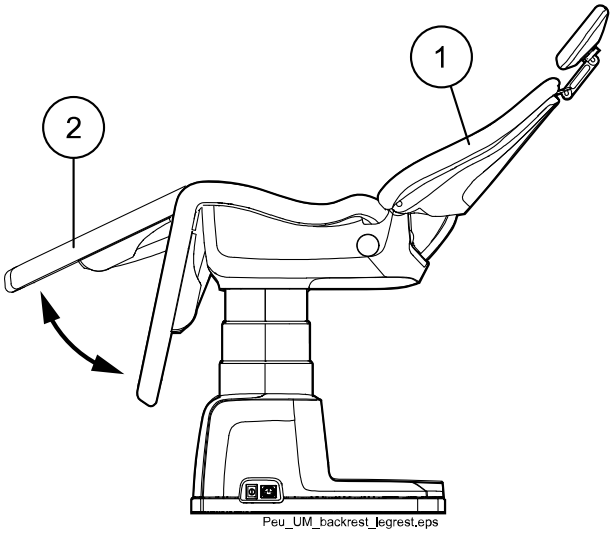
If, for example, the patient feels sick and starts to vomit while lying in the chair, you can raise the backrest quickly by pushing it up by hand from behind the backrest. Note, however, that the backrest does not stay up by itself, but must be supported the whole time and lowered in a controlled manner.

NOTE

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

14.1 Automatic legrest

The automatic legrest moves synchronously with the movements of the backrest, that is, when you drive the backrest down, the automatic legrest is driven up.



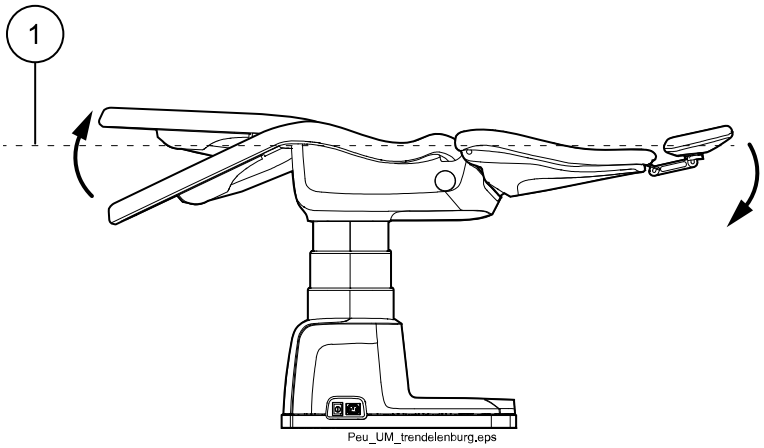
1 Backrest
2 Automatic legrest

14.2 Trendelenburg position

If required, the patient chair can be driven to the Trendelenburg position. In the Trendelenburg position the legrest is in a position of +6° from the horizontal position and the backrest is -5° from the horizontal position.

To drive the patient chair to the Trendelenburg position, first drive the backrest down as low as it goes, until it stops automatically in the horizontal position. When the backrest movement has stopped, drive the backrest down again until the patient chair reaches the Trendelenburg position.

One of the chair's automatic positions is the Trendelenburg position. When you select the Trendelenburg automatic position on the touch screen, the patient chair height is not adjusted when driving the backrest and legrest to the Trendelenburg position



1 Horizontal position

14.3 Armrests

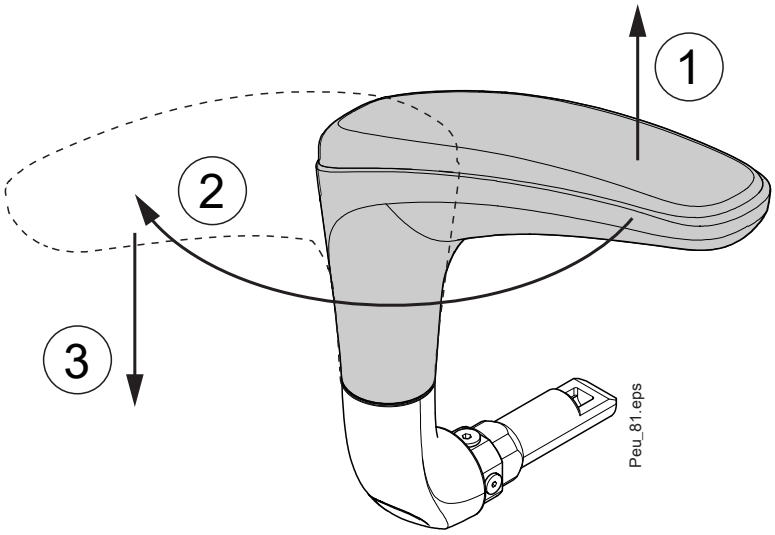
14.3.1 Turning armrests

About this task

The armrests can be turned 90° outward from their normal position.

Steps

1. Lift the armrest slightly to unlock it (1).
2. Turn the armrest 90° outward (2).
3. Press down the armrest to lock it into position (3).



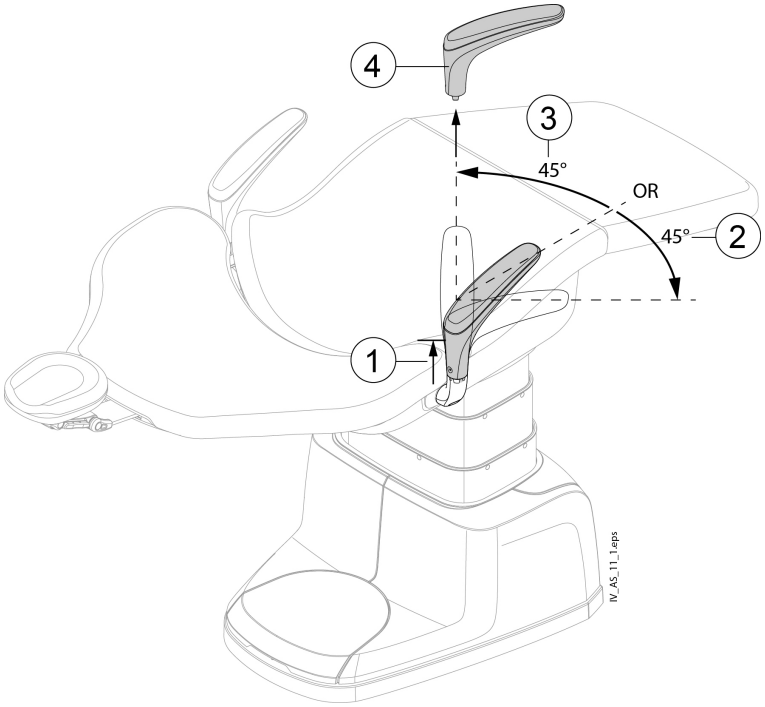
14.3.2 Removing/attaching armrest

About this task

NOTE

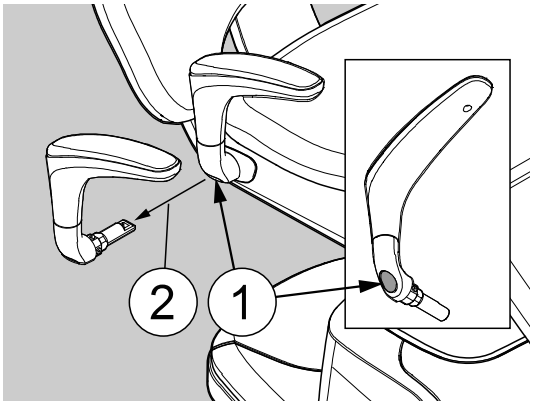
The armrests can be removed completely as described in steps 1 and 2 only if they have been installed as removable.

If the entire armrest can not be removed, you can remove the upper half by lifting the armrest slightly to unlock it and then moving the armrest horizontally to a 45° position. When the armrest is in a 45° horizontal angle, lift it straight up to remove it.

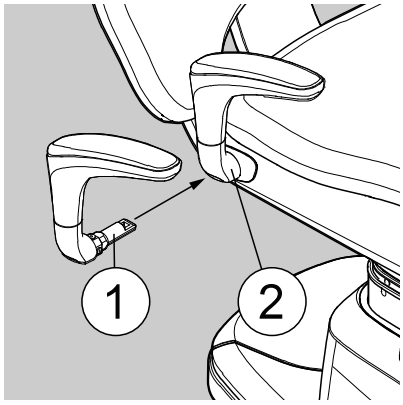


Steps

1. Remove the entire armrest by pressing the button under the armrest (1) to release the locking mechanism and pulling the armrest out from the seat (2).



2. Attach the armrest by pushing the peg (1) into the armrest opening in the seat so that the armrest locks into place (2).



14.4 IV arm support

CAUTION

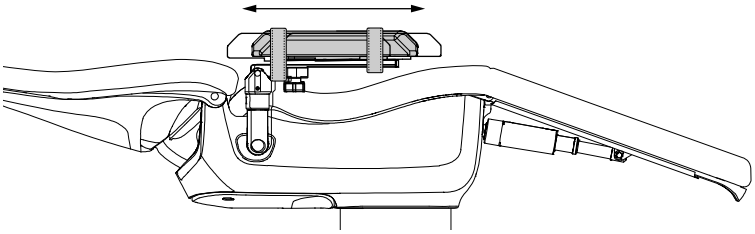
Always keep the IV arm support parallel with the patient chair when driving the chair. For safety reasons, the arm of the patient must not be strapped to the arm support when driving the chair.

NOTE

Make sure that the patient does not lean on the arm support when getting in or out of the chair.

As an option, an IV arm support is available. The arm support is designed to immobilise and support the patient's hand and wrist when intravenous therapy is given simultaneously with the dental treatment. The patient's arm can be strapped to the arm support.

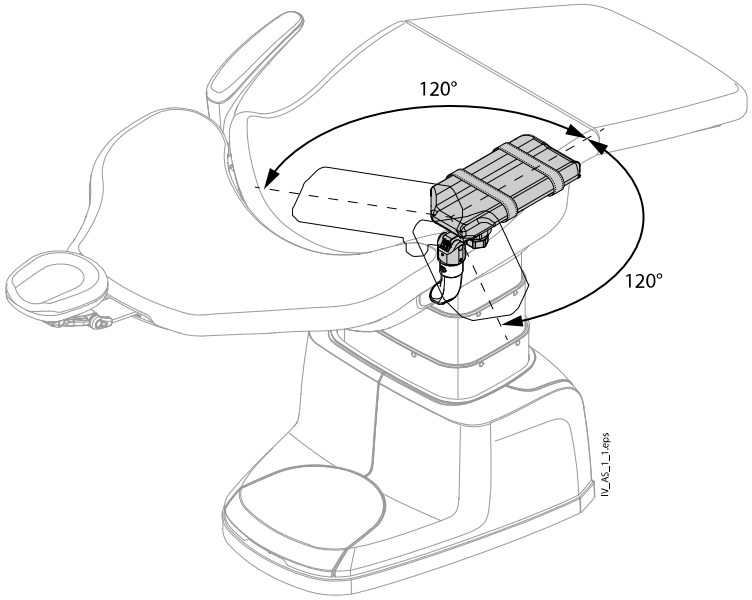
The arm support can be moved in various directions to enable an optimal positioning of the patient's arm. For example, you can move the arm support lengthwise to adapt to a longer or shorter arm.



Horizontal turning of the IV arm support has two purposes: Adjusting the support for a comfortable position depending on the shoulder width of the patient, and for giving way for the patient while exiting the chair. When adjusting the position of the support, always first set the position of the axle closer to the chair (A), and then fine tune the position by adjusting the second axle (B). While giving way for the patient, it is usually enough to only turn the arm support around the first axle (A).

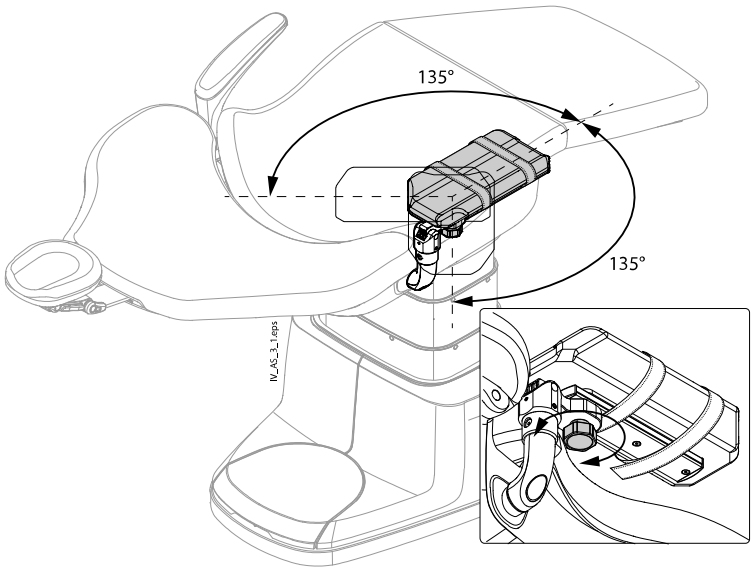
The arm support can be turned 120° in either direction from the centre position (when the arm support is parallel with the patient chair) around axle A, and this movement is controlled by friction.

Rotation around axle A



The arm support can be turned 135° in either direction around axle B. The movement around axle B is controlled by a locking wheel under the pad mechanism. Unlock the pad by turning the locking wheel under the pad mechanism counter-clockwise, then turn the arm support pad to the desired position, and finally lock the pad by turning the wheel clockwise.

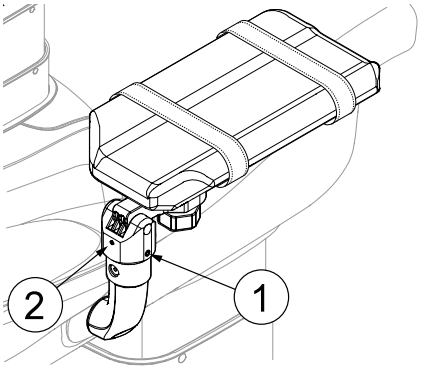
Rotation around axle B



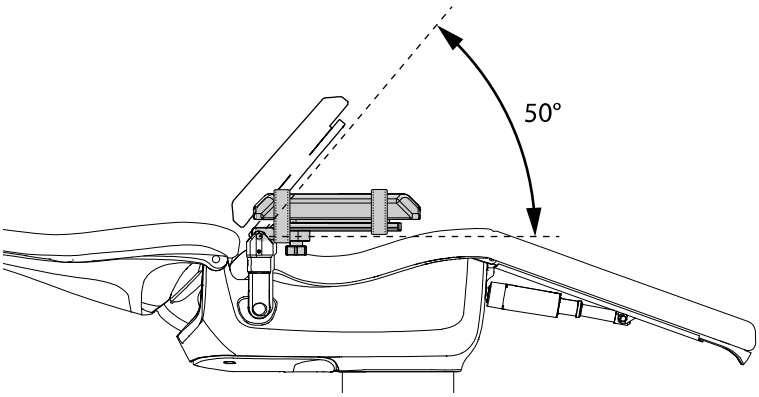
The friction of axle A can be adjusted by turning the screw (1) on the arm support holder. Tighten the screw to increase the friction and loosen the screw to decrease the friction.

NOTE

Do not touch the set screw (2).



As a safety feature, the IV arm support will bend 50° upwards, if there is an obstacle under the arm support when driving the patient chair down.



14.4.1 Attaching IV arm support

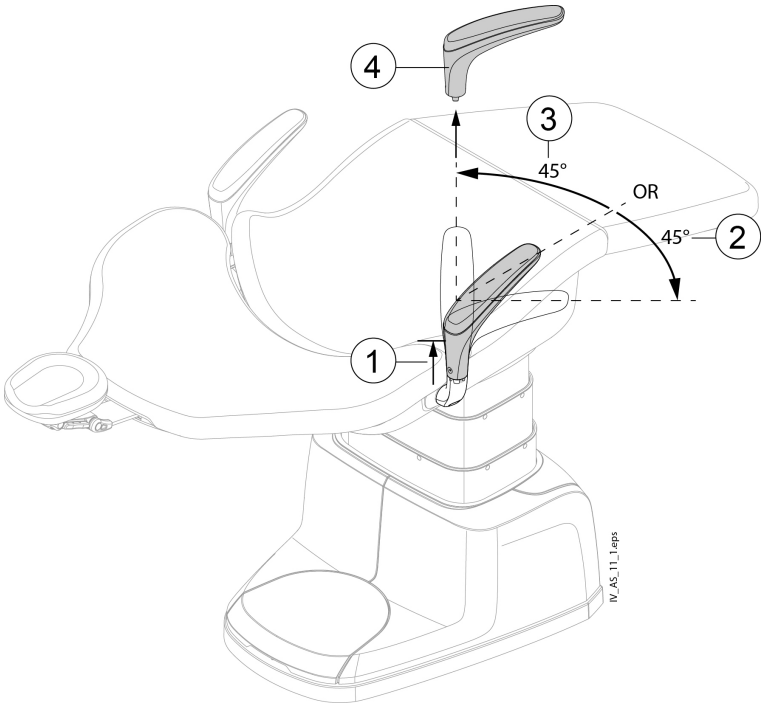
About this task

The IV arm support can be attached on both the right and left side of the chair.

Steps

1. Detach the armrest.

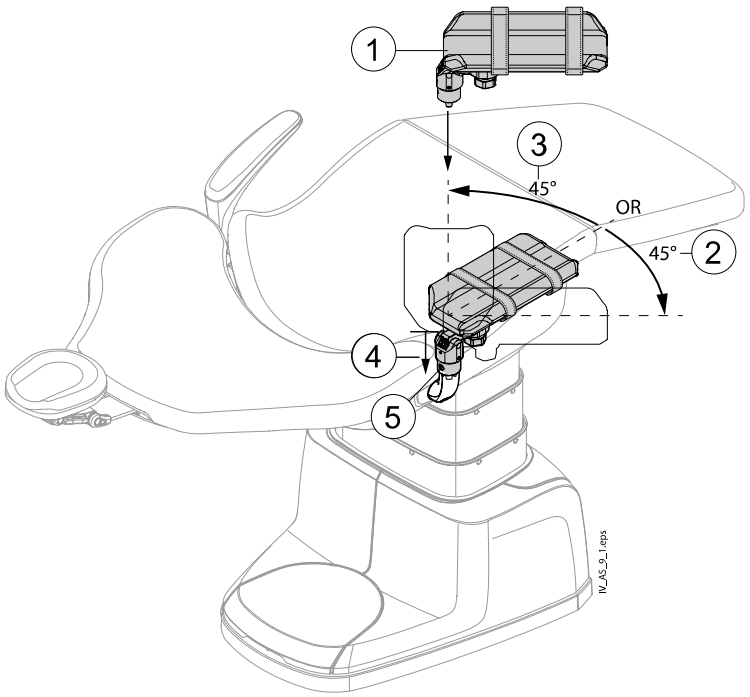
   Lift the armrest slightly to unlock it (1) and then move the armrest horizontally to a 45° position (2 & 3). When the armrest is in a 45° horizontal angle, lift it straight up to remove it (4).



2. When you have removed the armrest, place the IV arm support (1) in the spindle in the same 45° horizontal angle as you removed the armrest in. Push the arm support down (4) and rotate it so that it is parallel to the chair. Make sure the arm support locks into place.

   The IV arm support is in the correct operating position when the screw on the arm support socket points towards the back of the chair (5).

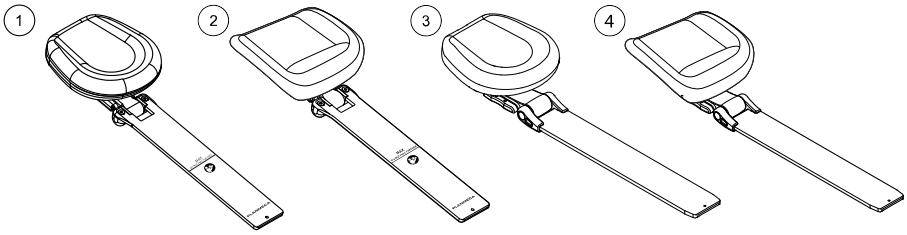
   The IV arm support is removed in the same way as the armrest. It can be removed and attached when it is in a 45° horizontal angle from the centre line (positions 2 and 3 in the picture below).



14.5 Headrest

There are two headrest options: the standard headrest and the swift headrest.

Both headrests can be equipped with either an oval or a surgical cushion.



1 Standard headrest with oval cushion
2 Standard headrest with surgical cushion
3 Swift headrest with oval cushion
4 Swift headrest with surgical cushion

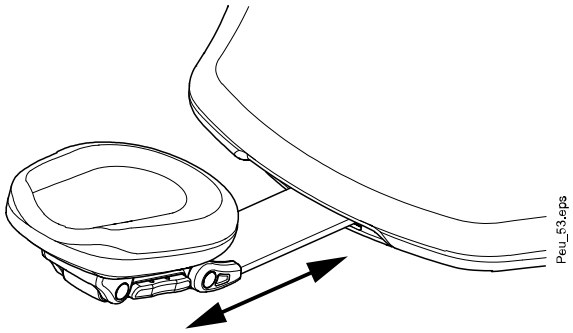
14.5.1 Adjusting height of headrest

The height adjustment is identical for the standard and swift headrest.

Slide the headrest manually to adjust the headrest height.

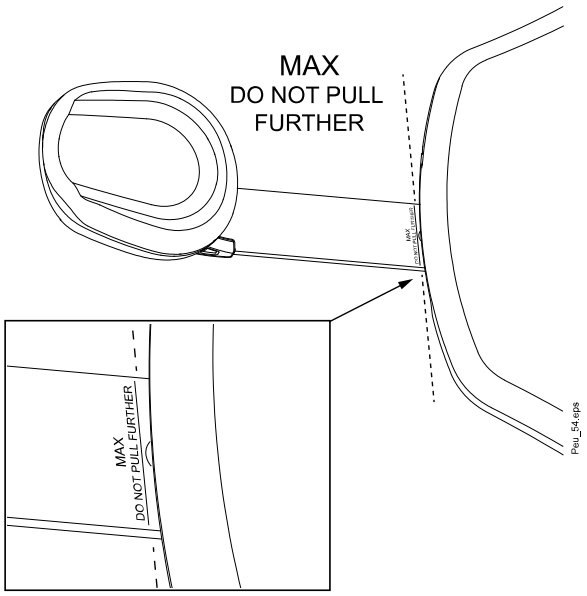
CAUTION

When you push the swift headrest towards the backrest, make sure that you are pushing the headrest arm into the backrest and not accidentally tilting up the headrest from the headrest joints.



NOTE

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



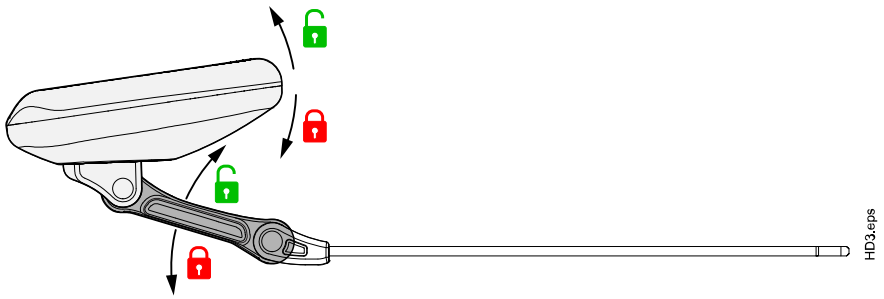
14.5.2 Adjusting headrest angle

NOTE

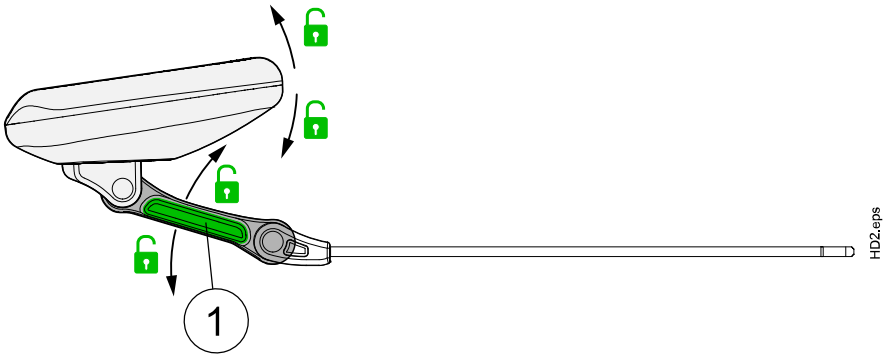
Support the headrest by hand when you adjust it.

Swift headrest

The swift headrest can be tilted upwards in steps of 8°. A locking mechanism keeps the headrest in place and prevents any downward movement.

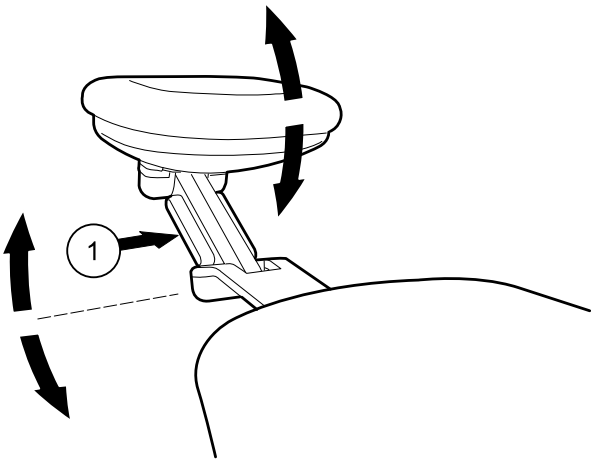


When you press the locking bar (1) on the side of the headrest support, the locking mechanism is released and you can freely adjust the headrest upwards and downwards to the required angle. Release the bar to lock the headrest in the new position.



Standard headrest

To adjust the angle of the headrest, press and hold the locking bar (1) on the side of the headrest support to release the locking mechanism. Manually set the headrest to the required angle and release the bar to lock the headrest in the new position.



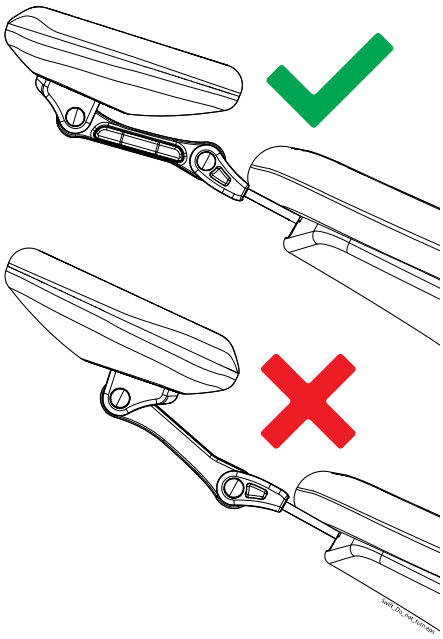
14.5.3 Adjusting headrest for children or short patients

The headrest can be adjusted for better head support for children and short patients.

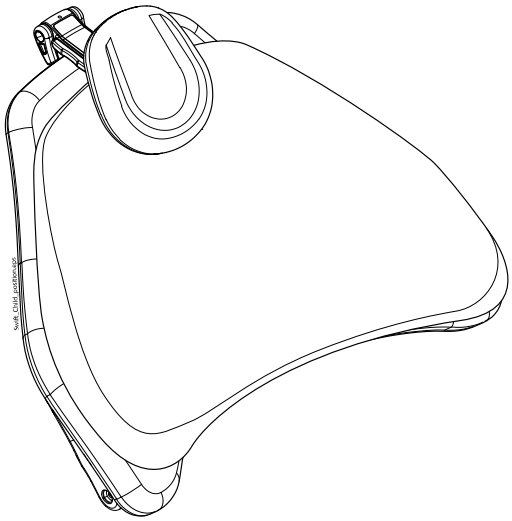
Swift headrest

NOTE

Never pull out the swift headrest from the backrest and turn it around. A headrest that has been inserted into the backrest upside down may crash under the weight of the patient.

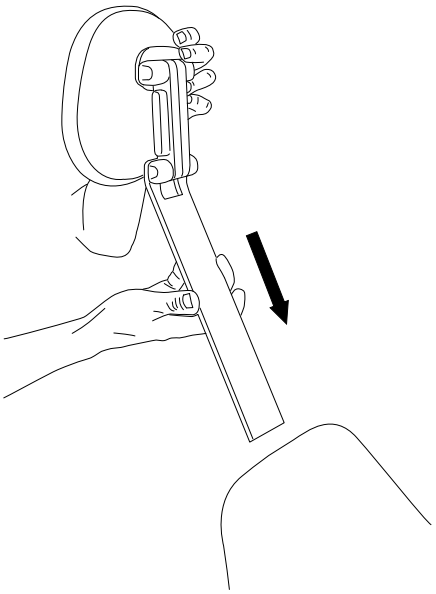


Tilt the headrest up as far as possible so that the cushion faces backwards. Then, turn the headrest around the axis closest to the backrest so that the headrest folds over the backrest. Optionally use a child cushion to support the child better.

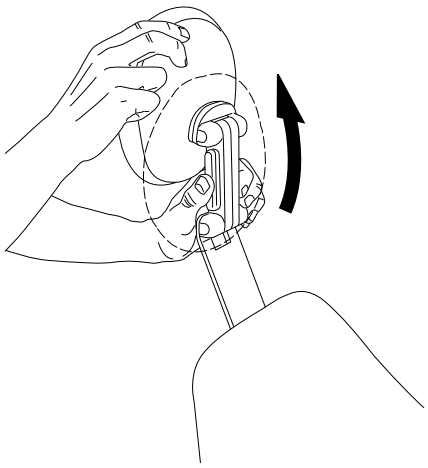


Standard headrest

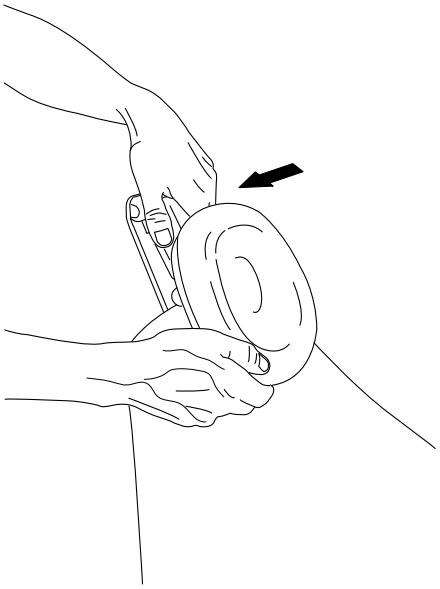
Pull the headrest out. Turn it around so that the cushion faces backwards and push the headrest back into the chair.



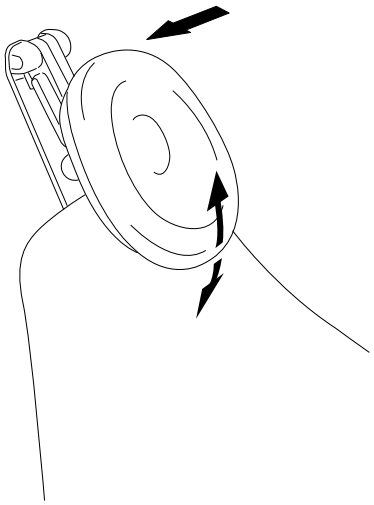
Turn the cushion around (180° counter-clockwise).



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.

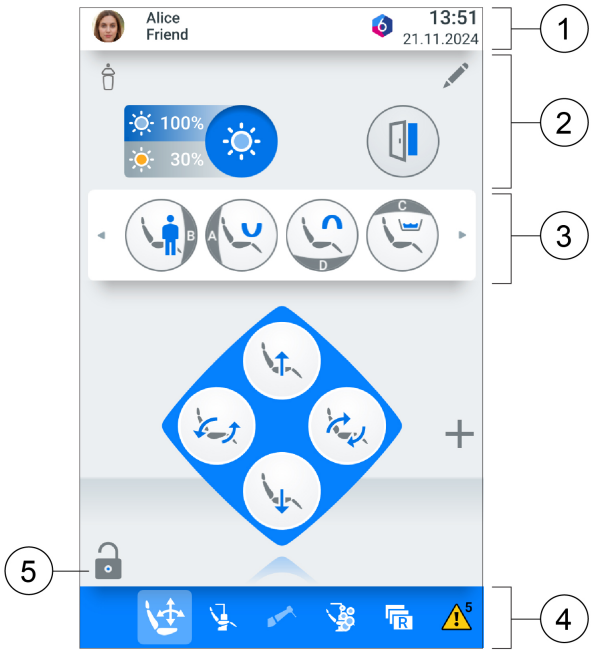


Optionally use a child cushion to support the child better.

15 User interface

15.1 Touch screen on instrument console

The touch screen on the instrument console can be used to control the dental unit, the patient chair and the instruments, and to configure the dental unit settings.



1 Top bar
2 Desktop section
3 Autoposition section
4 Navigation bar
5 Button for locking/unlocking touch screen

Top bar and navigation bar

The top bar shows the currently signed in user's name and picture (if a picture has been imported for the user). The top bar also shows the time and date, if they have been configured to be visible.

The navigation bar is used for navigation between the main usage areas. Click on the icons to move between the areas:

Chair movements

Unit functions

Instrument

Cleaning procedures

Patient images

The navigation bar also shows any open errors. Click on the yellow warning triangle to view the errors.

The top and navigation bars remain visible when you move between the main usage areas. Only settings or pop-up screens will cover top and navigation bars.

Desktop section

The desktop section is common for *Chair movements* and *Unit functions* views. It contains the most used functions so that user can find them easily in most treatment situations. The top line displays the patient: If the patient chair is equipped with a patient sensor, this line first displays the *empty chair* / *patient present* icon, and after that the patient's name, if available. If a patient profile picture has been saved in Planmeca Romexis and the patient is selected in Planmeca Romexis, the patient picture replaces the *patient present* icon on the top line.

Autoposition section

The autoposition section can be edited in the *Chair movements* view by pressing the **Edit** button.

The autoposition section is common for *Chair movements* and *Instrument* views. It has buttons for driving the chair to automatic positions.

The autoposition section can be swiped to the side to display more functions.

The buttons have a grey background colour when the function is not active or has not been selected. When you press the button, the function is activated and the button turns blue.

	Function not active
	Function selected and active

Button for locking/unlocking touch screen

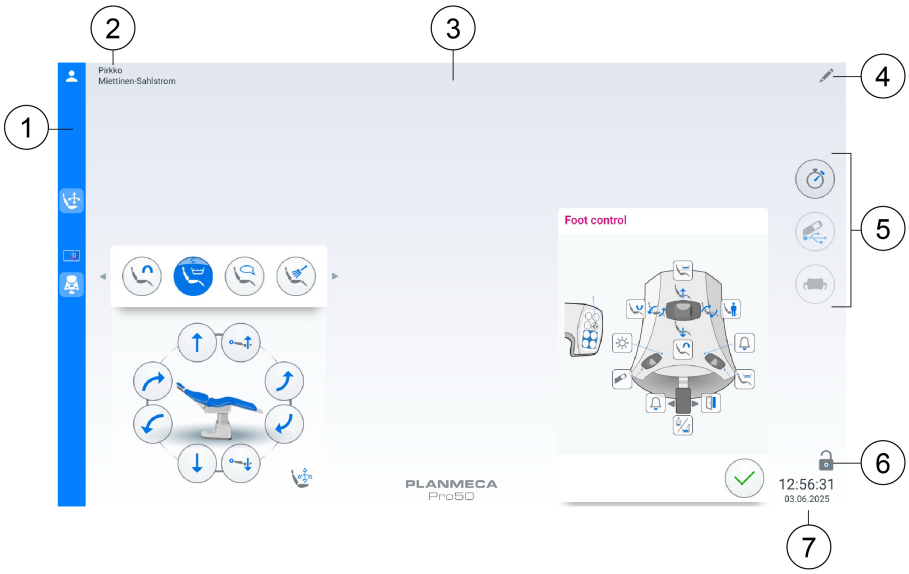
The **Unlocked** button indicates that the touch screen is unlocked. Press the button to lock the touch screen, for example, when cleaning the screen or when using a table-top instrument.

When the touch screen is locked, a **Locked** button is displayed. Press the button for 1 second to unlock the touch screen.

15.2 Planmeca Halo interactive touch screen

As an option, the Planmeca Halo interactive touch screen allows you to extend the user interface across both the touch screen on the instrument console and the Planmeca Halo attached to the dental unit post. Planmeca

Halo has its own unique desktop area, which allows you to view different UI views on each screen.



1 Navigation bar
2 User name
3 Desktop section
4 Edit button
5 Unit functions
6 Button for locking/unlocking touch screen
7 Time and date

Navigation bar

The navigation bar is used for navigation between the main usage areas. Click on the icons to move between the areas:

The Remote desktop button starts a remote desktop connection on Planmeca Halo. For more information, see section "Planmeca Romexis connection" on page 24.

Desktop section

The top left corner of the desktop section shows the currently signed in user's name and picture (if a picture has been imported for the user).

The bottom right corner shows the time and date, if they have been configured to be visible.

The bottom right corner also features a lock button. The **Unlocked** button indicates that the touch screen is unlocked. Press the button to lock the touch screen, for example, when cleaning the screen or when using a table-top instrument.

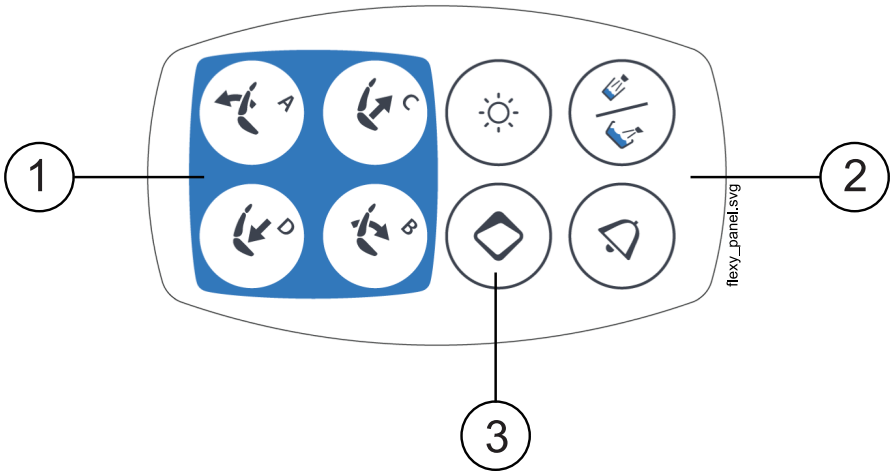
When the touch screen is locked, a **Locked** button is displayed. Press the button for 1 second to unlock the touch screen.

When something is displayed on the desktop that you can edit, an **Edit** button is visible in the top right corner.

From the desktop you can start a timer, activate the intraoral camera and activate the Solanna Vision camera.

15.3 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

The function behind the **Flexy** button can be programmed by the service technician. Depending on what has been programmed, you can do one of the following by pressing the **Flexy** button:

- drive the chair to the rinsing position (default)
- turn the suction on/off
- turn the operating light's composite mode on/off
- toggle the operating light's light tone (warm, neutral and cool)
- activate/deactivate the intraoral camera
- lock/unlock the touch screen
- switch the remote desktop connection on/off

The **Flexy** button can also be programmed so that no function is activated from the button.

For more information, contact your Planmeca dealer.

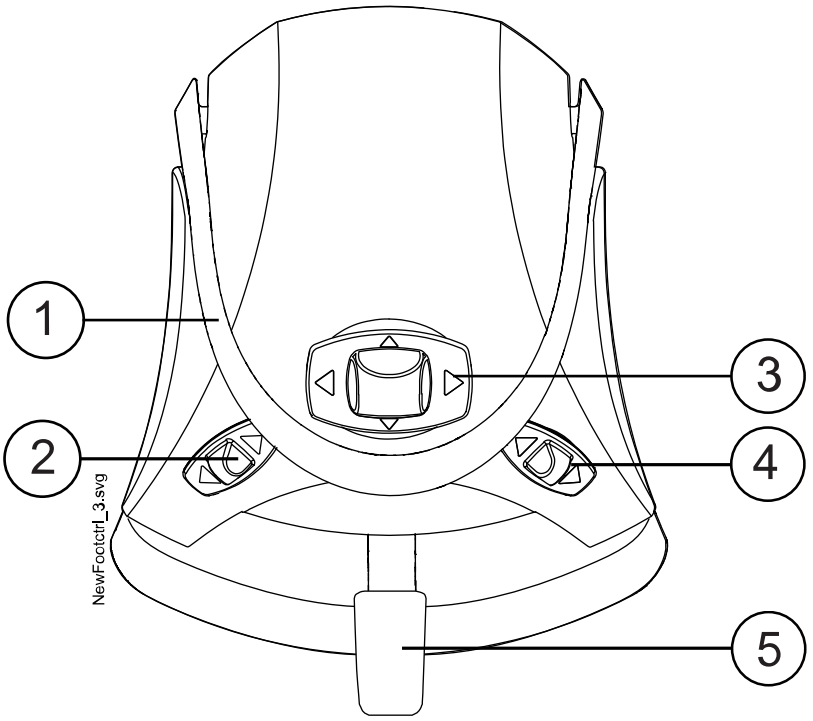
16 Foot control

16.1 Introduction

NOTE

The foot control is IPX1 classified.

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



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

CAUTION

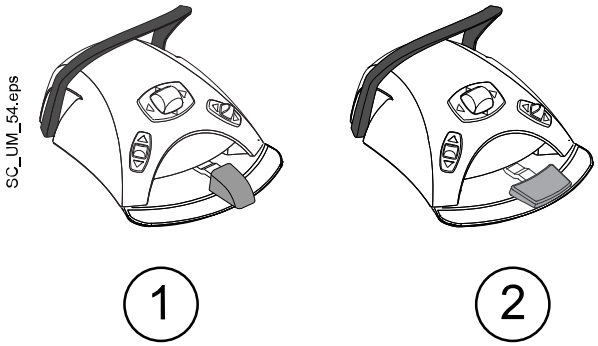
The foot control is a precision instrument. Do not stand on or apply unnecessary force to the foot control and its knobs.

CAUTION

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

16.2 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.

The functional differences between the standard pedal and the wide pedal only apply to the operation of the micromotor, turbine and scaler. They do not apply to the operation of the dental unit or chair. The differences are described in the table below.

Standard pedal vs. wide pedal

Function	Standard pedal	Wide pedal
Increase instrument speed	Push pedal to left/right	Push pedal down
Change instrument spray type	Push pedal down briefly	Push pedal to left
Activate manual chip blow	Push and hold pedal down	Push pedal to right

For more information, see sections "Micromotor" on page 111, "Turbine" on page 118, and "Scaler" on page 121.

NOTE

When the functionality of the foot control pedal is different for the standard pedal and the wide pedal, this is clearly indicated in the text and pictures of this manual. When the text refers to the foot control pedal in general without making this differentiation, the same functionality applies to both types of pedal, although the illustration only presents the standard pedal.

16.3 Foot control functions

16.3.1 Viewing foot control functions

About this task

You can activate a selection of chair, dental unit or instrument functions from the foot control. The current functions that can be activated from the

foot control are displayed in the *Foot control* window. When no instrument is activated, the window shows the foot control functions for the dental unit's idle state. When an instrument is selected, the window shows the foot control functions for the selected instrument.

NOTE

The function behind the Flexy button is also displayed in the *Foot control* window.

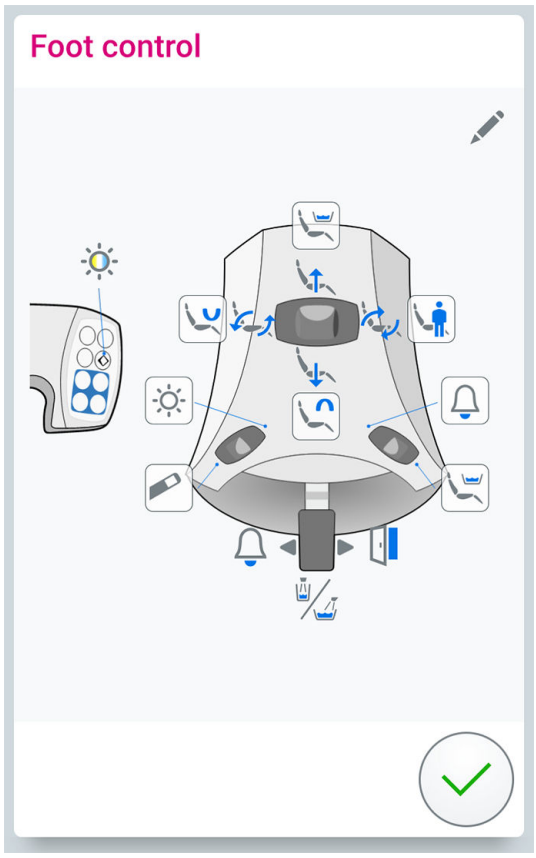
Steps

1. Press **Unit functions** in the bottom bar to open the *Unit functions* view.

2. Press **Foot control**.

   A view of the foot control functions opens.

   Some of the function icons are surrounded by a frame. This means that you can edit the function that is activated when you push the knob or the pedal. See section "Editing foot control functions" on page 146.



3. To close the window, press **OK**.

16.3.2 Centre knob functions

Factory default centre knob functions

Action	Function	Icon
Centre knob left	Chair to mandible position	
Centre knob left, long activation	Backrest down & legrest up	
Centre knob right	Chair to entry/exit position	
Centre knob right, long activation	Backrest up & legrest down	
Centre knob up	Chair to rinsing position	
Centre knob up, long activation	Chair up	
Centre knob down	Chair to maxilla position	
Centre knob down, long activation	Chair down	

Possible centre knob functions

You can edit the function that is activated by briefly pushing the centre knob either up, down, to the left or to the right, see section "Editing foot control functions" on page 146. The function behind the long activation can not be changed.

Any of the following automatic positions can activated from the centre knob:

Function	Icon
Entry/Exit position	
Mandible position	
Maxilla position	
Rinsing position	
Consultation position	

Function	Icon
Semi-sitting position	
Standing position	
Cleaning position	
Trendelenburg position	
X-Ray position	

16.3.3 Left-side and right-side knob functions

Factory default left-side and right-side knob functions

Action	Function	Icon
Left-side knob up	Operating light on/off	
Left-side knob down	Activate intraoral camera	
Right-side knob up	Assistant call	
Right-side knob down	Chair to rinsing position	

Possible left-side and right-side knob functions

You can edit the function that is activated by pushing the left-side or the right-side knob either up or down, see section "Editing foot control functions" on page 146.

When no instrument is activated, the following functions can be programmed to be activated from the side knob:

suction on/off 

activate intraoral camera. 

When an instrument is activated, the following functions can be programmed to be activated from the side knob:

Function	Icon
No function	
Operating light on/off	
Operating light's composite mode on/off	
Assistant call	
Door open	
Cup fill	
Changing spray mode of instrument	
Instrument automatic chip blow on/off	
Instrument light on/off	
Instrument speed/power limitation on/off	
Micromotor torque limit on/off	
Changing micromotor torque limit drive mode	
Micromotor reverse rotation on/off	
Changing instrument preset	
Turbine quickstart on/off	
Changing scaler mode	
Freezing/unfreezing intraoral camera image	
Saving frozen intraoral camera image	

Function	Icon
Driving chair to selected autoposition	See section "Centre knob functions" on page 65 for a list of autoposition icons.

When an instrument is activated, the following functions can be programmed to be activated by pushing and holding the side knob. The function continues for as long as the knob is pushed.

Function	Icon
Bowl rinse and cup fill	
Adjust intensity of operating light	
Adjust intensity of operating light in composite mode	
Instrument manual chip blow	
Driving chair up	
Driving chair down	
Driving chair backrest up	
Driving chair backrest down	
Driving chair legrest up	
Driving chair legrest down	
Driving chair backrest up and legrest down synchronously	
Driving chair backrest down and legrest up synchronously	

16.3.4 Pedal functions

Factory default pedal functions

The factory default functions of the foot control pedal when the dental unit is equipped with a standard pedal and no instrument is activated are presented below.

Action	Function	Icon
Pedal left	Assistant call	
Pedal down	Cup fill and bowl rinse	
Pedal right	Door open	

When an instrument is activated, the functions of the standard pedal depend on the used instrument. These instrument-specific functions are presented below.

Micromotor, turbine

Action	Function	Icon
Pedal left / pedal right	Drive instrument	
Pedal down, short activation	Change spray water & air / air / off	
Pedal down, long activation	Manual chip blow; activated for as long as the pedal is pushed and held down	

Scaler

Action	Function	Icon
Pedal left / pedal right	Drive instrument	
Pedal down, short activation	Change spray 1 / 2 / off	

Unit controlled polymerisation light

Action	Function	Icon
Pedal left / pedal right / pedal down	Start/stop instrument	

Intraoral camera

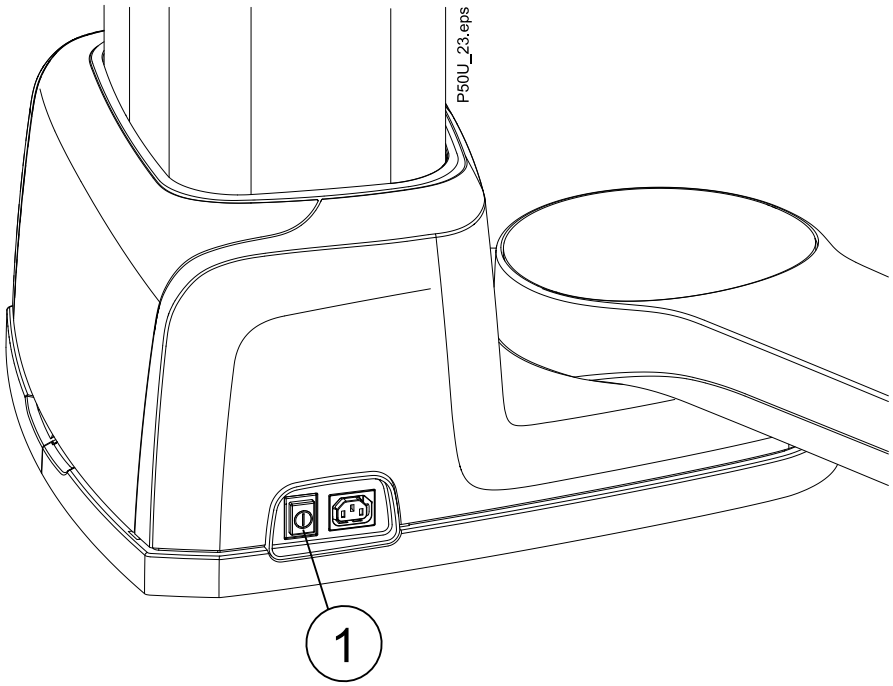
Action	Function	Icon
Pedal left / pedal right	Freeze/unfreeze picture	
Pedal down	Save still picture	

Possible pedal functions

The only editable function for the pedal is the activation/deactivation of reverse rotation for the micromotor by briefly pushing the pedal to the left/ right. See section "Editing foot control functions" on page 146.

17 Switching unit on and off

The on/off switch (1) is located on the unit base. Press the switch to turn the unit on. Press the switch again to turn the unit off.



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

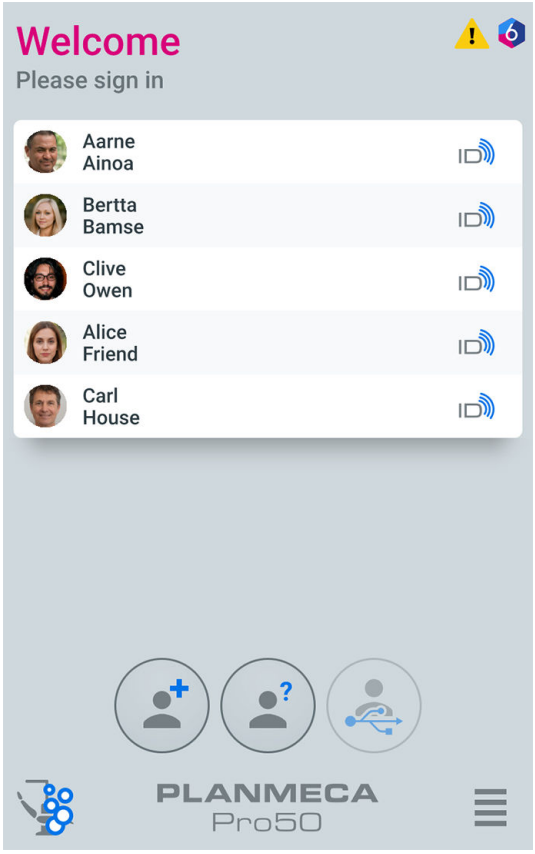
18 Signing in and out

18.1 Signing in

When you switch on the dental unit, the *Sign in* window opens after the unit has started up. The *Sign in* window shows a list of users. You can scroll the list to view more users.

The **Cleaning** button in the left bottom corner opens the *Cleaning* view where you can perform automated flushing and cleaning procedures.

The **Settings** button in the right bottom corner opens the *Settings* view where you can view and edit dental unit settings.



Signing in with PlanID card

CAUTION

At least 15 cm of separation distance between the PlanID reader and the user's body must be maintained at all times.

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 79.

A PlanID icon next to the user name in the *Sign in* window indicates that the user is a PlanID user and can sign in to the dental unit by showing the PlanID card to the PlanID reader on the instrument console. If the PlanID

icon is inactive, PlanID is either disabled or the PlanID region has not been set. In such cases, please contact your local Planmeca dealer.

Once you have signed in, first a *Welcome* window is displayed, and then the treatment window opens and you can start using the dental unit with your own personal settings.

Signing in without PlanID card

If you do not have a PlanID card, you can sign in from the *Sign in* window by pressing on your own user name on the list.

Once you have signed in, first a *Welcome* window is displayed, and then the treatment window opens and you can start using the dental unit with your own personal settings.

Signing in as Guest user

You can sign in to the dental unit as a guest user by pressing the **Guest user** button in the *Sign in* window.

Factory settings are loaded for guest users every time they sign in. After the *Welcome* window is displayed, the treatment window opens and you can start using the dental unit with factory settings.

18.2 Signing out

To sign out from the dental unit, first press your user name in the title bar and then press the **Log out** button.

19 Managing users and personal settings

19.1 Introduction

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

Your personal settings include the following:

- user settings (language and colour theme)
- instrument settings
- operating light settings
- chair settings.

When you are signed in to the dental unit you can edit your personal settings. For instructions, see sections "Editing user settings" on page 76 and "Editing language and colour theme" on page 77.

Whenever you make changes to settings, press **OK** at the bottom of the view to save the changes and close the view.

You can also close the view without saving the changes by pressing **Cancel**.

19.2 Creating new user

About this task

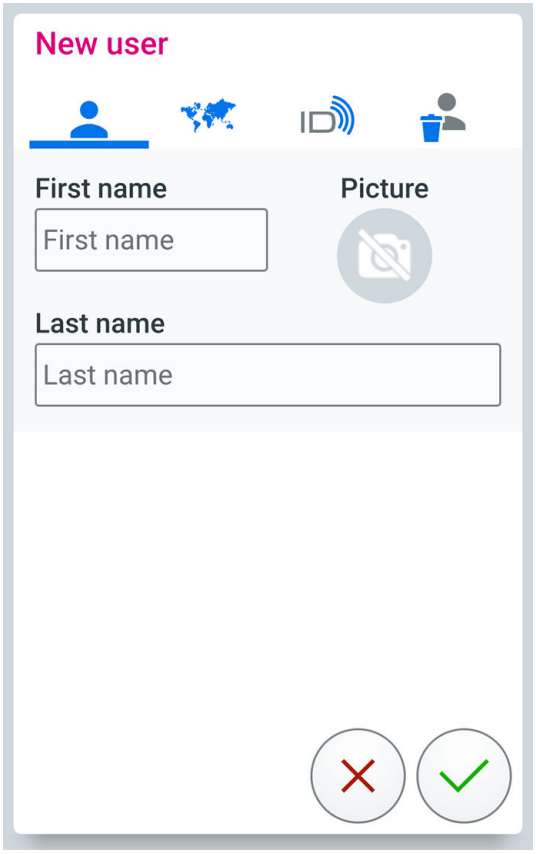
NOTE

If your dental unit includes Planmeca PlanID, you can create the new user as described in section "Assigning PlanID card to user" on page 79.

Steps

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

   The *New user* window opens.



2. Edit the user settings as described in section "Editing user data" on page 76.
3. Press **OK** to save the changes.

19.3 Deleting user

Steps

1. Sign in to the dental unit as the user that you want to delete.
2. Press **Edit**.

3. In the title bar, press the user name.
   The *User information* window opens.
4. Press the *Delete* tab.

   A blue bar under the icon marks the selected tab.
5. In the bottom of the *Delete* tab, press **Delete** next to *Delete user*.
6. Confirm the deletion by pressing **OK**.

The 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.

19.4 Editing user settings

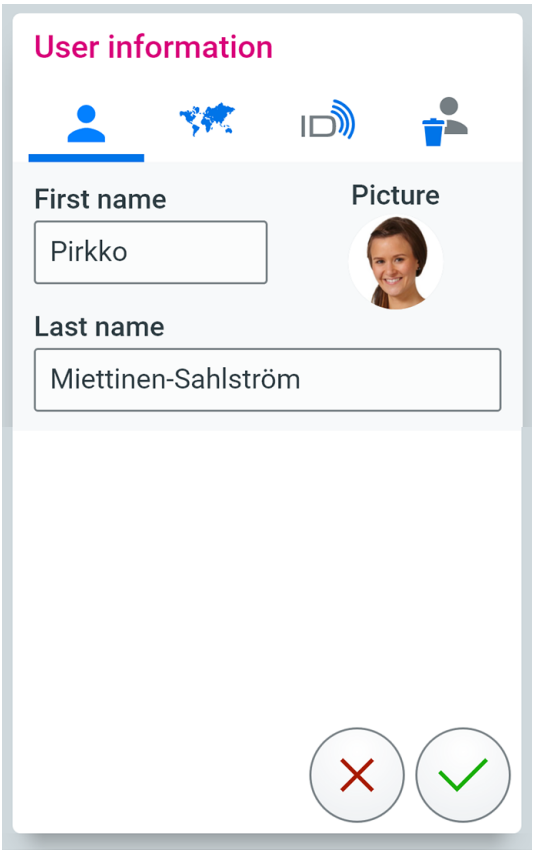
19.4.1 Editing user data

Steps

1. Press **Edit** on the display's desktop section.
2. In the title bar, press the user name.

   The *User information* window opens.
3. Press the *User* tab (if not already open).

   A blue bar under the icon marks the selected tab.



4. Fill in the fields *First name* and *Last name*.
5. **Local user only:** Upload a profile picture from a USB memory stick.

   5.a. Insert a USB memory stick in the USB port marked USB on the cuspidor (above the suction tubes).

5.b. Press the picture icon.

5.c. Select the correct picture from the drop-down menu.

5.d. Press **OK** to save the information and close the view.

6. When you have edited all user information under all four tabs, press **OK** to save the changes.

To leave the *User information* window without saving the changes, press **Cancel**.

19.5 Editing language and colour theme

Steps

1. Press **Edit** on the display's desktop section.

2. In the title bar, press the user name.

   The *User information* view opens.

3. Press the *User interface* tab.

   A blue bar under the icon marks the selected tab.

   The *User interface* view opens.

4. Select a language from the drop-down menu.

   The available languages are:

   - English
   - Finnish
   - German
   - Spanish
   - French
   - Italian
   - Swedish
   - Hungarian
   - Czech
   - Danish
   - Norwegian
   - Polish
   - Dutch

- Portuguese
- Romanian
- Estonian
- Greek
- Latvian
- Lithuanian
- Slovenian
- Slovak
- Ukrainian
- Bulgarian
- Arabic

5. Select a persona colour from the drop-down menu.
6. Press **OK** to save the information and close the view.

20 Assigning PlanID card to user

Before you begin

Prerequisites:

- Planmeca Romexis version 6.4.8 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, we recommend that the user has been 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
  - 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 first and last name.

NOTE

If you have stored a picture of yourself in Planmeca Romexis software, the picture will show in the dental unit's *User information* 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).

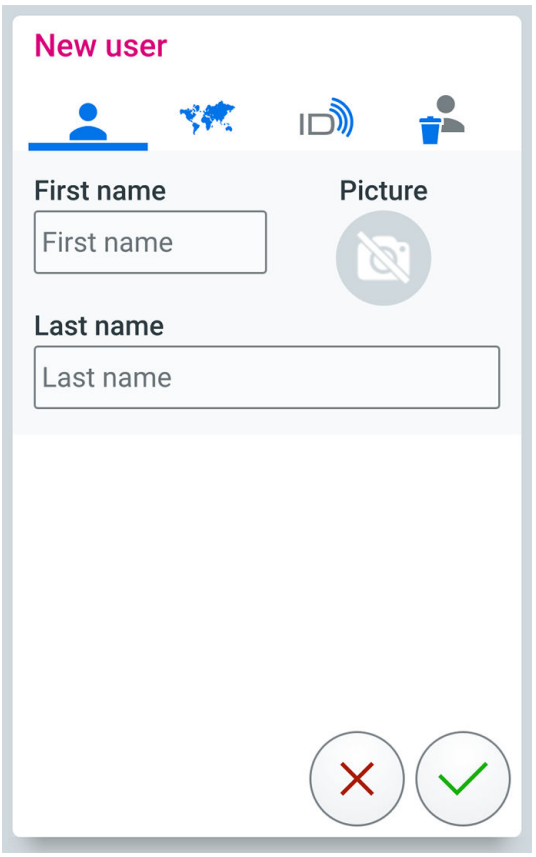
If you need to reconnect your PlanID card with your profile, you can do it in the *PlanID* tab (provided that you have allowed rebinding in your Planmeca Romexis profile). First, press the **PlanID** button next to *Re-connect PlanID* and confirm the reconnection in the pop-up window. When the prompt "Waiting for PlanID" shows on the touch screen, show your PlanID card to the PlanID reader.

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

Steps

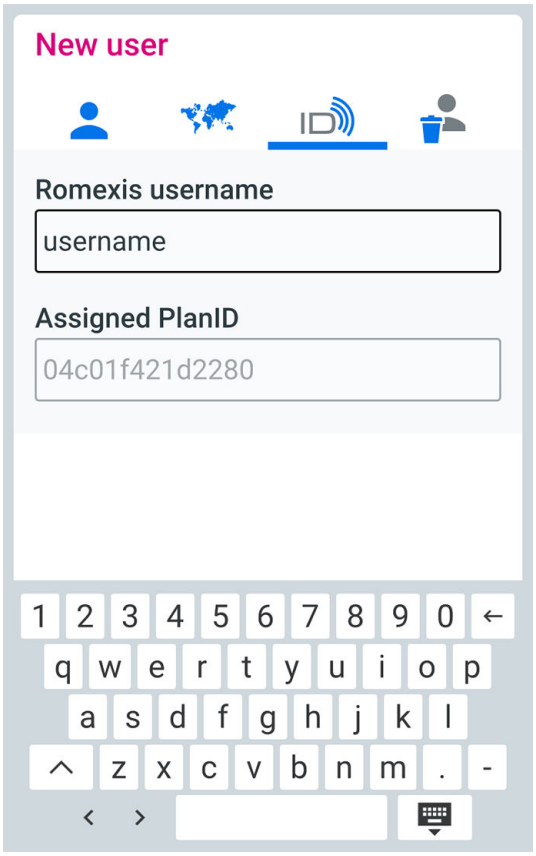
1. Press **New user** in the *Sign in* window.

   The *New user* window opens.



2. Press **PlanID** to open the *PlanID* tab.

3. In the *PlanID* tab, enter your assigned Romexis ID. Enter also your assigned PlanID, if you have not entered it previously in Planmeca Romexis.



4. If you have not assigned the PlanID card to the user from Planmeca Romexis, show the PlanID card to the PlanID reader on the dental unit.

   The text *PlanID tag detected* is displayed.

5. Press **OK** to save the information and close the window.

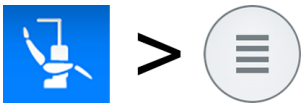
   Press **Cancel** to close the window without making changes.

Results

Your PlanID card has now been assigned to you and you have been signed in to the dental unit.

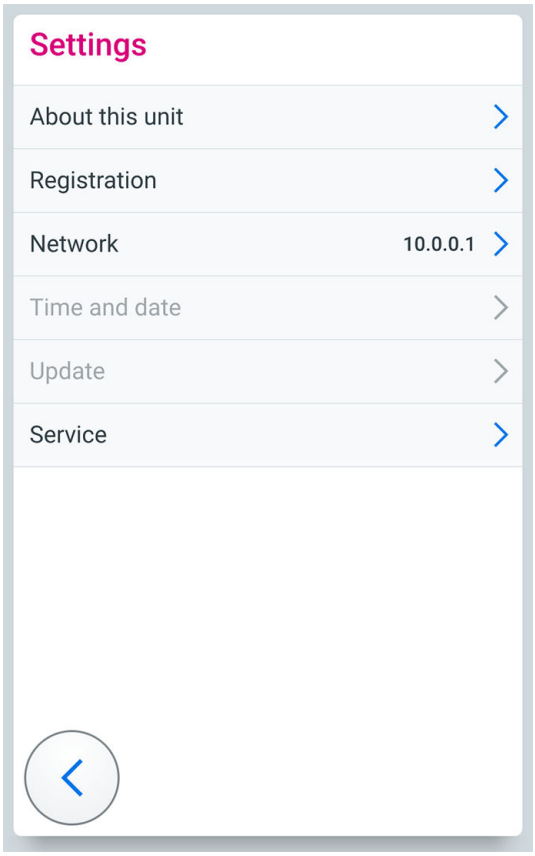
21 Checking dental unit details

To view dental unit details, open the *Unit functions* view and press **Settings**.



Alternatively, press the **Settings** button in the *Sign in* window.

The *Settings* view opens and already in this view you can see the dental unit's IP address next to *Network*.



Press on a menu item to view details on that particular item. To return to the *Settings* view, press **Back**.

About this unit

Contains information on the dental unit's software versions, notes related to the current software, and the dental unit's serial number.

Unit registration

Contains information for registering your dental unit. Use the QR code or the website address to go to the registration website. This view also displays the dental unit's serial number, which is needed in the registration.

Network

Contains details on the wired network connection. When the network is connected and automatic configuration enabled, the following IP configuration details are automatically allocated to the unit:

- Address
- Netmask
- Gateway
- Nameservers
- Domain
- Hardware address (display only, can not be configured)

Time and date

In this view you can adjust the settings for time and date.

For more information, see section "Editing time and date" on page 135.

Service

In the *Service* view you can view settings related to the dental unit, instruments, cleaning procedures and network. Most settings can only be edited by qualified Planmeca service technicians.

Software update

In the *Software update* view Planmeca service technicians can perform a software update.

22 Switching from right- to left-hand use

About this task

The dental unit can quickly be switched from right- to left-hand use with identical working experience.

Steps

1. Press *Unit functions*.

2. Press **Left-right turn**.

   The patient chair is driven to a position that makes it easy to move the cuspidor and suction arm from one side of the chair to the other. Also, the operating light is switched off.

3. Move the cuspidor and suction arm to the other side of the chair and adjust their position as well as the position of the instrument console, operating light and Planmeca Halo.
4. **Optional:** Press **Left-right turn** to return the chair to the previous position.

23 Operating patient chair

CAUTION

When driving the chair near the upper limit, make sure that the delivery arm, instrument console or tray 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.

CAUTION

When driving the backrest down, make sure that nothing gets squeezed between the suction arm and the backrest.

CAUTION

When driving the backrest up, make sure that nothing gets squeezed between the Flexy holder and the backrest.

CAUTION

Make sure that the bowl or cuspidor tray is not above the patient chair when driving the chair up or down.

CAUTION

Make sure that the patient's hand does not get trapped between the armrest and the cuspidor when driving the chair up or down.

CAUTION

Make sure that nothing gets squeezed between the suction arm and the bowl when the bowl is turned out from the home position and you are driving the chair up or down.

NOTE

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

NOTE

Make sure there is no obstruction between the Flexy holder and the floor when driving the chair down. If the chair does not move downward and an information message is displayed, remove the obstruction.

NOTE

Make sure that the syringe does not get squeezed between the Flexy holder and the bowl or the cup fill holder when the bowl or cup fill holder are turned out from their home position.

NOTE

If a power cut prevents the chair from being driven from a treatment position to the entry/exit position, help the patient to leave the chair.

NOTE

If, for example, the patient feels sick and starts to vomit while lying in the chair, you can raise the backrest quickly by pushing it up by hand from behind the backrest. Note, however, that the backrest does not stay up by itself but must be supported the whole time and lowered in a controlled manner.

23.1 Automatic chair positions

Touch screen: The dental unit has 10 automatic chair positions. When you are in the *Chair movements* or *Unit functions* view, drive the chair to an automatic position by pressing the corresponding button on the touch screen.

Foot control: You can also drive the chair to the automatic positions with the foot control. Any four automatic positions can be saved to the centre knob and the chair drives to the automatic position when you push the centre knob in the direction indicated on the touch screen button (A - left, B - right, C - up, D - down). Automatic positions can also be programmed to be activated from the foot control's side knobs, see section "Editing foot control functions" on page 146.

Flexy holder: Driving to the automatic positions can also be initiated from the Flexy holder. Use the chair buttons on the Flexy holder to drive to those four automatic positions that have been saved to the foot control's centre knob. The touch screen button indicates which button on the Flexy holder should be pressed (A, B, C, D).

The button on the touch screen blinks when the chair moves to the automatic position and is blue when the chair is in the automatic position.

Button	Function
	Entry/exit position Used when patient enters and exits the chair.
	Mandible position Used when working on the lower jaw.
	Maxilla position Used when working on the upper jaw.
	Rinsing position Used for filling the cup and rinsing the bowl.
	Consultation position Used in consultation situations so that the dentist and patient can discuss face-to-face and, for example, view images on the Planmeca Halo touch screen.
	Trendelenburg position Drives the chair to the Trendelenburg position.

Button	Function
	X-Ray position Used when taking X-Ray images of the patient.
	Cleaning position Drives the chair to the cleaning position to facilitate the daily cleaning in the clinic.
	Semi-sitting position Drives the chair to a position where the patient can sit in a semi-sitting position.
	Standing position Drives the chair to a position where the dentist can work in a standing position.

When the chair has reached the automatic position, you can adjust the position manually with the manual chair movement buttons on the touch screen, or from the foot control's centre knob (see section "Manual operation" on page 88).

You can also save the adjusted automatic chair position (except the Trendelenburg position), see section "Automatic chair positions" on page 129. Saving the adjusted position saves the new position to your personal settings.

You can program the operating light and its composite mode to be on or off in the automatic 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 and composite mode intensities can also be programmed to a certain value.

Rinsing position

NOTE

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

NOTE

In addition to driving the chair to the rinsing position by pushing down the foot control's centre knob, you can also drive the chair to the rinsing position by pushing down the right-side knob.

NOTE

The Flexy button can be configured so that pressing the button drives the chair to the rinsing position. Contact your Planmeca dealer.

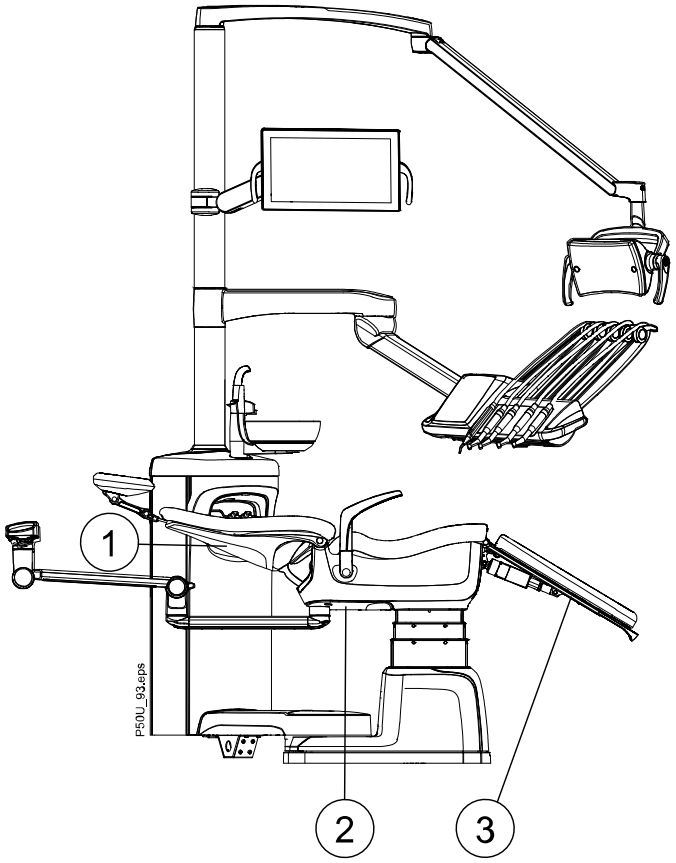
When the chair moves to the rinsing position, cup filling starts automatically and the bowl is rinsed. When you press **Rinsing position** again, the chair returns to the previous working position and the bowl is rinsed once more.

23.1.1 Stopping chair movements

To stop the chair from moving before it reaches the automatic position, either press anywhere on the touch screen (on the instrument console or

Planmeca Halo), press any chair button on the Flexy panel, push any foot control knob that drives the chair, or press the foot control handle.

The chair movement stops also when you press the backrest (1) or the chair's stop plate (2) upward, or lift the legrest upward (3). The chair can be driven normally after you have removed the possible obstruction.



23.2 Manual operation

23.2.1 Manual operation from touch screen

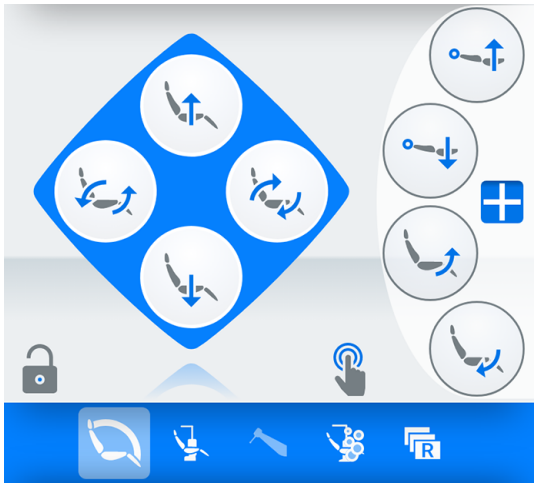
With the manual chair movement buttons you can drive the chair seat, the backrest, and the legrest into a specific position. The movement continues for as long as you press the chair movement button on the touch screen.

If your dental unit is equipped with a fixed legrest, the legrest does not move.

In the *Manual movements* editing view you can select whether you want the chair movements to be displayed in a traditional or 3D format, see section "Manual chair movements" on page 130. The format and options you select affect the chair movement view on the touch screen. The two formats and their options are described below.

Traditional chair movement view

When you have enabled the option *Extra movements* in the *Manual movements* editing view, additional chair movements are opened next to the basic movements by pressing the plus sign. Press the plus sign again to close the extra movements.



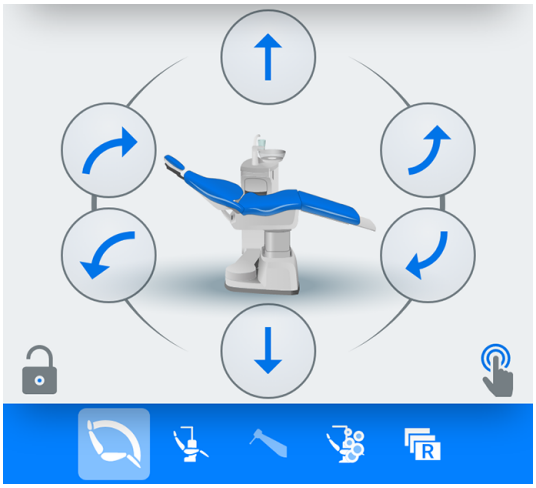
The table below lists the chair movements in the traditional view.

Button	Function
	Drive chair up
	Drive chair down
	Drive backrest down and legrest up synchronously
	Drive backrest up and legrest down synchronously
	Drive backrest down
	Drive backrest up
Extra movements:	
	Drive chair up - headrest stays in place The SynchroDrive feature enables the headrest to stay in the same spot the entire time when you drive the chair up, instead of moving together with the chair. This allows the dentist to work from the same height throughout the treatment.

Button	Function
	Drive chair down - headrest stays in place The SynchroDrive feature enables the headrest to stay in the same spot the entire time when you drive the chair down, instead of moving together with the chair. This allows the dentist to work from the same height throughout the treatment.
	Drive legrest up
	Drive legrest down

3D chair movement view

In the 3D chair movement view, the buttons are placed around the patient chair, indicating which part of the chair is driven up/down.



The table below lists the chair movements in the traditional view when no options are selected.

Button	Function
	Drive chair up
	Drive chair down
	Drive backrest up
	Drive backrest down

Button	Function
	Drive legrest up
	Drive legrest down

When you have enabled the option *Automatic legrest* in the *Manual movements* editing view, you can move the legrest synchronously with the backrest.

When you have enabled the option *SynchroDrive* in the *Manual movements* editing view, the headrest will stay in the same spot the entire time when you drive the chair up or down, instead of moving together with the chair. This allows the dentist to work from the same height throughout the treatment.

Button	Function
	Drive chair up
	Drive chair down
	Drive chair up - headrest stays in place Option *SynchroDrive* in the *Manual movements* editing view.
	Drive chair down - headrest stays in place Option *SynchroDrive* in the *Manual movements* editing view.
	Drive backrest down and legrest up synchronously Option *Automatic legrest* in the *Manual movements* editing view.

Button	Function
	Drive backrest up and legrest down synchronously Option *Automatic legrest* in the *Manual movements* editing view.
	Drive backrest down
	Drive backrest up

Smooth movements

When the smooth movements option has been enabled in the *Manual movements* editing window, the chair movements start and stop in a soft and smooth manner.

Slow motions

The slow motions mode is ideal for special treatment situations, for example, when working with a microscope. In the slow motions mode, the chair movements are much slower than in the normal mode and the automatic chair positions are disabled. The slow motions option is indicated by dashed line arrows on the chair movement buttons.

When the slow motions option has been enabled in the *Manual movements* editing window, the slow motions are not in use all the time, but can be enabled in the *Chair movements* window by pressing the **Slow motions** button. When the slow motions are enabled, the button is blue. Press the button again to disable the slow motions.

23.2.2 Manual operation from Flexy holder

With the chair buttons on the Flexy holder you can drive the chair seat, the backrest, and the legrest into a specific position. The movement continues for as long as you push the knob.

If your dental unit is equipped with a fixed legrest, the legrest does not move.

Button	Function
	Lowers the backrest and raises the legrest.

Button	Function
	Raises the backrest and lowers the legrest.
	Drives the chair upward.
	Drives the chair downward.

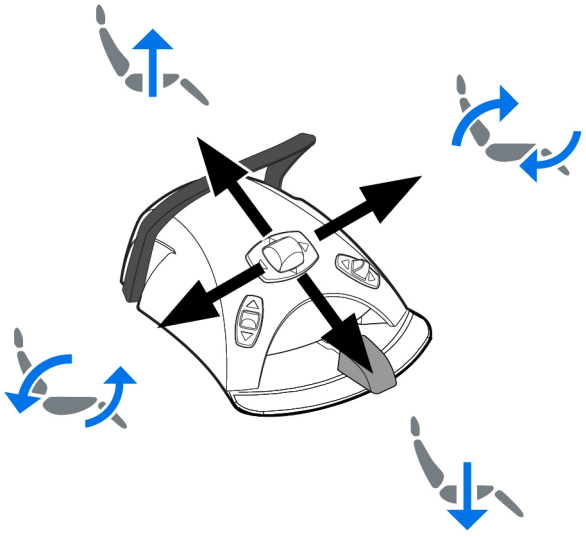
23.2.3 Manual operation from foot control

With the foot control's centre knob you can drive the chair seat, the backrest, and the legrest into a specific position. The movement continues for as long as you push the knob.

If your dental unit is equipped with a fixed legrest, the legrest does not move.

Push the centre knob:

- **Up** to drive the chair upward
- **Down** to drive the chair downward
- **Left** to lower the backrest and raise the legrest
- **Right** to raise the backrest and lower the legrest



24 Operating dental unit

24.1 Bowl rinse

Touch screen: In the *Unit functions* view, press **Bowl rinse** to rinse the bowl. Bowl rinsing can be stopped before it stops automatically by pressing **Bowl rinse** again.

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.

Foot control: You can edit the foot control functions so that the unit automatically fills the cup and then rinses the bowl when you push the side knob for longer than one second. For instructions, see section "Editing foot control functions" on page 146.

The duration of bowl rinsing can be edited, see section "Editing duration of cup fill" on page 131.

24.2 Cup fill

CAUTION

The patient must not drink the procedural water. Procedural water may contain harmful substances.

NOTE

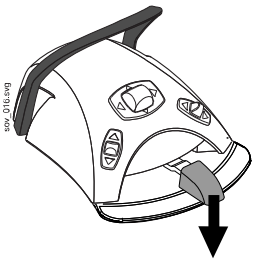
By default, the cup fill is not activated unless the cup is positioned in its place under the cup fill tube. To change this setting, contact your Planmeca dealer.

Touch screen: In the *Unit functions* view, press **Cup fill** and the unit will automatically fill the cup and then rinse the bowl. 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, and the bowl is not rinsed.

Flexy holder: Press **Cup fill / Bowl rinse** twice or press the button once until the cup filling starts (0.5–1 sec.) and the unit will automatically fill the cup and then rinse the bowl. Cup filling can be stopped before it stops automatically by pressing **Cup fill / Bowl rinse** again.

If **Cup fill / Bowl rinse** is pressed and held for longer than 1 second, water flows for as long as the button is pressed, and the bowl is not rinsed.



Foot control: When all the instruments are in their holders you can fill the cup either by briefly pushing the pedal down twice or by pushing down the pedal once until the filling starts (0.5–1 sec.). The unit will automatically fill the cup and then rinse the bowl. Cup filling stops automatically after a preset time. Cup filling can be stopped before it stops automatically by pushing the pedal briefly down.

If the pedal is pushed for longer than 1 second, water flows for as long as the pedal is pushed, and the bowl is not rinsed.

You can also edit the foot control functions so that the unit automatically fills the cup and then rinses the bowl when you push the side knob for longer than one second. For instructions, see section "Editing foot control functions" on page 146.

The duration of bowl rinsing can be edited, see section "Editing duration of cup fill" on page 131.

24.3 Timer

About this task

NOTE

Other functionalities can be used while the timer is running.

Follow the steps below to activate a timer.

Steps

1. In the *Unit functions* view, press **Timer** to open a list of available timers.

2. Select a timer from the list and press **OK**.

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

The duration of the timer is shown on the touch screen. The countdown begins immediately, but the selected time is displayed for four seconds before the actual countdown is displayed.

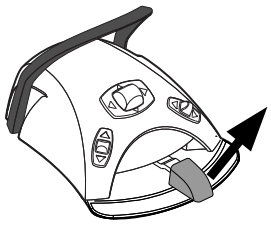
When the timer reaches zero you will hear a signal tone.

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

24.4 Door open

Touch screen: In the *Unit functions*, *Chair movements* or *Instrument* view, press **Door open** to activate the door opening function. You will hear a short signal tone when the function starts. To edit the duration of the function, see section "Editing duration of door open -function" on page 133.

When you press **Door open** for longer than 0.5 seconds, the function continues until the button is released.



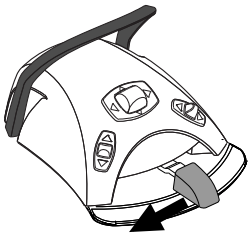
Foot control: When all the instruments are in their holders you can push the pedal to the right to activate the door opening function. If the pedal is pushed for longer than 0.5 seconds, the function continues for as long as the pedal is pushed.

You can also edit the foot control functions so that the door opening function is activated from either side knob. For instructions, see section "Editing foot control functions" on page 146.

24.5 Assistant call

Touch screen: In the *Unit functions* view, press **Assistant call** to activate the assistant call function. You will hear a short signal tone when the function starts. To edit the duration of the function, see section "Editing duration of assistant call -function" on page 134.

When you press **Assistant call** for longer than 0.5 seconds, the function continues until the button is released.



Foot control: When all the instruments are in their holders you can push the pedal to the left to activate the assistant call function. If the pedal is pushed for longer than 0.5 seconds, the function continues for as long as the pedal is pushed. This is a factory default function that can not be edited.

You can also edit the foot control functions so that the assistant call function is activated from either side knob. For instructions, see section "Editing foot control functions" on page 146.

24.6 Planmeca Solanna and Planmeca Solanna Vision operating light

CAUTION

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

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.

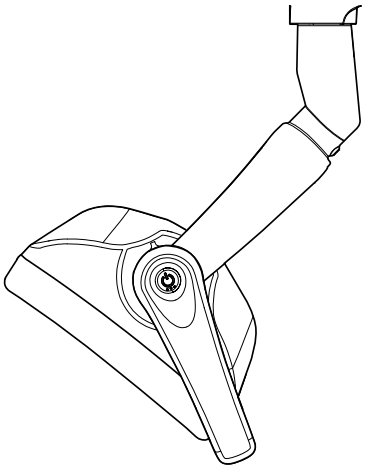
NOTE

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 "Editing operating light" on page 137.

24.6.1 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.
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 	The operating light is not functioning properly and full luminosity can not be reached. A warning sound is heard. Please contact your local Planmeca service technician.

24.6.2 Switching operating light and 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.

NOTE

The dental unit can be configured so that the composite mode is switched on when the polymerisation light is taken from the holder and returned to it; contact your local Planmeca dealer.

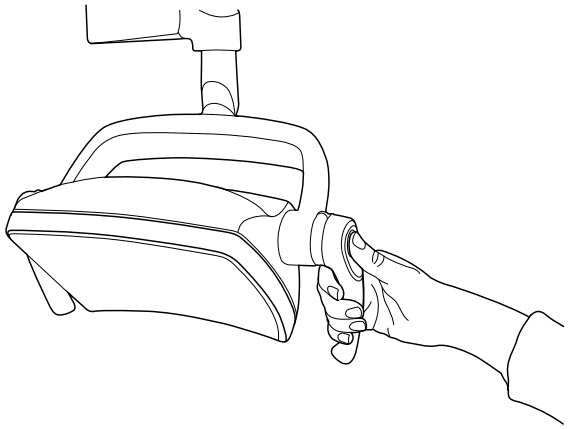
From operating light

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.

When the operating light is on, 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 and return to the normal mode.

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

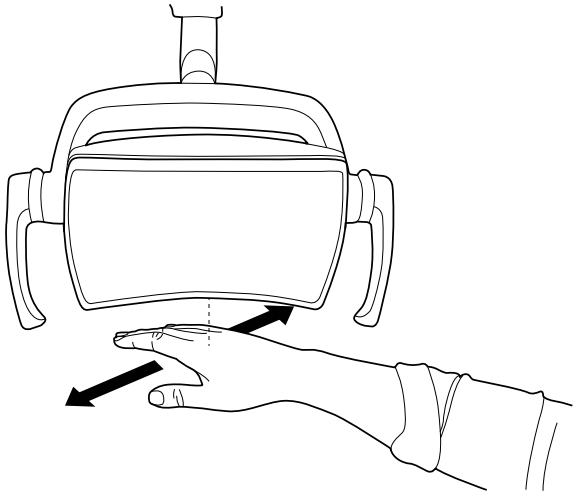


Hands-free with sensor

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.

When the operating light is on, 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.

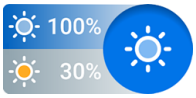
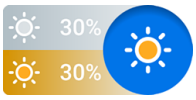
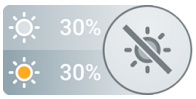


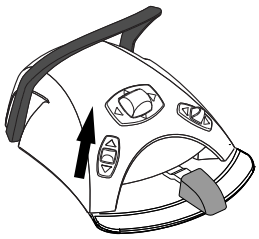
From dental unit

Touch screen: Toggle the **Operating light** button to switch between normal mode, composite mode and operating light off. The light intensity for both modes is shown next to the **Operating light** button.

Flexy holder: The **Flexy** button can be configured so that pressing the button switches the composite mode on/off. Contact your Planmeca dealer.

The **Operating light** button shows the currently selected mode.

	Normal mode is enabled The light intensity is 100%.
	Composite mode is enabled The light intensity is 30%.
	Light off



Foot control: Push the left-side knob up to switch the operating light on/off. This is the default factory setting.

The operating light and its composite mode can be programmed to be switched on/off from either side knob. For instructions, see section "Editing foot control functions" on page 146.

24.6.3 Adjusting intensity of operating light

The intensity adjustment range for both the normal mode and the composite mode is from 30% to 100%.

The intensity of the operating light is adjusted by pressing a button on the operating light or the touch screen, or by pushing the foot control knob. Each time you press the button/knob, the direction of the adjustment (increase/decrease) changes. Thus, if you first increase the intensity, the intensity will be decreased the next time you press the button/knob.

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.

You can also edit the operating light intensity from the operating light settings view, see section "Editing operating light" on page 137.

NOTE

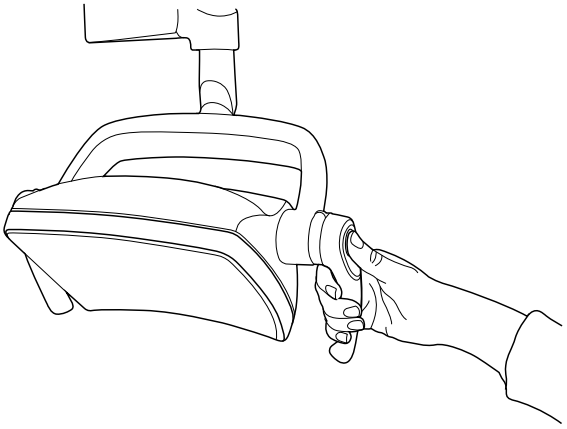
The operating light intensity will decrease to 30% of the maximum intensity when the chair is moving.

From operating light

In the *Unit functions*, *Chair movements* or *Instrument* view, start by selecting the mode (normal or composite) whose intensity you want to adjust. The **Operating light** button on the touch screen shows the current mode. Toggle the button to change the mode.

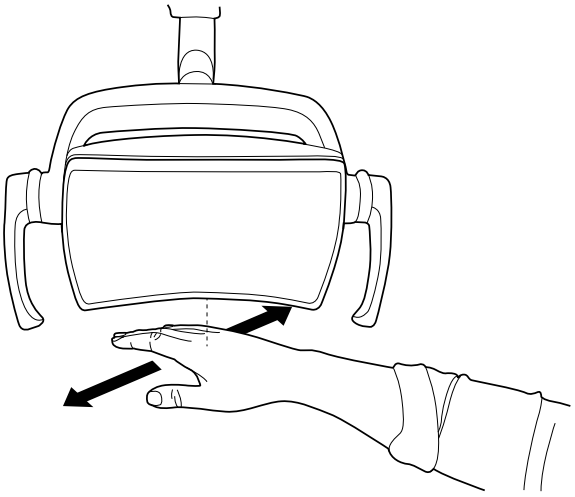
From one handle

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

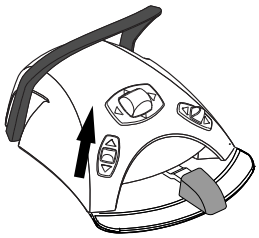
If the operating light is installed to another manufacturer's dental unit, the intensity adjustment can be done only from the operating light.

From dental unit

In the *Unit functions*, *Chair movements* or *Instrument* view, start by selecting the mode (normal or composite) whose intensity you want to adjust. The **Operating light** button on the touch screen shows the current mode. Toggle the button to change the mode.

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

Touch screen: Press and hold the **Operating light** button to adjust the operating light intensity.



Foot control: Push and hold the left-side knob up to adjust the operating light intensity. This is the default factory setting.

The operating light intensity can be programmed to be adjusted from either side knob. For instructions, see section "Editing foot control functions" on page 146.

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.

24.6.4 Changing light tone of operating light

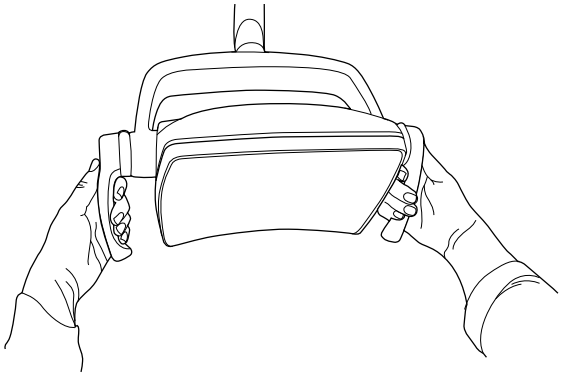
The white light tone of the operating light can be warm, neutral or cool.

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 change the light tone from the operating light settings view, see section "Editing operating light" on page 137.

Flexy holder: The **Flexy** button can be configured so that pressing the button changes the light tone. Contact your Planmeca dealer.

24.7 Planmeca Solanna Vision camera

Prerequisites

- Planmeca Romexis software version 6.4.8 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.

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.

24.7.1 Starting to use cameras

24.7.1.1 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 touch screen, a blue streaming icon at the top of the window indicates that video streaming is on. When the icon is grey, no streaming is going 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

24.7.1.2 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 from the dental unit, press **Solanna Vision** in the *Unit functions* view. When the *Solanna Vision* window opens, video streaming automatically starts. The video stream is displayed in the *Solanna Vision* window in Planmeca Romexis.

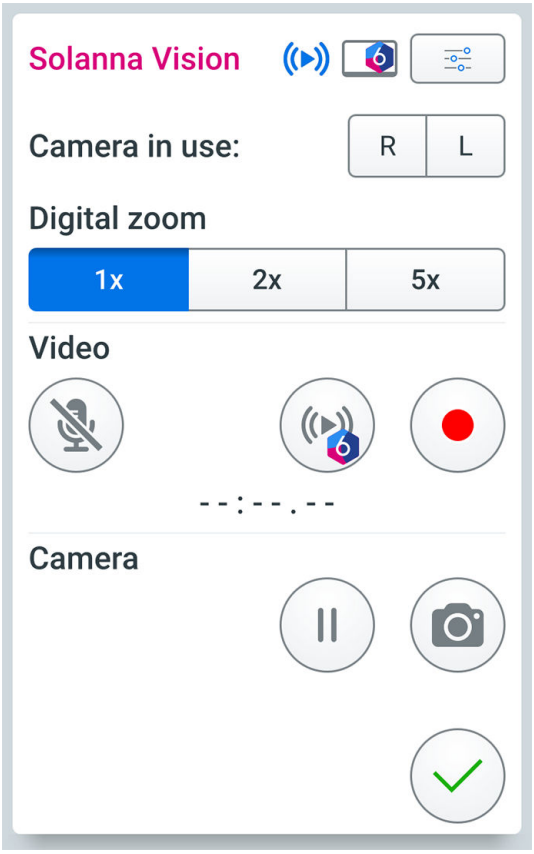
An ongoing video streaming is indicated by a blue streaming icon at the top of the window. When the icon is grey, no streaming is going on.

Next to the streaming icon you can see the status of the paired Planmeca Romexis client. A colourful icon means that the connection is on, and a grey icon that the connection is off.

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.

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.

24.7.2 Adjusting camera settings from dental unit

24.7.2.1 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, 2 or 3.

- 1 = When Planmeca Solanna Vision is connected to a Planmeca dental unit, the camera that has been selected in the dental unit's control panel is used.
- 2 = The right camera (as seen from behind the camera) is selected.
- 3 = The left camera (as seen from behind the camera) is selected.

NOTE

The video settings can only be edited by a qualified Planmeca service technician; contact your local Planmeca dealer.

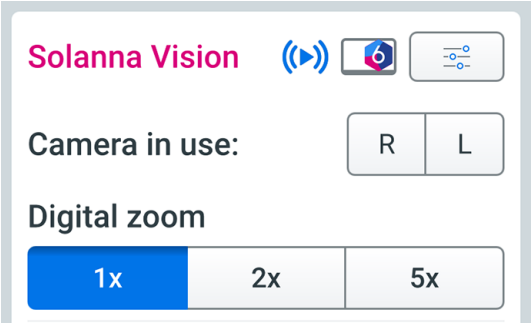
Steps

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

   For instructions, see section "Activating camera from dental unit" on page 102.
2. Select the camera by pressing the corresponding camera button.

   Press the **R** or **L** button to select the right or left camera (as seen from behind the camera). The currently selected camera (R/L) button is blue.
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.



24.7.2.2 Adjusting video settings

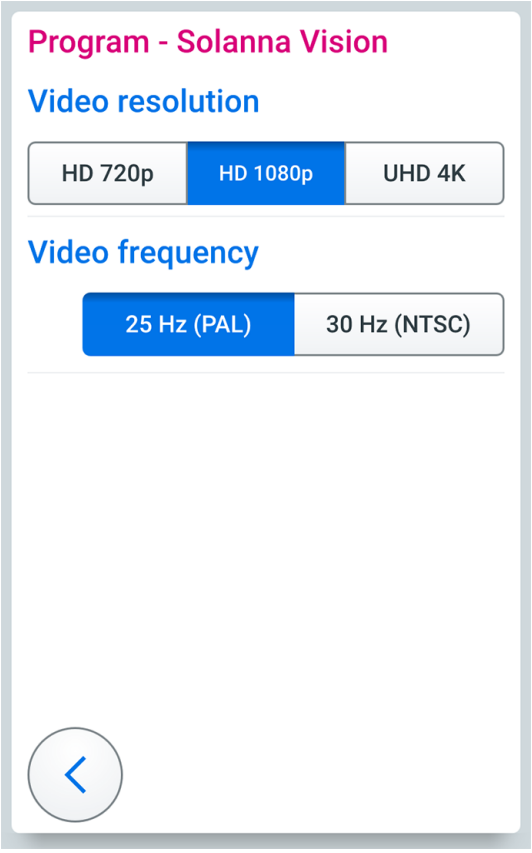
Steps

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

   For instructions, see section "Activating camera from dental unit" on page 102.

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

   The Solanna Vision settings window opens.



3. Under *Video resolution*, select the video resolution from the following options:
   - HD 720p (1280x720)
   - Full HD 1080p (1920x1080)
   - UHD 4K (3840x2160)

   The selected resolution affects the video clip file size. The approximate file sizes are listed below.

Approximate video sizes	**HD 720p**	**HD 1080p**	**UHD 4K**
1 min	30 MB	60 MB	240 MB
15 min	450 MB	900 MB	3.6 GB
1 hour	1.8 GB	3.6 GB	14.4 GB

4. Under *Video frequency*, select either 25 Hz (PAL) or 30 Hz (NTSC).
5. Press **Back** to return to the *Solanna Vision* window.

24.7.3 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 "Selecting camera and zoom level" on page 103.

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		In the *Solanna Vision* window, press **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, press **Microphone** to mute/unmute the microphone.
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, a small streaming icon in the display's top bar 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.

Streaming to multiple clients

NOTE

This feature requires Planmeca Romexis software version 6.4.8 or later.

It is possible to stream live video from Planmeca Solanna Vision to multiple clients, including 3rd party applications, such as Open Broadcaster Software (OBS) Studio. To enable streaming to multiple clients, contact your local Planmeca dealer.

24.7.4 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		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 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 and end 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, a small recording icon in the display's top bar indicates 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.

24.7.5 Capturing image

You can capture an image only when video streaming is on. The image can be captured either from a live or a frozen stream. Freeze the stream by pressing Pause (see section "Switching video streaming on/off" on page 105).

How to capture image

Interface	Action	
Planmeca dental unit		In the *Solanna Vision* window, capture an image by pressing **Still camera**. You will hear a shutter sound when you press the button.

How to capture image

Interface	Action
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.

25 Operating instruments

When an instrument is activated, the instrument view slides up from the bottom of the touch screen on the instrument console. The view is positioned just above the touch screen's navigation bar.

If you want to use functions that are hidden behind the instrument view, for example chair functions, without deactivating the instrument, you can access them by pressing the navigation button in the navigation bar. The instrument view will slide down, leaving just the instrument view's header visible. However, when the instrument is running, the instrument view is locked and can not be slid down.

When the instrument view is slid down, it will return to its place when:

- you press the **Instrument** button in the touch screen's navigation bar, or
- you start using the instrument from the foot control.

25.1 Instrument operation logic

NOTE

If you use several 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 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 the micromotor back into the instrument holder. The user then removes the micromotor 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 the micromotor. The unit loads the modified and saved settings for the micromotor. 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.

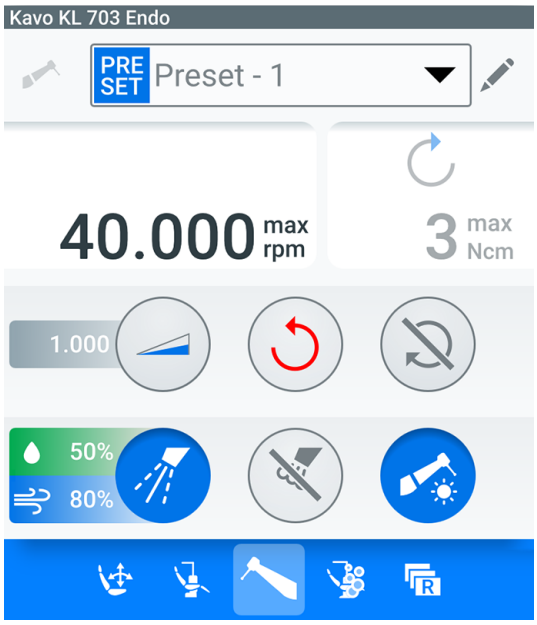
1. When the dentist picks up instrument 1 from the instrument console, it becomes the active instrument. The dentist can drive it with the foot control pedal (a short push to the right/left or down is enough).
2. While the dentist drives instrument 1, the assistant can pick up instrument 2 for preparation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

25.2 Micromotor

When you pick up the instrument from the instrument console, the instrument view opens on the touch screen.



25.2.1 Speed

CAUTION

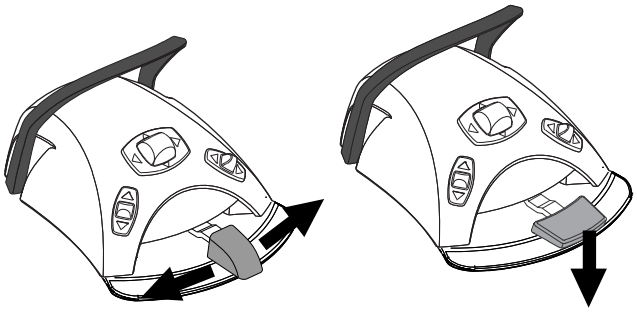
Ensure that the pedal is in rest position when you activate the instrument.

NOTE

The speed level depends on the instrument.

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 of the instrument. As you push the pedal, the current speed is shown on the touch screen.

The normal range is 100–38000 rpm.

To stop the instrument, allow the pedal to return to the rest position.

25.2.2 Speed limitation

When the micromotor's speed limitation is on and set to, for example, 20000 rpm, the foot control pedal movement controls the speed between

100–20000 rpm instead of the normal range of 100–38000 rpm. The preset maximum value is shown on the touch screen when the micromotor is picked up from the instrument console.

To edit the speed limit, see section "Editing micromotor speed limit" on page 139.

NOTE

The speed limit depends on the instrument.

Touch screen: Press **Speed limitation** to reduce the micromotor's maximum speed to a preset level. Press **Speed limitation** again to switch the limitation off.

When the speed limitation is on, the **Speed limitation** button is blue.

Foot control: You can edit the foot control functions so that the speed limit is switched on/off from either side knob. For instructions, see section "Editing foot control functions" on page 146.

NOTE

Check the Speed limitation button on the touch screen to verify that pushing the foot control knob activates the correct function.

25.2.3 Reverse rotation

In normal operation the micromotor rotates in a clockwise direction. Changing from normal to reverse rotation is possible only when the micromotor is picked up from the instrument console, but not operated.

When reverse rotation is activated, the **Reverse** button on the touch screen is blue. You can hear a sound signal when the micromotor reverses.

When the torque limit is enabled, reverse rotation is not available when the torque action is either Auto forward or Auto reverse.

Touch screen: To reverse the direction of rotation, press **Reverse**. Press the button again to return to normal operation.

Foot control: You can edit the foot control functions so that reverse rotation is turned on/off either from the side knob or by pushing the pedal left or right. For instructions, see section "Editing foot control functions" on page 146.

NOTE

If reverse rotation has been programmed to be activated from the foot control pedal, the Reverse button on the touch screen's instrument view is inactivated. Also, the button shows in which pedal direction the reverse rotation has been programmed.

NOTE

Check the Reverse button on the touch screen to verify that pushing the foot control knob or pedal activates the correct function.

25.2.4 Torque

Touch screen: Press **Torque** to enable the torque function and access the drive modes. A blue **Torque** button indicates that the function is enabled.

When the torque function is enabled and the limit is set to, for example 2.0 Ncm (in a range of 0.5–3.0), the operation connected with the selected drive mode is applied when the limit is reached.

To select the drive mode, first enable the torque function, and then select the drive mode by pressing **Drive mode** above the **Torque** button on the touch screen. The **Drive mode** button always shows the current drive mode. The modes are:

Normal

Torque limit (and stop mode) disabled.

Torque control

The torque is limited to the set threshold. Once the limit is reached, the rotation stops, while the torque is maintained. Once some load is taken off the motor, the rotation continues.

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 (default) and then return to clockwise direction.

Foot control: You can edit the foot control functions so that the torque limit is switched on/off and/or the drive mode is changed from either side knob. For instructions, see section "Editing foot control functions" on page 146.

NOTE

Check the torque button on the touch screen to verify that pushing the foot control knob activates the correct function.

25.2.5 Instrument spray

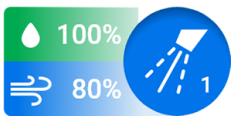
NOTE

Instrument spray must be switched off when using an instrument without a waterline inside the handpiece.

There are two different instrument spray types: spray 1 and spray 2.

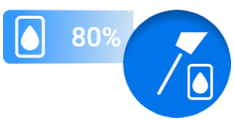
When sterile water is used, you can select between sterile water spray and spray off.

For instructions on how to adjust the spray flow rate and how to enable/disable the sterile mode, see section "Editing instrument spray" on page 142.



Touch screen: Toggle the **Instrument spray** button to switch between spray 1, spray 2 and spray off. A signal tone is heard whenever you change the spray type. The amounts of water and air for the currently used spray type are shown next to the **Instrument spray** button.

When instrument spray is enabled, the **Instrument spray** button is blue.

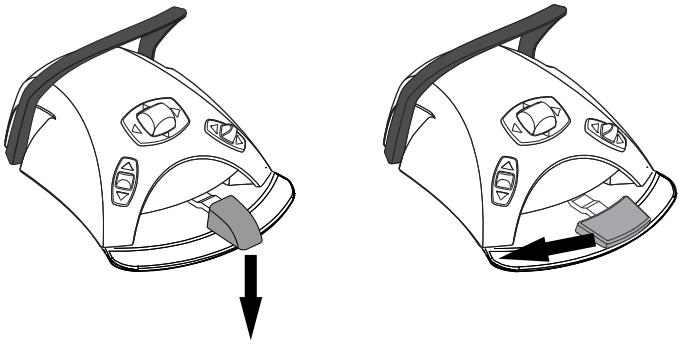


Sterile water is indicated by a Sterile water symbol on the button. Toggle the **Instrument spray** button to switch the water spray on/off. The amount of spray water is shown next to the **Instrument spray** button.

Foot control: Change the spray type (spray 1 > spray 2 > spray off) with the foot control. A signal tone is heard whenever you change the spray type. The **Instrument spray** button on the touch screen will change accordingly.

Standard pedal: Push the pedal down briefly to change the spray type.

Wide pedal: Push the pedal briefly to the left to change the spray type.



You can also edit the foot control functions so that the spray type is changed from either side knob. For instructions, see section "Editing foot control functions" on page 146.

NOTE

Check the instrument spray button on the touch screen to verify that pushing the foot control knob activates the correct function.

25.2.6 Automatic chip blow

When the automatic chip blow is on, two short blows of water, air, or both will occur after the instrument is stopped.

You can edit the chip blow type, see section "Editing chip blow" on page 143.

Touch screen: Press **Chip blow** to switch the automatic chip blow on or off. A blue **Chip blow** button indicates that the automatic chip blow is on.

Foot control: You can edit the foot control functions so that the chip blow is switched on/off from either side knob. For instructions, see section "Editing foot control functions" on page 146.

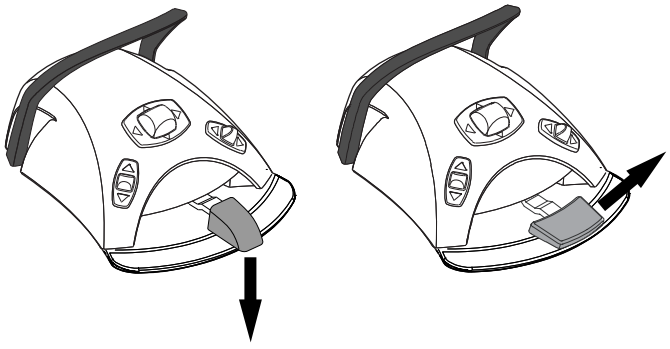
NOTE

Check the chip blow button on the touch screen to verify that pushing the foot control knob activates the correct function.

25.2.7 Manual chip blow

Standard pedal: You can temporarily activate the manual chip blow by pushing and holding down the pedal.

Wide pedal: You can temporarily activate the manual chip blow by pushing and holding the pedal to the right.



The flow of air will continue until you remove your foot from the pedal.

You can edit the chip blow type, see section "Editing chip blow" on page 143.

25.2.8 Instrument light

Touch screen: Press **Instrument light** to switch the instrument light on/off. When the instrument light is on, the **Instrument light** button is blue.

Foot control: You can edit the foot control functions so that the instrument light is switched on/off from either side knob. For instructions, see section "Editing foot control functions" on page 146.

NOTE

Check the instrument light button on the touch screen to verify that pushing the foot control knob activates the correct function.

You can edit the instrument light brightness, see section "Editing instrument light brightness" on page 144.

25.2.9 Micromotor presets

The KaVo KL 703 LED Endo micromotor has five normal presets (1–5) and five presets for endodontic treatment (e1–e5). The currently used preset is shown on the touch screen.

Touch screen: To change the preset for the active micromotor, select another preset from the Preset drop-down menu.

The following tables list the default values for the KaVo KL 703 LED Endo micromotor presets. The following terms and abbreviations are used in the tables:

- Normal = No torque control
- ToCo = Torque Control
- AuRe = Auto Reverse
- AuFo = Auto Forward

Default values for normal presets (1–5)

Function	Preset 1 (default when instrument is selected first time)	Preset 2	Preset 3	Preset 4	Preset 5
Drive mode	**Default:** Normal **Adjusting:** Normal, AuFo, AuRe, ToCo	**Default:** Normal **Adjusting:** Normal, AuFo, AuRe, ToCo	**Default:** Normal **Adjusting:** Normal, AuFo, AuRe, ToCo	**Default:** Normal **Adjusting:** Normal, AuFo, AuRe, ToCo	**Default:** Normal **Adjusting:** Normal, AuFo, AuRe, ToCo
RPM limit	**Default:** Off (1000 when limited) **Adjusting:** On: 100–38000 / Off: 40000	**Default:** Off (5000 when limited) **Adjusting:** On: 100–38000 / Off: 40000	**Default:** Off (5000 when limited) **Adjusting:** On: 100–38000 / Off: 40000	**Default:** On (2000) **Adjusting:** On: 100–38000 / Off: 40000	**Default:** On (2000) **Adjusting:** On: 100–38000 / Off: 40000

Default values for normal presets (1–5)

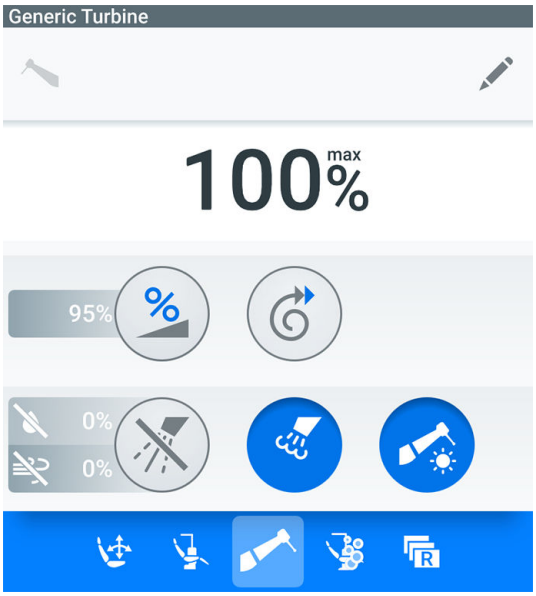
Function	Preset 1 (default when instrument is selected first time)	Preset 2	Preset 3	Preset 4	Preset 5
Torque limit	**Default:** Off (1.0 AuRe when limited) **Adjusting:** On: 0.5–3.0 Ncm, off: 3.0 Ncm	**Default:** Off (1.5 AuRe when limited) **Adjusting:** On: 0.5–3.0 Ncm, off: 3.0 Ncm	**Default:** Off (1.5 AuRe when limited) **Adjusting:** On: 0.5–3.0 Ncm, off: 3.0 Ncm	**Default:** Off (1.5 AuRe when limited) **Adjusting:** On: 0.5–3.0 Ncm, off: 3.0 Ncm	**Default:** Off (1.5 AuRe when limited) **Adjusting:** On: 0.5–3.0 Ncm, off: 3.0 Ncm
Instrument spray	**Default:** On (Air: 80%, Water 50%) **Adjusting:** Sterile / off / on (air 0–100%, water 0–100%) **Sterile water 1:** 40 **Sterile water 2:** 75	**Default:** On (Air: 80%, Water 50%) **Adjusting:** Sterile / off / on (air 0–100%, water 0–100%) **Sterile water 1:** 40 **Sterile water 2:** 75	**Default:** On (Air: 80%, Water 50%) **Adjusting:** Sterile / off / on (air 0–100%, water 0–100%) **Sterile water 1:** 40 **Sterile water 2:** 75	**Default:** On (Air: 80%, Water 50%) **Adjusting:** Sterile / off / on (air 0–100%, water 0–100%) **Sterile water 1:** 40 **Sterile water 2:** 75	**Default:** On (Air: 80%, Water 50%) **Adjusting:** Sterile / off / on (air 0–100%, water 0–100%) **Sterile water 1:** 40 **Sterile water 2:** 75
Automatic chip blow	**Default:** Off (air: 100%, water 0% when on) **Adjusting:** Off / on (air 0–100%, water 0–100%)	**Default:** Off (air: 100%, water 0% when on) **Adjusting:** Off / on (air 0–100%, water 0–100%)	**Default:** Off (air: 100%, water 0% when on) **Adjusting:** Off / on (air 0–100%, water 0–100%)	**Default:** Off (air: 100%, water 0% when on) **Adjusting:** Off / on (air 0–100%, water 0–100%)	**Default:** Off (air: 100%, water 0% when on) **Adjusting:** Off / on (air 0–100%, water 0–100%)
Instrument light	**Default:** On 100% **Adjusting:** Off, on (70–100%)	**Default:** On 100% **Adjusting:** Off, on (70–100%)	**Default:** On 100% **Adjusting:** Off, on (70–100%)	**Default:** On 100% **Adjusting:** Off, on (70–100%)	**Default:** On 100% **Adjusting:** Off, on (70–100%)
Reverse	**Default:** Off **Adjusting:** On/ off, available with Normal and ToCo drive modes	**Default:** Off **Adjusting:** On/ off, available with Normal and ToCo drive modes	**Default:** Off **Adjusting:** On/ off, available with Normal and ToCo drive modes	**Default:** Off **Adjusting:** On/ off, available with Normal and ToCo drive modes	**Default:** Off **Adjusting:** On/ off, available with Normal and ToCo drive modes
Torque autoforward time	**Default:** 2000 ms **Adjusting:** 500–5000 ms	**Default:** 2000 ms **Adjusting:** 500–5000 ms	**Default:** 2000 ms **Adjusting:** 500–5000 ms	**Default:** 2000 ms **Adjusting:** 500–5000 ms	**Default:** 2000 ms **Adjusting:** 500–5000 ms

Default values for endo presets (e1–e5)

Function	Preset e1	Preset e2	Preset e3	Preset e4	Preset e5
Drive mode	**Default:** AuFo **Adjusting:** AuFo, AuRe, ToCo	**Default:** AuFo **Adjusting:** AuFo, AuRe, ToCo	**Default:** AuRe **Adjusting:** AuFo, AuRe, ToCo	**Default:** AuRe **Adjusting:** AuFo, AuRe, ToCo	**Default:** AuRe **Adjusting:** AuFo, AuRe, ToCo
RPM limit	**Default:** On (260, always set on) **Adjusting:** on: 100–500 rpm	**Default:** On (260, always set on) **Adjusting:** on: 100–500 rpm	**Default:** On (260, always set on) **Adjusting:** on: 100–500 rpm	**Default:** On (260, always set on) **Adjusting:** on: 100–500 rpm	**Default:** On (260, always set on) **Adjusting:** on: 100–500 rpm
Torque limit	**Default:** Always on (3.0 Ncm) **Adjusting:** On: 0.5–3.0 Ncm; off: 3.0 Ncm	**Default:** Always on (2.0 Ncm) **Adjusting:** On: 0.5–3.0 Ncm; off: 3.0 Ncm	**Default:** Always on (1.5 Ncm) **Adjusting:** On: 0.5–3.0 Ncm; off: 3.0 Ncm	**Default:** Always on (1.0 Ncm) **Adjusting:** On: 0.5–3.0 Ncm; off: 3.0 Ncm	**Default:** Always on (0.7 Ncm) **Adjusting:** On: 0.5–3.0 Ncm; off: 3.0 Ncm
Sterile water (no spray available)	**Default:** off **Adjusting:** on/off	**Default:** off **Adjusting:** on/off	**Default:** off **Adjusting:** on/off	**Default:** off **Adjusting:** on/off	**Default:** off **Adjusting:** on/off
Automatic chip blow	Off	Off	Off	Off	Off
Instrument light	**Default:** On 100% **Adjusting:** off, on (70-100%)	**Default:** On 100% **Adjusting:** off, on (70-100%)	**Default:** On 100% **Adjusting:** off, on (70-100%)	**Default:** On 100% **Adjusting:** off, on (70-100%)	**Default:** On 100% **Adjusting:** off, on (70-100%)
Reverse	**Default:** Off **Adjusting:** On/off, available only with ToCo drive mode	**Default:** Off **Adjusting:** On/off, available only with ToCo drive mode	**Default:** Off **Adjusting:** On/off, available only with ToCo drive mode	**Default:** Off **Adjusting:** On/off, available only with ToCo drive mode	**Default:** Off **Adjusting:** On/off, available only with ToCo drive mode
Torque autoforward time	**Default:** 2000 ms **Adjusting:** 500–5000 ms	**Default:** 2000 ms **Adjusting:** 500–5000 ms	**Default:** 2000 ms **Adjusting:** 500–5000 ms	**Default:** 2000 ms **Adjusting:** 500–5000 ms	**Default:** 2000 ms **Adjusting:** 500–5000 ms

25.3 Turbine

When you pick up the instrument from the instrument console, the instrument view opens on the touch screen.



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.

25.3.1 Power

CAUTION

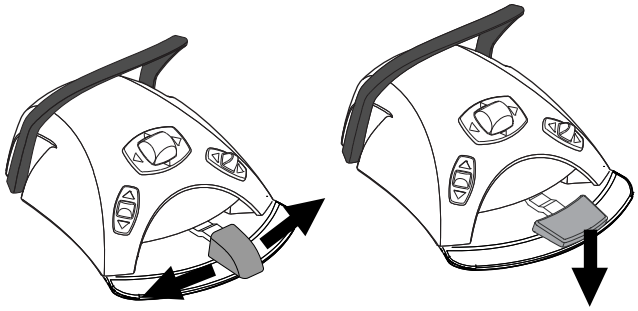
Ensure that the pedal is in rest position when you activate the instrument.

NOTE

The power level depends on the instrument.

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 power of the instrument. As you push the pedal, the power output is shown on the touch screen. The normal range is 5–100%.

To stop the instrument, allow the pedal to return to the rest position.

25.3.2 Power limitation

When the turbine's power limitation is on and the preset value is, for example, 50%, the foot control pedal movement controls the power between 5–50% instead of the normal range of 5–100%. The preset maximum value is shown on the touch screen when the turbine is picked up from the instrument console.

To edit the power limit, see section "Editing turbine power limit" on page 141.

NOTE

The power limitation does not affect the air driven instruments for which quickstart has been selected.

NOTE

The power limit depends on the instrument.

Touch screen: Press **Power limitation** to reduce the turbine's power to a preset level. Press **Power limitation** again to switch the limitation off.

When the power limitation is on, the **Power limitation** button is blue.

Foot control: You can edit the foot control functions so that the power limit is switched on/off from either side knob. For instructions, see section "Editing foot control functions" on page 146.

NOTE

Check the Power limitation button on the touch screen to verify that pushing the foot control knob activates the correct function.

25.3.3 Quickstart

The turbine will start with maximum speed if the quickstart is enabled.

Touch screen: When the instrument is active, but not operated, press **Quickstart** to enable/disable the quickstart. When the quickstart is enabled, the **Quickstart** button is blue.

Foot control: You can edit the foot control functions so that the quickstart is enabled/disabled from either side knob. For instructions, see section "Editing foot control functions" on page 146.

NOTE

Check the Quickstart button on the touch screen to verify that pushing the foot control knob activates the correct function.

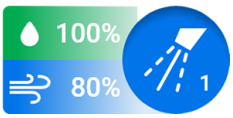
25.3.4 Instrument spray

NOTE

Instrument spray must be switched off when using an instrument without a waterline inside the handpiece.

There are two different instrument spray types: spray 1 and spray 2.

For instructions on how to adjust the spray flow rate, see section "Editing instrument spray" on page 142.



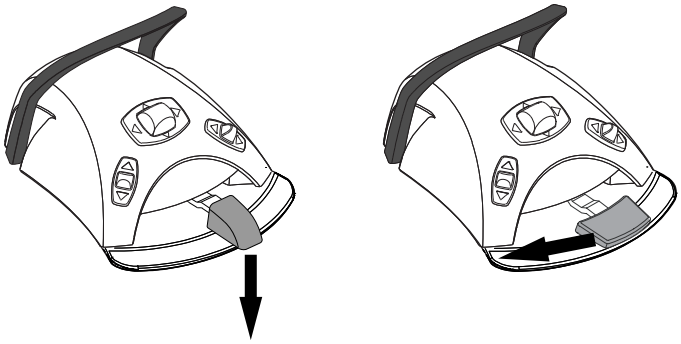
Touch screen: Toggle the **Instrument spray** button to switch between spray 1, spray 2 and spray off. A signal tone is heard whenever you change the spray type. The amounts of water and air for the currently used spray type are shown next to the **Instrument spray** button.

When instrument spray is enabled, the **Instrument spray** button is blue.

Foot control: Change the spray type (spray 1 > spray 2 > spray off) with the foot control. A signal tone is heard whenever you change the spray type. The **Instrument spray** button will change accordingly.

Standard pedal: Push the pedal down briefly to change the spray type.

Wide pedal: Push the pedal briefly to the left to change the spray type.



You can also edit the foot control functions so that the spray type is changed from either side knob. For instructions, see section "Editing foot control functions" on page 146.

NOTE

Check the instrument spray button on the touch screen to verify that pushing the foot control knob activates the correct function.

25.3.5 Automatic chip blow

When the automatic chip blow is on, two short blows of water, air, or both will occur after the instrument is stopped.

You can edit the chip blow type, see section "Editing chip blow" on page 143.

Touch screen: Press **Chip blow** to switch the automatic chip blow on or off. A blue **Chip blow** button indicates that the automatic chip blow is on.

Foot control: You can edit the foot control functions so that the chip blow is switched on/off from either side knob. For instructions, see section "Editing foot control functions" on page 146.

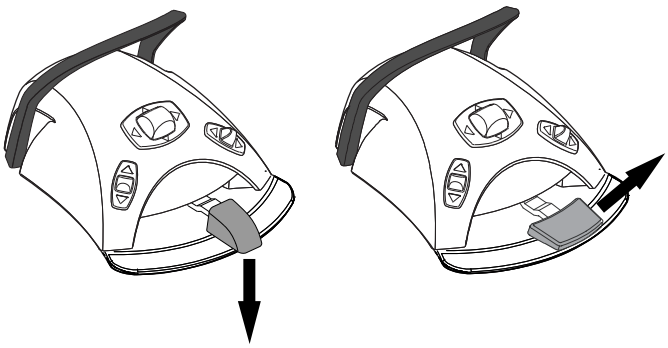
NOTE

Check the chip blow button on the touch screen to verify that pushing the foot control knob activates the correct function.

25.3.6 Manual chip blow

Standard pedal: You can temporarily activate the manual chip blow by pushing and holding down the pedal.

Wide pedal: You can temporarily activate the manual chip blow by pushing and holding the pedal to the right.



The flow of air will continue until you remove your foot from the pedal.

You can edit the chip blow type, see section "Editing chip blow" on page 143.

25.3.7 Instrument light

Touch screen: Press **Instrument light** to switch the instrument light on/off. When the instrument light is on, the **Instrument light** button is blue.

Foot control: You can edit the foot control functions so that the instrument light is switched on/off from either side knob. For instructions, see section "Editing foot control functions" on page 146.

NOTE

Check the instrument light button on the touch screen to verify that pushing the foot control knob activates the correct function.

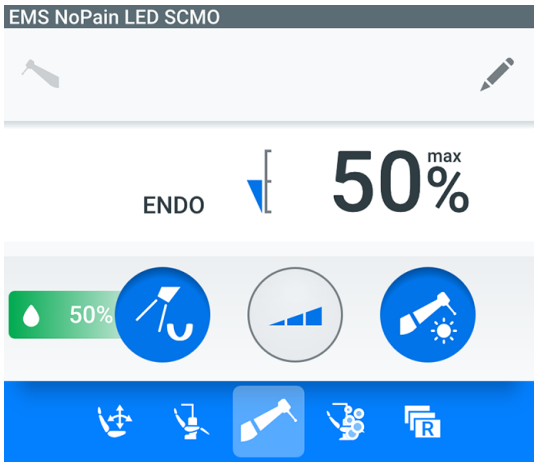
You can edit the instrument light brightness, see section "Editing instrument light brightness" on page 144.

25.4 Scaler

NOTE

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

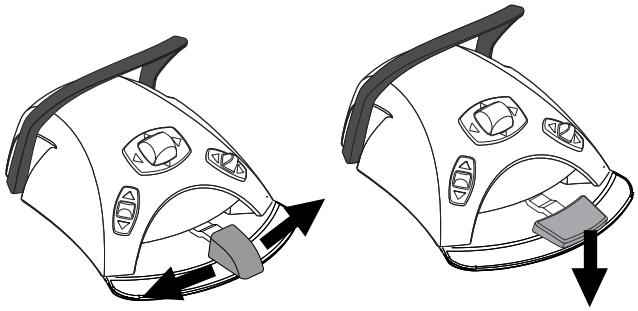
When you pick up the instrument from the instrument console, the instrument view opens on the touch screen.



25.4.1 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 power of the instrument. As you push the pedal, the power output is shown on the touch screen.

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.

25.4.2 Instrument spray

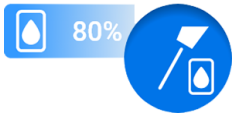
The spray type for the scaler can be selected to be upper jaw, lower jaw or spray off.

When sterile water is used, you can select between sterile water spray and spray off.

For instructions on how to adjust the spray flow rate and how to enable/ disable the sterile mode, see section "Editing instrument spray" on page 142.

Touch screen: Toggle the **Instrument spray** button to switch between these spray types. The amount of water for the currently used spray type is shown next to the **Instrument spray** button.

When instrument spray is enabled, the **Instrument spray** button is blue.

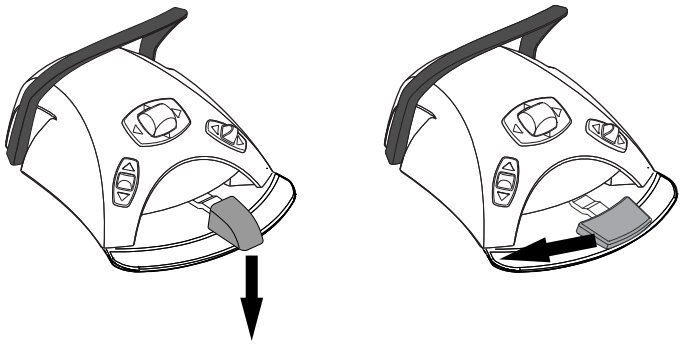


Sterile water is indicated by a Sterile water symbol on the button. Toggle the **Instrument spray** button to switch the water spray on/off. The amount of spray water is shown next to the **Instrument spray** button.

Foot control: Change the spray type (upper jaw > lower jaw > spray off) with the foot control. A signal tone is heard whenever you change the spray type. The **Instrument spray** button will change accordingly.

Standard pedal: Push the pedal down briefly to select the spray type.

Wide pedal: Push the pedal briefly to the left to select the spray type.



You can also edit the foot control functions so that the spray type is changed from either side knob. For instructions, see section "Editing foot control functions" on page 146.

NOTE

Check the instrument spray button on the touch screen to verify that pushing the foot control knob activates the correct function.

25.4.3 Planmeca Piezon LED scaler

The Planmeca Piezon LED scaler has three modes:

(The abbreviation in the brackets is shown on the touch screen.)

- endodontics **(ENDO)**; power range 1–50
- scaling **(SCALER)**; power range 1–100
- restoration **(RESTO)**; power range 50–100.

Touch screen: When the scaler is the active instrument, the scaler mode can be changed by pressing **Mode**.

Foot control: You can edit the foot control functions so that the scaler mode is changed from either side knob. For instructions, see section "Editing foot control functions" on page 146.

NOTE

Check the Mode button on the touch screen to verify that pushing the foot control knob activates the correct function.

25.4.4 Satelec Newtron scaler

The Satelec Newtron scaler has four modes:

(The abbreviation in the brackets is shown on the touch screen.)

- periodontics **(PERIO)**; power range 1–3
- endodontics **(ENDO)**; power range 3–5
- scaling **(SCALER)**; power range 5–8
- conservative dentistry **(CONSERVATIVE)**; 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)

Touch screen: When the scaler is the active instrument, the scaler mode can be changed by pressing **Mode**.

Foot control: You can edit the foot control functions so that the scaler mode is changed from either side knob. For instructions, see section "Editing foot control functions" on page 146.

NOTE

Check the Mode button on the touch screen to verify that pushing the foot control knob activates the correct function.

25.4.5 Instrument light

Touch screen: If the scaler is equipped with an instrument light, press **Instrument light** to switch the instrument light on/off. When the instrument light is on, the **Instrument light** button is blue.

Foot control: You can edit the foot control functions so that the instrument light is switched on/off from either side knob. For instructions, see section "Editing foot control functions" on page 146.

NOTE

Check the instrument light button on the touch screen to verify that pushing the foot control knob activates the correct function.

You can edit the instrument light brightness, see section "Editing instrument light brightness" on page 144.

25.5 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

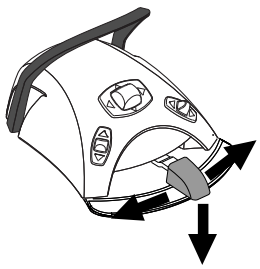
Do not use the polymerisation light on patients with cardiac pacemakers. The polymerisation light can cause disturbance on the pacemaker's function.

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.



To start the polymerisation cycle with the foot control, first select the desired curing mode by pressing the navigation button on the handpiece. Then, push the foot control pedal to the right or to the left or down to start the polymerisation cycle.

The polymerisation cycle can be interrupted by pushing the foot control pedal to the right or to the left or down.

You can edit the polymerisation cycle length, see section "Editing polymerisation cycle length" on page 145.

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.

25.6 Intraoral camera

Prerequisites

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.

25.6.1 KaVo DIAGNOcam Vision Full HD

Starting KaVo DIAGNOcam Vision Full HD

Before you turn on the intraoral camera, select the patient in Planmeca Romexis. For instructions, see *Planmeca Romexis user's manual*, section *Opening patients*.

You can turn on the intraoral camera in the following ways:

- pick up the camera from the instrument console
- press **DIAGNOcam** in the *Unit functions* view

- press of the menu button on the camera handpiece for over 1 second
- press either of the side knobs on the foot control, if so configured. For configuration instructions, see section "Editing foot control functions" on page 146.
- press the **Flexy** button, if so configured. For configuration, contact your Planmeca dealer.

When the intraoral camera turns on, the intraoral camera view is shown on the instrument console touch screen and you can operate the camera from the touch screen or from the camera handpiece. The LED on the handpiece is turned on and off simultaneously with the intraoral camera.

For instructions on how to operate the intraoral camera from the handpiece, see OEM documentation.

Freezing/unfreezing image

Touch screen: Press **Pause** to freeze/unfreeze the image. When you unfreeze the image, the camera goes back to live stream (indicated by the blue indicator light on the handpiece).

Foot control: You can edit the foot control functions so that you freeze/unfreeze an image from either side knob. For instructions, see section "Editing foot control functions" on page 146.

Taking image

Touch screen: When the image is frozen, press **Camera** to save the image.

Foot control: You can edit the foot control functions so that you save a frozen image from either side knob. For instructions, see section "Editing foot control functions" on page 146.

Illumination modes

The KaVo DIAGNOcam Vision Full HD features three illumination modes: intraoral mode, fluorescence mode and transillumination mode. To change from one mode to another, toggle the **Mode** button. The **Mode** button always shows the current mode:

Intraoral mode

Fluorescence mode

Transillumination mode

To take an image in all three illumination modes, press **Multimode image**.

Viewing camera view on Planmeca Halo

Press **Extend** to view the camera view on the Planmeca Halo touch screen.

Saving images

Any images taken are automatically uploaded to Planmeca Romexis and stored with the selected patient. They can be viewed on the dental unit like other Planmeca Romexis images. For information on how to view patient images, see section "Viewing patient images" on page 149.

If no patient is selected, the taken images are stored in the dental unit temporarily and deleted when the user logs out.

Turning off intraoral camera

When you return the intraoral camera to the instrument console, the camera is automatically turned off.

25.6.2 Planmeca Somia

Starting Planmeca Somia

Before you turn on the intraoral camera, select the patient in Planmeca Romexis. For instructions, see *Planmeca Romexis user's manual*, section *Opening patients*.

You can turn on the intraoral camera in the following ways:

- pick up the camera from the instrument console
- press either of the buttons on the camera handpiece
- press either of the side knobs on the foot control, if so configured. For configuration instructions, see section "Editing foot control functions" on page 146.

- press the **Flexy** button, if so configured. For configuration, contact your Planmeca dealer.

When the intraoral camera turns on, the intraoral camera view is shown on the instrument console touch screen and you can operate the camera from the touch screen or from the camera handpiece. The LED on the handpiece is turned on and off simultaneously with the intraoral camera.

For instructions on how to operate the intraoral camera from the handpiece, see *Planmeca Somia user's manual.*

Freezing/unfreezing image

Touch screen: Press **Pause** to freeze/unfreeze the image. When you unfreeze the image, the camera goes back to live stream (indicated by the blue indicator light on the handpiece).

Foot control: You can edit the foot control functions so that you freeze/unfreeze an image from either side knob. For instructions, see section "Editing foot control functions" on page 146.

Taking image

Touch screen: When the image is frozen, press **Camera** to save the image.

Foot control: You can edit the foot control functions so that you save a frozen image from either side knob. For instructions, see section "Editing foot control functions" on page 146.

Viewing camera view on Planmeca Halo

Press **Extend** to view the camera view on the Planmeca Halo touch screen.

Saving images

Any images taken are automatically uploaded to Planmeca Romexis and stored with the selected patient. They can be viewed on the dental unit like other Planmeca Romexis images. For information on how to view patient images, see section "Viewing patient images" on page 149.

If no patient is selected, the taken images are stored in the dental unit temporarily and deleted when the user logs out.

Turning off intraoral camera

When you return the intraoral camera to the instrument console, the camera is automatically turned off.

26 Editing dental unit and instrument settings

26.1 Introduction

Before you start editing dental unit and instrument settings, make sure that you have signed in to the dental unit with your own user name. Automatic chair positions, operating light and instrument settings are saved to your personal settings.

Whenever you make changes to settings, press **OK** at the bottom of the view to save the changes and close the view.

You can also close the view without saving the changes by pressing **Cancel**.

26.2 Editing chair positions

When you have signed in to the dental unit with your own user name, all changes you make to the chair positions and then save, are saved to your personal settings. This means that whenever you sign in to the dental unit, you will use your last saved chair settings.

26.2.1 Automatic chair positions

About this task

NOTE

The Trendelenburg and left-right turn positions can not be edited.

Steps

1. Move the chair to the required position by using the chair movement buttons on the touch screen 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 "Adjusting intensity of operating light" on page 99.
4. In the *Chair movements* view, press **Edit** and the **Automatic chair position** -button under which you want to store the current chair position.

Alternatively, only press the **Automatic chair position** for a few seconds (without pressing **Edit**).

5. Press **OK** to save the current position as an automatic position.

26.2.2 Manual chair movements

About this task

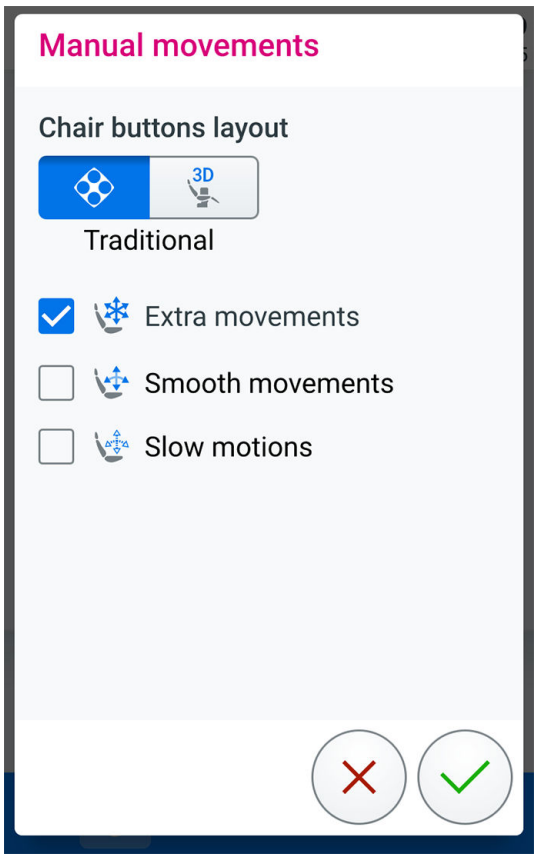
You can edit in which format you want to see the manual chair movement buttons on the touch screen: Traditional or 3D.

Steps

1. In the *Chair* view, press **Edit**.

2. Press **Chair movements**.

   The *Manual movements* window opens.



3. Select either a traditional or a 3D layout for the chair buttons.

   Press the layout to select it. The selected layout appears with a blue background.

   The selected layout determines which additional selections you can see further down in the window.

4. Select which additional manual movements to show on the touch screen.

   Check the corresponding checkbox to select a movement.

   For the traditional layout you can select extra movements and enable smooth movements and slow motions. For the 3D layout you can select Automatic legrest or SynchroDrive, and enable smooth movements and

slow motions. For more information on these movements, see section "Manual operation from touch screen" on page 88.

5. Press **OK** to save the current position as an automatic position.

26.3 Editing duration of cup fill

About this task

The flow rate of the cup fill can be adjusted with the black knob located inside the dental unit, above the suction tube cleaning holder. When you have adjusted the flow rate, you might need to adjust the duration of the cup fill as described below.

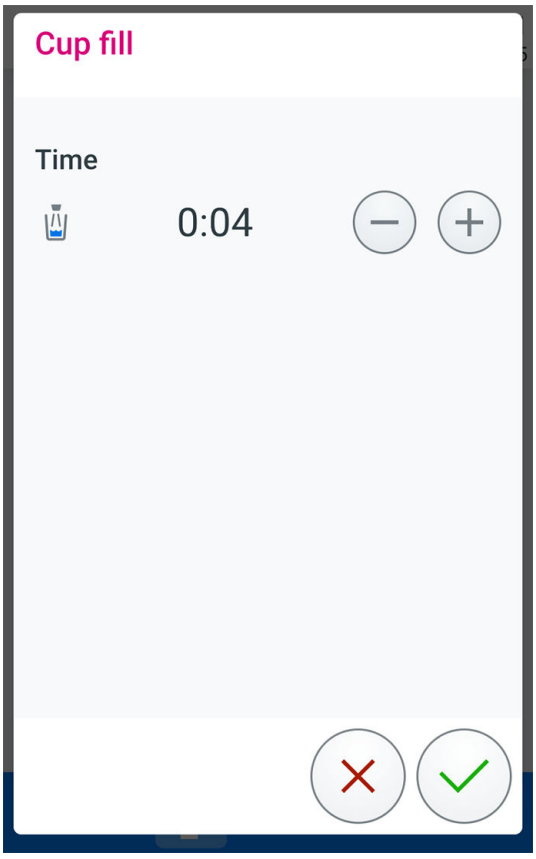
Steps

1. Press **Unit functions** in the navigation bar to open the *Unit functions* view.

2. Press **Edit**.

3. Press **Cup fill**.

The *Cup fill* view opens.



4. Edit the length of the cup fill time by pressing the minus and plus buttons.

   The value range is 2–10 seconds.

5. Press **OK** to save the new setting and close the *Cup fill* view.

26.4 Editing duration of bowl rinse

About this task

The flow rate of the bowl rinse can be adjusted with the black knob located inside the dental unit, above the suction tube cleaning holder. When you have adjusted the flow rate, you might need to adjust the duration of the bowl rinse as described below.

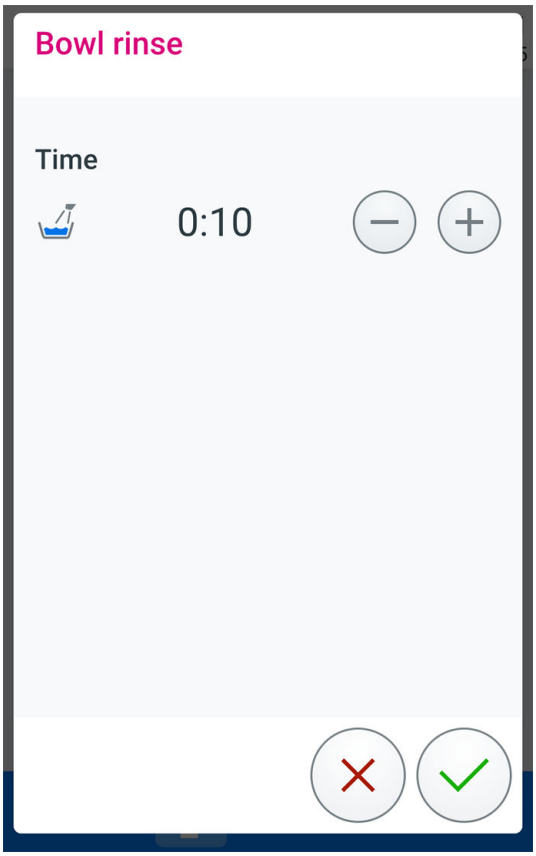
Steps

1. Press **Unit functions** in the navigation bar to open the *Unit functions* view.

2. Press **Edit**.

3. Press **Bowl rinse**.

   The *Bowl rinse* view opens.



4. Edit the length of the bowl rinse time by pressing the minus and plus buttons.

   The value range is 5–240 seconds.

5. Press **OK** to save the new setting and close the *Bowl rinse* view.

26.5 Editing duration of door open -function

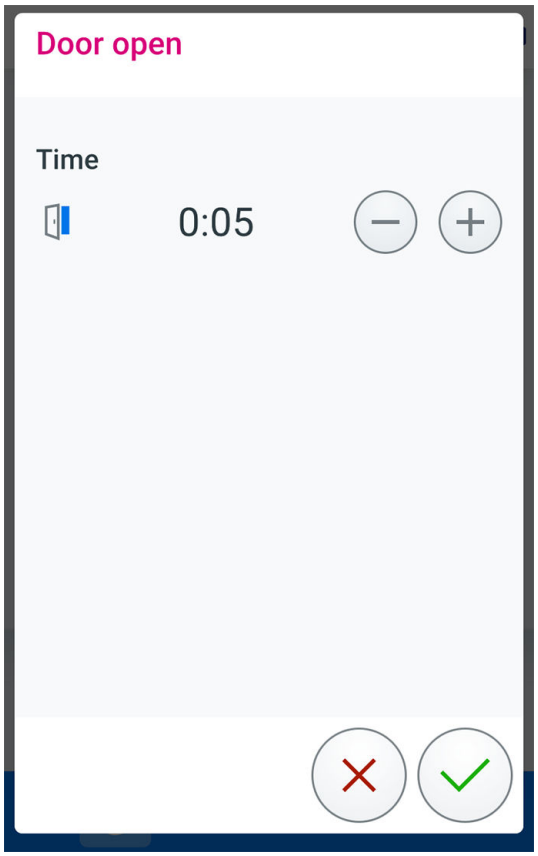
Steps

1. Press **Unit functions** in the navigation bar to open the *Unit functions* view.

2. Press **Edit**.

3. Press **Door open**.

   The *Door open* view opens.



4. Edit the length of the door open -function by pressing the minus and plus buttons.

   The value range is 1–240 seconds.

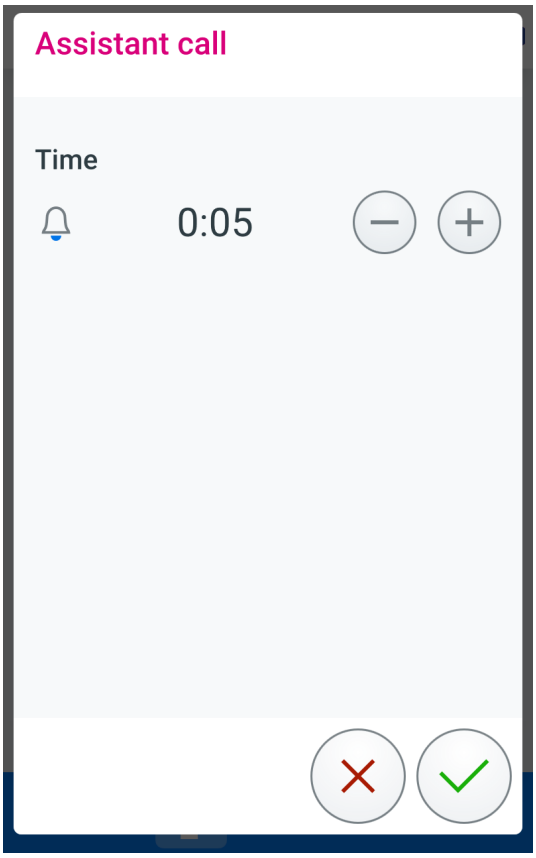
5. Press **OK** to save the new settings and close the *Door open* view.

26.6 Editing duration of assistant call -function

Steps

1. Press **Unit functions** in the navigation bar to open the *Unit functions* view.
2. Press **Edit**.
3. Press **Assistant call**.

   The *Assistant call* view opens.



4. Edit the length of the assistant call -function by pressing the minus and plus buttons.

   The value range is 1–240 seconds.

5. Press **OK** to save the new settings and close the *Assistant call* view.

26.7 Editing time and date

Steps

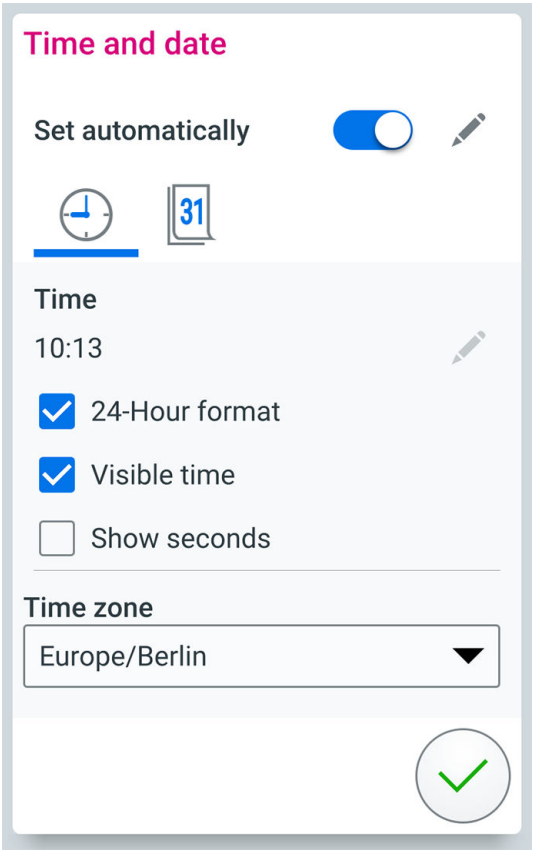
1. Press **Dental unit** in the navigation bar to open the *Dental unit* view.

2. Press **Edit**.

3. Press the time or date in the top bar.

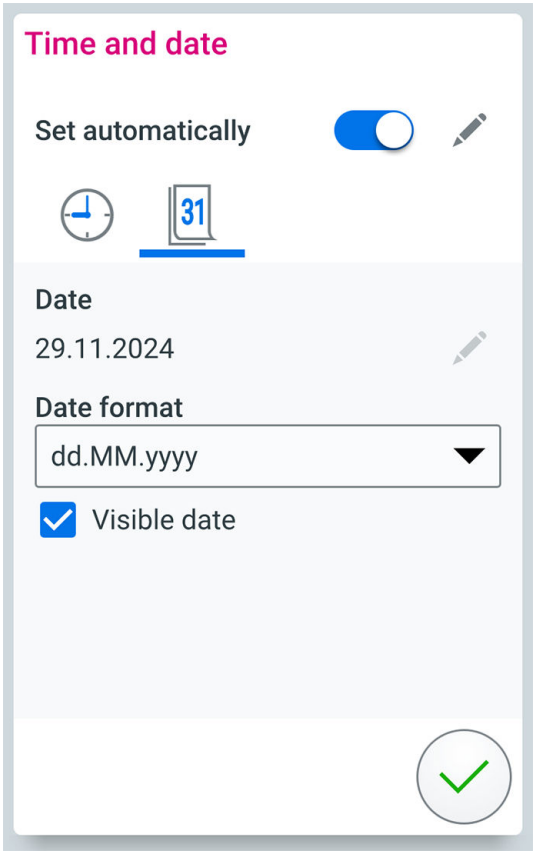
   The time and date are visible in the top bar only if you have enabled the visibility in the *Time and date* editing view. If they are not visible, you can access the editing view by selecting **Settings** either in the *Unit functions* view or in the *Sign in* window, and then selecting *Time and date* in the Settings menu.

   The *Time and date* view opens on the *Time* tab.



4. If you want the time and date to be set automatically, enable the *Set automatically* setting. When this setting is disabled, you can set the time and date manually in the tabs *Time* and *Date* by pressing **Edit** next to the time and date.
5. Edit the time settings.
   - Select the time format (12-hour / 24-hour clock) and adjust the time.
   - Select the time zone from the drop-down list.
   - Check the checkbox next to *Visible time* if you want the time to be visible on the touch screen.
   - Check the checkbox next to *Show seconds* if you want that the seconds are displayed next to the time on the touch screen.

6. Press **Date** to open the *Date* tab.



7. Edit the date settings.
   - Select the date format and adjust the date. The options are:
     - dd.mm.yyyy (day, month, year)
     - mm.dd.yyyy (month, day, year)
     - yyyy.mm.dd (year, month, day)
   - Check the checkbox next to *Visible date* if you want the date to be visible on the touch screen.
8. Press **OK** to save the new settings and close the *Time and date* view.

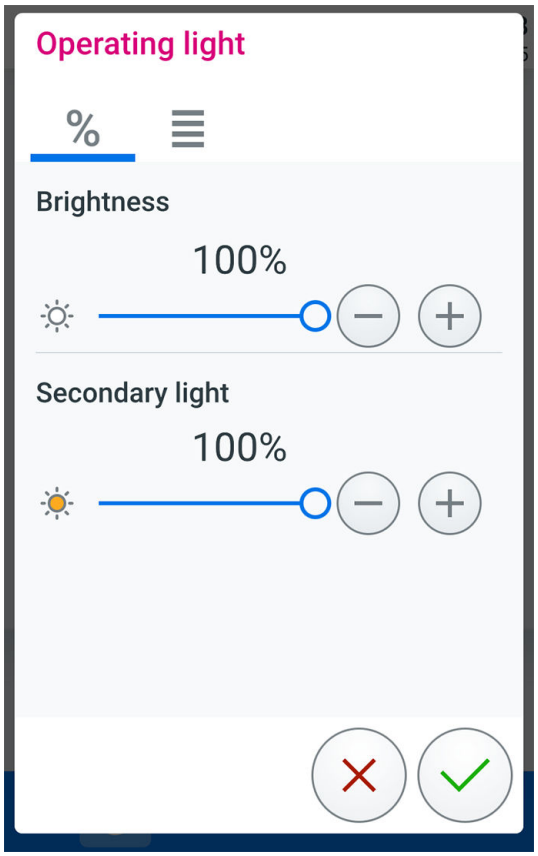
26.8 Editing operating light

Steps

1. Press **Edit** in the *Chair*, *Dental unit* or *Instrument* view.

2. Press **Operating light**.

   The *Operating light* view opens on the *Brightness* tab.

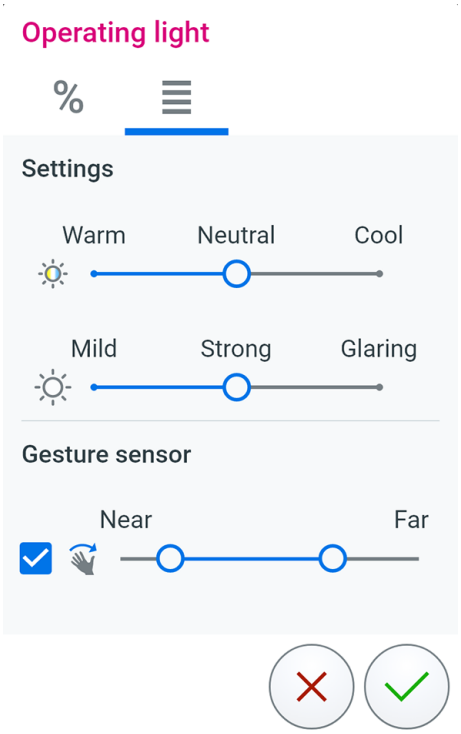


3. In the *Brightness* tab, adjust the operating light brightness either by dragging the handle or by pressing the minus and plus buttons.

   Normal operating light

   Operating light in composite mode

4. Press **Settings** to open the *Settings* tab.



5. Edit the operating light settings by dragging the handle to the wanted position.
   - Select whether you want the operating light's white light tone to be warm, neutral or cool.
   - Select whether you want the operating light's maximum brightness to be mild, strong or glaring.
6. Edit the gesture sensor settings.

   Enable/disable the gesture sensor by checking/unchecking the checkbox next to the gesture sensor icon. Adjust the distance at which the gesture sensor on the operating light reads your hand movements by dragging the handles to a suitable position.
7. Press **OK** to save the new settings and close the *Operating light* view.

26.9 Editing instrument settings

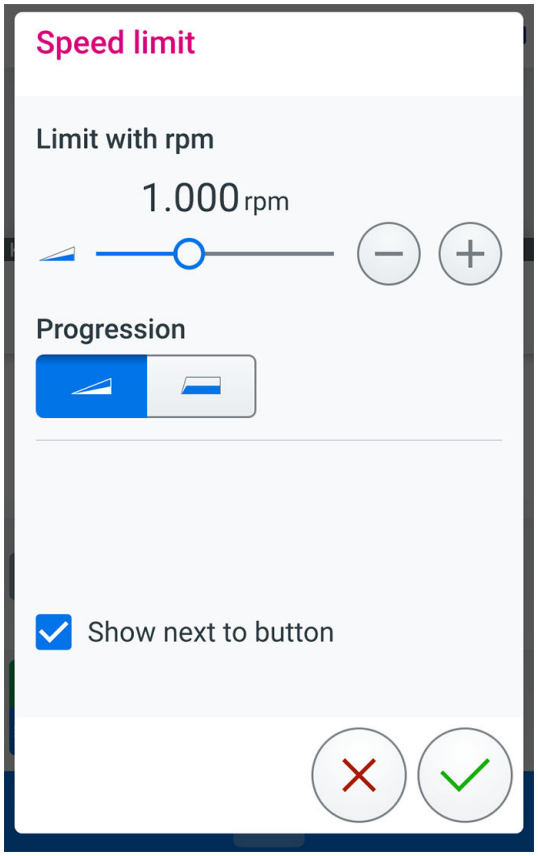
26.9.1 Editing micromotor speed limit

Steps

1. Activate the instrument.
2. In the instrument view, press **Edit**.

3. Press **Speed limit**.

The *Speed limit* editing view opens.



4. Adjust the speed limit either by dragging the handle or by pressing the minus and plus buttons.
5. Under *Progression*, select if speed limit is achieved gradually or immediately when starting the instrument.


The instrument gradually achieves the speed limit.


The instruments starts with full (limited) speed.

6. Check the checkbox next to *Show next to button* if you want the limited rpm to show in the instrument view next to the **Speed limit** button.
7. Press **OK** to save the new settings and close the *Speed limit* editing view.

26.9.2 Editing micromotor torque limit

Steps

1. Activate the instrument.
2. In the instrument view, press **Edit**.

3. Press **Torque limit**.

   The *Torque limit* editing view opens.
4. Adjust the torque limit either by dragging the handle or by pressing the minus and plus buttons.
5. Under *Limit function*, select the function that is activated when the torque limit is reached. The options are:

   Torque control

   The torque is limited to the set threshold. Once the limit is reached, the rotation stops, while the torque is maintained. Once some load is taken off the motor, the rotation continues.

   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 a specified time and then return to clockwise direction.

   The auto reverse operation can be adjusted to run for 500–5000 ms, in steps of 100 ms.
6. Check the checkbox next to *Show next to button* if you want the torque limit to show in the instrument view next to the **Torque limit** button.
7. Press **OK** to save the new settings and close the *Torque limit* editing view.

26.9.3 Editing turbine power limit

About this task

NOTE

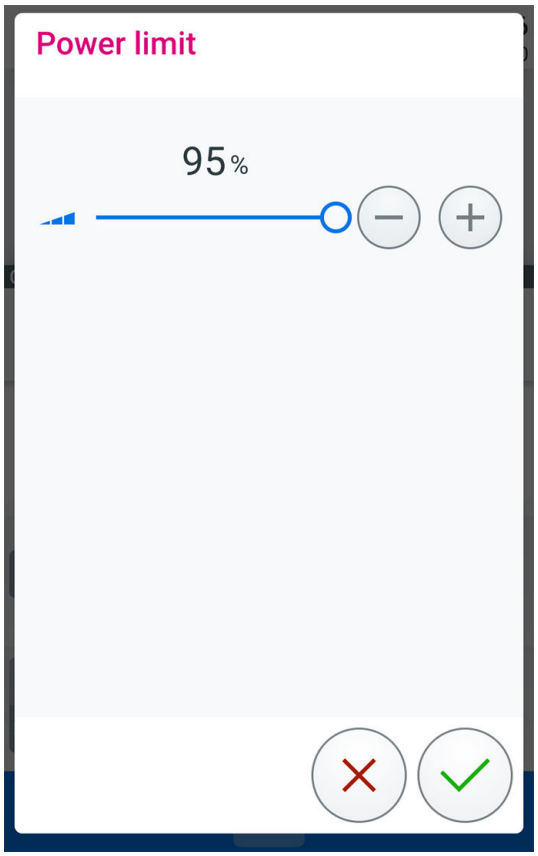
The power limit does not affect the air driven instruments for which quickstart has been selected.

Steps

1. Activate the instrument.
2. In the instrument view, press **Edit**.

3. Press **Power limit**.

   The *Power limit* editing view opens.



4. Adjust the speed limit either by dragging the handle or by pressing the minus and plus buttons.
5. Press **OK** to save the new settings and close the *Power limit* editing view.

26.9.4 Editing instrument spray

About this task

NOTE

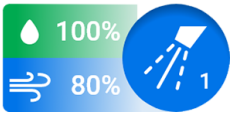
If the instrument is operated while editing the instrument spray settings, the changes in settings are seen immediately.

NOTE

The air/water flow settings of the syringe can not be edited.

Steps

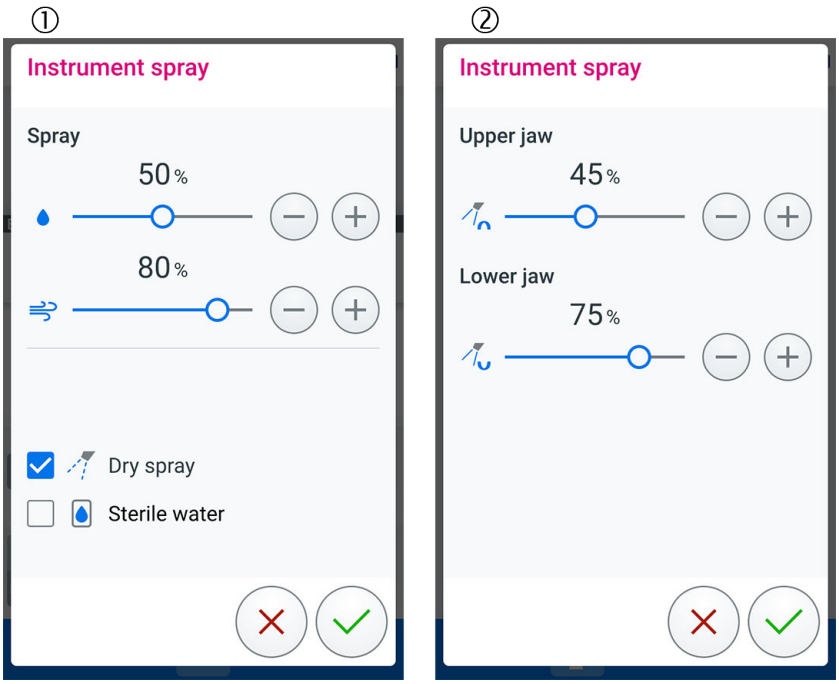
1. Activate the instrument.
2. Select the spray that you want to edit, for example spray 1 or spray 2, by toggling the **Instrument spray** button.



3. In the instrument view, press **Edit**.

4. Press **Instrument spray**.

   The *Instrument spray* editing view opens. The editing view looks different depending on which instrument is active. The image below shows the views for the micromotor (1) and the scaler (2).



5. Edit the spray settings.

   Edit the amounts of spray water and spray air either by dragging the handle or by pressing the minus and plus buttons. For the scaler, only spray water is available.

   The minimum value of all parameters is 0 (no flow) and maximum 100. The adjustment step is 1 in the value range 0–35% and 5 in the value range 35–100%.

6. Optional: Enable the sterile water mode and adjust the sterile water flow.

   To be able to enable the sterile water mode, the dental unit must be equipped with the Planmeca Sterile water system.

   Sterile water is available only for the micromotor.

   6.a. Enable the sterile water mode by checking the checkbox next to the sterile spray icon.

   When sterile water is enabled, the other spray settings for this instrument are disabled.

   The sterile water mode is disabled by unchecking the checkbox.

   6.b. Adjust the spray water amount by dragging the handle or by pressing the minus and plus buttons.

7. Press **OK** to save the new settings and close the *Instrument spray* editing view.

26.9.5 Editing chip blow

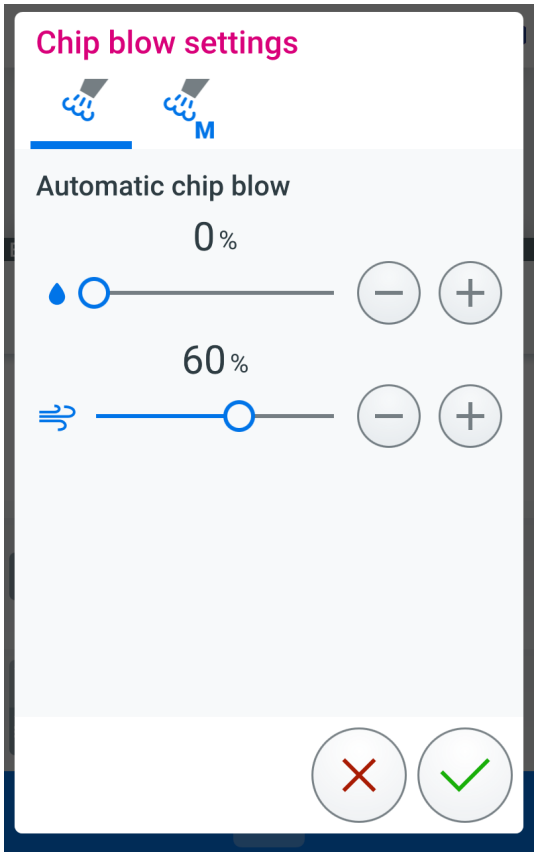
Steps

1. Activate the instrument.

2. In the instrument view, press **Edit**.

3. Press **Chip blow**.

   The *Chip blow* editing view opens. There are separate tabs for editing the automatic and manual chip blow.



4. Adjust the flow rates for water and air by dragging the handle or by pressing the minus and plus buttons.

   The minimum value of both parameters is 0 (no flow) and maximum 100. The adjustment step is 1 in the value range 0–35% and 5 in the value range 35–100%.

5. Press **OK** to save the new settings and close the *Chip blow* editing view.

26.9.6 Editing instrument light brightness

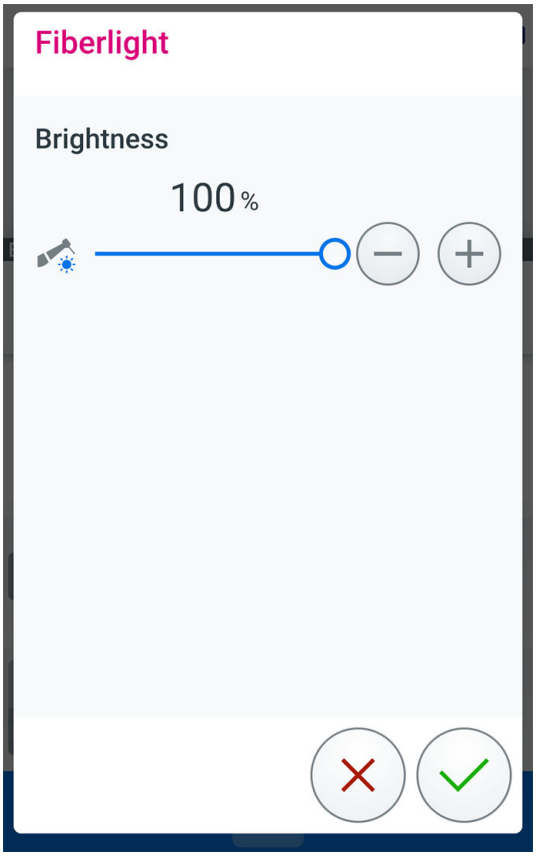
Steps

1. Activate the instrument.

2. In the instrument view, press **Edit**.

3. Press **Instrument light**.

The *Instrument light* editing view opens.



4. Edit the instrument light brightness either by dragging the handle or by pressing the minus and plus buttons.

   The value range is 70–100%.

   After reaching the minimum value, the light is switched off.

5. Press **OK** to save the new settings and close the *Instrument light* editing view.

26.9.7 Editing polymerisation cycle length

About this task

NOTE

The polymerisation cycle length can be edited only for the Planmeca Lumion Plus LED polymerisation light.

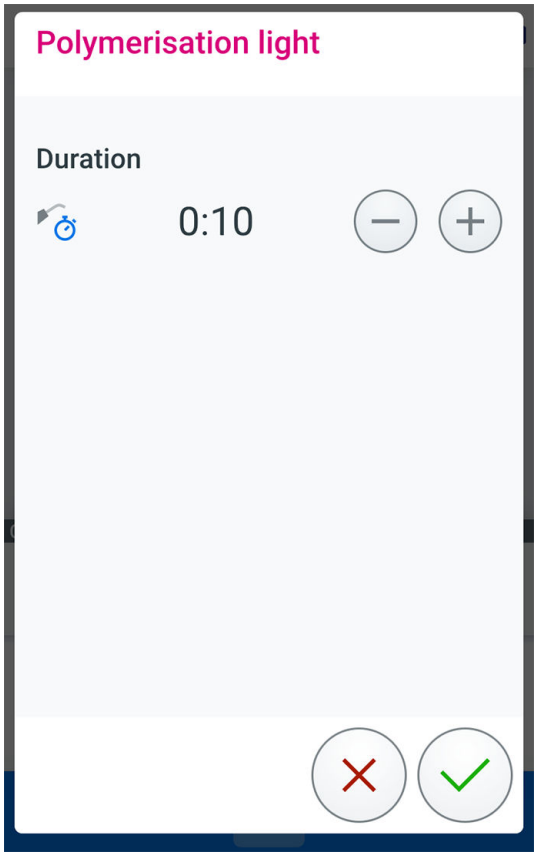
Steps

1. Activate the instrument.

2. In the instrument view, press **Edit**.

3. Press on the polymerisation cycle length that is shown on the touch screen.

   The *Polymerisation light* editing window opens.



4. Adjust the duration of the polymerisation by pressing the minus and plus buttons.

   The value range is 5–100 seconds.

5. Press **Close** to save the setting and close the *Polymerisation light* editing view.

26.10 Editing foot control functions

About this task

The functions that are activated when you push the side knobs or the pedal can be edited. The available options depend on whether an instrument is selected or not. The options are displayed in the editing window.

The pedal functions can not be edited for the idle state, i.e. when no instrument is selected.

The options are described in section "Foot control functions" on page 63.

NOTE

One knob position (for example, left-side knob up) can have two functions: a short push activates one function and a long function activates another. However, you can only edit the function behind the short push.

NOTE

The functions edited for a certain instrument model apply to all instruments of the same model.

NOTE

Editing the rotation direction for one micromotor will affect all micromotors.

NOTE

The automatic chair position functions on the centre knob apply to all instruments and the idle state. They can not be edited on a per instrument basis.

NOTE

The Flexy button function is only displayed in the *Foot control* window, but it can not be edited in this window. To change the function behind the Flexy button, contact your local Planmeca dealer.

Steps

1. Press **Unit functions** in the bottom bar to open the *Unit functions* view.

2. Press **Foot control**.

   A view of the foot control functions opens.
3. If you are editing foot control functions for an instrument, activate the instrument.

4. Press **Edit**.

   A blue field opens next to the **Edit** button to indicate that you are in the editing state.
5. Press the function button next to the position you want to edit (for example, right-side knob up) to open a list of available functions.
6. 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.

   On the list, a foot control icon marks those functions that are currently activated from the foot control. The icon also specifies the action (for example, right-side knob up) that activates the function.

7. Press **OK**.

   The changes are saved and the programming window closes. If you want to close the window without changing the setting, press **Close**.

26.10.1 Resetting foot control functions

Steps

1. Press **Unit functions** in the bottom bar to open the *Unit functions* view.

2. Press **Foot control**.

   A view of the foot control functions opens.

3. If you want to reset the foot control functions for an instrument, activate the instrument.

4. Press **Edit**.

   A blue field opens next to the **Edit** button to indicate that you are in the editing state.

5. Press **Reset foot control functions**.

NOTE

The reset applies only to the currently displayed foot control functions. The reset must be performed separately for the idle state (no instrument activated) and for each instrument.

The settings are reset to factory default settings. The default settings are listed in section "Foot control functions" on page 63.

27 Viewing patient images

NOTE
The patient images are stored in Planmeca Romexis.

NOTE
To be able to view patient images on the touch screen, Planmeca Romexis software version 6.4.8 or later must be installed. Also, the user must have rights to view patient images in Planmeca Romexis.

27.1 Viewing patient images from dental unit

About this task

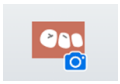
NOTE
To be able to view patient images on the touch screen, Planmeca Romexis software version 6.4.8 or later must be installed. The Romexis client must be paired with the dental unit. Also, the user must have rights to view patient images in Planmeca Romexis.

Steps

1. Start Planmeca Romexis and select a patient.
2. On the dental unit, log in using either PlanID or a user connected to Planmeca Romexis.
3. On the touch screen, open the *Patient images* view to view patient images.

4. Select a category to view images in each category.

   Images are filtered into three categories: Photos, intraoral X-rays and panoramic X-rays.

    Photos

    Intraoral X-rays

    Panoramic X-rays

27.2 Adjusting images

Steps

1. In the *Patient images* view, touch an image to open that image's adjustment view.
2. Adjust the image.

NOTE
The original image is not altered. All adjustments to the image are made locally and are not saved to Planmeca Romexis.

TIP

You can zoom the image on the touch screen by pinching.

TIP

You can swipe left or right to get to the previous or next image.

The following table lists the available image adjustment functions.

Button	Function	
	Adjust brightness, contrast and gamma. Adjust the settings either by sliding the handle or from the minus and plus buttons.	
		Brightness
		Contrast
		Gamma
	Invert colours	
	Rotate image	
	Revert to original image	
	Open the selected image on Planmeca Halo. All changes made on the instrument console touch screen are also shown on the Planmeca Halo touch screen.	

27.3 Viewing images on Planmeca Halo

Steps

1. In the *Patient images* view, press **Select and extend**.

2. Select the images that you want open on the Planmeca Halo interactive touch screen.

   You can select 1–4 images and the selected images are highlighted with a blue colour.

   You can change the selected images on the instrument console display.

TIP

You can zoom each image on the Planmeca Halo screen by pinching.

28 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 edit the foot control functions so that the suction is started/stopped from either side knob. For instructions, see section "Editing foot control functions" on page 146.

The suction can also be configured to be started/stopped from the Flexy button. Contact your Planmeca dealer.

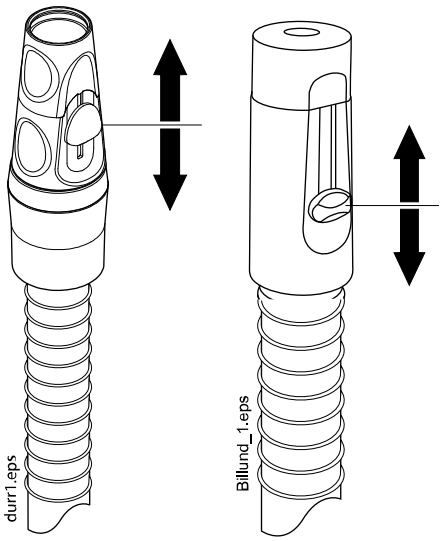
NOTE

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.

28.1 Saliva and high-volume suction

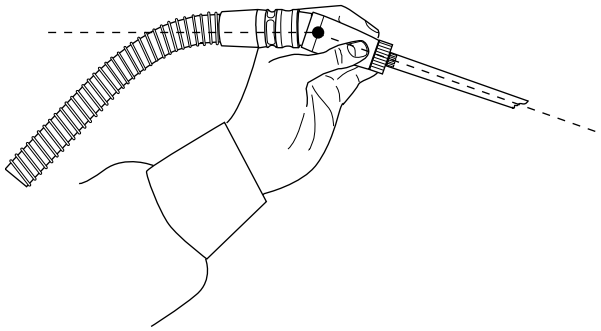
When a saliva or high-volume suction handpiece is lifted from its holder, the suction will automatically start. When the handpieces are returned, the suction will stop.

When you are using the suction handpiece, the suction can be controlled by sliding the adjuster up or down.



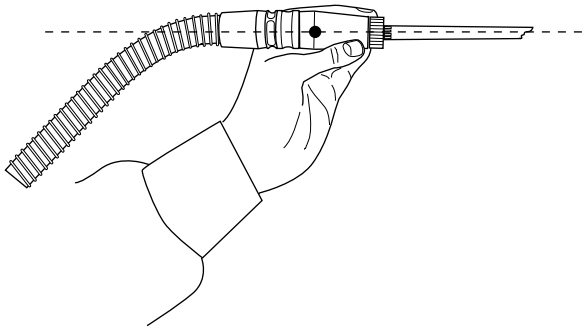
28.2 Tilting high-volume suction

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.



29 Using bottle water

NOTE

Only use the Planmeca water bottle (30054820) and no other bottle. Do not use a bottle that has an unknown history of use.

NOTE

Change the water in the bottle at least once daily.

NOTE

Do not use the water bottle if it is scratched, deformed or discoloured. Note the maximum use life of the bottle on the label.

NOTE

The water bottle is only to be used as a procedural water supply and as a weekly cleaning solution supply. Always use only fresh, cold water of drinking quality, and only Planmeca approved waterline disinfectants. Do not use the bottle as a means for storage.

NOTE

The bottle must always be attached to the dental unit when working on the unit, even when the bottle is not used. The bottle should be attached as clean, empty and dry when city water is used as a procedural water supply. The bottle protects the water tube from mechanical stress and microbes.

NOTE

Empty and dry the water bottle before downtime.

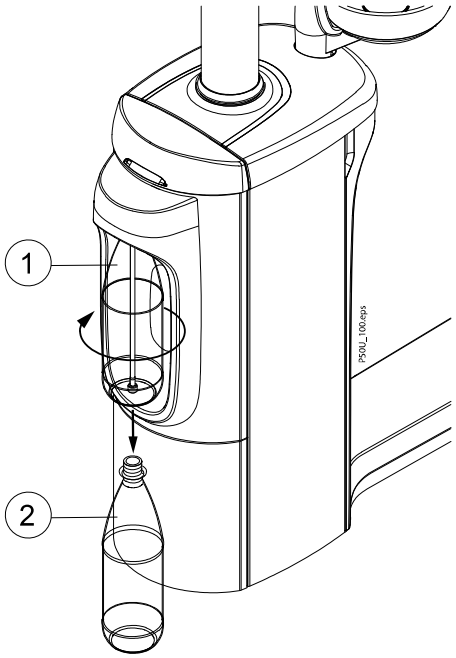
NOTE

Always handle the bottle and the water tube with care to minimise contamination. Do not touch them bare handed.

If bottle water is chosen as a procedural water supply, the water that is used for the instruments, the water quick-connector and the cup fill comes from a water bottle installed to the dental unit. Bottle water can be used, for example, when the city water is of poor quality, the waterline system does not generate enough pressure, or if its use is required by legislation. Suction and bowl rinsing always use city water.

When your dental unit uses bottle water, you must fill the bottle manually with fresh, cold water of drinking quality.

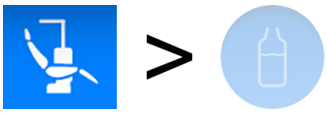
Remove the water bottle from the dental unit by turning it clockwise (1) and then pulling it downward (2). While you turn the bottle, the bottle depressurises.



To attach the bottle, first bring the bottle close to the mount so that the water tube goes into the bottle. Then, turn the bottle counter-clockwise until you hear that it pressurises.

Changing from city water to bottle water

To change the water source for the instruments, the water quick-connector and the cup fill from city water to bottle water, open the *Unit functions* view and press the **Water bottle** button. A blue button indicates that bottle water is in use.



If you have been using city water and then change to bottle water, water usage is prevented until you have performed long instrument flushing. A notification that prompts you to perform the cleaning procedure is displayed.

30 Planmeca Patrol by BWT

Before using the Planmeca Patrol water filtration system, read the instructions that are delivered with the Planmeca Patrol filter.

The Planmeca Patrol water filtration system is an optional means to adjust the hardness of the water and to remove particles as well as organic compounds that cause smell and taste. Planmeca Patrol is available for Planmeca dental units that are configured to have the possibility to use city water for patient treatment.

Planmeca Patrol can not be installed to dental units with no city water available. Never use the Planmeca Patrol water filtration system if you have a centralised water treatment system in use.

When the dental unit's water source is city water, Planmeca Patrol filters the water that is used for the instruments and cup fill.

The Planmeca Patrol filter must be replaced by a qualified Planmeca service technician every 6 months or when the dental unit has been unused for 4 weeks or longer. The replacement date can be checked from the label on the filter.

31 Cleaning and disinfection

31.1 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

The washer-disinfector shall comply with the requirements of standard ISO 15883.

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.

31.2 Cleaning dental unit surfaces

The table below lists when and how to clean the dental unit surfaces.

Parts and surfaces that are not mentioned in the table can be wiped with a dry cloth.

How to clean dental unit surfaces

When	Part	Cleaning agent	Additional cleaning method		
			Dish-washer (65°C)	Washer-disinfector (93°C)	Autoclave (134°C)
Before working day and after every patient	Instrument console and delivery arm	Planmeca approved surface disinfectant			
	Hygienic membrane	Planmeca approved surface disinfectant			
	Instrument hoses	Planmeca approved surface disinfectant			
	Balanced instrument arms	Planmeca approved surface disinfectant			
	Trays and tray mats	Planmeca approved surface disinfectant			

How to clean dental unit surfaces

When	Part	Cleaning agent	Additional cleaning method		
			Dish-washer (65°C)	Washer-disinfector (93°C)	Autoclave (134°C)
	Headrest	Planmeca approved surface disinfectant			
	Armrests	Planmeca approved surface disinfectant			
	Planmeca Halo interactive touch screen	Planmeca approved surface disinfectant			
	Front cover of operating light	Planmeca approved surface disinfectant			
	Handles of operating light	Planmeca approved surface disinfectant		After working day (optional)	After working day (optional)
	Cup fill tube	Planmeca approved surface disinfectant		Weekly	
	Bowl surfaces	Mild soap- and water solution Planmeca approved surface disinfectant	Weekly		
	Bowl filter and filter cover cup	Mild soap- and water solution		After working day	
	Cuspidor top cover area	Planmeca approved surface disinfectant			
	Cuspidor side cover area	Planmeca approved surface disinfectant			
	Flexy holder and suction arm	Planmeca approved surface disinfectant			
	On Flexy holder: Suction tube holders, instrument holder and supplementary holders	Planmeca approved surface disinfectant		Monthly	
	Suction handpieces	Planmeca approved surface disinfectant		After working day	After working day

How to clean dental unit surfaces

When	Part	Cleaning agent	Additional cleaning method		
			Dish-washer (65°C)	Washer-disinfector (93°C)	Autoclave (134°C)
	Suction tube reducers	Planmeca approved surface disinfectant			
	Suction tubes	Planmeca approved surface disinfectant			
	Upholstery	Mild soap- and water solution			
After the working day	Upholstery	Planmeca approved upholstery disinfectant			
	Upholstery legrest protective cover	Planmeca approved surface disinfectant			
	Instrument flushing holder	Planmeca approved surface disinfectant			
	Operating light and monitor/ display arms	Planmeca approved surface disinfectant			
	Foot control	Planmeca approved surface disinfectant			

Parts that should be cleaned weekly

When	Part	Cleaning method
Weekly	Suction tube cleaning holder	Washer-disinfector (93°C). See also section "Suction tube cleaning holder" on page 161.
	Foot control cord	Mild soap- and water solution

NOTE

Once a week, after cleaning, the upholstery should be treated with an upholstery treating agent. Wipe away any excess treating agent after the treatment.

Instrument console

Before cleaning the instrument console, lock the touch screen by pressing the **Unlocked** button.

When the display is locked, press the **Locked** button for 1 second to unlock the touch screen.

Alternatively, the dental unit can be configured so that you can lock/unlock the touch screen by pressing the **Flexy** button. Contact your Planmeca dealer.

NOTE

The instrument console and touch screen must be completely dry before covering them with a protective cover.

31.3 Cleaning instruments

Clean and service the instruments according to the information supplied with the instrument.

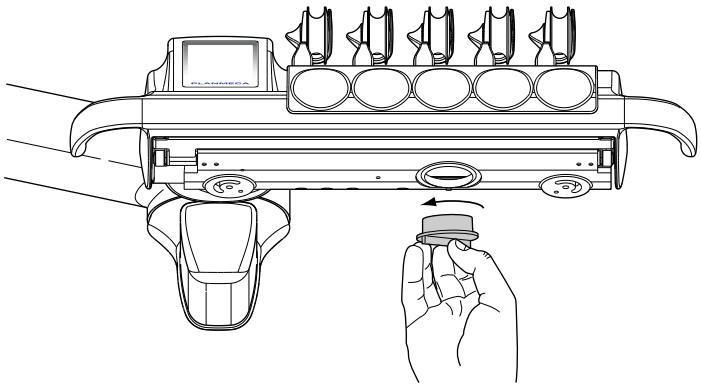
NOTE

After cleaning the instrument, let the oil run from it for at least 10 minutes before replacing it on the console.

Throw away the intraoral camera's disposable hygiene sleeve after use.

31.4 Cleaning oil collector

The oil collector underneath the instrument console has to be emptied and cleaned monthly. Remove the oil collector by turning it counter-clockwise as shown in the picture below.



31.5 Cleaning cuspidor parts

31.5.1 Bowl

NOTE

Do not pour anything into the bowl unless the unit is switched on and has air and water (that is, the compressor is switched on and the air- and waterlines are opened).

NOTE

Do not pour anything else than water and a suction line cleaning agent into the bowl. The water must be poured slowly into the bowl. The flow may not exceed 5 l/min.

NOTE

Do not empty the bowl filter to the drain!

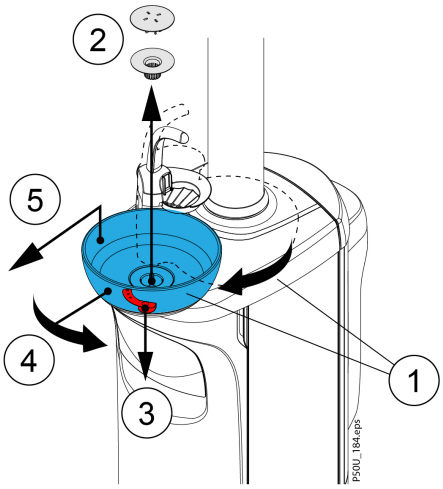
NOTE

The bowl can be removed and washed in the dishwasher. The maximum washing temperature is 65°C. At higher temperatures the bowl may break. Avoid rapid temperature changes in the dishwasher and when the bowl is in use. When positioning the bowl into the dishwasher, make sure that the bowl does not press other objects in the machine.

Clean the bowl after every patient by pouring a few drops of Planmeca approved suction disinfectant into the bowl and using a soft brush. Rinse the bowl by pressing **Bowl rinse**. The outside of the bowl can be wiped clean with a damp cloth.

The bowl can also be removed and washed in the dishwasher if required. To remove the bowl, do as follows:

1. Turn the bowl and the cup fill tube away from above the cuspidor.
2. Remove the bowl filter parts and empty the bowl filter.
3. Push the bowl fastening clip carefully down and
4. rotate the bowl counter-clockwise.
5. Lift the bowl slightly upward and remove it by pulling it horizontally.



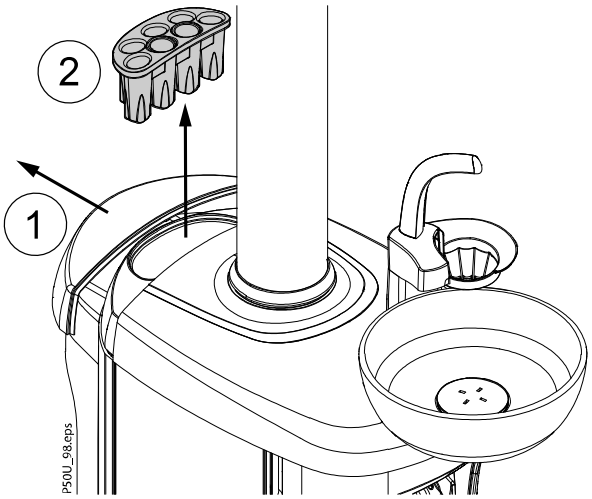
Replace the bowl in reverse order.

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.

31.5.2 Instrument flushing holder

Clean the instrument flushing holder after each working day. Pull out the flushing holder cover (1) and lift out the instrument flushing holder from its position (2). Leave the syringe adapter(s) in the flushing holder and disinfect the holder with a Planmeca approved surface disinfectant.

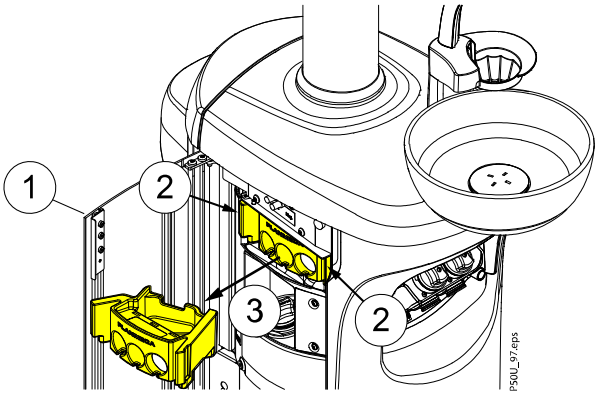


31.5.3 Suction tube cleaning holder

Clean the suction tube cleaning holder and the separation tank behind it weekly.

Open the cuspidor side cover (1), take a hold of the suction tube cleaning holder from both sides (2), and pull out the holder (3). Once you have pulled out the holder, use the suction handpieces to remove any excess water in the separation tank and wipe the tank clean.

Disinfect the suction tube cleaning holder in a washer-disinfector at 93°C.

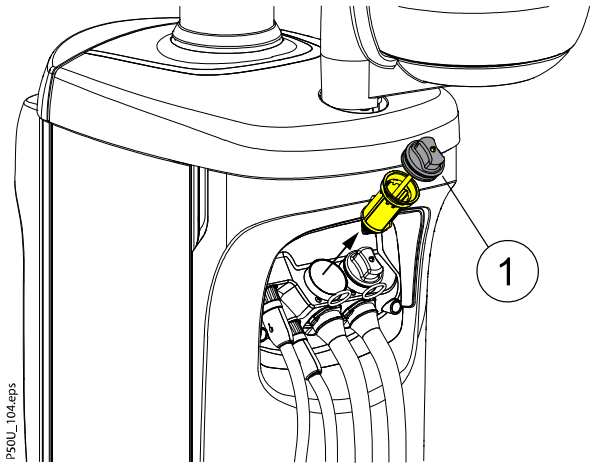


31.5.4 Disposable filters

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.



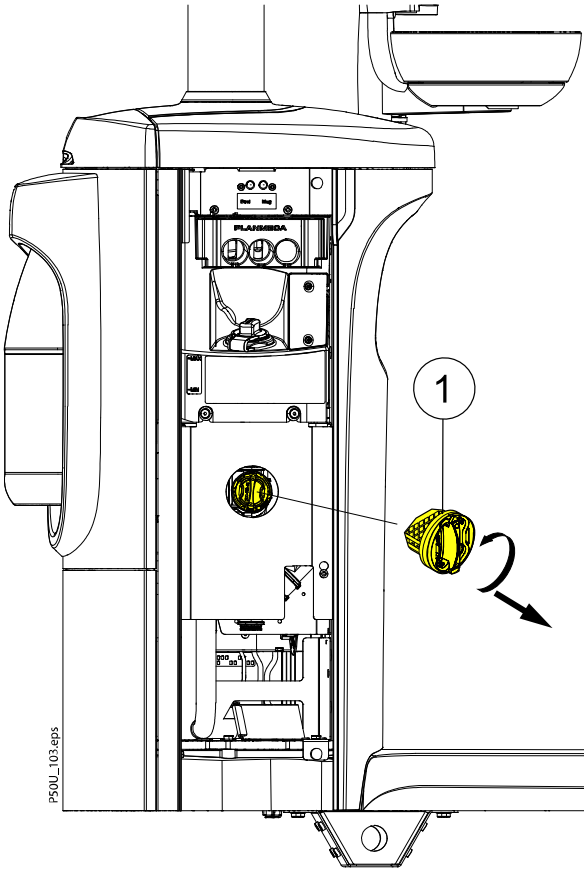
31.5.5 Spittoon valve coarse filter

If your dental unit is equipped with a VS/A compatible suction system, empty the spittoon valve coarse filter when it is full.

NOTE

Before emptying the spittoon valve coarse filter you must empty the bowl (spittoon) valve of any excess water. To empty the valve, select the *Cleaning* view from the navigation bar and then select *Cleaning menu* in the top right corner. In the *Cleaning procedures* view that opens, press the Flush VSA valve button to start the suction. The valve will close automatically after about 15 seconds.

To remove the spittoon valve coarse filter (1) from the dental unit, open the cuspidor side door, turn the filter counter-clockwise and pull it out.



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.

31.5.6 Amalgam collector

CAUTION

Switch the unit off before removing the amalgam collector from the dental unit.

NOTE

The amalgam collector must be emptied into a separate amalgam container.

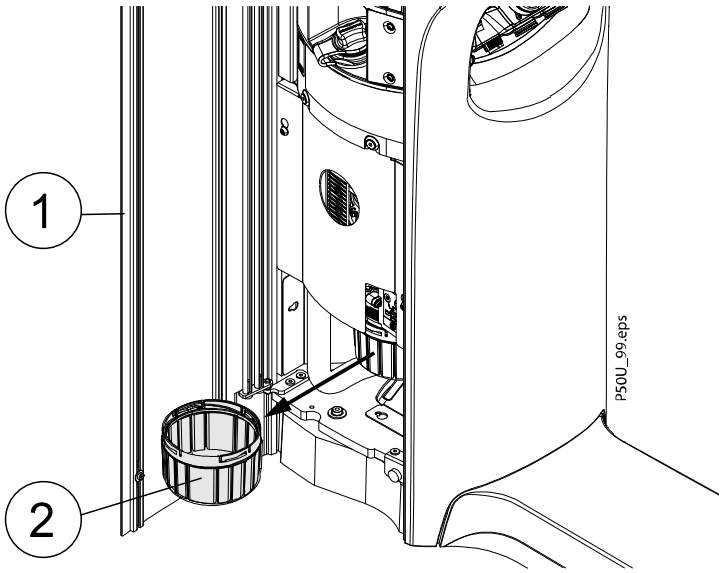
DÜRR CAS1 suction system

Replace the amalgam collector as soon as possible after a notification 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

To remove the amalgam collector from the dental unit, open the cuspidor side door (1), turn the amalgam collector (2) counter-clockwise and pull it out.



31.5.7 Water bottle

NOTE

Do not wash the water bottle in a dish-washer.

NOTE

Do not use water at a temperature higher than 50° on the water bottle.

For instructions on how to remove the bottle from the dental unit for cleaning, see section "Using bottle water" on page 153.

Daily cleaning

Remove the bottle from the dental unit. Clean and disinfect the bottle holding fixture and the riser tube daily after the working day.

Weekly cleaning

Clean and disinfect the water bottle weekly after the working day, and also before attaching it to the dental unit after a longer downtime.

When cleaning and disinfecting the water bottle, check its appearance. Do not use the bottle, if there are any discolouration, scratches or deformation. Also, do not exceed the bottle's maximum use life marked on the label.

1. Remove the bottle from the dental unit.
2. Clean and disinfect the bottle holding fixture and the riser tube.
3. Clean and disinfect the internal surfaces of the water bottle by pouring the content (100 ml) of BC-San 100 in the empty water bottle. Then, fill the water bottle with drinking water up to the screw thread of the bottle.
4. Let the solution in the water bottle take effect for at least 6 hours (for example, overnight). During the effect time, keep the filled water bottle closed in the preparation room, or attach it as usual to the dental unit.

   CAUTION

   Do not apply pressure to the water bottle during the disinfection!
5. After the 6 hour effect time, remove the water bottle from the dental unit, if it was attached. Empty the content of the water bottle via the waste water.
6. Fill the disinfected water bottle to 1/3 with drinking water, shake and empty. Repeat this process once more.

31.6 Cleaning suction system

NOTE

Dry the suction tube holders and the tube bushings properly after cleaning. Wet surfaces might disturb suction tube recognition.

NOTE

Do not use a spray disinfection solution for the suction arms and holders.

In addition to running the automated flushing and cleaning procedures (see section "Running automated flushing and cleaning procedures" on page 176), perform the cleaning procedures listed in the table below during the working day.

When	Cleaning method
Before working day	Wipe the suction handpieces with Planmeca approved surface disinfectant.

When	Cleaning method
Between patients	• Remove the used aspirating tips. • Wipe the suction handpieces with Planmeca approved surface disinfectant.
After working day	**After** running the automated cleaning procedure, disinfect the suction handpieces in a washer-disinfector at 93°C, then optionally autoclave them at 134°C. See section "Cleaning suction handpieces" on page 166.
Weekly	**Before** running the automated cleaning procedure, clean the suction system with Dürr MD 555 cleaner. See section "Cleaning suction system with Dürr MD 555 cleaner" on page 165.

31.6.1 Cleaning suction system with Dürr MD 555 cleaner

About this task

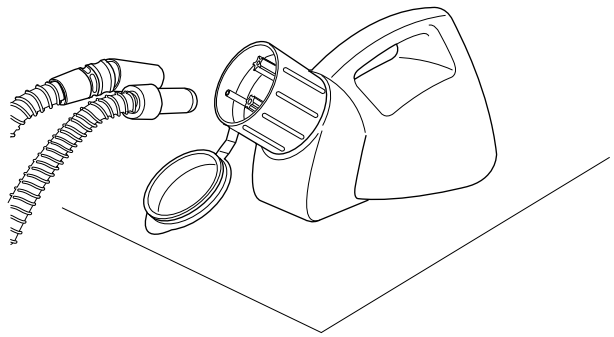
Clean the suction system with Dürr MD 555 cleaner 1–2 times a week to prevent the build-up of deposits in the suction system, especially if you are using dental air polishers.

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. Fill a rinsing bottle (for example OroCup) with 1–2 litres of fresh water.
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. Aspirate the water from the bottle to rinse the suction tubes.
4. When the rinsing bottle is empty, remove the suction handpieces from the bottle.
5. Pour 100 ml of Dürr MD 555 cleaner into the rinsing bottle. Add 1.9 litres of water and mix well.
6. Remove the suction handpieces from their holders and push them onto the inserts inside the cap of the rinsing bottle.

7. Remove the suction handpieces from the rinsing bottle when there is 1 litre of the solution left in the bottle.
8. Return the suction handpieces immediately back to the holder. Do not use suction only for air.

9. On the touch screen, select the *Cleaning* view and then select *Cleaning menu* in the top right corner. In the *Cleaning procedures* view that opens, press the **Flush VSA valve** button. This opens the bowl valve to remove any excess water. The valve will close automatically after about 15 seconds.
10. When the valve has closed, pour the 1 litre that is left of the solution into the bowl.
11. Let the solution affect for 30–120 minutes.
12. Rinse the bowl by pressing **Bowl rinse**.
13. Fill the rinsing bottle with 1–2 litres of fresh water.
14. Push the suction handpieces onto the inserts inside the cap of the rinsing bottle and use suction to rinse the suction tubes until the bottle is empty.
15. Run suction flushing by selecting it from the manual flushings in the cleaning menu, see section "Suction flushing or suction cleaning" on page 188.

31.6.2 Cleaning suction handpieces

The following explains how the Dürr and Billund suction handpieces can be disassembled for cleaning. Refer to the manufacturer's instructions for cleaning.

NOTE

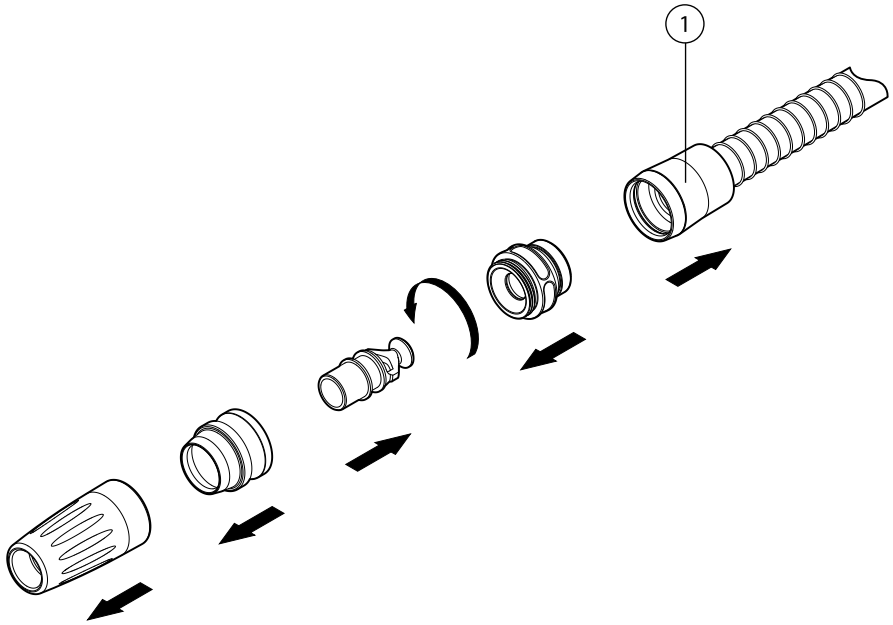
We recommend that the suction handpieces be replaced once a year.

High-volume suction handpiece

Pull the handpiece from the suction tube for cleaning, leaving the bushing (1) on the suction tube. The bushing must not be put in a washer-disinfector or autoclave.

If necessary, the handpiece can be completely disassembled for more thorough cleaning. The handpiece parts can be disinfected in a washer-disinfector at 93°C, then optionally autoclaved at 134°C.

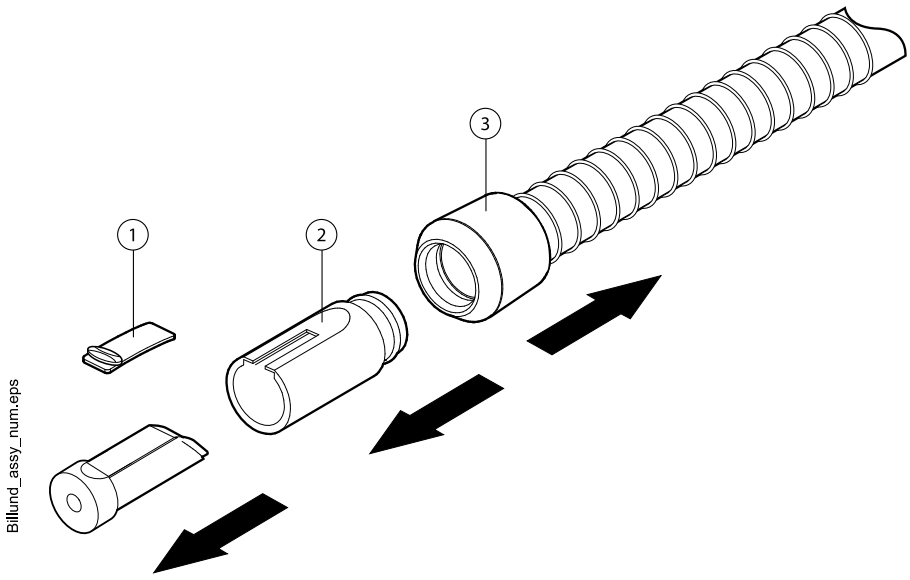
Suction tube reducers are used with some high-volume suction handpieces. These can be cleaned in the same way as the handpiece.



Saliva suction handpiece

The saliva suction handpiece can be disassembled for cleaning by pulling out the end of the handpiece and removing the core (2) and the adjuster (1). The bushing (3) must be left on the suction tube.

The handpiece parts can be disinfected in a washer-disinfector at 93°C, then optionally autoclaved at 134°C. The bushing must not be put in a washer-disinfector or autoclave.



31.7 Running hygiene procedures

NOTE

Always feed cold water to the dental unit.

NOTE

If disinfectant is splashed on the surfaces of the dental unit, remove the splashes instantly with water and mild soap to avoid stains.

31.7.1 Cleaning procedure workflow

All water consuming instruments and suction tubes that are to be cleaned must be placed in the cleaning holders. When you pick up an instrument or suction tube from its holder, they turn blue on the touch screen to indicate that they have been selected for cleaning.

Suction tube flushing and instrument flushing are performed at the same time. The cleaning procedure is fully automated, so once you have started the procedure, you are free to perform other tasks, for example, wiping the dental unit surfaces.

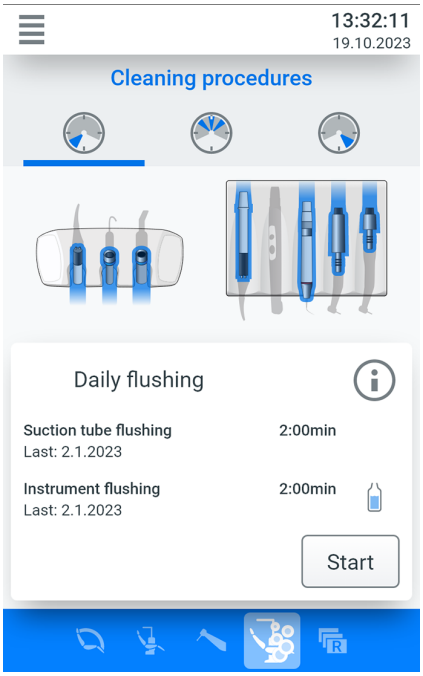
While performing the cleaning procedure, follow the instructions on the touch screen. When the cleaning program runs without problems, information messages may show briefly on the touch screen. If the message prompts you to do something before the cleaning procedure can be continued, the message will be cleared automatically once you have remedied the problem.

When performing weekly cleaning, the water bottle is used as a disinfectant solution supply. When performing instrument and waterline flushing, either city water or bottle water is used, depending on which procedural water supply has been selected for your dental unit.

If you need information on the current cleaning procedure, press the i-icon to open a short description on the procedure.

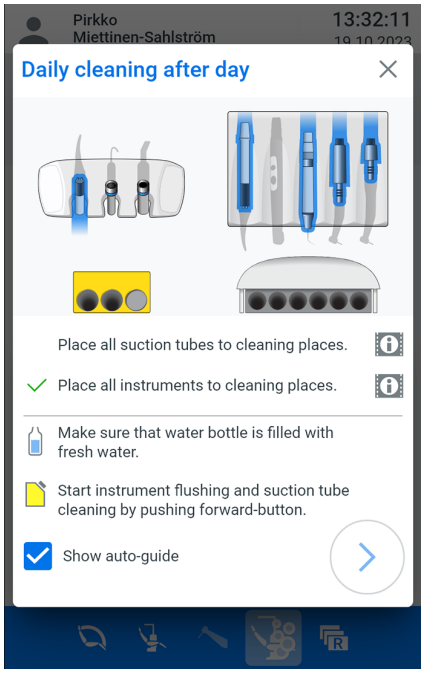
Starting cleaning procedure

The cleaning procedure is started by pressing the **Start** button.



As default, the dental unit has been configured to show the auto-guide during the cleaning procedure. This means that when you press **Start** to start the cleaning procedure, a pop-up window is displayed with detailed information about the current cleaning procedure. Each step in the procedure that has been done is marked with a green check mark. When all steps are done, press the **Forward** button to start the cleaning procedure.

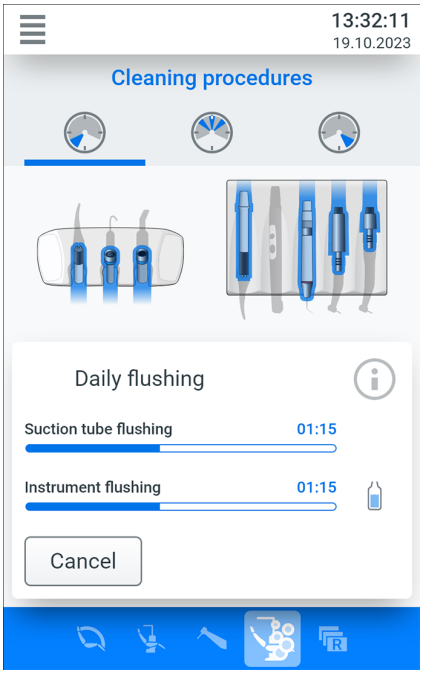
If you do not want the auto-guide to be displayed, uncheck the *Show auto-guide* check box.



Ongoing cleaning procedure

When the cleaning procedure is running, the status of the procedure is displayed on the control panel. The cleaning progress and duration is shown as a progress bar with a textual indication of time.

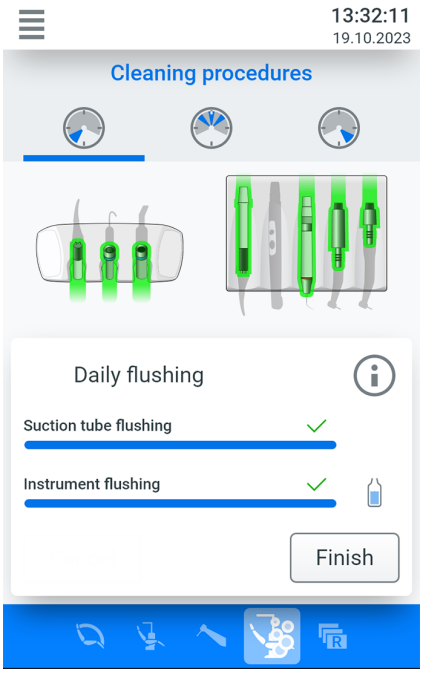
The duration of the cleaning procedure depends on the dental unit configuration and the amount of instruments and suction tubes to be cleaned.



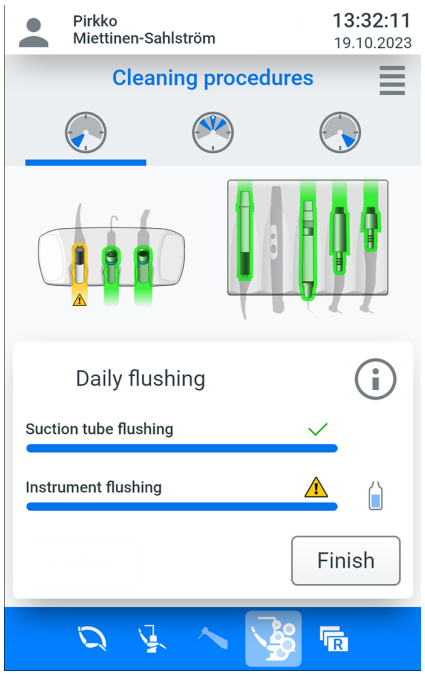
Cleaning procedure has finished

When all items have been cleaned, they are displayed in a steady green and a green check mark shows above the progress bar.

When you press **Finished** to end the cleaning procedure, you will return to the cleaning procedure's start view.



If the cleaning procedure for some reason is interrupted or not successful (for example, there is no water flow), the erroneous instrument or suction tube is displayed in a steady yellow. Also, a yellow warning triangle is displayed on the instrument / suction tube, and above the progress bar.

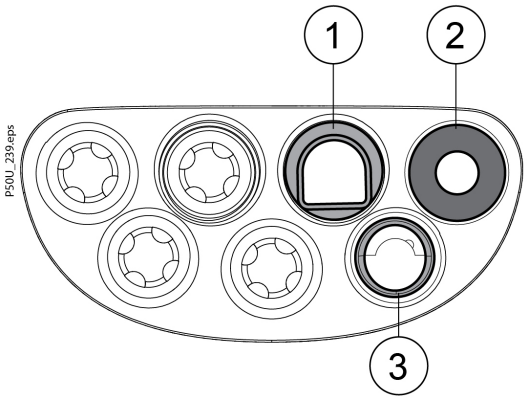


Indicator lights

The indicator lights on the cuspidor top cover provide information on the cleaning cycle progress at a quick glance. For more information on the indicator lights, see section "Dental unit indicator lights" on page 26.

Placing syringe in flushing holder

Each type of syringe has its own adapter that must be placed in the instrument flushing holder before the syringe. The picture below shows the syringe adapters in the holder, but note that the syringe adapter can be placed in any instrument position in the holder.



1 **Luzzani Ergo syringe**

   Remove the metallic syringe cover and place the syringe in the flushing holder. Make sure you insert the syringe the right way so that it fits into the holder.

2 **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.

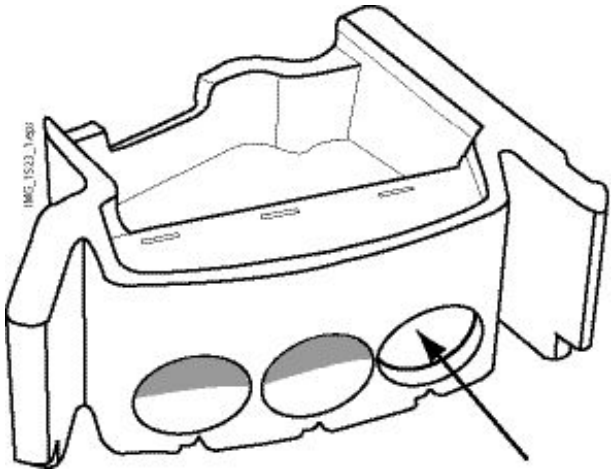
3 **Luzzani Minibright syringe**

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.

Placing plug in empty suction tube cleaning holder

NOTE

Make sure there is a plug in the empty holder(s) in the cleaning holder to prevent water from spilling.



31.7.2 Waterline biofilm control

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.

CAUTION

Only Planmeca Planosil or Planmeca PlanPure waterline disinfectant must be used. Planmeca does not guarantee the suitability of and is not liable for damages caused by other disinfectants.

NOTE

The dental unit waterlines should be cleaned at least once a week; the cleaning history displays when cleaning programs were started (see section "Viewing cleaning history" on page 175).

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.

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 disinfected at least once a week with

a disinfectant. The solution is left in the unit overnight and the waterlines of the unit are flushed with water the next morning.

For instructions on how to run the weekly waterline cleaning, see section "Weekly cleaning after working day" on page 183.

After installation, the dental unit waterlines must be treated with a disinfectant for three consecutive waterline cleaning cycles.

If there are doubts about the level of micro-organisms in the dental unit's waterlines, a microbial count test is recommended. If the microbial water quality does not meet local drinking water quality requirements, biofilm removal must be performed.

Waterline flushing and cleaning procedures before, during and after longer downtime

The following describes which cleaning procedures must be performed before, during and after a longer downtime. The procedures vary depending on which waterline disinfectant is used.

- **Planmeca Planosil**

  Weekly cleaning before the break and weekly cleaning after the break. Planmeca Planosil should not be left inside the waterlines for over 16 hours.

- **Planmeca PlanPure**

  Weekly cleaning before the break. Disinfectant is left inside the waterlines for the duration of the break. If the break continues for longer than 3 months, weekly cleaning recommended to be performed during the break every 3 months.

If the dental unit is unused for longer than 4 weeks, the Planmeca Patrol filter must be changed by a qualified Planmeca service technician after the break.

If the dental unit utilises city water as a procedural water supply, and is unused for over two days, a minimum of 2 litres of water should be flushed through the Planmeca Patrol system. This can be done by performing waterline flushing from the cleaning menu (see section "Short/long instrument flushing and waterline flushing" on page 187), and then running 2–3 cups of water via the cup fill or syringe.

31.7.3 Selecting waterline disinfectant

About this task

Waterline cleaning can be performed with a selection of disinfectants. Select the correct disinfectant for your dental unit from the *Cleaning menu*.

Steps

1. Open the *Cleaning* view.

2. Press **Cleaning menu**.

3. Check which waterline cleaning disinfectant is used and change it, if needed.

   To change the disinfectant:

   3.a. Press **Edit**.

   3.b. Select the correct disinfectant from the drop-down list.

   The available disinfectants are:

   - Planosil
   - PlanPure
   - Alpro Bilpron

   3.c. Press **OK**.

31.7.4 Filling suction disinfectant container

About this task

CAUTION

The container must only be filled with Planmeca approved suction disinfectant.

CAUTION

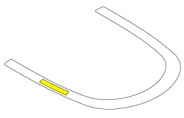
Wear protective gloves and glasses when you fill the container.

Planmeca approved suction disinfectant is used for cleaning the suction tubes and suction system.

The fill interval for the suction disinfectant container is approximately four weeks, depending on how often the suction tubes and system are cleaned, but it can be filled at any time. Always fill the container to the maximum marking and then confirm the filling.

There is no sensor that measures the amount of suction disinfectant in the suction disinfectant container. Instead, a counter keeps track of how many suction cleaning cycles can be run before filling the container. The counter is displayed on the **Suction disinfectant** button in the *Cleaning* view.

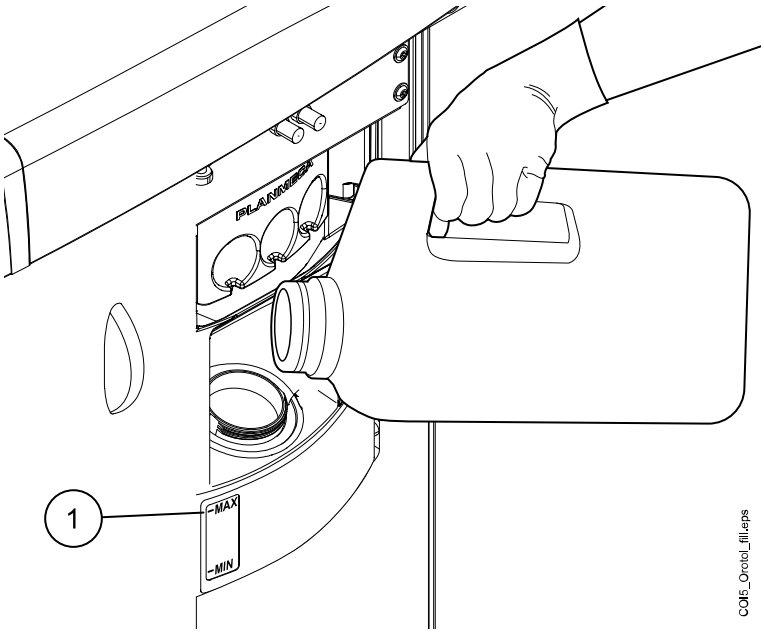
Also, the indicator light on the cuspidor top cover is yellow in the suction cleaning area when the container should be filled.



Steps

1. Open the cap of the suction disinfectant container.

2. Fill the container with Planmeca approved suction disinfectant up to the maximum marking (1).



3. Close the cap of the container.
4. In the *Cleaning* view or in the notification informing about an almost empty disinfectant container, press the **Suction disinfectant** button. This confirms the filling of the container so that the suction disinfectant counter is reset.

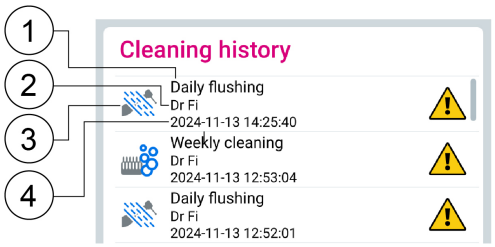
31.7.5 Viewing cleaning history

Steps

1. Open the *Cleaning* view.
2. Press **Cleaning menu**.

3. Press **Cleaning history**.

   The *Cleaning history* window shows which flushing or cleaning procedures have been performed and when. If there was a problem with the procedure, a warning triangle is shown next to the procedure.

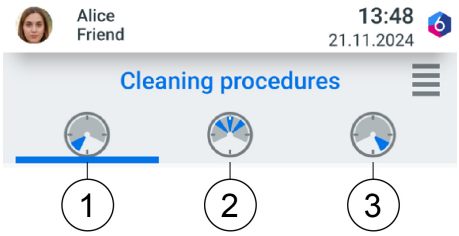


1 Flushing or cleaning procedure
2 User that started the procedure
3 Flushing or cleaning procedure icon
4 Date and time when flushing or cleaning procedure was started

4. Press **Back** to return to the *Cleaning* view.

31.7.6 Running automated flushing and cleaning procedures

Automated flushing and cleaning procedures are run in the morning, between patients, and after the working day. The *Cleaning* view is divided into three tabs according to when the hygiene procedure is performed.



1 Before working day
2 Between patients
3 After working day

When	Before working day	Before working day after weekly cleaning	Between patients	After working day	After working day once a week
Hygiene procedure	**Daily flushing**	**Weekly flushing**	**Patient change**	**Daily cleaning**	**Weekly cleaning**
Short instrument flushing			X		
Long instrument flushing (incl. cup fill and bowl rinse)	X			X	

When	Before working day	Before working day after weekly cleaning	Between patients	After working day	After working day once a week
Hygiene procedure	**Daily flushing**	**Weekly flushing**	**Patient change**	**Daily cleaning**	**Weekly cleaning**
Waterline cleaning (with cleaning agent)					X
Waterline flushing (incl. instruments, cup fill, bowl rinse and spray water circulation valve) automatically after weekly cleaning		X			X
Suction rinsing (from a cup)			X		
Suction flushing (from suction tube cleaning holder)	X	X			
Suction cleaning (with cleaning agent)				X	X

31.7.6.1 Daily flushing before working day

About this task

Flush the instruments and suction tubes before the working day.

NOTE

When flushing has started, you can cancel it by pressing Cancel.

Steps

1. On the touch screen, select the *Cleaning* view.

2. In the top bar, select the *Before working day* tab.

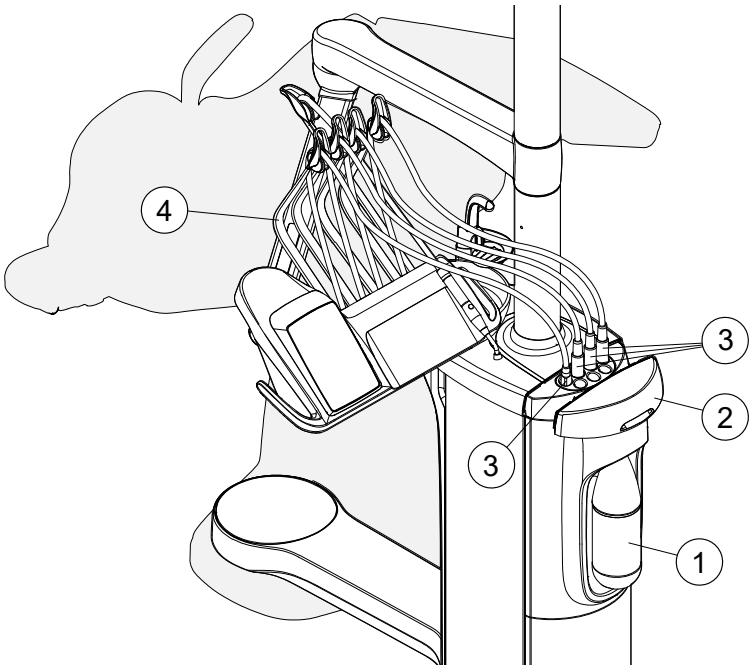
   A blue bar under the icon marks the selected tab.

3. If the water bottle (1) is used as a procedural water supply, ensure that it is filled with fresh, clean water.

   If the instrument hoses and suction tubes are already in their flushing holders, go to step 9.

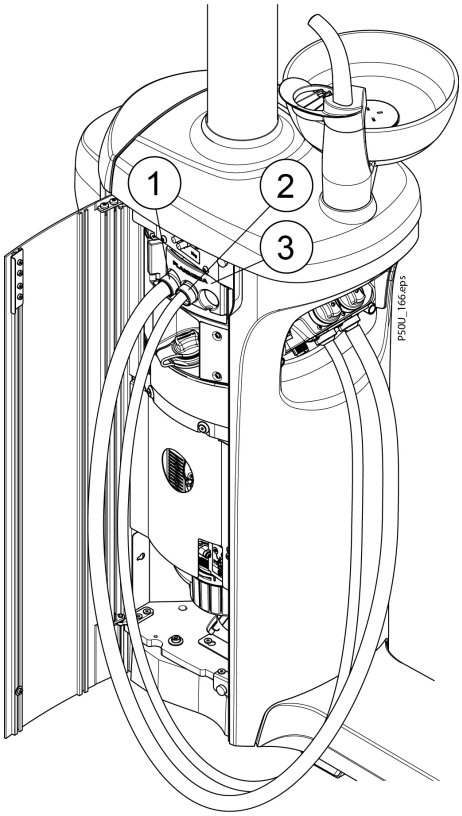
4. Remove the instrument handpieces from the instruments and clean them according to the manufacturer's instructions.
5. Pull out the instrument flushing cover (2).
6. Place all water consuming instruments (including syringes) (3) into the openings in the instrument flushing holder and bend the balanced arms (4) to an angle of at least 90°.

   When you place the syringe in its dedicated holder, make sure that it locks into place. If it is not pushed deep enough into its holder, it will not be cleaned.



7. Remove the suction handpieces from the suction tubes and clean them according to the manufacturer's instructions.
8. Open the cuspidor side cover on the suction cleaning side.

9. Place the suction tubes (1, 2) in the suction tube cleaning holder (3). Detach the suction tubes from the holder on the suction arm.



10. On the touch screen, press **Start** to start the flushing cycles.

    The system first identifies the instruments and suction tubes and then flushes each hose/tube with air and water. The progress of the flushing cycles is shown on the touch screen and on the dental unit indicator lights.

    For information on the indicator lights, see section "Dental unit indicator lights" on page 26.

11. Once the flushing cycles have finished, press **Finished**.
12. Return the instruments to the instrument console and close the instrument flushing cover.
13. Return the suction tubes to the suction holder. Attach the tubes to the holder on the suction arm. Close the cuspidor side cover.

31.7.6.2 Flushing between patients

About this task

Perform short instrument flushing and rinse the suction tubes between patients.

NOTE

When flushing has started, you can cancel it by pressing Cancel.

Steps

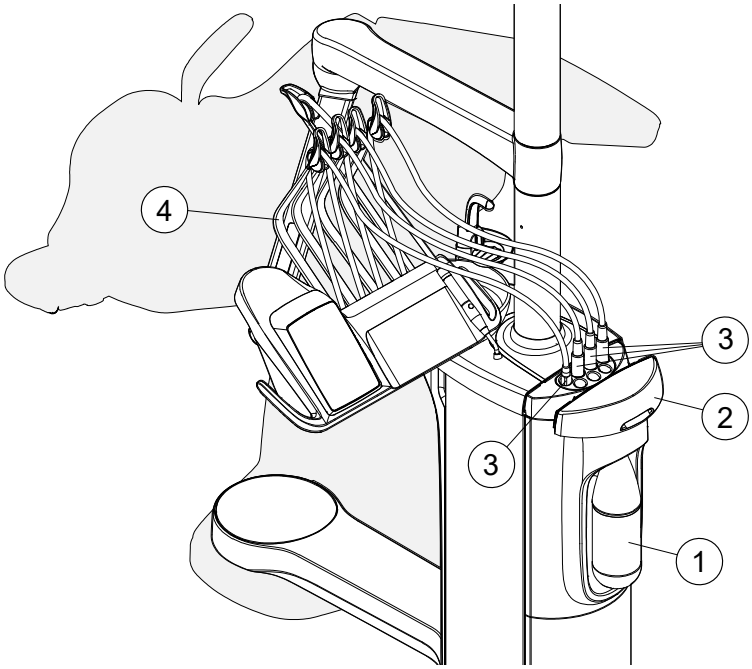
1. On the touch screen, select the *Cleaning* view.

2. In the top bar, select the *Between patients* tab.

   A blue bar under the icon marks the selected tab.

3. If the water bottle (1) is used as a procedural water supply, ensure that it is filled with fresh, clean water.
4. Remove the instrument handpieces from the instrumentsand clean them according to the manufacturer's instructions.
5. Pull out the instrument flushing cover (2).
6. Place all water consuming instruments (including syringes) (3) into the openings in the instrument flushing holder and bend the balanced arms (4) to an angle of at least 90°.

   When you place the syringe in its dedicated holder, make sure that it locks into place. If it is not pushed deep enough into its holder, it will not be cleaned.

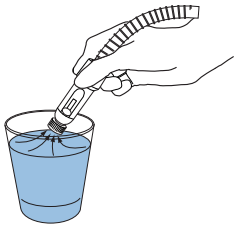


7. Lift the suction tubes from the suction holder.
8. On the touch screen, press **Start** to start the flushing cycles.

   The system first identifies the instruments and then flushes each hose with air and water. The progress of the flushing cycle is shown on the touch screen.

9. While the instruments are flushed, rinse the suction tubes manually by slowly aspirating one cup of clean water through each suction tube.

   Fill the cup by pressing the **Cup fill** button.



10. Once the flushing cycles have finished, press **Finished**.
11. Return the instruments to the instrument console and close the instrument flushing cover.
12. Return the suction tubes to the suction holder.

31.7.6.3 Daily cleaning after working day

About this task

At the end of the day, perform instrument flushing and suction cleaning. Only water is used for instrument flushing and the suction tubes are cleaned with disinfectant from the container.

The dental unit has a built-in counter that knows when a daily cleaning should be performed after the working day and when a weekly cleaning is required. Based on this counter, either the daily or weekly cleaning is offered when you enter the *After working day* tab.

NOTE

When flushing and cleaning have started, you can cancel them by pressing Cancel.

NOTE

Suction cleaning utilises a caustic and corrosive cleaning agent. Practice caution.

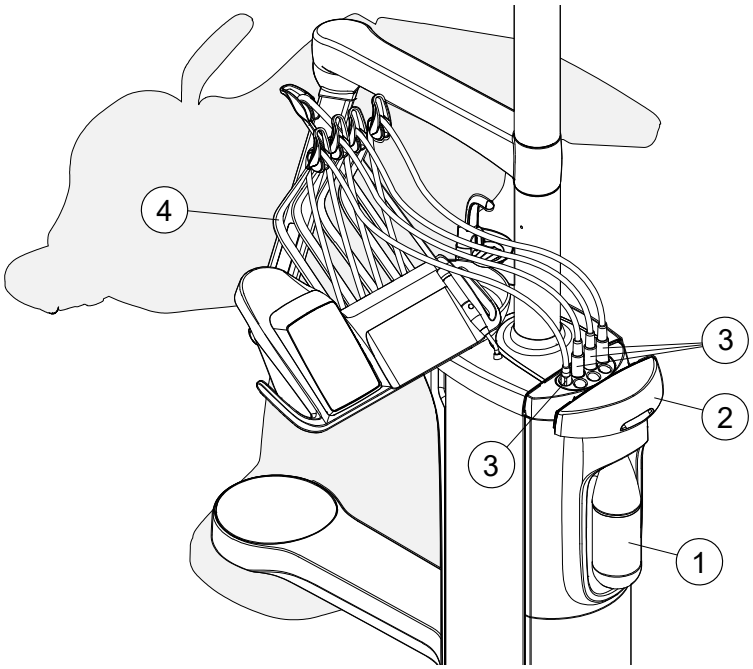
Steps

1. On the touch screen, select the *Cleaning* view.

2. In the top bar, select the *After working day* tab.

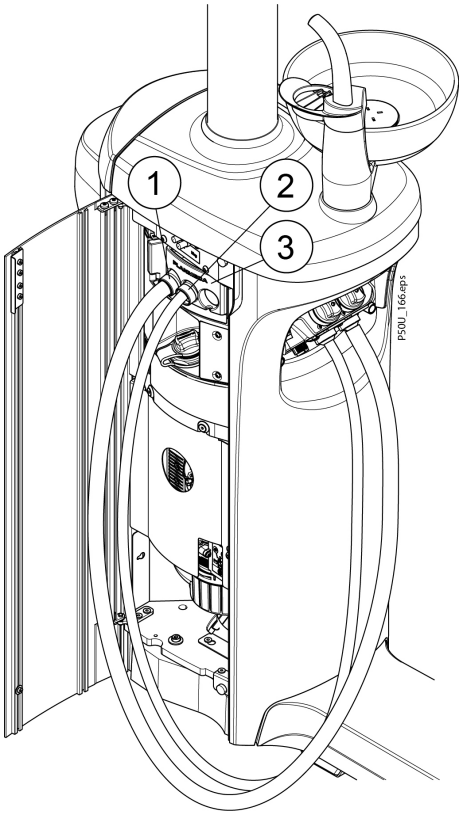
   A blue bar under the icon marks the selected tab.
3. If the water bottle (1) is used as a procedural water supply, ensure that it is filled with fresh, clean water.
4. Remove the instrument handpieces from the instrumentsand clean them according to the manufacturer's instructions.
5. Pull out the instrument flushing cover (2).
6. Place all water consuming instruments (including syringes) (3) into the openings in the instrument flushing holder and bend the balanced arms (4) to an angle of at least 90°.

   When you place the syringe in its dedicated holder, make sure that it locks into place. If it is not pushed deep enough into its holder, it will not be cleaned.



7. Remove the suction handpieces from the suction tubes and clean them according to the manufacturer's instructions.
8. Open the cuspidor side cover on the suction cleaning side.
9. Place the suction tubes (1, 2) in the suction tube cleaning holder (3).

   Detach the suction tubes from the holder on the suction arm.



10. On the touch screen, press **Start** to start instrument flushing and suction cleaning.

    The system first identifies the instruments and suction tubes and then flushes each hose/tube with air and water. The progress of the flushing cycles is shown on the touch screen.

11. Once the flushing and cleaning cycles have finished, press **Finished**.
12. Return the instruments to the instrument console and close the instrument flushing cover.
13. Return the suction tubes to the suction holder. Attach the tubes to the holder on the suction arm. Close the cuspidor side cover.

31.7.6.4 Weekly cleaning after working day

About this task

NOTE

If Planmeca Planosil is used for disinfection, do not let the weekly cleaning run over the weekend.

NOTE

Suction cleaning and waterline cleaning utilise cleaning agents. Practice caution.

Once a week, perform waterline cleaning simultaneously with suction cleaning. Disinfectant from the container is used for suction cleaning. For instrument and waterline cleaning, the water bottle must be filled with Planmeca approved waterline disinfectant.

Suction cleaning takes place at the same time as the waterlines are filled with disinfectant. When suction cleaning ends, disinfectant is left in the waterlines to act.

Planmeca Planosil requires a contact time of min. 8 h, and Planmeca PlanPure min. 12 h. Turn off the dental unit for the duration of the contact time, when you receive a notice.

The dental unit has a built-in counter that knows when a daily cleaning should be performed after the working day and when a weekly cleaning is required. Based on this counter, either the daily or weekly cleaning is offered when you enter the *After working day* tab.

NOTE

When cleaning has started, you can cancel it by pressing Cancel. If the cleaning cycle is cancelled after the water bottle with disinfectant has been attached to the dental unit, flushing is required.

Steps

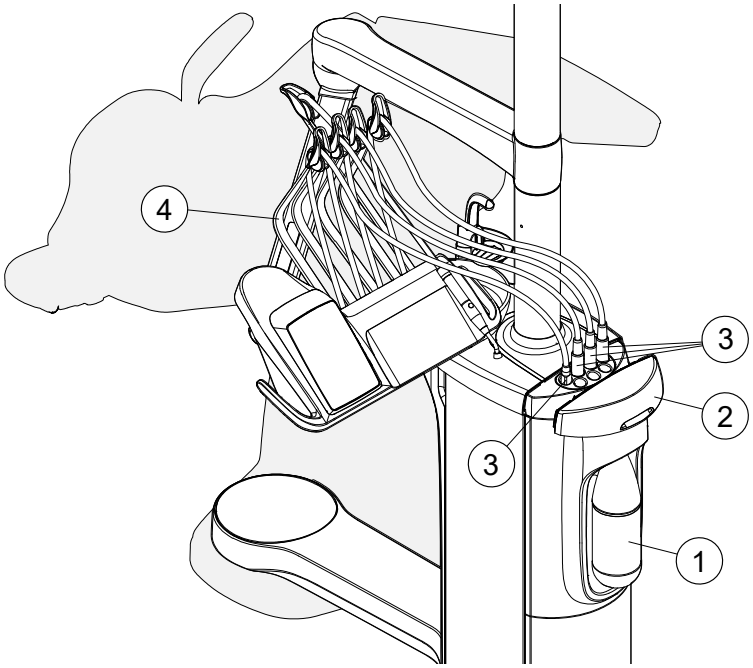
1. On the touch screen, select the *Cleaning* view.

2. In the top bar, select the *After working day* tab.

   A blue bar under the icon marks the selected tab.
3. Fill the water bottle (1) with 350 ml of Planmeca approved waterline disinfectant and attach the bottle to the unit.
4. Remove the instrument handpieces from the instruments and clean them according to the manufacturer's instructions.

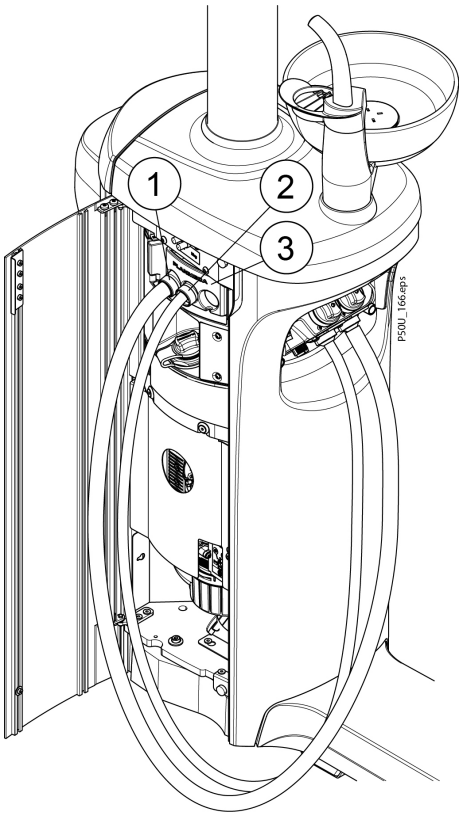
5. Pull out the instrument flushing cover (2).
6. Place all water consuming instruments (including syringes) (3) into the openings in the instrument flushing holder and bend the balanced arms (4) to an angle of at least 90°.

   When you place the syringe in its dedicated holder, make sure that it locks into place. If it is not pushed deep enough into its holder, it will not be cleaned.



7. Remove the suction handpieces from the suction tubes and clean them according to the manufacturer's instructions.
8. Open the cuspidor side cover on the suction cleaning side.
9. Place the suction tubes (1, 2) in the suction tube cleaning holder (3).

   Detach the suction tubes from the holder on the suction arm.



10. On the touch screen, press **Start** to start suction and waterline cleaning.

    The progress of the flushing cycles is shown on the touch screen and on the dental unit indicator lights.

    For information on the indicator lights, see section "Dental unit indicator lights" on page 26.

11. When prompted on the touch screen, switch the unit off for the required contact time.

    The contact time varies depending on the used disinfectant. The contact times are:

    - Planmeca Planosil: Min. 8 h
    - Planmeca PlanPure: Min. 12 h

What to do next

When you switch on the dental unit after the contact time, the dental unit will prompt you to perform the weekly flushing. For instructions, see section "Weekly flushing before working day" on page 185.

31.7.6.5 Weekly flushing before working day

About this task

Once a week, after the weekly cleaning, perform instrument and suction flushing to rinse off cleaning disinfectant that has acted on the waterlines overnight. Without proper flushing, disinfectant may get into the patient's mouth.

When it is time to perform the weekly flushing, the touch screen automatically displays the weekly flushing instead of the daily flushing.

NOTE

When flushing has started, you can cancel it by pressing Cancel.

NOTE

Planmeca PlanPure and Planmeca Planosil contain indicator dye. If there is some colour left in the procedural water after the weekly flushing, there is a risk that flushing was not successful. In that case, ensure that the cup fill water flow is sufficient, and perform waterline flushing from the manual procedures (see section "Short/long instrument flushing and waterline flushing" on page 187) until the outcoming water is clear. If the issue recurs, contact your local Planmeca dealer.

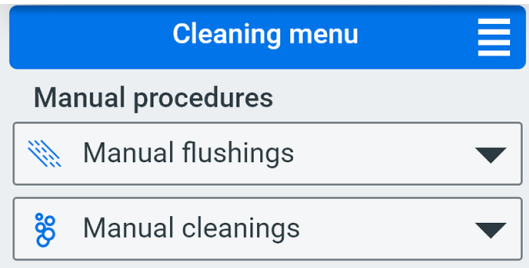
Steps

1. If the water bottle is used as a procedural water supply, ensure that it is filled with fresh, clean water.
2. Ensure that the instrument handpieces are detached and all water consuming instruments are placed in the instrument flushing holder.
3. Ensure that the suction handpieces are detached and that the suction tubes are placed in the suction tube cleaning holder.
4. On the touch screen, press **Start** to start the flushing cycles.

   The system first identifies the instruments and suction tubes and then flushes each hose/tube with air and water. The progress of the flushing cycles is shown on the touch screen.
5. Once the flushing cycles have finished, press **Finished**.
6. Return the instruments to the instrument console and close the instrument flushing cover.
7. Return the suction tubes to the suction holder. Attach the tubes to the holder on the suction arm. Close the cuspidor side cover.

31.7.7 Running manual flushing and cleaning procedures

In the *Cleaning menu* you can select any flushing or cleaning cycle and run it separately from the other cycles.



The available cycles are listed below.

Manual flushings:

- Short instrument flushing
- Long instrument flushing
- Suction flushing
- Waterline flushing

Manual cleanings:

- Suction tube cleaning

31.7.7.1 Short/long instrument flushing and waterline flushing

About this task

NOTE

When flushing has started, you can cancel it by pressing Cancel. After the interruption, the dental unit can be used normally.

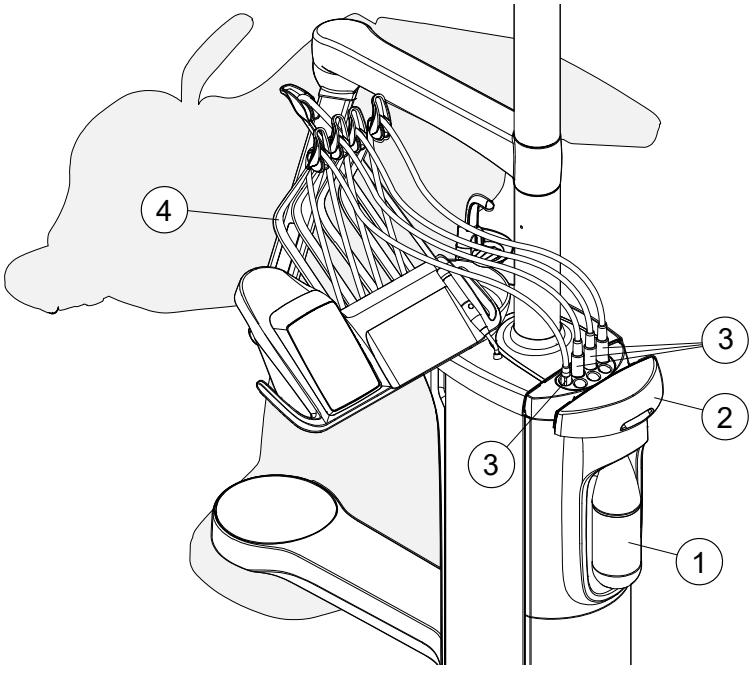
Steps

1. On the touch screen, select the *Cleaning* view.

2. Press **Cleaning menu** in the top right corner of the *Cleaning* view.
3. In the *Manual flushings* drop-down menu, select **Short instrument flushing** or **Long instrument flushing** or **Waterline flushing**.

   The selected procedure turns blue.
4. Press **Start**.
5. If the water bottle (1) is used as a procedural water supply, ensure that it is filled with fresh, clean water.
6. Remove the instrument handpieces from the instruments and clean them according to the manufacturer's instructions.
7. Pull out the instrument flushing cover (2).
8. Place all water consuming instruments (including syringes) (3) into the openings in the instrument flushing holder and bend the balanced arms (4) to an angle of at least 90°.

   When you place the syringe in its dedicated holder, make sure that it locks into place. If it is not pushed deep enough into its holder, it will not be cleaned.



9. On the touch screen, press **Start** to start the flushing cycle.

   The system first identifies the instruments and then flushes them with air and water. The progress of the flushing cycles is shown on the touch screen and on the dental unit indicator lights.

   For information on the indicator lights, see section "Dental unit indicator lights" on page 26.

10. Once the flushing cycle has finished, press **Finished**.
11. Return the instruments to the instrument console and close the instrument flushing cover.

31.7.7.2 Suction flushing or suction cleaning

About this task

NOTE

When flushing/cleaning has started, you can cancel it by pressing Cancel.

NOTE

Suction cleaning utilises a caustic and corrosive cleaning agent. Practice caution.

Steps

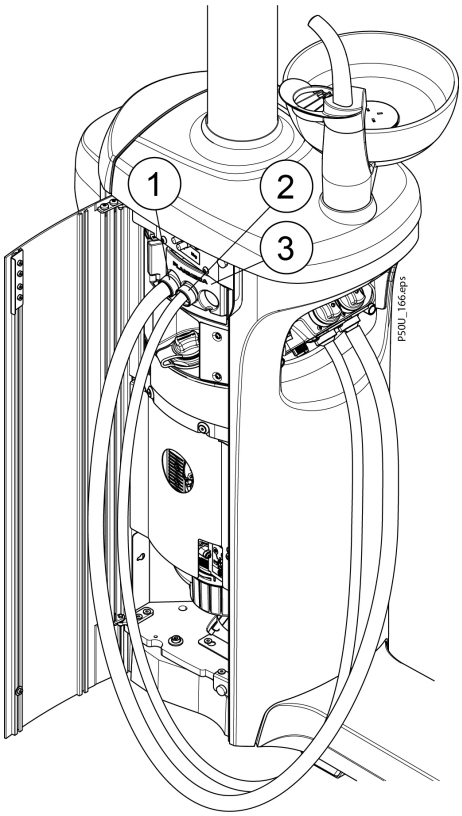
1. On the touch screen, select the *Cleaning* view.

2. Press **Cleaning menu** in the top right corner of the *Cleaning* view.
3. In the *Manual flushings* drop-down menu, select **Suction flushing** or **Suction cleaning**.

   The selected procedure turns blue.

4. Press **Start**.
5. Remove the suction handpieces from the suction tubes and clean them according to the manufacturer's instructions.
6. Open the cuspidor side cover on the suction cleaning side.
7. Place the suction tubes (1, 2) in the suction tube cleaning holder (3). Place a plug in the empty holder(s) to prevent water from spilling.

   Detach the suction tubes from the holder on the suction arm.



8. On the touch screen, press **Start** to start the flushing/cleaning cycle.

   The progress of the flushing/cleaning cycles is shown on the touch screen and on the dental unit indicator lights.

   For information on the indicator lights, see section "Dental unit indicator lights" on page 26.

9. Once the flushing/cleaning cycle has finished, press **Finished**.
10. Return the suction tubes to the suction holder. Attach the tubes to the holder on the suction arm. Close the cuspidor side cover.

32 Diagnostics

The dental unit displays two types of safety messages: notifications (info) and error messages.

Notifications 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. Notifications disappear automatically from the touch screen 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.

When a notification (info) or an error message is issued, it is displayed to the right in the touch screen's top bar. Press on the notification/error icon or swipe it downward on the touch screen to open the message.

1000 Exhibition mode enabled. - info

Description

The unit operates normally, but notifications and error messages caused by missing water and air are not reported and pumps are disabled.

See Technical Manual for details.

1001 Failed to load settings. - error

Description

Unit failed to load settings.

Action

Contact service.

1003 Software update package corrupted. - error

Description

Software can not be updated due to corrupted update package.

Action

Contact service.

1005 Incompatible foot control software. - error

Description

Foot control software version incompatible with current main software version.

Action

Contact service.

1006 Incompatible operating light software. - error

Description

Operating light software version incompatible with current main software version.

Action

Contact service.

1007 Incompatible SingLED software. - error

Description

SingLED software version incompatible with current main software version.

Action

Contact service.

1008 Incompatible instrument console software. - error

Description

Instrument console software version incompatible with current main software version.

Action

Contact service.

1009 Incompatible Interface software. - error

Description

Interface software version incompatible with current main software version.

Action

Contact service.

1010 Incompatible Balelico software. - error

Description

Balelico software version incompatible with current main software version.

Action

Contact service.

1011 Incompatible Cuspico software. - error

Description

Cuspico software version incompatible with current main software version.

Action

Contact service.

1012 Incompatible RFID reader software. - error

Description

RFID reader software version incompatible with current main software version.

Action

Contact service.

1013 Incompatible capacitive sensor software. - error

Description

Capacitive sensor software version incompatible with current main software version.

Action

Contact service.

1014 Failed to add user. - info

Description

A user could not be added, for example, because the maximum number of users has been reached.

1015 Failed to copy user settings to USB. - info

Description

The unit failed to copy user settings to the USB stick.

1016 Failed to copy user settings from USB. - info

Description

The unit failed to copy user settings from the USB stick.

1018 Annual maintenance in <#> days. - info

Description

Contact service for annual maintenance.

1019 Annual maintenance overdue. - error

Description

Annual maintenance should have been performed <#> days ago.

Action

Contact service.

1020 Annual maintenance complete. - info

Description

Annual maintenance has been performed.

1021 User not found. - info

Description

User not found with this PlanID tag. Create a new user or select an existing user and assign the PlanID tag.

1022 Reserved - info

Description

Reserved

1023 PlanID tag already in use. - info

Description

PlanID tag assigned to another user.

1024 Failed to copy settings. - info

Description

The unit failed to copy settings.

1025 Failed to modify a setting. - info

Description

The unit failed to modify a setting.

1030 Reserved. - error

1031 Reserved. - error

1032 Reserved. - error

1033 Reserved. - error

1041 Flexy circuit board missing. - error

Description

The Flexy circuit board is missing or not responding.

Action

Contact service.

1035 Interface circuit board missing. - error

Description

The Interface circuit board is missing or not responding. This device is essential for the functionality of the unit.

Action

Contact service.

1036 Balelico circuit board missing. - error

Description

The Balelico circuit board is missing or not responding. This device is essential for the functionality of the unit.

Action

Contact service.

1037 Cuspico circuit board missing. - error

Description

The Cuspico circuit board is missing or not responding. This device is essential for the functionality of the unit.

Action

Contact service.

1040 Foot control is not connected. - info

Description

No foot control connected.

Cause

Cable may be faulty or not connected.

1041 Serial number chip is missing. - error

Description

The serial number chip is missing or not connected properly.

Action

Verify that the serial number chip is properly connected in the Interface PCB. If the problem persists, contact service.

1042 Settings copied to USB. - info

Description

Settings have been copied to the USB stick. The USB stick can be removed.

1043 Settings copied from USB. - info

Description

Settings have been copied from the USB stick. The USB stick can be removed.

1044 Romexis error; using local user profile. - info

Description

The unit has failed to get the user profile from Romexis and uses the local user profile.

1045 Romexis error; using temporary local user profile. - info

Description

The unit has failed to get the user profile from Romexis and uses a temporary local user profile.

1046 Romexis timeout. - info

Description

The unit has sent a request to Romexis but has not received a response within the timeout period.

1047 Failed to copy user profile from Romexis. - info

Description

Failed to copy user profile from Romexis.

1048 Failed to assign PlanID tag to user. - info

Description

Check if user already has another PlanID tag assigned.

1049 PlanID tag assigned to user successfully. - info

Description

PlanID tag assigned to user successfully.

1050 Login to Romexis failed. - info

Description

Login to Romexis failed.

1051 User already logged in. - info

Description

User already logged in.

1052 User profile copied from Romexis. - info

Description

User profile copied from Romexis.

1053 Incompatible Romexis version. - info

Description

Incompatible Romexis version.

1054 Unknown Romexis user. - info

Description

Unknown Romexis user.

1055 Failed to send user profile to Romexis. - info

Description

Failed to send user profile to Romexis.

1056 Romexis offline. - info

Description

Romexis is offline. The requested operation could not be completed.

1057 Romexis error; using local user profile. - info

Description

Romexis is offline. The unit uses the local user profile.

1058 Romexis offline; using temporary local user profile. - info

Description

Romexis is offline. The unit uses a temporary local user profile.

1059 Romexis offline; could not find user. - info

Description

Romexis is offline. The unit could not find either a local or a temporary local user profile.

1063 Settings copied to Romexis. - info

Description

Settings have been copied to Romexis.

1064 Settings copied from Romexis. - info

Description

Settings have been copied from Romexis.

1065 Romexis user ID already in use. - info

Description

The Romexis user ID is already in use by some other user.

1066 Login already in progress. - info

Description

The unit has rejected a login request because login is already in progress.

1067 Different user already logged in. - info

Description

The unit has rejected a login request because a different user is already logged in.

1068 Romexis version mismatch. - info

Description

Romexis version does not support the requested operation.

1069 Failed to load user settings. - info

Description

The unit has failed to load user settings and has replaced them with factory defaults. Check your user settings before continuing.

1070 Wrong Romexis user name for the PlanID tag. - info

Description

Correct the Romexis username.

1071 Reserved. - error

1073 Assigning in progress, please wait. - info

Description

Assigning in progress, please wait.

1074 Main circuit board is untested. - error

Description

Currently installed main circuit board has not been factory tested.

Action

Contact service.

1075 Interface circuit board is untested. - error

Description

Currently installed Interface circuit board has not been factory tested.

Action

Contact service.

1076 Balelico circuit board is untested. - error

Description

Currently installed Balelico circuit board has not been factory tested.

Action

Contact service.

1077 Cuspico circuit board is untested. - error

Description

Currently installed Cuspico circuit board has not been factory tested.

Action

Contact service.

1078 Operating light circuit board is untested. - error

Description

Currently installed operating light circuit board (SLED) has not been factory tested.

Action

Contact service.

1079 Instrument control circuit board is untested. - error

Description

Currently installed instrument control circuit board has not been factory tested.

Action

Contact service.

1085 RFID reader circuit board is untested. - error

Description

Currently installed RFID reader circuit board (RFID) has not been factory tested.

Action

Contact service.

1086 Reserved. - error

1088 Reserved. - error

1089 Operating light circuit board is missing. - error

Description

The operating light circuit board (LICON) is missing or not responding. This device is essential for the functionality of the unit.

1091 Operating light circuit board is untested. - error

Description

Currently installed operating light circuit board (LICON) has not been factory tested.

Action

Contact service.

1092 The unit has created a new user profile automatically. - info

Description

The unit has created a new user profile automatically. Check your user settings.

1097 RFID unknown. - info

Description

The RFID is unknown to the system.

1100 Invalid Romexis username - info

Description

Romexis username of the user contains characters not supported by the unit.

1101 Adding a user to Romexis not allowed. - info

Description

Romexis does not allow creating new users. Check Romexis configuration.

1102 Reassigning PlanID not allowed. - info

Description

Romexis does not allow reassigning the PlanID tag. Check the user settings in Romexis.

1103 The file size is too large. - info

Description

The profile picture file size is too large.

1104 The file format is not supported. - info

Description

The file format of the profile picture is not supported.

1105 Invalid response from Romexis. - info

Description

Romexis has sent a message that the unit could not understand.

1106 Image upload failed. - error

Description

Images could not be uploaded to Romexis. Check the network connection or permissions.

Action

Uploads will be retried until you sign out.

1107 No imaging licence. - warning

Description

Concurrent Romexis 2D imaging licences have run out.

Action

Patient images are not available.

2000 Wrong scaler module installed. - error

Description

This scaler does not have the correct module installed. Install the correct scaler module.

Action

Contact service.

2001 Unsupported instrument. - info

Description

This instrument is not recognised. Software upgrade may be needed.

2002 Unsupported assistant syringe. - info

Description

This instrument is not recognised. Connect only supported instruments.

2003 Unsupported assistant instrument. - info

Description

This instrument is not recognised. Connect only supported instruments.

2004 Instrument power-on failed. - error

Description

Instrument console failed to power on selected instrument.

Action

Contact service.

2005 Scaler current leakage. - error

Description

Scaler current leakage limit was triggered.

Action

Return the instrument to the console and try again. Make sure that the handpiece is firmly attached and that the tip is tightened. If the problem persists, the instrument is probably broken.

2006 Drive air pressure too low. - error

Description

Requested pressure for active instrument's drive air could not be achieved.

Action

Contact service.

2007 Spray air pressure too low. - error

Description

Requested pressure for active instrument's spray air could not be achieved.

Action

Contact service.

2008 Spray water pressure too low. - error

Description

Requested pressure for active instrument's spray water could not be achieved.

Action

Contact service.

2009 Drive air pressure too high. - error

Description

Pressure of active instrument's drive air is too high.

Action

Contact service.

2010 Spray air pressure too high. - error

Description

Pressure of active instrument's spray air is too high.

Action

Contact service.

2011 Spray water pressure too high. - error

Description

Pressure of active instrument's spray water is too high.

Action

Contact service.

2013 Syringe in unsupported slot. - info

Description

The syringe is connected to a slot that does not support syringes. Consult the user's manual.

2014 IPS voltage too low. - error

Description

Instrument power supply voltage too low.

Action

Contact service.

2015 AUX voltage too low. - error

Description

Instrument auxiliary power supply voltage too low.

Action

Contact service.

2016 Proportional valve open error. - error

Description

Proportional valve could not be opened.

Action

Contact service.

2019 IMUX board missing. - error

Description

Imux board is missing or not functioning properly.

Action

Contact service.

2020 IMUX board is incompatible. - error

Description

Imux board revision is not supported.

Action

Contact service.

2021 IMUX board is missing +32V. - error

Description

Needed +32V voltage is not detected.

Action

Contact service.

2026 Reverse drive not possible because of torque drive mode. - info

Description

Micromotor cannot be driven in reverse direction because torque drive mode is either autoreverse or autoforward.

2027 Instrument unspecified error. - error

Description

Current instrument has encountered an unspecified error.

Action

Contact service.

2028 Instrument power protection error. - error

Description

Current instrument has gone to protection mode.

Action

Contact service.

2029 Micromotor error, phase missing. - error

Description

Micromotor phase is not recognised. Check instrument handpiece and reconnect.

Action

Reactivate instrument. If the problem persists, contact service.

2030 Instrument data communication error. - error

Description

Data communication of current instrument has been interrupted.

Action

Reactivate instrument. If the problem persists, contact service.

2032 Instrument overtemperature error. - error

Description

Current instrument has overheated.

Action

Check instrument handpiece and let instrument cool down. If the problem persists, contact service.

2033 Instrument undervoltage error. - error

Description

Current instrument has detected too low voltage.

Action

Reactivate instrument. If the problem persists, contact service.

2034 Instrument overvoltage error. - error

Description

Current instrument has detected too high voltage.

Action

Reactivate instrument. If the problem persists, contact service.

2035 Incompatible scaler module version. - error

Description

Scaler control module version is not supported.

Action

Contact service.

2041 Instrument setting error encountered. - error

Description

Instrument setting error encountered and instrument has been deactivated.

Action

Reactivate instrument. If the problem persists, contact service.

2042 Instrument hardware error. - error

Description

Instrument hardware error was encountered and instrument has been deactivated.

Action

Reactivate instrument. If the problem persists, contact service.

2044 Instrument recognition error. - error

Description

Instrument recognition error encountered and instrument has been deactivated.

Action

Restart the unit. If the problem persists, detach the instrument connector and ensure that it is clean and dry. If the problem persists, contact service.

2045 Instrument console's back panel has been opened. - info

Description

Is instrument order in console still the same?

2092 Instrument settings fixed. - info

Description

The unit has set some of the current settings of an instrument to factory default values.

3001 Drive time of lift motor is in the limit. - error

Description

Chair movements can be used after a cooling down period.

You may override this if there is no load on the chair. Overriding this limit may cause motor overheating.

Action

Let cool for 5 min or contact service.

3002 Chair lift movement error. - error

Description

Chair lift automatic movement too fast or too slow.

Action

Use manual adjustment and contact service if the error persists.

3006 Drive time of backrest motor is in the limit. - error

Description

Chair movements can be used after a cooling down period.

You may override this if there is no load on the chair. Overriding this limit may cause motor overheating.

Action

Let cool for 5 min or contact service.

3007 Backrest movement error. - error

Description

Backrest automatic movement too fast or too slow.

Action

Use manual adjustment and contact service if the error persists.

3011 Drive time of legrest motor is in the limit. - error

Description

Chair movements can be used after a cooling down period.

You may override this if there is no load on the chair. Overriding this limit may cause motor overheating.

Action

Let cool for 5 min or contact service.

3016 Collision risk. - info

Description

The distance between the backrest and the cuspidor is too small. Turn the chair away from the cuspidor or operate the chair upwards.

3017 Collision risk. - info

Description

The distance between the backrest and the bowl is too small. Move the bowl to the home position.

3018 Collision risk. - info

Description

The legrest is too close to the floor. Operate the chair upwards.

3022 Chair can’t go down normally. - info

Description

The chair cannot be driven down because a safety switch is activated.

Action

Make sure that nothing blocks the movement.

3023 Safety switch on chair bottom has stopped the movement. - info

Description

Ensure that nothing is compressed in that area.

3024 One of the legrest safety switches has stopped the movement. - info

Description

Ensure that nothing is compressed in that area.

3025 Safety switch in suction arm has stopped the movement. - info

Description

Ensure that nothing is compressed in that area.

3026 Cuspidor arm safety active. - error

Description

Ensure that cuspidor is in the operating area.

Action

Contact service.

3027 The bowl is out and prevents the chair movements. - info

Description

Return the bowl to home position.

3028 Chair up safety active. - info

Description

Ensure that jumper is located in the Balelico PCB.

3029 Cuspidor arm safety active. - error

Description

Ensure that cuspidor is in the operating area.

Action

Contact service.

3030 Chair lift is not moving. - info

Description

The chair lift is not moving with the desired speed.

3031 Backrest is not moving. - info

Description

The backrest is not moving with the desired speed.

3032 Safety circuit error. - error

Description

Safety circuit self-check failed.

Action

Contact service.

3033 Chair locked by safety. - error

Description

Chair movements prevented. Return backrest to normal position.

Action

Contact service.

3034 Legrest is not moving. - info

Description

The legrest is not moving with the desired speed.

3035 Backrest position out of range. - error

Description

Drive backrest to upper or lower limit to calibrate position.

Action

Contact service.

3036 Chair is not moving. - info

Description

The chair is not moving with the desired speed.

3050 Chair durability test active. - info

Description

Chair movements are used with timed control.

3051 Upward chair movement limited. - info

Description

The bowl position prevents chair upward movements. Return the bowl to home position.

4003 Orotol pump error. - error

Description

Orotol pump is not working.

Action

Contact service.

4004 Water leak sensor active. - info

Description

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.

4010 No cup in cup holder. - info

Description

Cup not detected while using cup fill function. Place a cup in the cup holder.

4012 Shut down unit. - info

Description

Shut down the unit for the disinfection contact time.

4013 Operation not supported. - info

Description

Enable bowl rinsing and cup filling functionality before usage.

4015 Disinfectant container almost empty. - info

Description

Check the container and fill the container with suction line disinfectant if needed.

4016 Cup in cup holder. - info

Description

The hygiene procedure requires that the cup holder is empty. Remove the cup from the holder.

4017 Waterline content changed. - info

Description

To ensure the validity of the waterline content, perform long instrument flushing.

4018 Water use is prohibited. - info

Description

The waterlines contain disinfectant. Perform waterline flushing.

4020 Main air pressure too low. - error

Action

Contact service.

4021 Main air pressure sensor error. - error

Description

Main air pressure sensor is missing or faulty.

Action

Contact service.

4022 VS/A water level. - error

Description

Water level in VS/A suction system could not be lowered.

Action

Contact service.

4023 Bacterial count test is required. - info

Description

Bacterial count test is required when cleaning disinfectant is changed to PlanPure. If microbial water quality does not meet local drinking water quality requirements (typical threshold 100 CFU/ml), contact service to perform biofilm removal.

4024 Continuous cleaning in use. - info

Description

Continuous cleaning uses Oxygenal 6 as a germ reducing additive. To maintain the correct mixing ratio of drinking water and Oxygenal 6 in the water bottle, first empty the water bottle completely and then pour 5 ml of Oxygenal 6 into the empty bottle. Then, add 1.5 litres of drinking water to the bottle.

4025 Cleaning status reset. - warning

Description

Ensure that the waterlines are clean before using the dental unit.

4040 Amalgam collector is almost full. - info

Description

Replace or empty the collector as soon as possible.

4041 Amalgam collector is full. - info

Description

Replace or empty the collector immediately. The suction system cannot be used before the collector is emptied or replaced.

4050 Activation of suction tubes is prohibited. - info

Description

Return suction tubes to holders.

4058 Use of suction tubes is prohibited. - info

Description

Empty the suction tubes by selecting Daily flushing or run Suction flushing manually.

4059 Suction system error. - error

Description

The suction system reports a functional error.

Action

Suction system signalling error. Reboot the system or contact service.

4064 The water container is almost empty. - info

Description

Fill the water container.

5000 Required instruments are not selected when starting instrument flushing or waterline cleaning. - info

Description

Insert required instruments into the instrument flushing holder.

5001 Instrument flushing completed. - info

Description

Return instruments to instrument console.

5002 Instrument flushing has been interrupted. - info

Description

Restart instrument flushing or return instruments to instrument console.

5003 Waterline cleaning completed. - info

Description

Return instruments to instrument console.

5004 Waterline cleaning has been interrupted. - info

Description

The waterlines must be flushed or cleaned before the instruments can be used. Select a flushing or cleaning operation below to continue.

5005 Required suction tubes are not selected. - info

Description

Insert the required suction tubes into the suction tube cleaning holder before starting the cycle.

5006 Suction cleaning completed. - info

Description

Return suction tubes to the suction arm.

5007 Suction cleaning has been interrupted. - info

Description

Restart suction cleaning or return suction tubes to the suction arm.

5008 Suction flushing completed. - info

Description

Return suction tubes to the suction arm.

5009 Suction flushing has been interrupted. - info

Description

Restart suction flushing or return suction tubes to the suction arm.

5010 Long instrument flushing due. - info

Description

Instruments are locked, as instruments were not flushed properly on previous work day. Perform long instrument flushing to unlock.

5011 Waterline cleaning cycle due. - info

Description

Instruments are locked, as waterline cleaning was not performed. Perform waterline cleaning to unlock.

5012 Suction cleaning cycle due. - info

Description

Suction is locked, as suction tubes were not cleaned properly on previous work day. Perform suction cleaning to unlock.

6000 Foot control calibration 1/6, top left. - info

Description

Move the foot control pedal to the top left position, then push and release one of the foot control knobs.

6001 Foot control calibration 2/6, top centre. - info

Description

Move the foot control pedal to the top centre position, then push and release one of the foot control knobs.

6002 Foot control calibration 3/6, top right. - info

Description

Move the foot control pedal to the top right position, then push and release one of the foot control knobs.

6003 Foot control calibration 4/6, bottom right. - info

Description

Move the foot control pedal to the bottom right position, then push and release one of the foot control knobs.

6004 Foot control calibration 5/6, bottom centre. - info

Description

Move the foot control pedal to the bottom centre position, then push and release one of the foot control knobs.

6005 Foot control calibration 6/6, bottom left. - info

Description

Move the foot control pedal to the bottom left position, then push and release one of the foot control knobs.

6006 Foot control calibration successful. - info

Description

The foot control was calibrated successfully and is ready for use.

6007 Foot control calibration error. - error

Description

Foot control pedal calibration encountered out-of-range signal values.

Action

Try calibration again or contact service.

6008 Foot control pedal calibration encountered out-of-range signal values. - info

Description

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.

6009 Foot control calibration error. - error

Description

Foot control button calibration encountered out-of-range signal values.

Action

Try calibration again or contact service.

6010 Foot control button calibration encountered out-of-range signal values. - info

Description

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.

6013 Foot control chair control button faulty. - error

Description

Foot control chair control button was not in home position when dental unit was switched on.

Action

Release the button or restart the unit without touching the foot control. Contact service if the error persists.

6014 Foot control right knob faulty. - error

Description

Foot control right-side knob was not in home position when dental unit was switched on.

Action

Release the button or restart the unit without touching the foot control. Contact service if the error persists.

6015 Foot control left knob faulty. - error

Description

Foot control left-side knob was not in home position when dental unit was switched on.

Action

Release the button or restart the unit without touching the foot control. Contact service if the error persists.

7011 CAN bus failure. - error

Description

CAN bus cable short circuit or faulty device may cause this problem.

Action

Remove and check devices connected to CAN bus (foot control, operating light, Flexy, Interface, Balelico) one by one to see if the error disappears. If the problem persists, contact service.

8000 Romexis connection lost. - info

Description

Make sure the Ethernet cable is attached and Romexis is running.

Action

Contact service if the error persists.

8091 Romexis patient not selected. - info

Description

Select patient.

9002 Multiple mainboards detected on the CAN bus. - error

Description

Verify that Interface PCB switch S4 is in the off position.

Action

Contact service.

9003 The mainboard usb hub not working properly. - error

Description

Reboot the unit. If the problem persists, contact service.

9004 System voltage out of range. - error

Description

System voltage 36V out of range.

Action

Contact service.

9005 Device certificate invalid. - error

Description

The device certificate configuration is invalid. Romexis connections will fail.

Action

Contact service.

9006 Custom device certificate. - error

Description

The device certificate is configured for development only. Not for production use.

Action

Contact service.

33 Downloading log file

About this task

To view the log file you first need to download it to a USB memory stick.

Steps

1. Open the *Unit functions* view.

2. Press **Settings**.

3. In the Settings view that opens, select **General** > **Export logs to USB**.

4. Insert a USB memory stick into the USB port marked USB in the cuspidor. Follow the instructions on the screen.

   The log file is copied to the USB memory stick's root directory.

5. When prompted, remove the USB memory stick from the USB port.
6. Open the log file on a PC to check the log data.

   The log data contains system logs as well as unit and user settings.

34 Disposal

In order to reduce the environmental load over the product's entire life cycle, Planmeca products are designed to be as safe as possible to dispose of. Planmeca products fulfil the requirements of Directives RoHS, REACH and 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 the surfaces, waterlines and suction lines have been disinfected, and 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)
- Suction systems. All components in contact with suction and drain flow paths are to be handled as potentially biohazardous.

Batteries must be disposed of in accordance with local waste legislation and instructions, and by following the requirements of EU battery regulation (EU) 2023/1542 as applicable.

The following parts contain batteries:

- Dental unit wireless foot control
- Circuit boards (may contain)

35 Technical information

35.1 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 (H x D x W)	
Dental unit installed:	2015 mm x 1315 mm x 1812 mm (79.3 x 51.8 x 71.3 in) (see template for details)
Dental unit cuspidor delivery package:	1120 x 760 x 1130 mm (44.1 x 30 x 44.5 in)
Chair delivery package:	775 x 650 x 1140 mm (30.5 x 25.6 x 44.9 in)
Weight	
Dental unit: Approximately 220 kg (480 lbs) depending on delivery content Dental unit cuspidor delivery package: 130–140 kg gross / 100–110 kg net (287–309 lbs gross / 220–243 lbs net) depending on configuration Chair delivery package: 110 kg gross / 88 kg net (243 lbs gross / 194 lbs net)	
Maximum allowed load on patient seat	
Maximum allowed patient weight 185 kg (408 lbs) and accessories load of 15 kg (33 lbs)	
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 (10.2 psi to 15.4 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:	690 hPa to 1060 hPa (10 psi to 15.4 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:	700 hPa to 1060 hPa (10.2 psi to 15.4 psi)
Altitude:	< 3000 m (less than 1.86 miles)

Mains voltage and frequency	
Mains voltage setting:	100–240 VAC
Mains frequency:	50 or 60 Hz
No voltage selector.	
Live and neutral fuse rating and type	
Schurter SP series 5x20mm 0001.1012 F6.3AH 250V (10032231)	
Bussmann S501-6.3-R 5x20mm F6.3AH 250V (30040240)	
Power consumption	
Idle unit:	≈ 50VA (unit not in use, operating light turned on)
Typical average:	≈ 100VA (during patient treatment)
Maximum:	600VA (at maximum rated mains voltage, both chair motors running)
Electrical classification	
Class I	
Operation of chair lift and backrest motors	
Intermittent operation, ED 10%, 2 min "ON", 18 min "OFF"	
Water supply	
Pressure range:	min. 300 kPa (44 psi), max. 600 kPa (87 psi)
Flow rate:	≥ 4 l / min (maximum consumption at any instance)
Quality:	Hardness; ≤ 8°dH Microbiological water quality at water supply connection according to local regulations for drinking water.
pH:	6.5–8.5
Maximum particle size:	< 100 µm
Maximum water conductivity:	2000 uS/cm
Connection:	Customer-provided shut-off valve with G 3/8” male thread Above floor water connection 40–70 mm
Backflow prevention:	The water supply line must be equipped with a backflow prevention valve according to local requirements. E.g. in most European countries according to EN1717 standard, BA Type backflow preventer.
Air supply	
Pressure range:	min. 520 kPa (75 psi), max. 700 kPa (101 psi)
Flow rate:	over 80 Nl/min
Humidity:	Dew point not greater than −20 °C at atmospheric pressure
Quality:	Medical grade, dry and oil-free

Air purity class:	[2:4:2] according to ISO 8573-1
Oil contamination:	Max. 0.5 mg/m^3
Particulate contamination:	≤ 100 particles per cubic meter for 1 µm to 5 µm particle size
Connection:	Customer-provided shut-off valve with G 3/8” male thread Above floor water connection 40–70 mm
Water and air filters	
Water filter:	40 µm (internal), (80 µm external water filter recommended)
Air filter:	20 µm (internal)
Replacement of water and air filters should be performed by a qualified service technician according to the maintenance schedule. See section "Annual maintenance" on page 6.	
Suction connection	
Vacuum:	≤ 180 mbar
Flow rate:	≥ 400 Nl/min
Connection:	Ø 50/46 mm Above floor connection 15–40 mm
Classification of suction air flow rate according to ISO 10673:	Medium-volume suction system (Type 2: 170 Nl/min)
Classification of suction system according to ISO 10673:	Dry, semi-dry OR wet-suction system, depending on installed options
Suction air quantity at spray mist cannula minimum:	250 Nl/min (suction system with high flow rate), recommended 300 Nl/min
Diameter of cannula:	Saliva suction handpiece: 6 mm High-volume suction handpiece: 16 mm
Cannula connecting pieces according to DIN EN ISO 7494 - 2.	
If the negative static pressure (no flow condition) is > 180 mbar, the unit must be equipped with a negative pressure regulating valve.	
Drain connection	
Capacity:	min. 10 l/min
Connection:	Ø 50/46 mm Above floor connection 15–40 mm
Drain is routed downwards. Slope of water drain pipe downstream from device:	≥ 10 mm/metre

35.2 Planmeca Pro50 dental unit water consumption

Part	Water consumption
Bowl	The flow rate is approx. 2.5 litres (0.66 gallons) per minute. The flow rate can be configured.
Cup fill	The cup filling is adjusted for the size of cup you use.
Syringe	The flow rate is approx. 0.1 litres (0.03 gallons) per minute.
Handpieces	The flow rate is approx. 0.05 litres (0.01 gallons) per minute.
Suction system	The flow rate is approx. 0.4 litres (0.11 gallons)/ minute when the suction is on, and the amount depends on which suction system is used in the dental unit. The water flow keeps the suction system clean when in use.
Suction system cleaning cycle	Cleaning is done once a day and uses 2.5 litres (0.66 gallons) of water.

35.3 Air and water connections of handpieces

NOTE

MULTIflex couplings, three function handpieces, multifunctional handpieces and air motors are designed according to EN ISO 9168. Planmeca-specific connections must be operated with original Planmeca equipment.

NOTE

These values presented in the table below are specified at the connection of the dental handpiece to help operator users to select dental handpieces that perform clinically as expected.

Pressure and flow rate of procedural water and dental air supplied to dental handpieces

Instrument	Function and value
Scaler	Water flow 140 ml/min
	Water pressure 0.8 bar; flow pressure
Multifunction handpiece (Syringe)	Air flow at least 13 Nl/min
	Atmospheric pressure 4.75 bar; flow pressure
	Water flow 100±10 ml/min
	Water pressure 2.3 bar; flow pressure

Pressure and flow rate of procedural water and dental air supplied to dental handpieces

Instrument	Function and value
Dental handpiece and motor	Spray air flow 5 Nl/min
	Atmospheric pressure 1.0 bar; flow pressure
	Cooling air flow 30±5 Nl/min
	Atmospheric pressure 2.7 bar; flow pressure
	Drive air flow (turbines) 45 Nl/min
	Atmospheric pressure 2 bar; flow pressure
	Water flow 90±10 ml/min
	Water pressure 0.7 bar; flow pressure
Powder jet handpiece	Drive Air flow 20 Nl/min
	Atmospheric pressure 1.5 bar; flow pressure
	Water flow 90±10 ml/min
	Water pressure 0.7 bar; flow pressure

35.4 Instrument classifications

The electrical classification of the instrument is marked on the instrument hose either as B or BF. If there is no marking, no electricity flows through the instrument.

Type B

Type BF

The following lists the instruments that are available for the Planmeca dental unit and their electrical classification type.

Instrument classifications

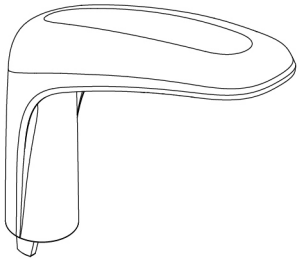
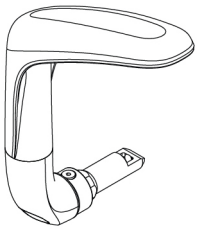
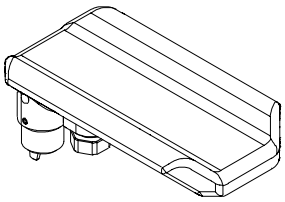
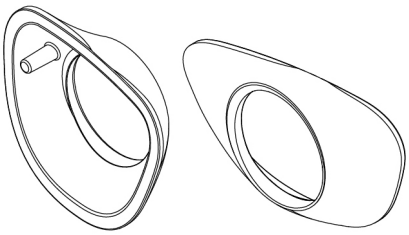
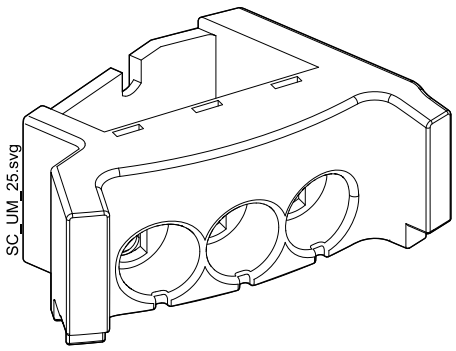
Instrument	Type
DCI autoclavable 3-way syringe	B
Luzzani Ergo 3-way syringe	B
Luzzani Minibright 6-way syringe with LED	B
PM fibre optic turbine hose S	B
Planmeca by KaVo INTRA LUX KL703 LED micromotor	B
Planmeca by KaVo INTRA LUX KL703 LED micromotor with endodontic functions	B
Planmeca Piezon LED (EMS) scaler	B
Satelec Newtron scaler	B
Planmeca Lumion Plus LED polymerisation light	B

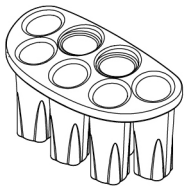
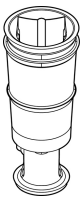
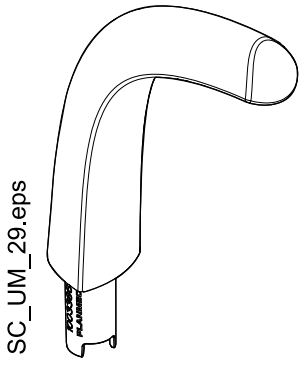
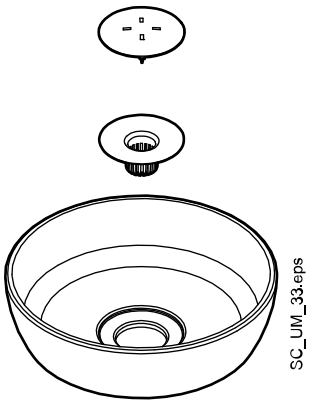
Instrument classifications

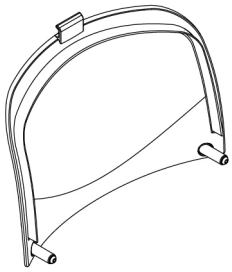
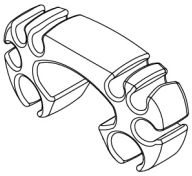
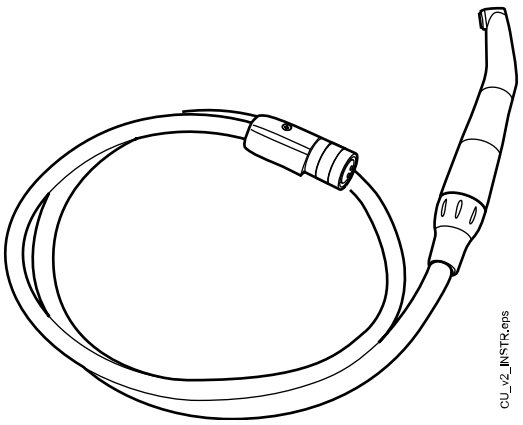
Instrument	Type
Satelec MiniLED Supercharged polymerisation light	B
Planmeca Somia USB intraoral camera	BF
KaVo DIAGNOcam Vision Full HD intraoral camera	B

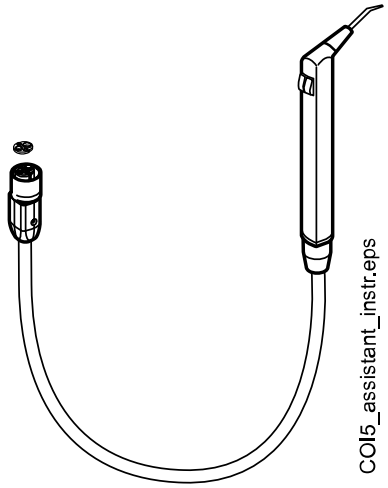
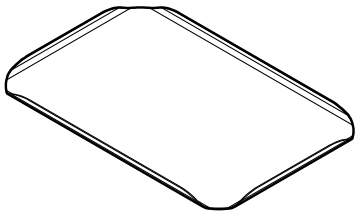
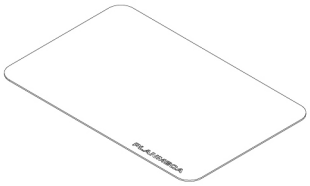
35.5 Detachable parts

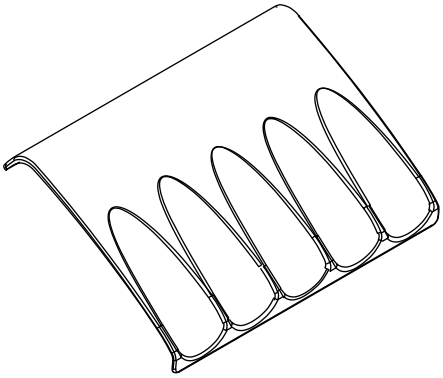
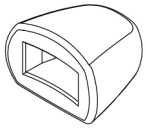
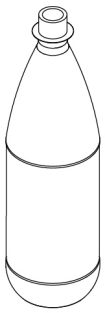
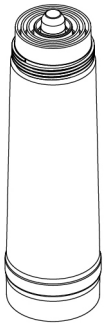
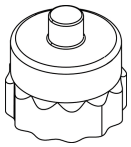
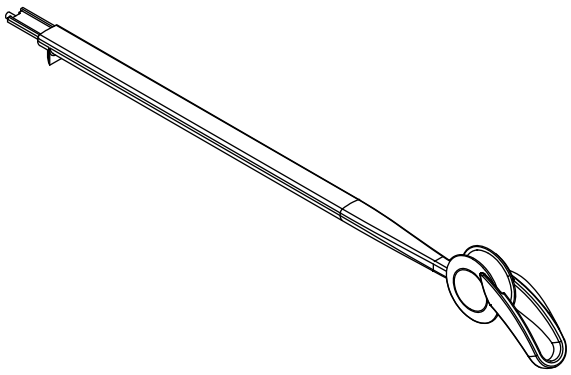
Use only genuine Planmeca parts.

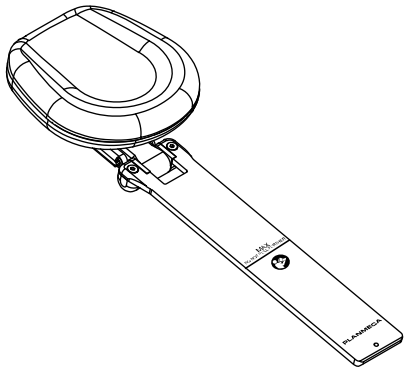
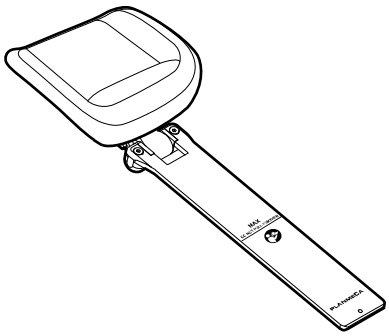
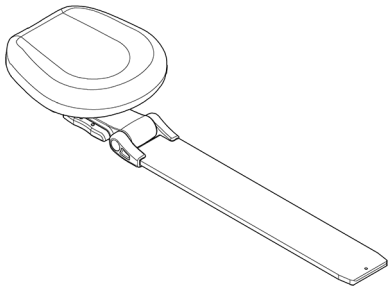
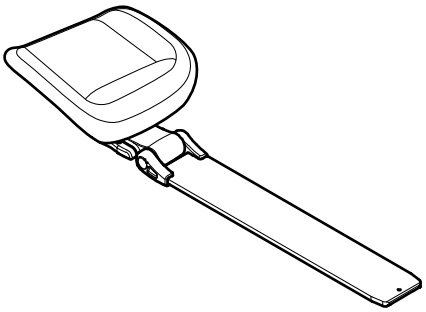
	Armrest top part assembly
	Armrest assembly right and left (available as option)
	IV arm support (available as option)
	Armrest covers right and left
	Suction tube cleaning holder

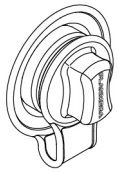
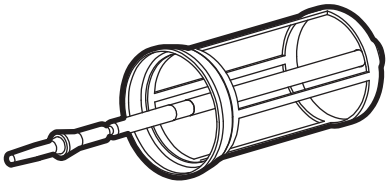
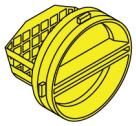
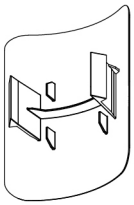
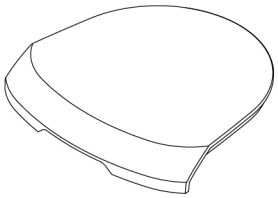
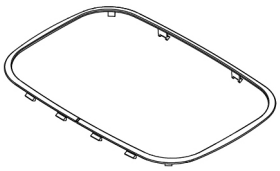
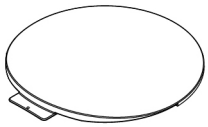
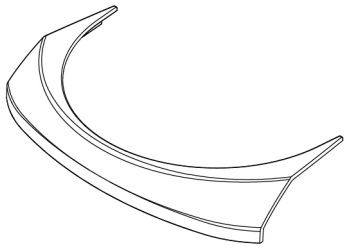
	Suction tube cleaning holder plug
	Instrument flushing holder
	Syringe adapter for Luzzani Minibright 6-way syringe
	Syringe adapter for Luzzani Ergo 3-way syringe
	Syringe adapter for DCI syringe
	Extension for cup fill tube
	Bowl, filter and cap

	Suction cover assembly
	Suction tubes
	Tube holder
	Suction handpiece assembly with tilting head (Planmeca) and bushing
	Suction handpiece assembly with Billund heads
	Suction handpiece assembly with Dürr heads
	Dentist’s instruments and hoses

	Assistant’s instruments and hoses
	Sterile water hose The sterile water hose is an accessory.
	Legrest protection sleeve
	Tray plate, size 1 and 2
	Silicone mats for trays (size 1, 2)

	Hygienic membrane
	Releaser knob
	Water bottle
	Planmeca Patrol filter
	Planmeca Patrol blind cap
	Balanced instrument arms

	Standard headrest with oval cushion
	Standard headrest with surgical cushion
	Swift headrest with oval cushion
	Swift headrest with surgical cushion
	Operating light handle
	Filter cap

	Container cap yellow (NCS S 0580-Y)
	Disposable filters
	Dürr spittoon bowl valve 7560-700-57 CAP
	Dürr deposit cup
	Pole hole cover
	Base cover assembly
	Telescope bottom cover
	Cuspidor arm service hatch
	Base front cover assembly

35.6 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 and their handpieces, the patient chair with upholstery, and the armrests.

35.7 Dimensions

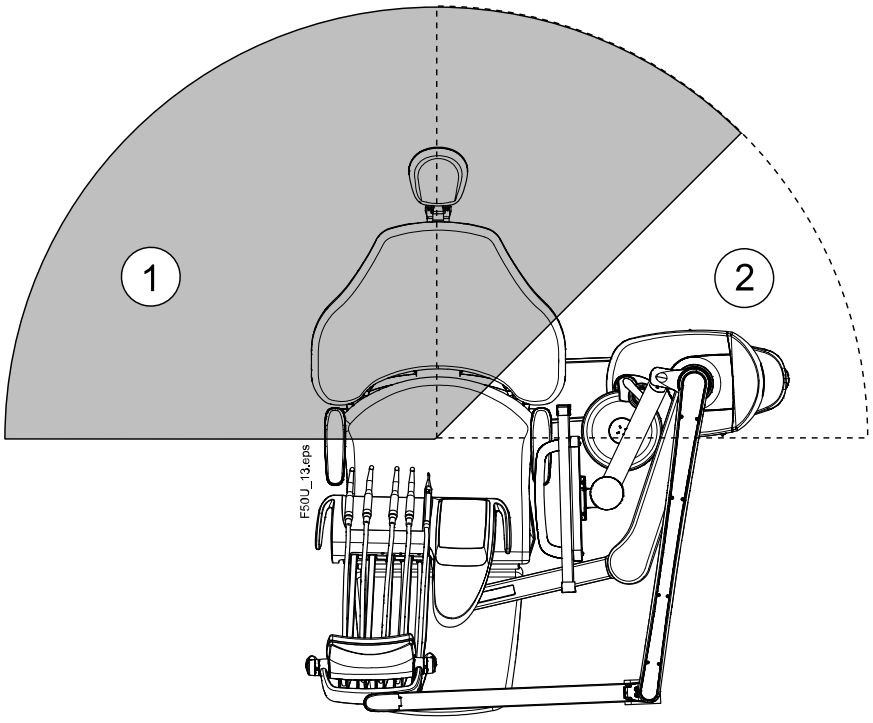
35.7.1 Positioning of patient, dentist and assistant

The following picture shows an example of how to position the dentist and assistant during four-handed 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

35.7.2 Patient area

The patient area is 1.5 m (59.1”) in each direction from the patient chair.

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.

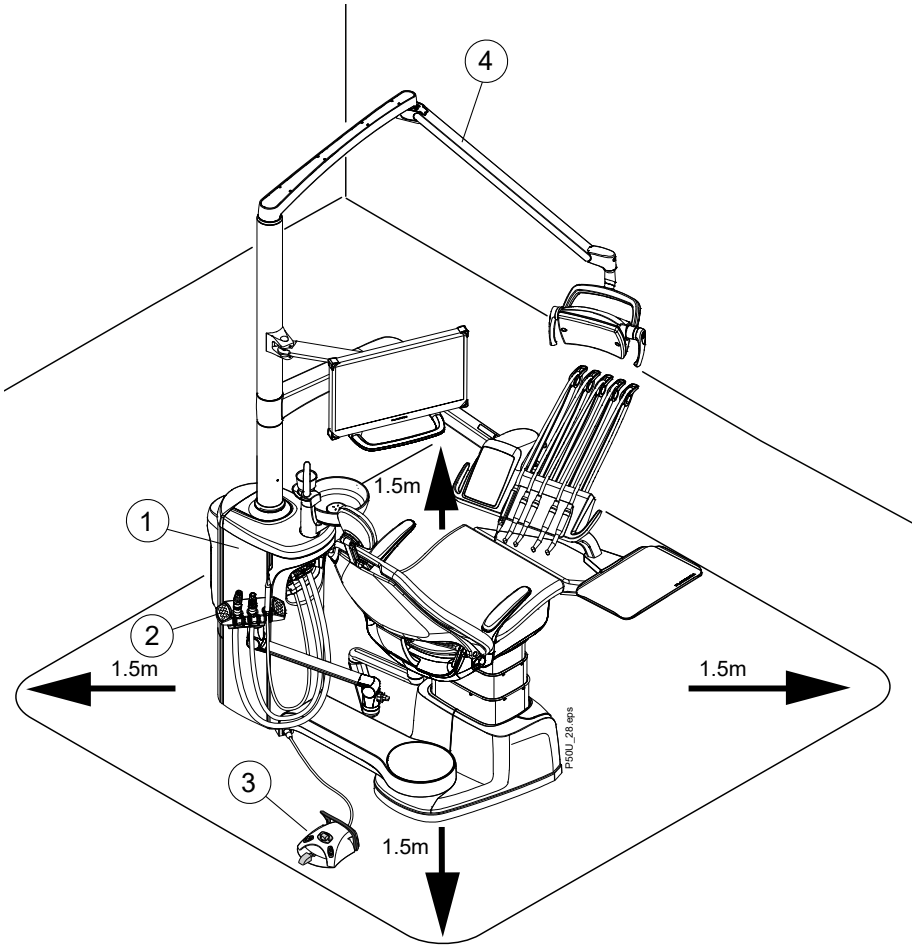
CAUTION

The floor of the patient area must be dry.

NOTE

Connect only Planmeca specified devices to the patient chair.

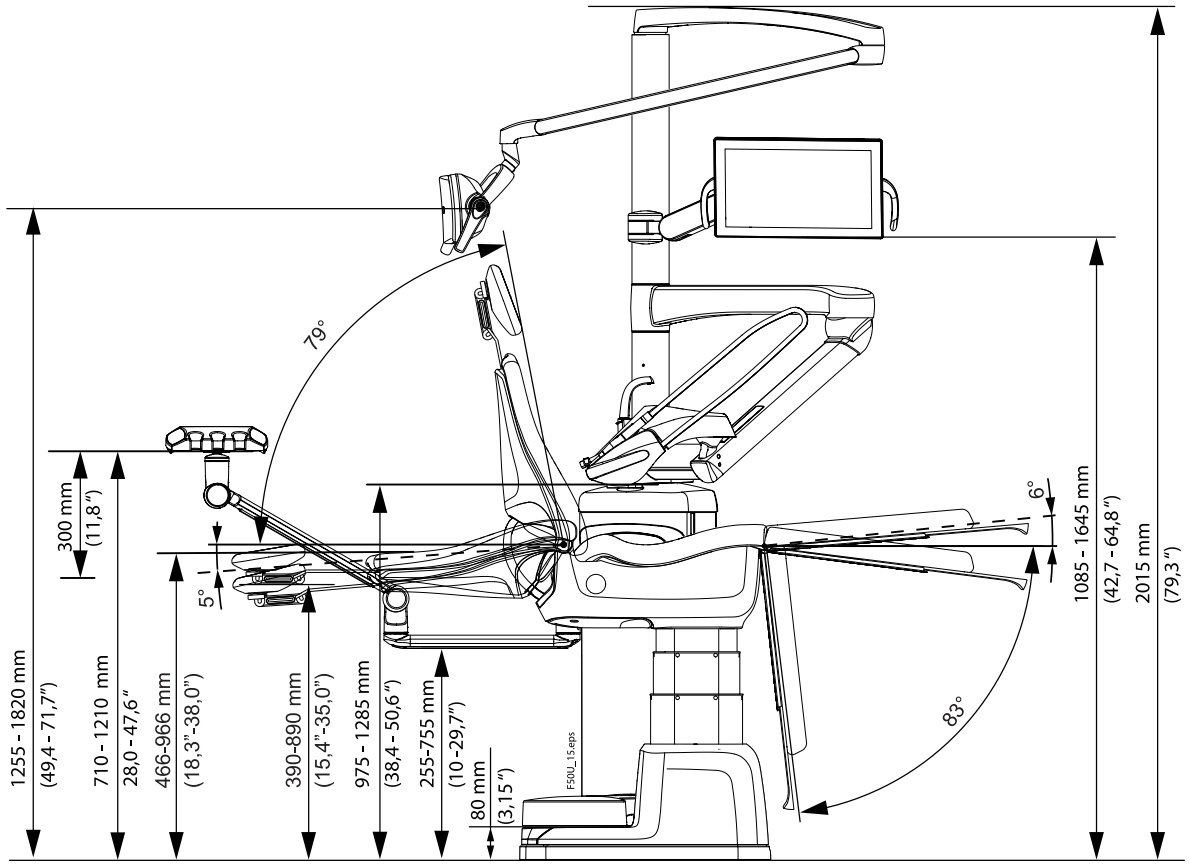
Items located inside patient area

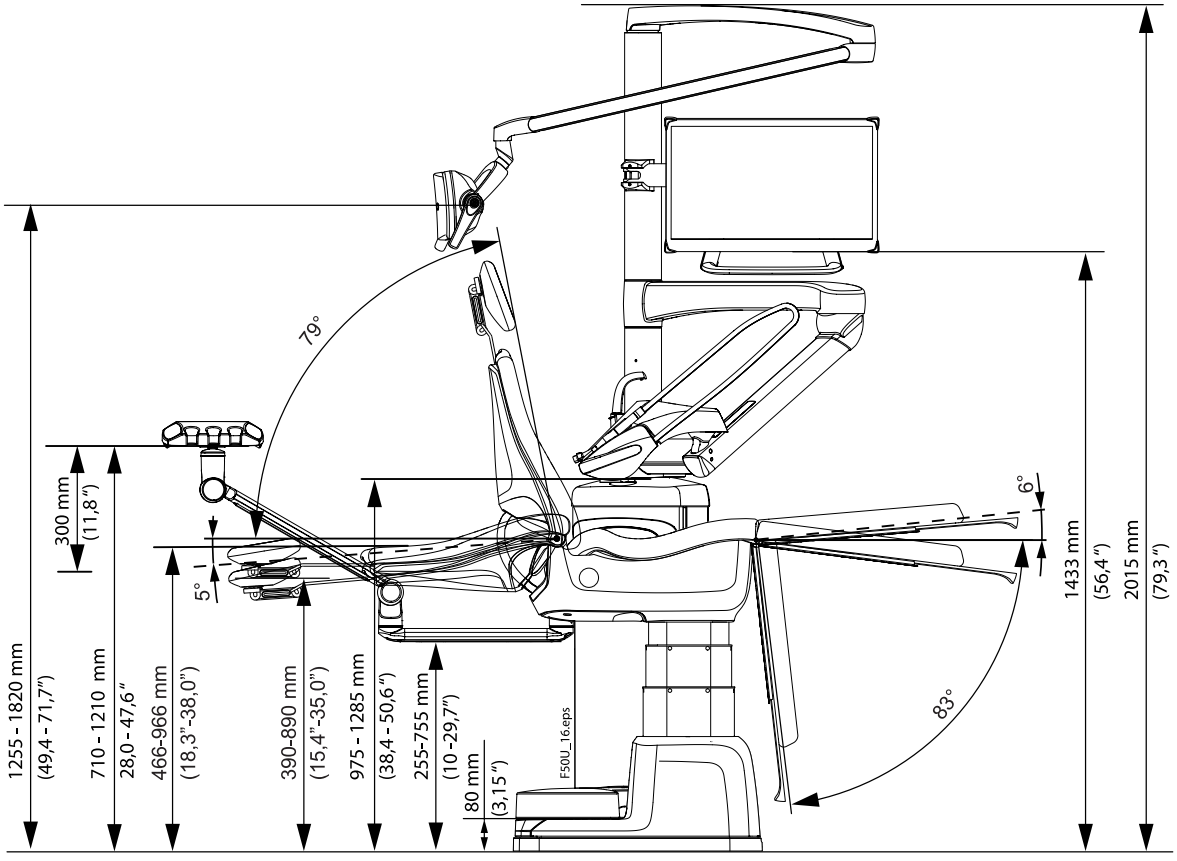


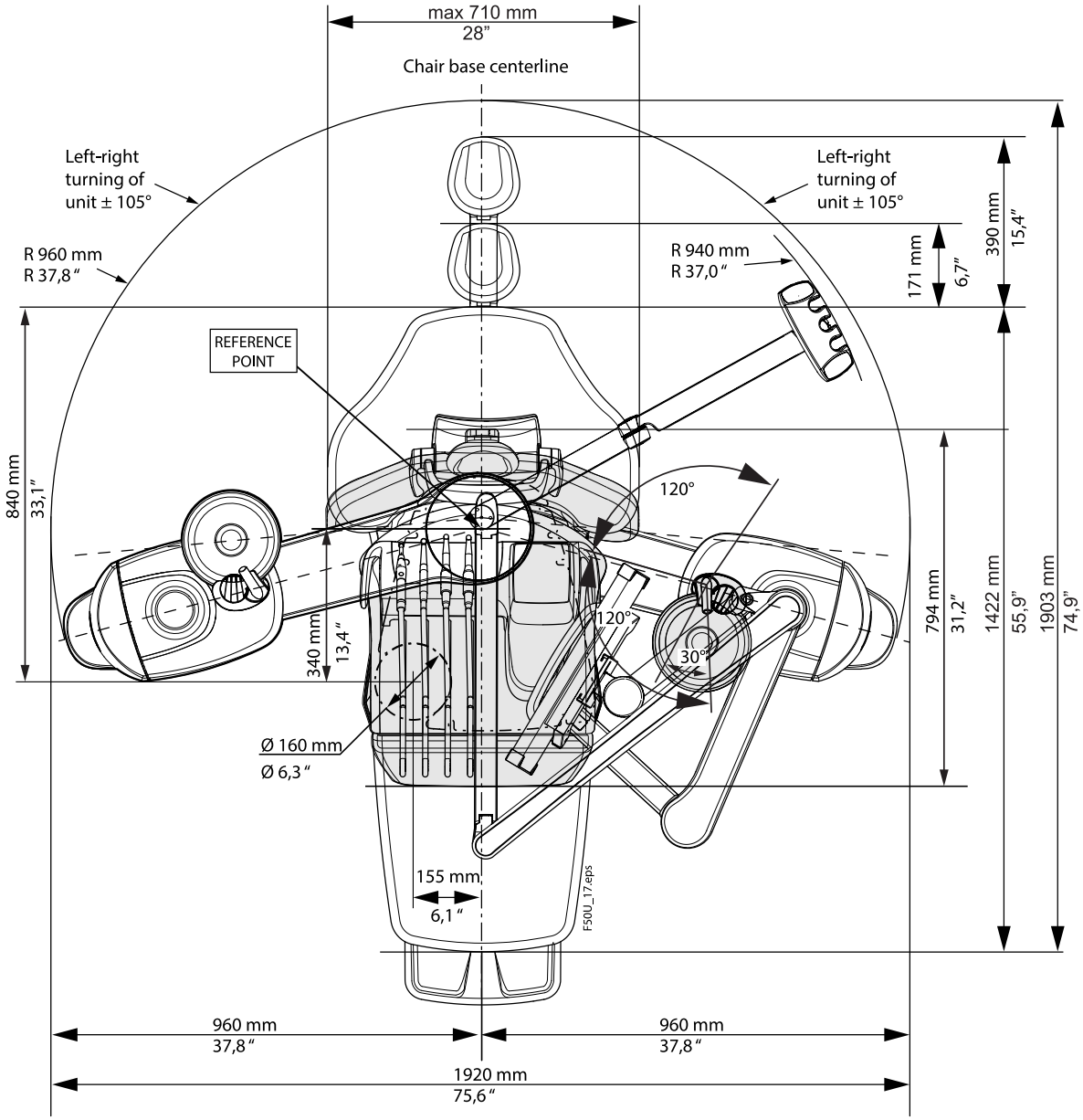
1 Planmeca dental unit
2 Flexy holder
3 Foot control
4 Planmeca operating light

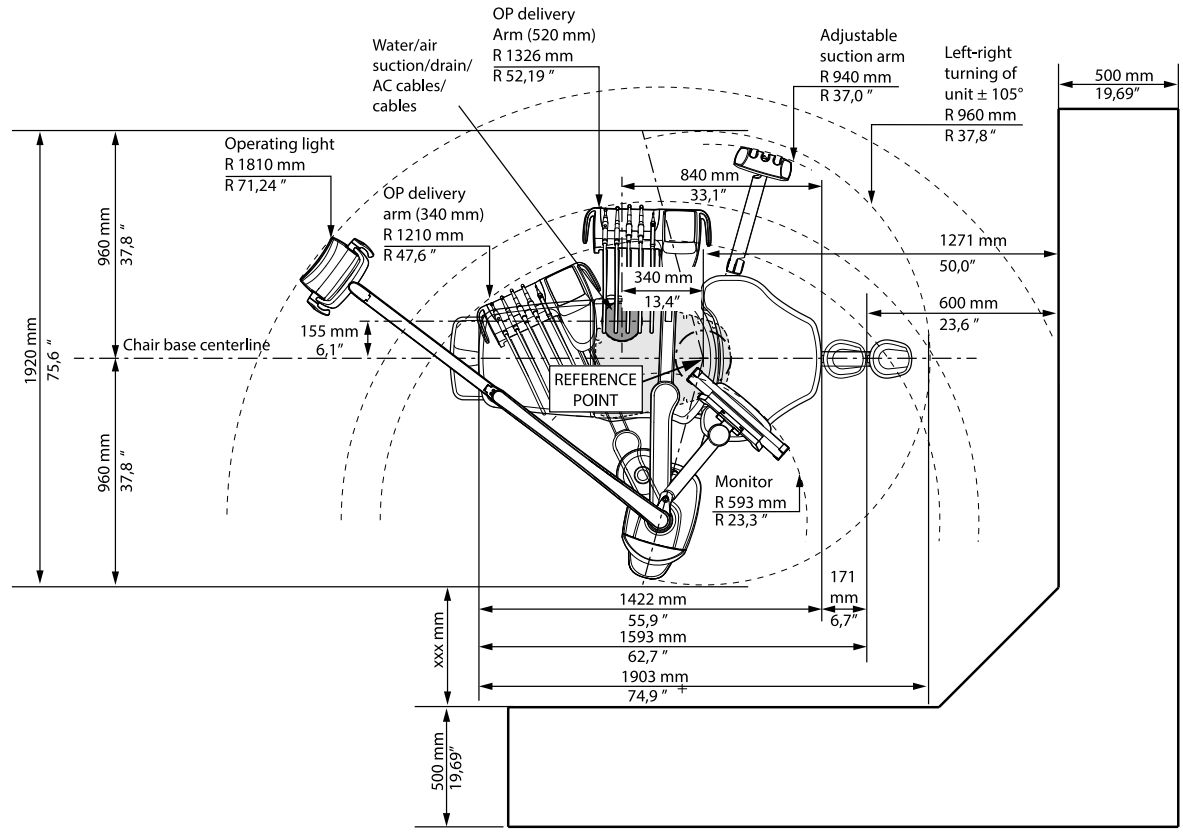
Use only IEC 60601-1 approved power source supplied by Planmeca

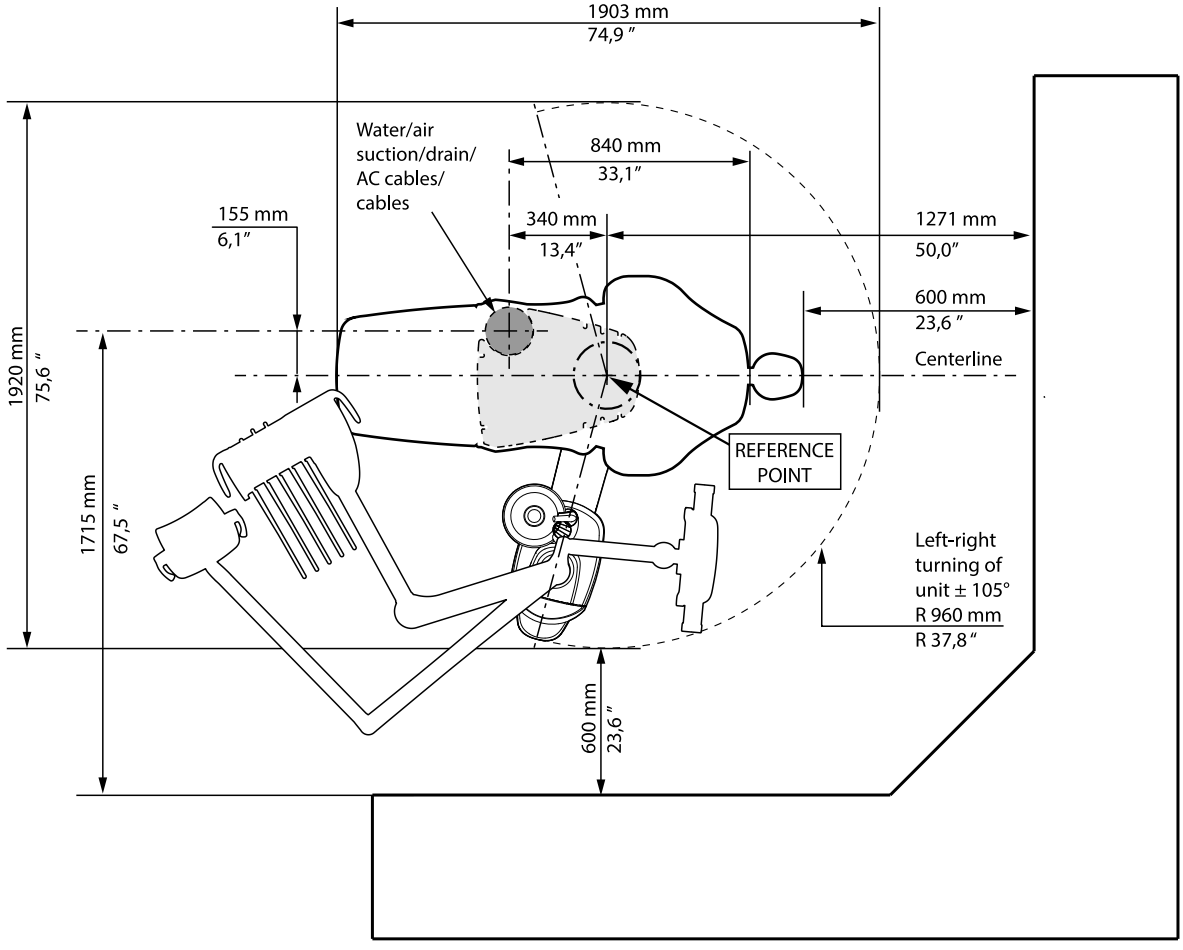
35.7.3 Dimensional drawings






max 710 mm
28”
Chair base centerline
Left-right
turning of
unit ± 105°
Left-right
turning of
unit ± 105°
R 960 mm
R 37,8 “
R 940 mm
R 37,0 “
171 mm
6,7”
390 mm
15,4”
REFERENCE
POINT
840 mm
33,1”
120°
120°
30°
340 mm
13,4 “
794 mm
31,2”
1422 mm
55,9”
1903 mm
74,9”
Ø 160 mm
Ø 6,3 “
155 mm
6,1 “
F50U_17.eps
960 mm
37,8 “
960 mm
37,8 “
1920 mm
75,6 “


OP delivery
Arm (520 mm)
R 1326 mm
R 52,19 ”
Water/air
suction/drain/
AC cables/
cables
Adjustable
suction arm
R 940 mm
R 37,0 ”
Left-right
turning of
unit ± 105°
R 960 mm
R 37,8 “
500 mm
19,69”
Operating light
R 1810 mm
R 71,24 ”
OP delivery
arm (340 mm)
R 1210 mm
R 47,6 ”
840 mm
33,1”
1271 mm
50,0”
340 mm
13,4”
600 mm
23,6 ”
960 mm
37,8 ”
155 mm
6,1”
Chair base centerline
1920 mm
75,6 “
REFERENCE
POINT
Monitor
R 593 mm
R 23,3 ”
171
mm
6,7”
1422 mm
55,9 ”
1593 mm
62,7 ”
1903 mm
74,9 ”
xxx mm
500 mm
19,69”


1903 mm
74,9 ”
Water/air
suction/drain/
AC cables/
cables
840 mm
33,1”
155 mm
6,1”
340 mm
13,4”
1271 mm
50,0”
600 mm
23,6 ”
Centerline
1920 mm
75,6 “
1715 mm
67,5 “
REFERENCE
POINT
Left-right
turning of
unit ± 105°
R 960 mm
R 37,8 “
600 mm
23,6 ”

36 Certifications

36.1 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.

36.2 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.

36.3 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.

36.4 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.

36.5 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.

36.6 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.

36.7 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