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PLANMECA



Planmeca Compact™ i V2, bench simulation

EN

user's manual

10039320_1

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

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

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

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1 INTRODUCTION

Planmeca Compact i bench simulation unit is an electrically controlled dental education device that consists of torso assembly, delivery arm, dental instruments and operating light. The Planmeca Compact i bench simulation unit is meant to be used for dental treatment simulations by dental students.

This manual describes how to use the Planmeca Compact i bench simulation unit. Please read this manual carefully before using the simulation unit.

NOTE

The use of Planmeca Compact i bench simulation unit is allowed only under the supervision of dental care professionals.

NOTE

This manual is valid for software revision 7.6.0 or later.

NOTE

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

NOTE

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

NOTE

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

CAUTION

A faulty or broken simulation unit must not be used.

CAUTION

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

CAUTION

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

CAUTION

The light source of the SingLED operating light may cause retinal injury if viewed upon directly. Protect the patient's and dental treatment staff's eyes with protective glasses that block high-energy visible light (HEV light), or limit the direct exposure to 10 minutes.

CAUTION

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.

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Planmeca Compact i bench simulation fulfills the requirements of Directives 2006/95/EC (LVD) and 2011/65/EU (RoHS).



All button illustrations indicate that the button should be pressed or, where indicated, pressed and held down. Pressing a button will either switch a function on or off, depending on the original setting, or change the value.

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

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2 SYMBOLS



Alternating current (Standard IEC 60878).



Attention, consult accompanying documents (Standard ISO 7010).



General warning (Standard ISO 7010).

IPX1 Protected against dripping water (Standard IEC 60529).



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



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

3 PREVENTIVE MAINTENANCE

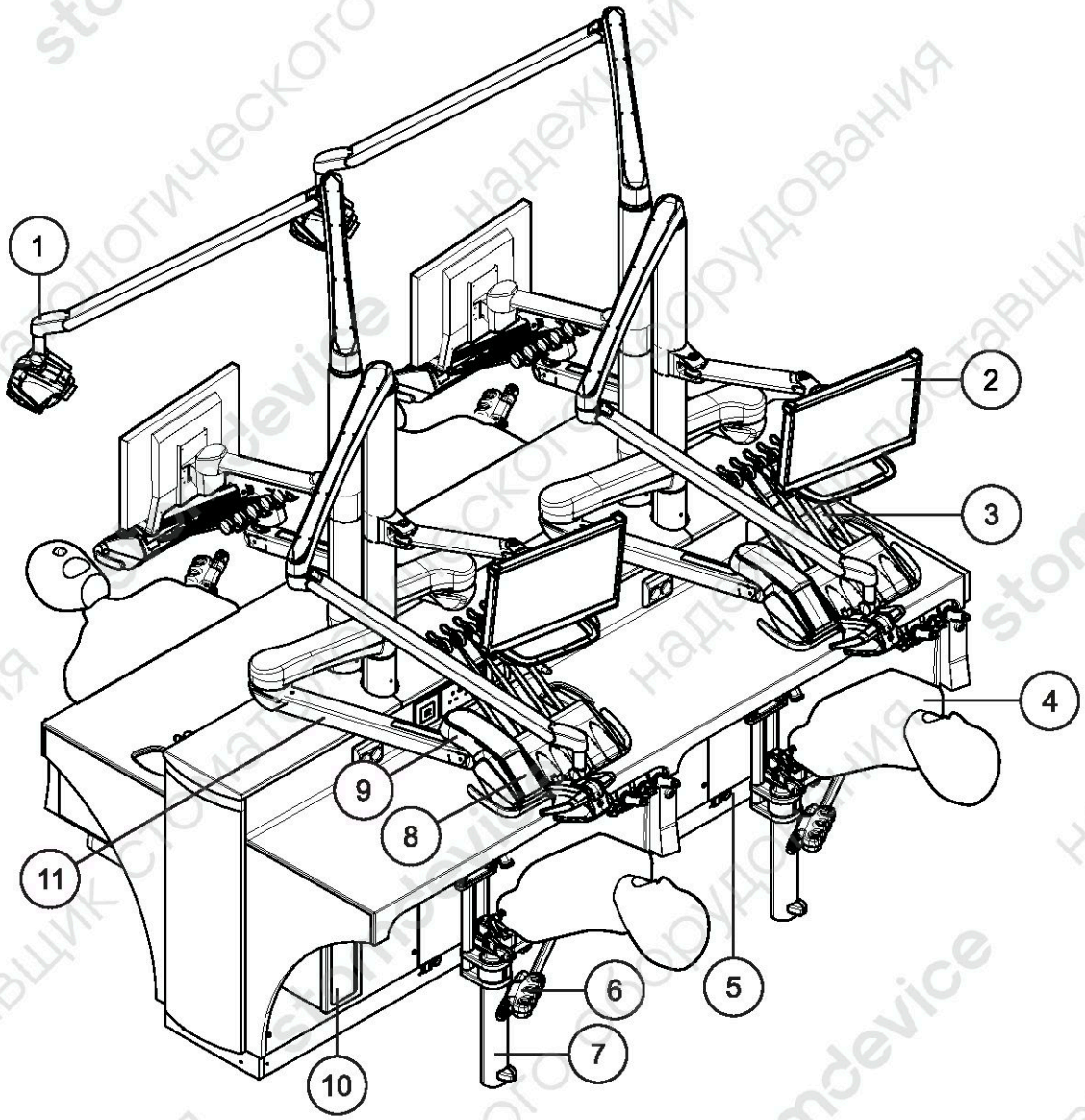
To guarantee the unit's proper operation, the unit must be checked and serviced once a year by a qualified Planmeca service technician.

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4 PLANMECA COMPACT i BENCH SIMULATION

4.1 Main parts

One Compact i bench simulation unit consists of two opposite workplaces with identical sets of equipment. Two or more bench simulation units can be placed next to each other to form the wanted simulation system.



1	Operating light	7	Gas spring
2	Monitor	8	Control panel
3	Instrument arms	9	Instrument console
4	Torso assembly	10	PC
5	Workplace on/off switch	11	OP delivery arm
6	Suction holder		

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4.2 PC

Each workplace can be equipped with a PC. The PC ON/ OFF switch is on the PC.

NOTE

Always switch off the PC at the end of the working day.

4.3 Monitor

The monitor can be moved from its handle.

NOTE

Never spray water on the monitor or the PC.

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

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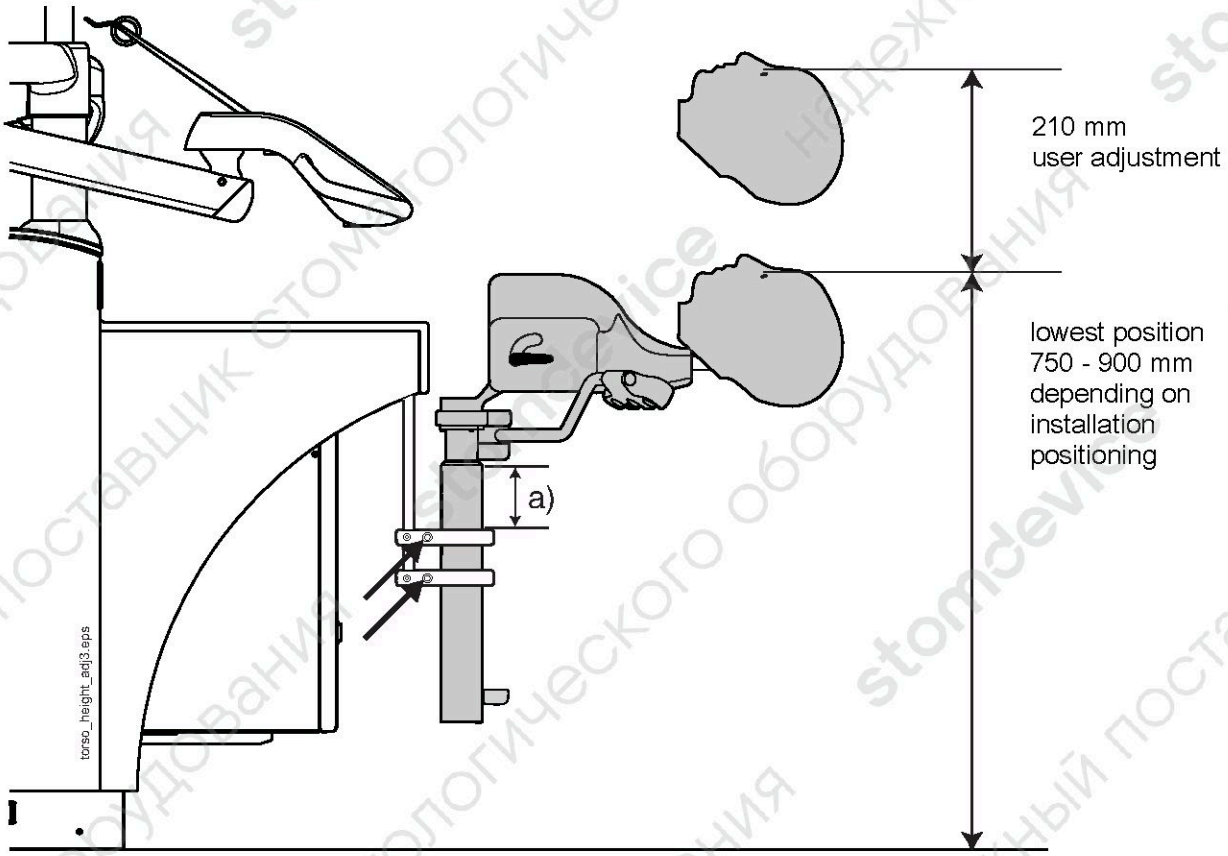
5 ADJUSTING TORSO

5.1 Adjusting height of torso

The height of the torso can be adjusted in two ranges, the lower range reaching from 750 to 960 mm, and the upper range reaching from 900 to 1110 mm. To take the other range into use, you need to adjust the height of the lift column.

5.1.1 Adjusting lift column

1. Loosen the screws on the column collars (marked with arrows in picture below).
2. Adjust the lift column.
   - To take the lower adjustment range of 750 - 960 mm into use, adjust the lift column so that the dimension of a) in the picture below is 0 mm.
   - To take the upper adjustment range of 900 - 1110 mm into use, adjust the lift column so that the dimension of a) in the picture below is 150 mm.
3. Tighten the screws to lock the position of the lift column.



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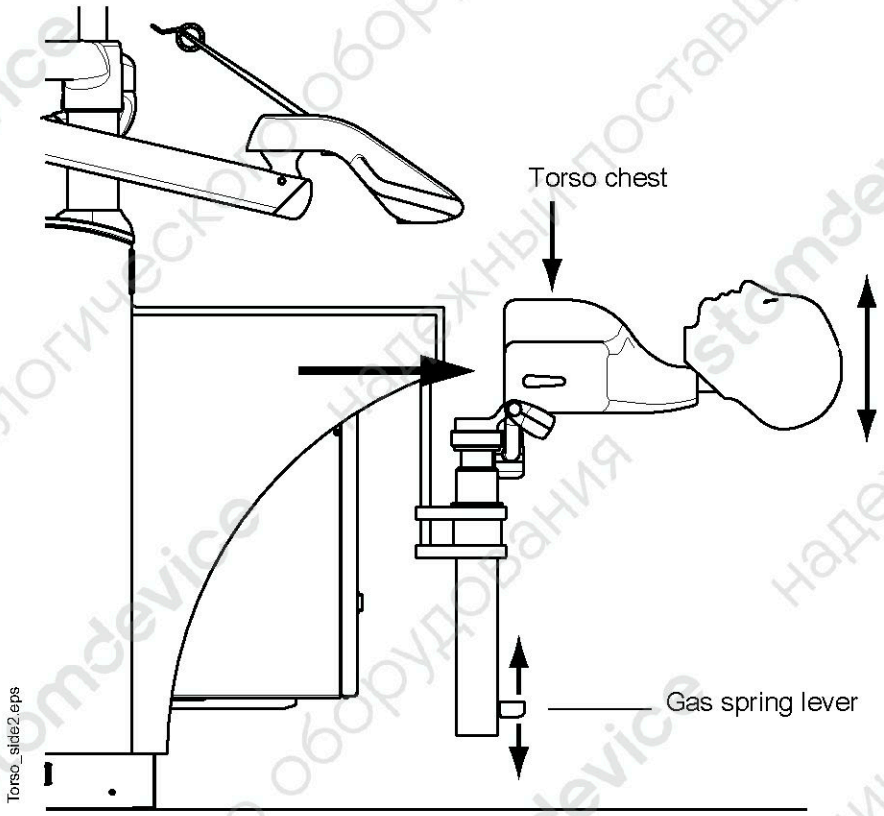
5.1.2 Adjusting torso within chosen range

Once you have chosen which adjustment range to use, you can adjust the height of the torso within the chosen range.

NOTE

When adjusting the height of the torso assembly do not place your hands above the gas spring assembly. Your hands could be squeezed between the assembly and table.

1. Push the gas spring lever down.
2. Adjust the torso height as follows:
   - **Lower** the torso by pressing the torso chest.
   - **Lift** the torso with both hands from the back of the torso.
3. Release the lever.

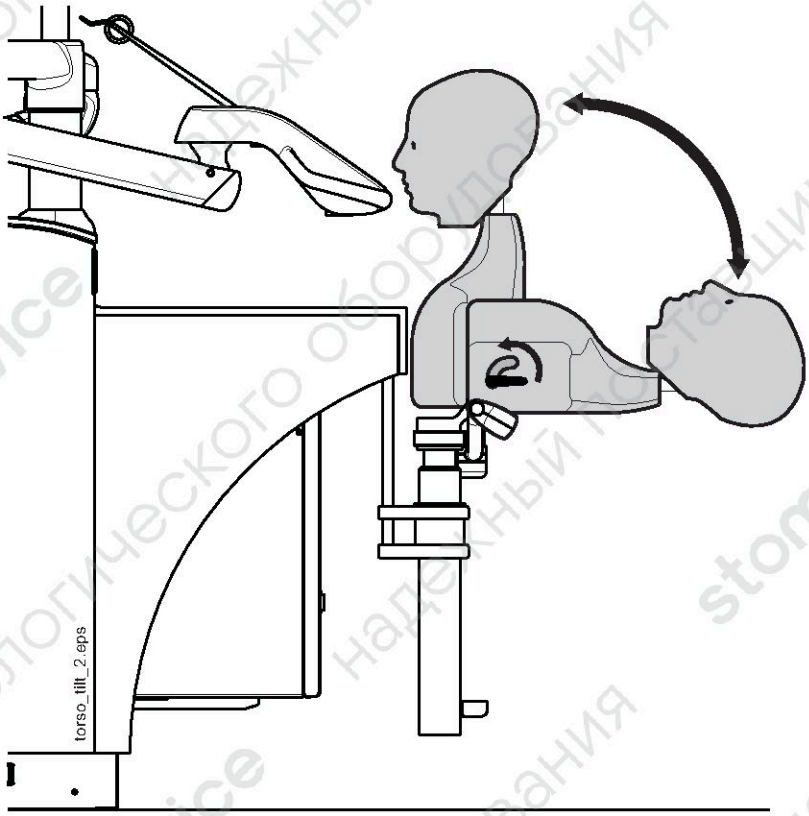


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5.2 Tilting torso

The torso can be tilted 90° in a vertical direction. The movement range is stepless and depicted in the picture below.

1. Release the handle by turning it counter-clockwise.
2. Tilt the torso upwards / downwards to the desired position.
3. Lock the position by turning the handle back clockwise.

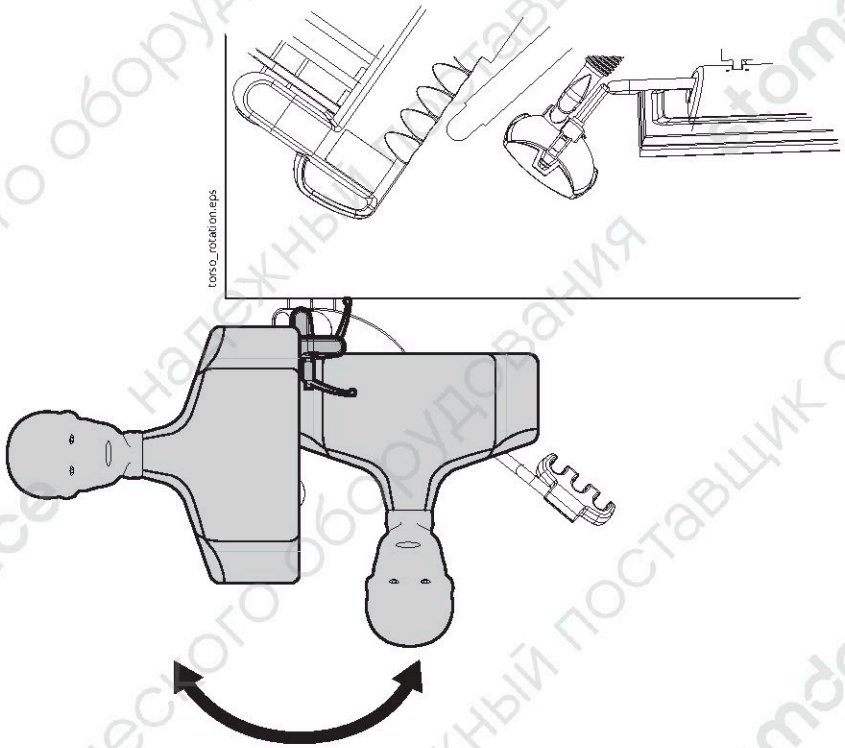


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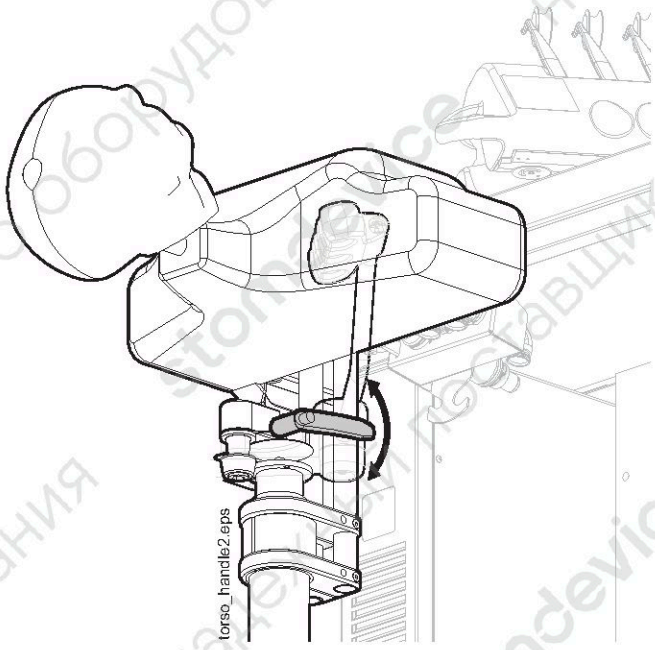
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5.3 Swivelling torso

The torso can be swivelled 90° in a horizontal direction. The movement range is stepless and depicted in the picture below.



1. Release the torso swivel by turning the handle counter-clockwise (see picture below).
2. Swivel the torso in the desired direction.
3. Lock the desired position by turning the handle clockwise.

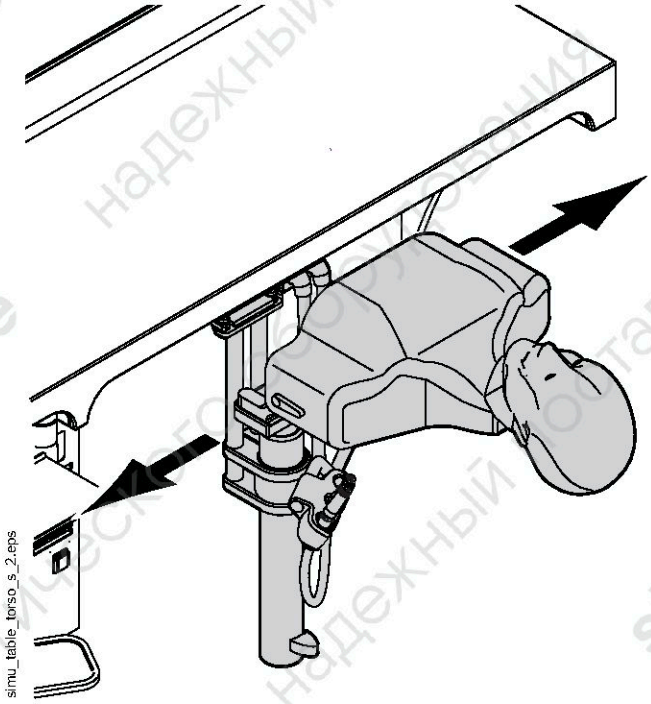


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5.4 Moving torso along sliding guide

The torso can be manually moved along the sliding guide, which is placed under the simulation unit's table top and stretches from right to left.

Sliding the torso along the guide optimises the simulation environment by enabling an efficient and versatile use of the learning equipment. For example, when the torso is in its leftmost position, swivelled towards the table and tilted upright, the table can be freely used.



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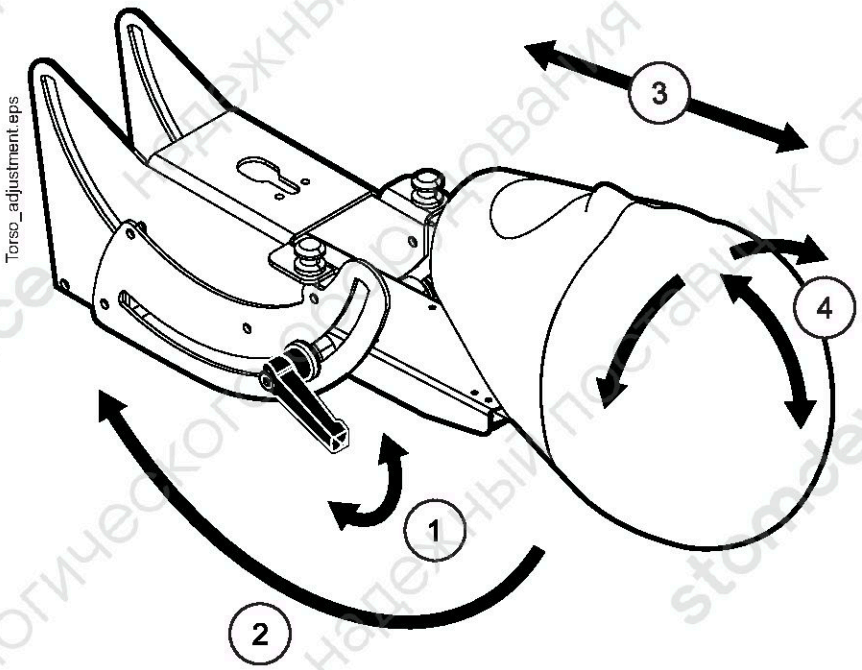
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6 ADJUSTING HEAD

To adjust the height of the head, open the locking screw (1) and slide the head along the sliding guide to the desired height (2). Then, lock the head into position by tightening the locking screw (1).

Move the head in the horizontal direction by pulling it away from the bench or pushing it towards the bench (3).

Adjust the angle of the head by turning it into the desired direction (4).

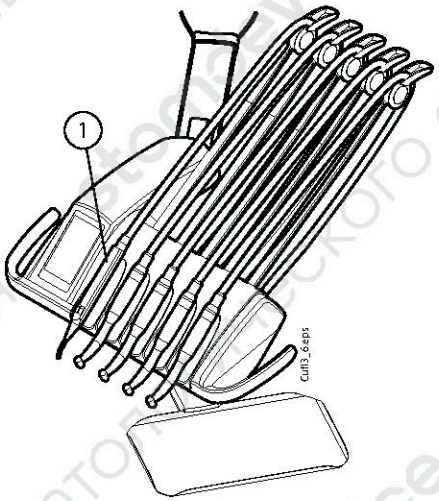


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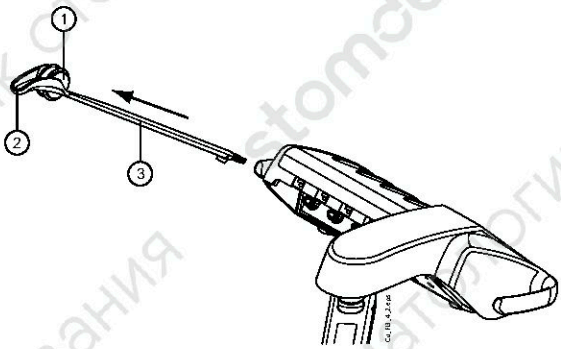
7 INSTRUMENT SYSTEM

7.1 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.

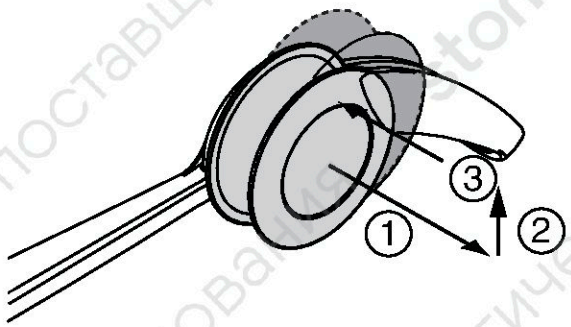
1	Syringe



The instrument arms can be removed by pulling them out from their holders, for example for cleaning. 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 the higher up you position the roller, the lighter it is to bend the instrument arm.
3. Push the roller back in to lock its position

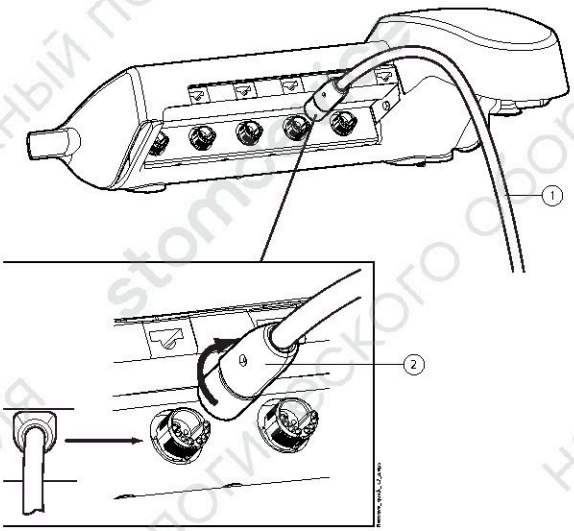
NOTE

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

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7.2 Quick-connector hoses



The instruments are equipped with quick-connector hoses to be connected to the instrument console. The hose is attached to its 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 attaching the connector to the console.

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

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

NOTE

Make sure that the hoses are properly connected to the console to avoid any leakage.

NOTE

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

NOTE

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

NOTE

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

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7.3 Instruments

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 picked up from the instrument console:

- instrument spray
- automatic chip blow
- fibre optic light
- reverse rotation (micromotor only)
- quickstart (air driven instruments only)
- instrument speed/power reduction.

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

- instrument spray
- automatic chip blow
- fibre optic light
- instrument speed/power reduction.

7.3.1 Instrument spray

The instrument spray can be programmed to be on or off when the instrument is picked up from the instrument console. Also, the type of spray can be programmed.

For more information, see section 17.2.2 "Instrument spray" on page 68.

7.3.2 Automatic chip blow

The automatic chip blow can be programmed to be on or off when the instrument is picked up from the instrument console. Also, the type of automatic chip blow can be programmed.

For more information, see section 17.2.3 "Chip blow" on page 68.

7.3.3 Fibre optic light

The fibre optic light can be programmed so that it will either be on or off when an instrument is picked up from the instrument console. Also, the intensity can be adjusted. For more information, see section 17.2.5 "Fibre optic light / LED light" on page 71.

The fibre optic light can be on only in one instrument at a time, for example, the fibre optic light of the syringe will switch off, if the light of the active instrument is switched on.

7.3.4 Reverse rotation of micromotor

The direction of the micromotor rotation can be reversed, see section 14.1 "Micromotor" on page 41.

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7.3.5 Quickstart of air driven instruments

The turbine and air motor can be set to start with maximum speed, see section 14.3 "Turbine" on page 51.

7.3.6 Instrument speed/power reduction

The instrument speed/power reduction can be set to be on or off when the instrument is picked up from the instrument console, see section 14 "OPERATING INSTRUMENTS" on page 41. The power reduction level can be programmed, see section 17.2.1 "Instrument speed/power reduction" on page 67.

NOTE

The instrument speed/power reduction does not affect the air driven instruments for which quick start has been selected.

7.4 Instrument logic

NOTE

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

The dental unit contains an instrument logic with the principles described below. The active instrument can be operated with the foot control and its settings are displayed on the touch panel and they can be changed. When the active instrument is operated, other instruments can be away from the instrument console, but they can not be operated.

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. 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 memory operation of the logic settings makes it possible to store parameters and settings for up to eight instruments. Changing the place of the instrument on the console does not change the parameters and settings of that instrument.

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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 touch 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.

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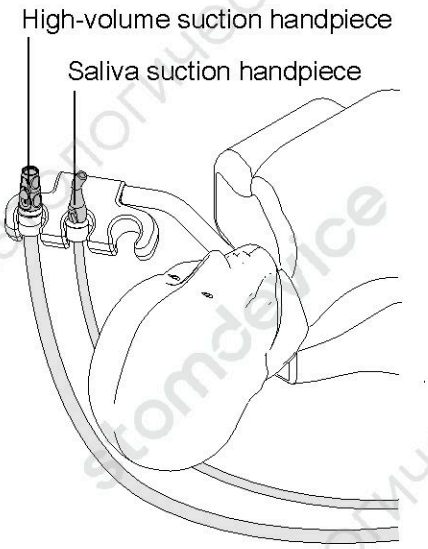
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8 SUCTION SYSTEM

8.1 Suction arms

The suction arm is attached under the torso assembly. The suction arm can be moved to either side of the torso assembly for both right-hand and left-hand use. You may need to tilt the torso assembly a little before changing the suction arm side.

8.2 Suction tube holders

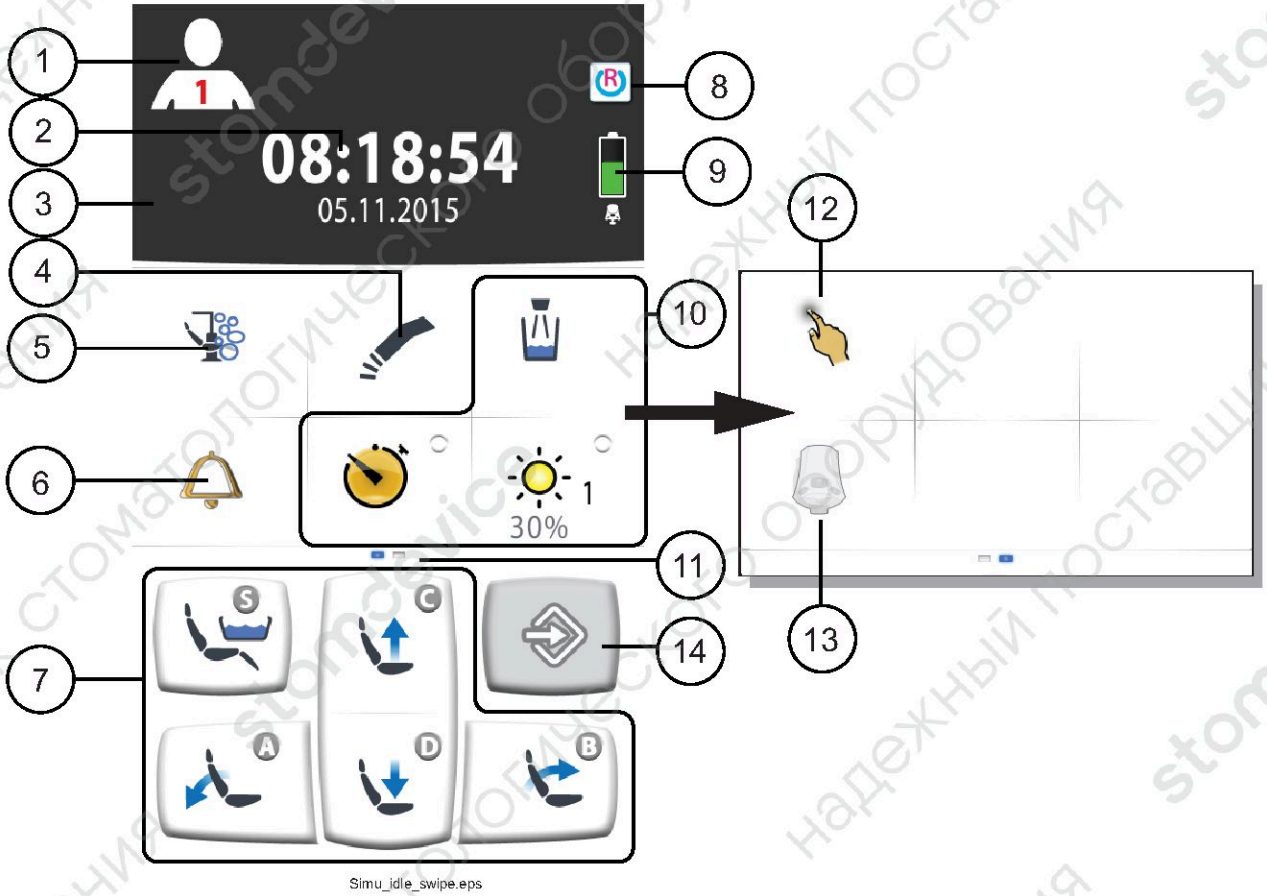


The suction holder has three openings for the high-volume suction tube and for the saliva suction tube. You can place the suction tubes in any of the openings.

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9 TOUCH PANEL

9.1 Overview



1	User button	8	Romexis connection (optional, display only)
2	Time (display only)	9	Wireless foot control battery (optional, display only)
3	Date (if configured, display only)	10	Unit buttons
4	Suction	11	Swipe view Swipe to the side to view more functions
5	Maintenance button	12	Touchpad button (optional)
6	Assistant call / Door open	13	Wireless foot control button (optional)
7	Chair buttons	14	Program button

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The touch panel is located on the instrument console. You can use it to control and program the instruments and the workplace. Also, you can start maintenance procedures from the touch panel.

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

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

Some of the buttons have indicator lights that show the status of that specific function. When the indicator light is lit, it means that the function is activated.

When the unit is in programming mode, the **Program** button is blue.

The touch panel is available in several languages and you can change the language from the touch panel. For more information, see section 13.1 "Language" on page 36.

In the programming mode, the setting to be changed is shown on the display, see section 17 "PROGRAMMING" on page 66.



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

In case of malfunction, an error code or a help message is shown on the display, see section 20 "HELP & ERROR MESSAGES" on page 90.

NOTE

The touch panel is always in the normal operating mode when the workplace is switched on.

9.2 Touchpad functionality



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

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

NOTE

The touchpad function requires that the dental unit is connected to Planmeca Romexis software. The software version must be 4.1 or later.
If there is no Planmeca Romexis connection, the function is disabled and the Touchpad button is grey.

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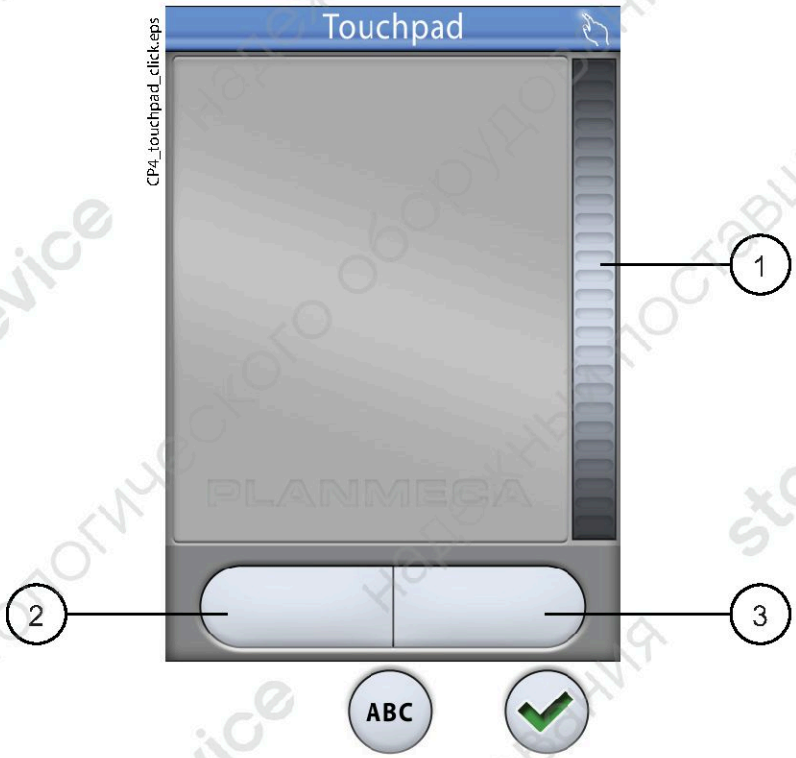
9.2.1 Using touch panel as computer mouse



Press **Touchpad** to open the mouse-view on the touch panel.

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

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



1	Scroll wheel
2	Left button
3	Right button

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

Example: Drag-and-drop

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

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9.2.2 Using touch panel as keyboard



Press **ABC** to open the keyboard on the touch panel.

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

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

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

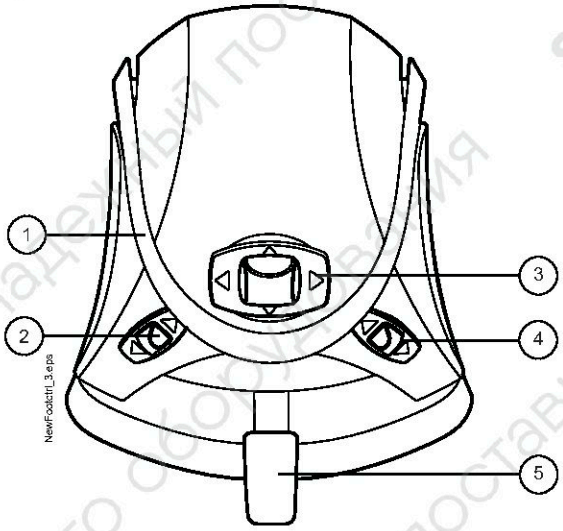
To display special characters, press **Alt**. Press **Alt** again to return to the normal view.

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10 FOOT CONTROL

10.1 Introduction

Each workplace has an integrated foot control that operates the instruments and the workplace.



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

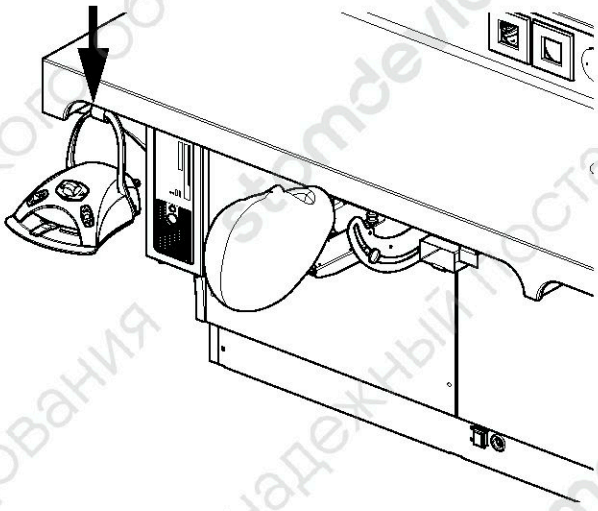
CAUTION

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.

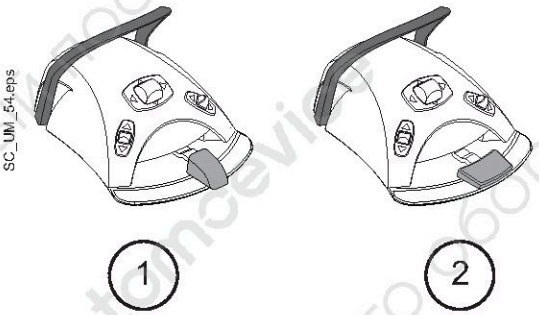
When you are not using the foot control, hang it on the hook (marked by arrow in pictures below).



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10.2 Foot control pedal



Two foot control pedals are available: a standard pedal (1) and a wide pedal (2), and they 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 micromotor, turbine and scaler. They do not apply to the operation of the workplace. The differences are described in the table below.

Table 6: 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
Activate momentary spray	Push pedal down briefly while driving instrument	N/A

For more information, see sections 14.1 "Micromotor" on page 41, 14.3 "Turbine" on page 51, 14.4 "Scaler" on page 55 and "The intraoral camera can be used in a variety of ways and the following only gives a brief introduction to its use. For detailed information on the different configurations and use, see the user's and installation manual for the Panasonic intraoral camera." on page 60.

NOTE

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

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 picture. 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.

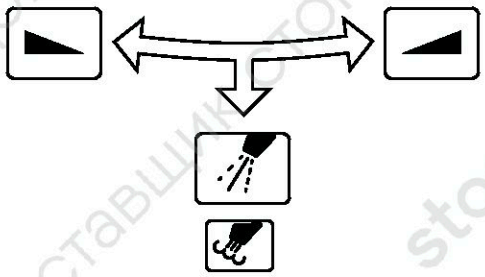
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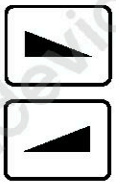
10.3 Foot control functions

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

Action	Function
Left-side knob up	Can be configured by a Planmeca service technician. Default function: Operating light on/off
Left-side knob down	Can be configured for a selection of instruments by a Planmeca service technician. The function depends on the selected instrument slot. Only one function per instrument slot can be configured.
Right-side knob up	Can be configured by a Planmeca service technician. Default function: USB camera on/off
Right-side knob down	No function
Pedal left	Assistant call

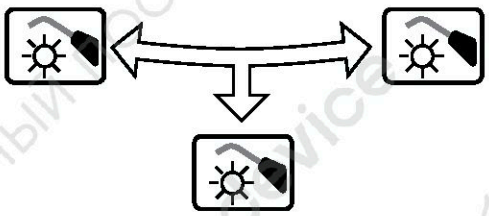
When an instrument is activated, the functions of the standard pedal depend on the used instrument. These instrument-specific functions are presented below.



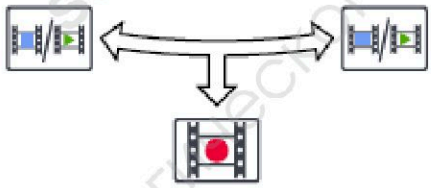
Symbol	Function	Instrument
	Drive instrument	Micromotor, turbine, scaler
	Change spray 1 / 2 / OFF	Micromotor, turbine, scaler
	Manual chip blow; activated for as long as the pedal is pushed and held down	Micromotor, turbine

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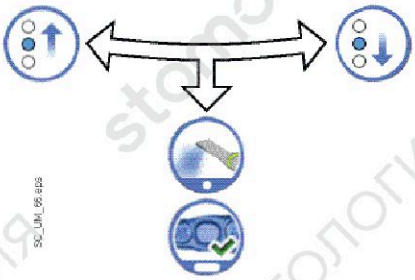
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Symbol	Function	Instrument
	Start / stop instrument	Unit controlled polymerisation light



Symbol	Function	Instrument
	Freeze / unfreeze picture	Intraoral camera
	Save still picture	Intraoral camera



Symbol	Function	Instrument
	Move upward in the list of scan type selection tools	Planmeca PlanScan intraoral scanner
	Move downward in the list of scan type selection tools	Planmeca PlanScan intraoral scanner
	Start scanning (push briefly)	Planmeca PlanScan intraoral scanner
	Generate model of scanned area (push and hold)	Planmeca PlanScan intraoral scanner

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10.4 Wireless foot control

NOTE

The wireless foot control is an optional feature.

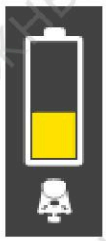
The standard foot control and the wireless foot control can not be used simultaneously. Should such a situation occur, the standard foot control overrides the wireless foot control.

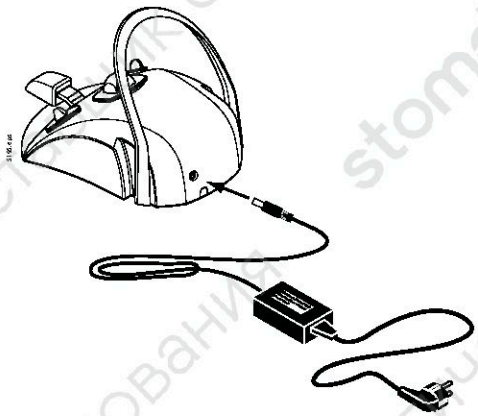
When the wireless foot control has been idle for 2 hours, it goes into sleep mode. The sleep mode is indicated by a battery symbol on the touch panel. You can wake up the foot control by pressing the foot control handle.

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

NOTE

The battery symbol can be hidden from the touch panel, see section 17.8.2 "Changing battery indicator visibility" on page 78.

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



When the battery is less than 20% full you need to recharge the battery as soon as possible.

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

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



CAUTION

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

CAUTION

The battery must be charged outside the patient area.

CAUTION

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

NOTE

The power supply is marked and specified as a part of Planmeca Compact i Touch v2.

NOTE

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

NOTE

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

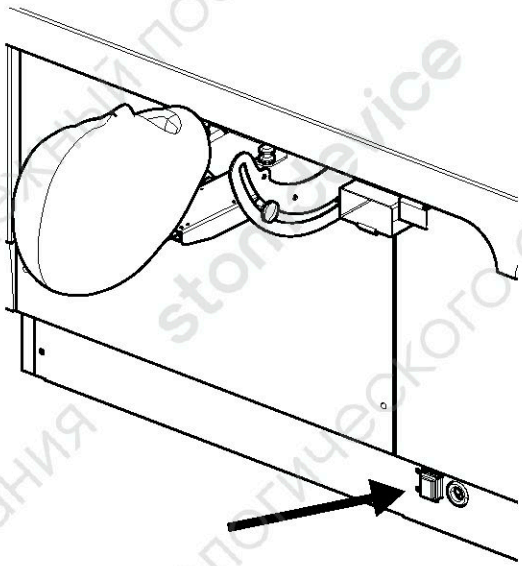
NOTE

The standard foot control contains a radio device FCC: YII002 and IC: 9050A-002, and the wireless foot control contains a radio device FCC: YII001 and IC: 9050A-001. See also section 22.3 "FCC Class B Notice for wireless foot control" on page 115.

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11 SWITCHING WORKPLACE ON AND OFF



Each individual workplace has its own ON/OFF switch that is located on the unit base. Note that the workplace switch must always be on when using the workplace.

The touch panel briefly shows the software version number.

When the workplace is switched on, the ON/OFF switch light is on.

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12 CHECKING UNIT DETAILS

12.1 About this unit

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

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



1. Press **Program**.



2. Press **About this unit**.

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



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



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

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12.2 Unit type

Unit Type tells you which type of workplace you are working on.

12.3 Unit software version

Unit SW Version shows the software version.

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

12.4 Service

Service contains information for service situations.

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

- *Yearly Maintenance*
- *GUI Diagnostics*
- *Clock calibration*

12.4.1 Yearly maintenance

Yearly maintenance tells you

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

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

12.4.2 GUI diagnostics

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

CAUTION

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

12.4.3 Clock calibration

For instructions on how to calibrate the clock, see section 18 "CALIBRATING CLOCK" on page 80.

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12.5 Network settings

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

- Romexis connection
- Name of dental unit
- IP address
- MAC address
- Network mask
- Gateway
- Romexis server IP address
- Romexis server port

CAUTION

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

12.6 Message history

Message history displays help and error messages when you press **>**. For information on how to use the message log, see section 20.4 "Viewing help and error message history" on page 107.

12.7 Bluetooth

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

12.8 Licences

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

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13 OPERATING WORKSPACE

13.1 Language

A selection of languages is available for the touch panel. Follow the steps below to change the language.



1. Press **Program**.



2. Press **Language** to open a list of available languages.
   The available languages are:
   - English
   - Finnish
   - German
   - Spanish
   - French
   - Italian
   - Swedish
   - Hungarian
   - Czech
   - Danish
   - Norwegian
   - Russian
   - Japanese
   - Polish
   - Traditional Chinese
   - Simplified Chinese
   - Romanian
   - Arabic
   - Dutch
   - Portuguese

3. Select a language by pressing it.
   Move up and down on the list by pressing the up/ down buttons.
   The list of languages closes and the language of your choice is displayed on the touch panel.

NOTE
The language can not be changed from the foot control.

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13.2 Timer

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



1. Press **Timer** to open a list of available timers.

2. Select a timer from the list.

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



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

When the timer reaches zero you will hear two signal tones and the indicator light goes off.

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

The preset timers can be reprogrammed, see section 17.3 "Timer settings" on page 72.

NOTE

Other functionalities can be used while the timer is running.

NOTE

The timer can not be run from the foot control.

13.3 Door open / assistant call

If you have installed a door opening device or assistant call, you may activate these from the touch panel or the foot control.

NOTE

Only one of these functions can be enabled at a time. To change the enabled function, contact your Planmeca dealer.



Touch panel: Press Press **Door open / assistant call** to activate the function. You will hear a short signal tone when the function starts.

Hold your finger on the **Door open / assistant call** button for more than 0.5 seconds to continue the function 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 Door open / 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.

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NOTE

Alternatively, the foot control can be configured so that the Door open / assistant call function is activated when you push the left-side or right-side knob up. Contact your Planmeca dealer.

The duration of the signal can be programmed, see section 17.5 "Duration of door open / assistant call" on page 74.

13.4 Planmeca SingLED operating light

NOTE

You can change the operation mode of the SingLED operating light by pressing the on/off switch for more than 15 seconds (you will hear two signal tones, one after 3 and one after 15 seconds):
1) The operating light can be switched on/off and the brightness can be adjusted from both the light and the workplace.
2) Brightness adjustment can be done only from the operating light. The light can be switched on/off from both the operating light and the workplace.

Note, however, that the intensity can not be adjusted when the multi-light mode is enabled, see section 13.4.2 "Adjusting intensity of operating light" on page 39.

13.4.1 Switching operating light on/off





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

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

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

NOTE

The foot control can also be configured so that the operating light is switched on/off when you push the right-side knob up. Contact your Planmeca dealer.

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13.4.2 Adjusting intensity of operating light

You can select one of the following methods to adjust the operating light intensity during treatment:

- Multi-light-mode enabled

  When the multi-light-mode is enabled you can toggle between the light presets 1 and 2 during treatment. They both have pre-set intensity values that can only be adjusted in the programming view, not during treatment.

- Multi-light-mode disabled

  When the multi-light-mode is disabled, there is only one intensity value for the operating light. However, the intensity can be adjusted during treatment.

The operating light intensities for the multi-light-mode are user-specific. For programming instructions, see section 17.4 "Intensity of operating light" on page 73.

NOTE

When the polymerisation light is taken from the holder and returned to it, the operating light will dim. This feature is configurable; contact your Planmeca dealer.

Multi-light-mode enabled - changing light preset

The selected light preset and intensity are displayed on the **Operating light** button. When you change the light preset, the symbol changes accordingly.



Touch panel:

Press and hold the **Operating light** button to change the light preset.



Foot control:

Press and hold the left-side knob up to change the light preset.

NOTE

The foot control can also be configured so that the light preset is changed when you push the right-side knob up. Contact your Planmeca dealer.

Operating light:

Keep your hand in front of the infrared light sensor of the operating light for longer than one second to change the used light preset.

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Multi-light-mode disabled - adjusting intensity

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



Touch panel:

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



Foot control:

Press and hold the left-side knob up to adjust the operating light intensity.

NOTE

The foot control can also be configured so that the intensity is adjusted when you push the right-side knob up. Contact your Planmeca dealer.

Operating light:

Keep your hand in front of the infrared light sensor of the operating light for longer than one second to adjust the operating light intensity.

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.

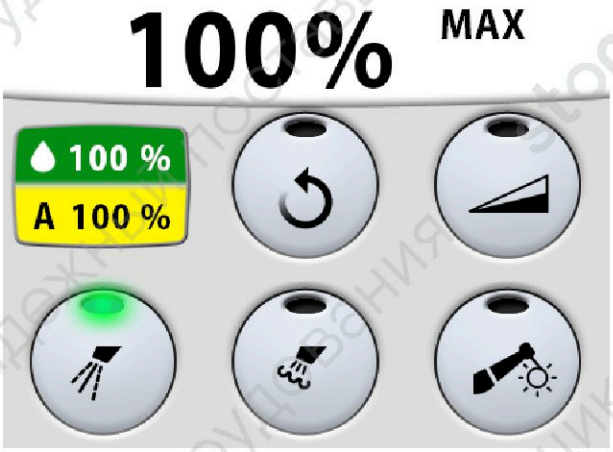
The intensity starts to decrease/increase after the maximum/minimum value has been reached. When the limit value is reached, you will hear a short signal tone.

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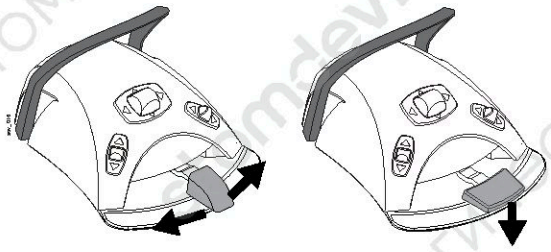
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14 OPERATING INSTRUMENTS

14.1 Micromotor



Speed/power



Standard pedal: To drive the micromotor push the foot control pedal to the right or to the left.

Wide pedal: To drive the micromotor push the foot control pedal down.

Pushing the pedal further to the right/left or down will increase the speed or power of the micromotor. As you push the pedal the power output will appear on the display. The normal range is 10 - 100%.

To stop the micromotor allow the pedal to return to the rest position.

NOTE

The speed/power level depends on the instrument.

CAUTION

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

Reverse rotation



In normal operation the micromotor rotates in a clockwise direction. To reverse the direction of rotation press **Reverse**. Reversing is possible only when the micromotor is picked up from the instrument console, but not operated.

When the micromotor rotates in the reverse direction, the indicator light is amber and you can hear a low ticking sound. To disable the sound, please contact your Planmeca dealer.

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NOTE

The foot control can be configured so that the reverse rotation is activated/deactivated when you push the left-side knob down. Contact your Planmeca dealer.

NOTE

Check the indicator light on the touch panel to verify that pushing the left-side knob down activates the correct function.

Speed/power reduction



Press **Instrument speed/power reduction** to reduce the micromotor's speed or power to a preset level. If the preset value is, for example, 50%, the foot control pedal movement controls the speed/power between 10 - 50% instead of the normal range of 10 - 100%. The preset maximum value is displayed on the screen when the micromotor is picked up from the instrument console. Press **Instrument speed/power reduction** again to switch the power reduction off.

When the micromotor's speed or power is reduced, the indicator light is green.



NOTE

The foot control can be configured so that the micromotor's speed or power is reduced to a preset level when you push the left-side knob down. Contact your Planmeca dealer.

NOTE

Check the indicator light on the touch panel to verify that pushing the left-side knob down activates the correct function.

NOTE

The instrument speed/power reduction level can be programmed. See section 17.2.1 "Instrument speed/ power reduction" on page 67.

NOTE

Note that the speed/power level depends on the instrument.

Instrument spray

The instrument cooling spray setting can be selected to be water&air, air or no spray.



The amounts of water and air for the currently used spray type are shown on the display.



Press **Instrument spray** once to switch on the water&air spray. You will hear two short signal tones. Additionally, a

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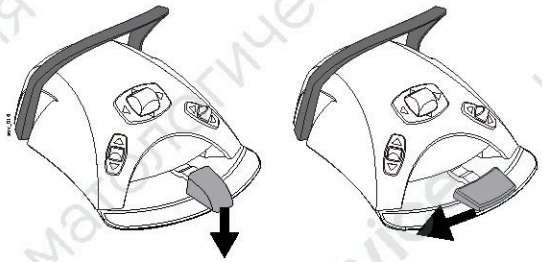


green indicator light shows that the water&air spray is switched on.

Press **Instrument spray** a second time to switch the air spray on. You will hear one short signal tone. Additionally, a yellow indicator light shows that the air spray is switched on.

Press **Instrument spray** a third time to switch off the instrument cooling spray. You will hear one long signal tone. Additionally, the indicator light goes out.

The spray flow rate can be programmed. See section 17.2.2 "Instrument spray" on page 68.



Alternatively, you can select the spray setting with the foot control. The indicator lights on the touch panel are lit accordingly.

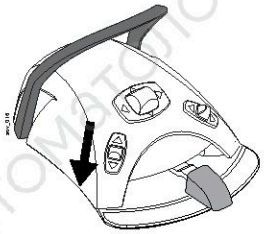
Standard pedal: Push the pedal down briefly to select the spray setting.

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

Push the pedal once to switch on the water&air spray. You will hear two short signal tones.

Push the pedal again to switch on the air spray. You will hear one short signal tone.

Push the pedal a third time to switch off the instrument spray. You will hear one long signal tone.



NOTE

The foot control can also be configured so that you push the left-side knob down to select a different spray setting. Contact your Planmeca dealer.

NOTE

Check the indicator light on the touch panel to verify that pushing the left-side knob down activates the correct function.

NOTE

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

NOTE

The instrument spray operated with the foot control can be disabled in the service mode, in which case you can switch the spray on and off only from the touch panel. Contact your Planmeca dealer.

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NOTE

When sterile water is used, you can only select between sterile water spray and spray off. Sterile water is indicated by a Sterile water symbol and the indicator light blinks green on the Instrument spray button.

For instructions on how to activate the sterile mode, see section 17.2.2 "Instrument spray" on page 68.

Momentary spray



When you are driving the micromotor, you can activate the momentary spray by pressing the foot control pedal down. The spray will continue until you remove your foot from the pedal.

NOTE

The momentary spray can be enabled and configured in the service mode, contact your Planmeca dealer.

NOTE

The momentary spray can not be activated with the wide foot control pedal.

Automatic chip blow



Press **Chip blow** to switch the automatic chip blow on or off. When the indicator light is green, the automatic chip blow is on and two short blows of water, air, or both will occur after the micromotor is stopped.



NOTE

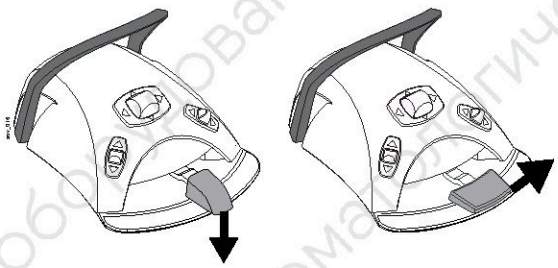
The foot control can be configured so that you push the left-side knob down to switch the automatic chip blow on/ off. Contact your Planmeca dealer.

NOTE

Check the indicator light on the touch panel to verify that pushing the left-side knob down activates the correct function.

The type of chip blow can be programmed, see section 17.2.3 "Chip blow" on page 68.

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.

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

NOTE

The type of manual chip blow does not depend on the type of the automatic chip blow, but is always dry. The manual chip blow can be set to be dependent on programming; contact your Planmeca dealer.

Fibre optic light





Press **Fibre optic light** to switch the micromotor's fibre optic light on/off. When the fibre optic light is on, the indicator light is green.

NOTE

The foot control can be configured so that you push the left-side knob down to switch the fibre optic light on/off. Contact your Planmeca dealer.

NOTE

Check the indicator light on the touch panel to verify that pushing the left-side knob down activates the correct function.

The fibre optic light intensity can be programmed, see section 17.2.5 "Fibre optic light / LED light" on page 71.

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14.2 Bien-Air MX2 micromotor

Besides the basic micromotor functions described in section 14.1 "Micromotor" on page 41, the Bien-Air MX2 micromotor has some additional features. These are described below.

Torque





Press **Torque** to enable the torque function and access the drive modes. The green indicator light means that torque is enabled.

When torque is enabled, you can select the drive mode by pressing **Drive mode**, which always shows the current drive mode. The modes are:



- Normal
  The micromotor stops when the torque limit is reached.



- Auto reverse
  In Auto reverse, the micromotor will operate counter-clockwise when the torque limit is reached.



- Auto forward
  When the torque limit is reached, the micromotor will operate counter-clockwise (auto reverse) for a few seconds and then return to clockwise direction. (The length of the auto reverse cycle can be modified, see section 17.2.4 "Bien-Air MX2 brushless micromotor" on page 69.)

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NOTE

The foot control can be configured so that you push the left-side knob down either to enable/disable the torque function or to select the drive mode. Contact your Planmeca dealer.

NOTE

Check the indicator light and the drive mode symbol on the touch panel to verify that pushing the left-side knob down activates the correct function.

NOTE

Reverse rotation can not be enabled in the Auto reverse and Auto forward modes.

NOTE

Torque can be disabled only in the Normal mode.

The following table presents a conversion table of percentage values to Ncm values for a 1:1 handpiece. The tolerance is +/- 5%.

NOTE

The torque depends on the handpiece type.

Table 7: Percentage values vs. Ncm values for 1:1 handpiece

Percent	Ncm
10	0.4
15	0.5
20	0.7
25	0.9
30	1.1
35	1.2
40	1.4
45	1.6
50	1.8
55	1.9
60	2.1
65	2.3
70	2.5
75	2.6
80	2.8
85	3.0
90	3.2
95	3.3
100	3.5

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Presets

Each user has a personal set of presets for the Bien-Air MX2 micromotor.



Six different presets are available and the **Preset** button displays the currently used preset.

If you want to use another preset than the current, follow the steps below.

1. Activate the micromotor.
2. Press **Preset**.
3. In the window that opens, select the desired preset (1 - 6). You will then automatically be returned to the main window.

In the Normal mode there are two preset values for both RPM and torque: default and secondary. One of these is always the maximum value. The other is the limited value.

Note that the Auto reverse and Auto forward modes do not have secondary values.



RPM: The default value is the one that is displayed on the screen when you press **RPM limit** (RPM limit either on or off).



Torque: The default value is the one that is displayed on the screen when you press **Torque** (torque limit either on or off).

The following table presents the preset RPM and torque settings. These presets can be modified, see section 17.2.4 "Bien-Air MX2 brushless micromotor" on page 69.

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The tolerance for RPM and torque values is +/- 5%.

Table 8: Preset RPM and torque settings for Bien-Air MX2

Function	Preset 1	Preset 2	Preset 3	Preset 4	Preset 5	Preset 6	
Drive mode	Auto forward	Auto reverse	Normal	Normal	Normal	Normal	Select drive mode  to change the mode Normal, Auto reverse and Auto forward.
Default preset RPM	260	260	900	2 000	5 000	40 000	Select RPM  to toggle between RPM limit on/off.
Secondary preset RPM			40 000	40 000	40 000	10 000	Select RPM  to toggle between RPM limit on/off.
Default preset torque	30	30	50	100	100	100	Select torque  to toggle between torque limit on/off.
Secondary preset torque			100	50	50	50	Select torque  to toggle between torque limit on/off.

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Table 8: Preset RPM and torque settings for Bien-Air MX2

Function	Preset 1	Preset 2	Preset 3	Preset 4	Preset 5	Preset 6	
Default preset spray mode	OFF	OFF	OFF	SA 70% SH 40%	SA 70% SH 40%	SA 70% SH 40%	SA = air, SH = water Press Instrument spray  to toggle between spray on, dry (no water) or off.
Default preset automatic chip blow mode	OFF	OFF	OFF	OFF	OFF	OFF	Press Chip blow  to toggle between automatic chip blow on/off.
Default fibre optic light brightness	100	100	100	100	100	100	Use the fibre optic light programming to change the brightness of the light.

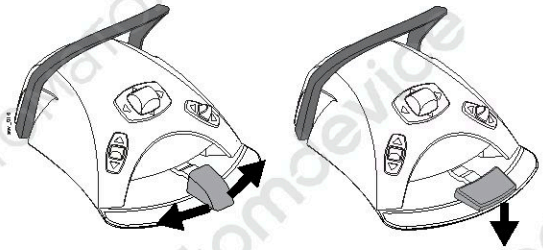
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14.3 Turbine



Speed/power



Standard pedal: To drive the turbine push the foot control pedal to the right or to the left.

Wide pedal: To drive the turbine push the foot control pedal down.

Pushing the pedal further to the right/left or down will increase the speed or power of the turbine. As you push the pedal, the power output will appear on the display. The normal range is 5 - 100%.

To stop the turbine allow the pedal to return to the rest position.

NOTE

The speed/power level depends on the instrument.

CAUTION

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

Quickstart



The turbine will start with maximum speed if the quickstart is enabled. When the instrument is active, but not operated, press **Quickstart** to enable/disable the quickstart. When quickstart is enabled, the indicator light is green.



NOTE

The foot control can be configured so that you push the left-side knob down to enable/disable the quickstart. Contact your Planmeca dealer.

NOTE

Check the indicator light on the touch panel to verify that pushing the left-side knob down activates the correct function.

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Speed/power reduction



Press **Turbine speed/power reduction** to reduce the turbine speed or power to a preset level. If the preset value is, for example, 50%, the foot control pedal movement controls the speed/power between 5 - 50% instead of the normal range of 5 - 100%. The preset maximum value is displayed on the screen when the turbine is picked up from the instrument console. Press **Turbine speed/power reduction** again to switch the speed/power reduction off.

When the turbine's speed or power is reduced, the indicator light is green.



NOTE

The foot control can be configured so that you push the left-side knob down to reduce the turbine's speed or power to a preset level. Contact your Planmeca dealer.

NOTE

Check the indicator light on the touch panel to verify that pushing the left-side knob down activates the correct function.

NOTE

The instrument speed/power reduction level can be programmed. See section 17.2.1 "Instrument speed/power reduction" on page 67.

NOTE

Instrument speed/power reduction does not affect the air driven instruments for which quickstart has been selected.

NOTE

Note that the speed/power level depends on the instrument.

Instrument spray

The instrument cooling spray setting can be selected to be water&air, air or no spray.



The amounts of water and air for the currently used spray type are shown on the display.



Press **Instrument spray** once to switch on the water&air spray. You will hear two short signal tones. Additionally, a green indicator light shows that the water&air spray is switched on.



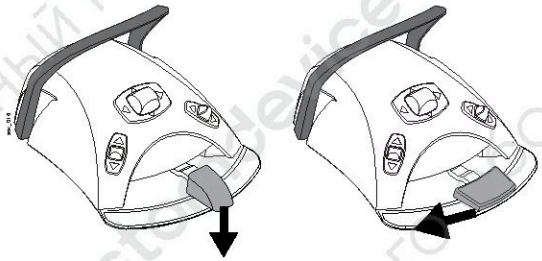
Press **Instrument spray** a second time to switch the air spray on. You will hear one short signal tone. Additionally, a yellow indicator light shows that the air spray is switched on.



Press **Instrument spray** a third time to switch off the instrument cooling spray. You will hear one long signal tone. Additionally, the indicator light goes out.

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The spray flow rate can be programmed. See section 17.2.2 "Instrument spray" on page 68.



Alternatively, you can select the spray setting with the foot control. The indicator lights on the touch panel are lit accordingly.

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

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

Push the pedal once to switch on the water&air spray. You will hear two short signal tones.

Push the pedal again to switch on the air spray. You will hear one short signal tone.

Push the pedal a third time to switch off the instrument spray. You will hear one long signal tone.



NOTE

The foot control can also be configured so that you push the left-side knob down to select a different spray setting. Contact your Planmeca dealer.

NOTE

Check the indicator light on the touch panel to verify that pushing the left-side knob down activates the correct function.

NOTE

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

NOTE

The instrument spray operated with the foot control can be disabled in the service mode, in which case you can switch the spray on and off only from the touch panel. Contact your Planmeca dealer.

Momentary spray



When you are driving the turbine, you can activate the momentary spray by pressing the foot control pedal down. The spray will continue until you remove your foot from the pedal.

NOTE

The momentary spray can be enabled and configured in the service mode, contact your Planmeca dealer.

NOTE

The momentary spray can not be activated with the wide foot control pedal.

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Automatic chip blow





Press **Chip blow** to switch the automatic chip blow on or off. When the indicator light is green, the automatic chip blow is on and two short blows of water, air, or both will occur after the turbine is stopped.

NOTE

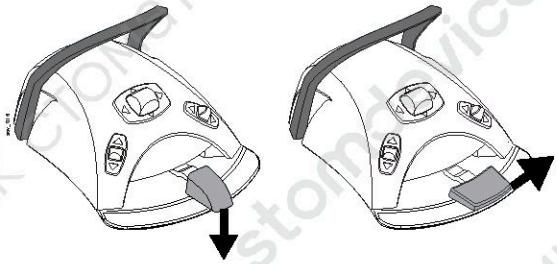
The foot control can be configured so that you push the left-side knob down to switch on/off the automatic chip blow. Contact your Planmeca dealer.

NOTE

Check the indicator light on the touch panel to verify that pushing the left-side knob down activates the correct function.

The type of chip blow can be programmed, see section 17.2.3 "Chip blow" on page 68.

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.

NOTE

The type of manual chip blow does not depend on the type of the automatic chip blow, but is always dry. The manual chip blow can be set to be dependent on programming; contact your Planmeca dealer.

Fibre optic light





Press **Fibre optic light** to switch the turbine's fibre optic light on/off. When the fibre optic light is on, the indicator light is green.

NOTE

The foot control can be configured so that the fibre optic light is switched on/off when you push the left-side knob down. Contact your Planmeca dealer.

NOTE

Check the indicator light on the touch panel to verify that pushing the left-side knob down activates the correct function.

The fibre optic light intensity can be programmed, see section 17.2.5 "Fibre optic light / LED light" on page 71.

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14.4 Scaler

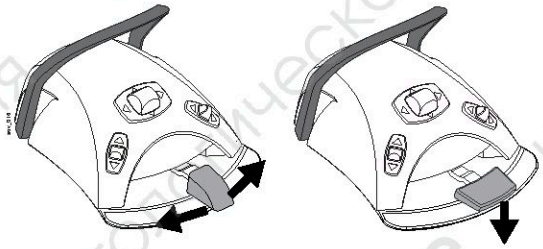
NOTE

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

CAUTION

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

Speed/power



Standard pedal: To drive the scaler push the foot control pedal to the right or to the left.

Wide pedal: To drive the scaler push the foot control pedal down.

Pushing the pedal further to the right/left or down will increase the speed or power of the scaler. As you push the pedal the power output will appear on the display.

To stop the scaler allow the pedal to return to the rest position.

NOTE

The speed/power level depends on the instrument.

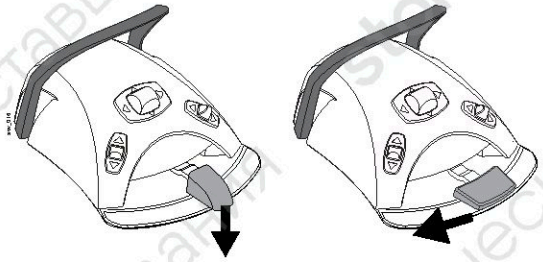
CAUTION

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

Instrument spray



There are two adjustable spray settings for the scaler: water 1 and water 2. The currently used spray setting (water 1 / water 2 / spray off) can be changed by pressing **Instrument spray**.



Alternatively, you can change the scaler spray setting with the foot control pedal.

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

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



NOTE

The foot control can also be configured so that you push the left-side knob down to select a different spray setting. Contact your Planmeca dealer.

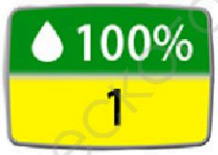
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NOTE

Check the indicator light on the touch panel to verify that pushing the left-side knob down activates the correct function.



When water 1 is selected, the **Instrument spray** indicator light is green. When water 2 is selected, the **Instrument spray** indicator light is yellow. When the spray is off, the **Instrument spray** indicator light is off.



The amount of water and the spray water number (1 or 2) are displayed on the screen.



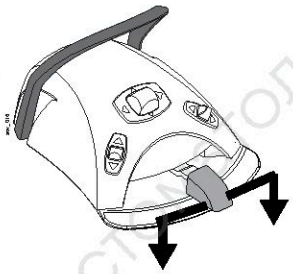
NOTE

When sterile water is used, you can only select between sterile water spray and spray off. Sterile water is indicated by a Sterile water symbol and the indicator light blinks green on the Instrument spray button.

For instructions on how to activate/deactivate the sterile mode, see section 17.2.2 "Instrument spray" on page 68.

The amount of water that runs through the scaler can be set separately for water 1 and 2, see section 17.2.2 "Instrument spray" on page 68.

Momentary spray



While you are driving the scaler, you can temporarily run a momentary spray, for example, if the spray water flow needs to be increased for a moment. The momentary spray is activated by pressing down the foot control pedal.

NOTE

The momentary spray can be enabled and configured in the service mode, contact your Planmeca dealer.

NOTE

The momentary spray can not be activated with the wide foot control pedal.

Satelec Newtron scalers



The Satelec Newtron scaler and the Satelec Newtron LED scaler have four operation modes:

- periodontics; power range 1 - 10
- endodontics; power range 1 - 10
- scaling; power range 1 - 10
- conservative dentistry; power range 1 - 10.

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The Satelec SP 4055 scaler has three operation modes:

- periodontics; power range 4 - 10
- endodontics; power range 1 - 10
- scaling; power range 1 - 10.

A coloured band at the base of the scaler tip helps you choose the proper operation mode:

- Green - periodontics
- Yellow - endodontics
- Blue - scaling
- Orange - conservative dentistry (restoration)



When the scaler is the active instrument, the operation mode can be changed by pressing **Power**.



NOTE

The foot control can be configured so that you push the left-side knob down to change the operation mode. Contact your Planmeca dealer.

NOTE

Check the operation mode symbol on the touch panel to verify that pushing the left-side knob down activates the correct function.

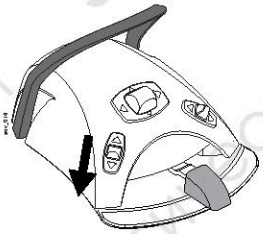
LM scaler



The LM scaler has three operation modes: low (0 - 40), medium (0 - 70) and full (0 - 100).



When the scaler is the active instrument, the operation mode can be changed by pressing **Power**.



NOTE

The foot control can be configured so that you push the left-side knob down to change the operation mode. Contact your Planmeca dealer.

NOTE

Check the operation mode symbol on the touch panel to verify that pushing the left-side knob down activates the correct function.

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EMS No Pain scaler



The EMS No Pain scaler has three operation modes:

- endodontics; power range 1 - 50
- scaling; power range 1 - 100
- restoration; power range 50 - 100.

The power range for all three operation modes is displayed as 1 - 100 (for example, in the restoration mode, power range 50 is displayed as 1).



When the scaler is the active instrument, the operation mode can be changed by pressing **Power**.



NOTE

The foot control can be configured so that you push the left-side knob down to change the operation mode. Contact your Planmeca dealer.

NOTE

Check the operation mode symbol on the touch panel to verify that pushing the left-side knob down activates the correct function.

Fibre optic light



Press **Fibre optic light** to switch the scaler's fibre optic light on/off. When the fibre optic light is on, the indicator light is green.



NOTE

The foot control can be configured so that you push the left-side knob down to switch on/off the fibre optic light. Contact your Planmeca dealer.

NOTE

Check the indicator light on the touch panel to verify that pushing the left-side knob down activates the correct function.

The fibre optic light intensity can be programmed, see section 17.2.5 "Fibre optic light / LED light" on page 71.

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14.5 Planmeca Lumion 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.

NOTE

When the polymerisation light is taken from the holder and returned to it, the operating light will dim. 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 one of these buttons 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.

The length of the cycle is programmable, see section 17.2.6 "Planmeca Lumion polymerisation light" on page 72.

When the polymerisation light is activated, the length of the polymerisation cycle is displayed on the touch 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 shown on the display.

Independent mode

The Planmeca Lumion polymerisation light can also be operated in the independent mode. The independent mode is typically used when the Planmeca Lumion polymerisation light is attached to the assistant element, but the independent mode can also be configured to be used on the dentist side (the configuration is performed by a Planmeca service technician).

When the Planmeca Lumion polymerisation light is in the independent mode, it can only be controlled by the buttons on the instrument itself, not over the touch panel or the foot control.

To start the polymerisation cycle in the independent mode, first select the desired curing mode by pressing the navigation button on the handpiece. Then, briefly press the start button on the handpiece to start a 10-second exposure, or press and hold the start button for 2 seconds to start a 20-second exposure. The polymerisation cycle can be interrupted by pressing the start button.

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In the 10-second cycle, a signal tone is heard at the beginning and the end of the cycle. In the 20-second cycle, a signal tone is heard as the cycle starts, after 2 seconds to confirm the start of the 20-second cycle, after 10 seconds and at the end of the cycle.

NOTE

When the Planmeca Lumion polymerisation light is in the independent mode, it can not be controlled over the foot control.

Refer to the Planmeca Lumion manual of use and maintenance.

14.6 Intraoral camera

The intraoral camera can be used in a variety of ways and the following only gives a brief introduction to its use. For detailed information on the different configurations and use, see the user's and installation manual for the Panasonic intraoral camera.

Intraoral camera placed in instrument console; Romexis installed

When the intraoral camera is placed in the instrument console it must be connected to the USB port on the underside of the instrument console.

When the Planmeca Romexis software is running, the intraoral camera is continuously connected to the software and when you pick up the intraoral camera from the instrument holder, the Planmeca Romexis software remotely turns the intraoral camera on and the indicator light on the handpiece turns green. Also, the text "Intraoral camera active" is displayed on the screen.

Once the intraoral camera is activated, it can be operated remotely from the Planmeca Romexis user interface. You can zoom in and out, freeze the image and save the frozen image. The LED on the handpiece is turned on and off simultaneously with the intraoral camera.

When you return the intraoral camera to its holder, the Planmeca Romexis software remotely turns off the intraoral camera and the indicator light on the handpiece turns orange.

Intraoral camera placed in suction holder; Romexis installed

When the intraoral camera is placed in the suction holder, the Planmeca Romexis remote operation does not work and the intraoral camera must be operated from the buttons on the handpiece or from the foot control.

Romexis not installed

If the Planmeca Romexis software is not in use, the intraoral camera can be operated from the buttons on the handpiece.

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Operating intraoral camera from foot control



Turning camera on/off

Turn the camera on/off with the foot control by pushing the right-side button up (factory default setting). Then, start the camera by picking it up from the suction holder.

NOTE

The foot control can also be configured so that the intraoral camera is turned on/off when you push the left-side knob up. Contact your Planmeca dealer.



Freezing image

Push the foot control pedal to the left or right to freeze/ unfreeze the image.



Saving image

When the image is frozen, briefly push the foot control pedal down to save the image.

14.7 Planmeca PlanScan scanner

The Planmeca PlanScan scanner is used together with Planmeca Romexis and Planmeca PlanCAD Easy software. The scanner is mainly operated with the software, but to make the scanning procedure easier, some of the operations can also be performed from the dental unit's foot control.

For more information, see *Planmeca PlanScan & Planmeca PlanCAD Easy user's manual*.

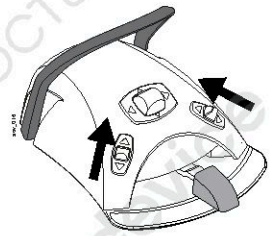
Operating PlanScan scanner from foot control

The touch panel guides you how to operate the PlanScan scanner from the foot control.



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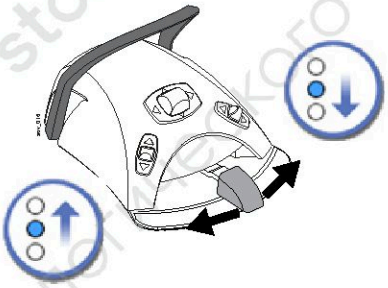
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Activating instrument view

The foot control can be configured so that the Planmeca PlanScan scanner is activated when you first pick up the scanner from the holder and then push the left-side or the right-side knob up. Contact your Planmeca dealer.

The scanner can be deactivated by pushing the knob up once more.



Selecting scanning mode

To move upward in the list of scan type selection tools in the Planmeca Romexis menu on the monitor, push the foot control pedal to the left.

To move downward in the list of scan type selection tools in the Planmeca Romexis menu on the monitor, push the foot control pedal to the right.



Starting scanning

Briefly push the foot control pedal down to start the scanning.

Generating model

Push and hold down the foot control pedal to generate a model of the scanned area.

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15 TECHNICIAN'S INSTRUMENTS

The technician can operate the following instruments:

- Dust suction

  The dust suction can either be activated from a switch located on a podium or is activated once the technician's micromotor is activated (when applicable).
- Air gun
- Micromotor

  Refer to the manufacturer's user instructions.

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16 OPERATING SUCTION

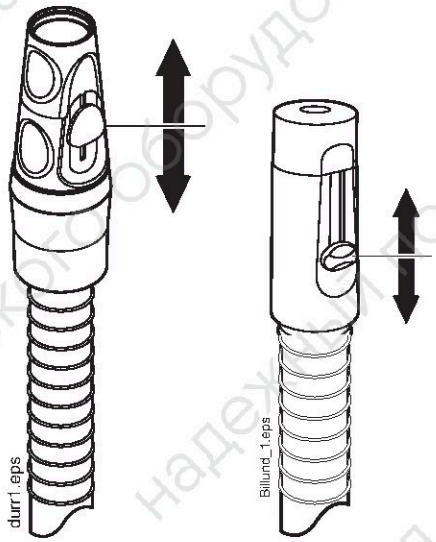
NOTE

Remove the suction handpiece from the patient's mouth before stopping the suction.

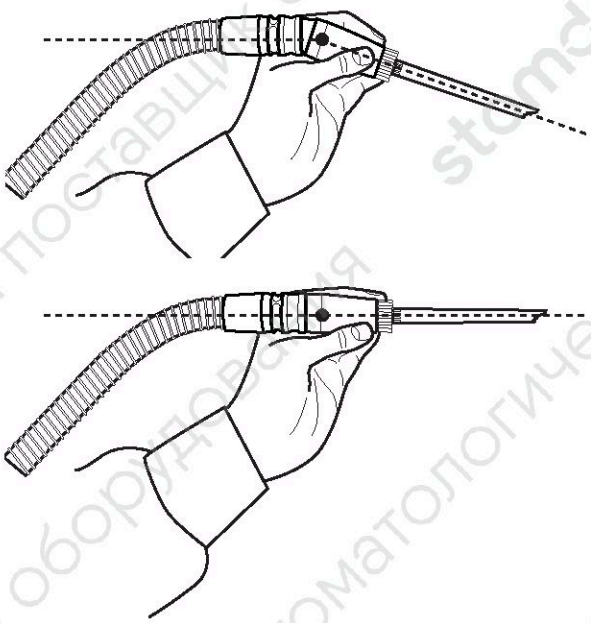
16.1 Suction handpieces

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

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



Tilting high-volume suction handpiece



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.

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16.2 Control panel



To turn the suction on/off, press **Suction**.

16.3 Foot control



The suction can be configured so that it is started/stopped by pushing the foot control's left-side or right-side knob up. Contact your Planmeca dealer.

If you have stopped the suction from the foot control 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.

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17 PROGRAMMING

17.1 Introduction

Most of the programming follows the same pattern:

1. If you are programming an instrument, pick up the instrument from the instrument console.

NOTE
If the instrument is operated during programming, the changes in settings are seen immediately.

NOTE
The air/water flow of the syringe can not be changed.



2. Press **Program** to activate the programming mode. The button turns blue.
3. Select the desired function from the touch panel.
4. A pop-up window opens where you can adjust the values with the **plus** (+) and **minus** (-) buttons.

NOTE
Alternatively, you can change the settings with the foot control. To increase the parameter value, push the pedal to the right. To decrease the parameter value, push the pedal to the left. When the pedal is pushed halfway (right or left) the parameter changes slowly. When the pedal is pushed to its extreme position (right or left) the parameter changes quickly.



5. Press **OK** to store the new setting into memory. The pop-up window closes.

NOTE
To check a function setting (other than automatic position) without programming it, press Program and the button of the desired function. The setting is shown on the touch panel. Press OK to close the window without changing the setting.

When you press **Program**, you will also see the following symbols on the touch panel:



- service mode



- software update



- clock

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- about this unit

The **Service mode** and **Software update** buttons are reserved for service situations only.

17.2 Instrument settings

17.2.1 Instrument speed/power reduction

NOTE

The instrument speed/power reduction does not affect the air driven instruments for which quickstart has been selected.

1. Activate the instrument.



2. Press **Program**.



3. Press **Instrument speed/power reduction**. A pop-up window opens.



4. For W&H and Minetto brushless micromotors only: Press **%/rpm** to select whether you want to adjust the instrument speed/power in percentage points or in rpm. The appearance of the button changes accordingly.

5. Change the instrument speed/power with the **plus** (+) and **minus** (-) buttons.

   The minimum speed/power level is 5 or 10% (depending on the instrument) and the maximum is 95%. The adjustment step is 5.

   If the preset value is, for example, 50%, the foot control pedal movement controls the speed/power between 5 - 50% instead of the normal range of 5 - 100%.



6. Press **OK**. The pop-up window closes.

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17.2.2 Instrument spray





1. Activate the instrument.
2. Press **Program**.
3. Press **Instrument spray**. A pop-up window opens.
4. Adjust the flow rates for water and air with the **plus** (+) and **minus** (-) buttons.

   Scaler: Adjust the flow rates for water 1 and water 2 with the **plus** (+) and **minus** (-) buttons.

   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%.



5. Press **OK**. The pop-up window closes and the new values are displayed on the screen.

17.2.3 Chip blow

NOTE

The type of manual chip blow does not depend on the type of the automatic chip blow, but is dry as a factory default. The manual chip blow can be set to be dependent on programming, contact your Planmeca dealer.





1. Activate the instrument.
2. Press **Program**.
3. Press **Chip blow**. A pop-up window opens.
4. Adjust the flow rates for water and air with the **plus** (+) and **minus** (-) 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**. The pop-up window closes and the new values are displayed on the screen.

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17.2.4 Bien-Air MX2 brushless micromotor

Modifying preset values

If you want to modify the presets presented in section 14.2 "Bien-Air MX2 micromotor" on page 46, you can do so by following the steps below.



1. Activate the micromotor.
2. Select the micromotor's drive mode.

   If no drive mode is displayed on the touch panel, press **Torque**. Then, toggle between the drive modes by pressing the current drive mode -button.

   The modes are:







   - Normal
     The micromotor stops when the torque limit is reached.
   - Auto reverse
     When the torque limit is reached the micromotor will operate counter-clockwise.
   - Auto forward
     When the torque limit is reached, the micromotor will operate counter-clockwise (auto reverse) for 2 seconds and then return to clockwise direction.



3. Press **Program**.



4. Press **RPM limit** to change the micromotor speed rate. A pop-up window opens.
5. Change the micromotor speed rate (RPM) with the **plus** (+) and **minus** (-) buttons.

Table 9: Alteration of RPM speed rate in different ranges

Range	In steps of:
100 - 200	10 (e.g. 110, 120 etc...)
200 - 500	20 (e.g. 220, 240, 260 etc...)
500 - 1 000	50 (e.g. 550, 600, 650 etc...)
1 000 - 2 000	100 (e.g. 1 100, 1 200 etc...)
2 000 - 5 000	200 (e.g. 2 200, 2 400 etc....)
5 000 - 10 000	500 (e.g. 5 500, 6 000, 6 500 etc...)
10 000 - 20 000	1 000 (e.g. 11 000, 12 000 etc....)
20 000 - 38 000	2 000 (e.g. 22 000, 24 000 etc....)

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6. Press **OK**. The pop-up window closes and the new value is displayed on the screen.



7. Press **Program**.



8. Press **Torque** to change the torque limit rate. A pop-up window opens.

9. Change the torque limit rate with the plus (+) and minus (-) buttons. The adjustment range is 10% - 95%.



10. Press **OK**. The pop-up window closes and the new value is displayed on the screen.



11. Press **Program**.



12. Press **Auto forward** to adjust the counter-clockwise rotation time of the micromotor in the Auto forward mode. A pop-up window opens.

13. Change the Auto forward time with the **plus** (+) and **minus** (-) buttons.

    The maximum time is 6 seconds and the minimum 0 seconds, and the time can be changed in steps of 0.2 seconds.



14. Press **OK**. The pop-up window closes and the new value is displayed on the screen.



15. Press **Instrument spray** to toggle between water&air, air and no spray. The amount of water and air can also be programmed.



16. Press **Chip blow** to switch the automatic chip blow on or off. The amount of water and air can also be programmed.



17. Press **Fibre optic light** to switch the LED light on or off.

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NOTE

Changing the instrument spray, chip blow and LED -values follows the normal programming pattern. For more information, see sections 17.2.2 "Instrument spray" on page 68, 17.2.3 "Chip blow" on page 68 and 17.2.5 "Fibre optic light / LED light" on page 71.

When you have modified the settings of a preset, but have not saved them, a dash (–) replaces the preset number on the display.

The procedure for saving the modified preset settings is explained below.

Saving modified preset values

When you have modified the Bien-Air MX2 instrument settings, you can store them under any preset (1 - 6) so that the modified settings are in use next time you select that preset.



1. Press **Program**.



2. Press **Preset** to open a list of presets.

3. Press the preset under which you want to store the modified settings.

   When you press the selected preset, the settings are automatically stored in the simulation unit and the preset window is closed.

17.2.5 Fibre optic light / LED light

1. Activate the instrument.



2. Press **Program**.



3. Press **Fibre optic light**. A pop-up window opens.

4. Change the light intensity with the **plus** (+) and **minus** (-) buttons.

   The minimum value is 70% of the maximum intensity and the maximum 100%, and the adjustment step is 2.

   After reaching the minimum value the light is switched off.



5. Press **OK**. The pop-up window closes and the new values are displayed on the screen.

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17.2.6 Planmeca Lumion polymerisation light

NOTE

The duration of the polymerisation cycle can be programmed only for the Planmeca Lumion polymerisation light.



1. Press **Program**.



2. Press **Polymerisation cycle**. A pop-up window opens.
3. Change the length of the polymerisation cycle with the **plus** (+) and **minus** (-) buttons.

   The value range is 5 - 100 seconds. The adjustment step is 5 sec. and the default value is 10 sec.



4. Press **OK**. The pop-up window closes and the new values are displayed on the screen.

17.3 Timer settings

Up to six timer settings can be programmed into the timer memory.



1. Press **Program**.



2. Press **Timer**. A pop-up window opens.
3. Press the timer that you want to adjust. A new pop-up window opens.
4. Change the length of the timer with the **plus** (+) and **minus** (-) buttons.

   The minimum value is 5 sec. and the maximum 20 min. The adjustment step is 5 sec.



5. Press **OK**. The pop-up window closes.

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17.4 Intensity of operating light

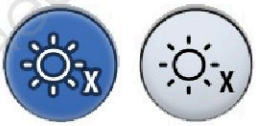
17.4.1 Enabling and disabling multi-light-mode



1. Press **Program**.



2. Press **Operating light**. A pop-up window opens.



3. Press **Multi-light-mode** to enable/disable the multi-light-mode.
   - Blue button = multi-light-mode is enabled, press to disable.
   - Grey button = multi-light-mode is disabled, press to enable.



4. Press **OK**. The pop-up window closes.

17.4.2 Adjusting intensity

NOTE

When the multi-light-mode is disabled, the light intensity can also be adjusted from the operating light, see section 13.4 "Planmeca SingLED operating light" on page 38.



1. Press **Program**.



2. Press **Operating light**. A pop-up window opens.

3. The pop-up window looks different depending on whether you have enabled or disabled the multi-light-mode.
   - Multi-light-mode is enabled - adjust the values for operating light 1 and operating light 2.
   - Multi-light-mode is disabled - there is only one value to adjust.

   Change the intensity of the operating light with the **plus** (+) and **minus** (-) buttons.

   The minimum value is 30% of the maximum intensity and the maximum 100%, and the adjustment step is 2.

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4. Press **OK**. The pop-up window closes and the new values are displayed on the screen.

17.5 Duration of door open / assistant call



1. Press **Program**.



2. Press **Door open / assistant call**. A pop-up window opens.

3. Change the door open / assistant call time with the **plus** (+) and **minus** (-) buttons.

   The minimum value is 0 seconds, the maximum 250 seconds. The value is adjusted in steps of 1 in value range 0 - 30, and in steps of 5 in value range 30 - 250. The default value is 5.



4. Press **OK**. The pop-up window closes.

17.6 Clock



1. Press **Program**.



2. Press **Clock**. A pop-up window opens.



3. Select the clock programming view by pressing **Clock** at the bottom of the programming window.



4. Press **12/24** to change the clock format (12-hour / 24-hour clock), if needed.

5. Change the time with the **plus** (+) and **minus** (-) buttons.



6. Press **OK**. The pop-up window closes and the new time is displayed on the screen.

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17.7 Date



1. Press **Program**.



2. Press **Clock**. A pop-up window opens.



3. Select the date programming view by pressing **Date** at the bottom of the programming window.
4. When the date is not visible on the control panel, the items in the programming window are grey. This means that they are disabled.

   To show the date on the control panel and to enable programming, press the grey **Date** button at the top of the programming window.



   The button will turn blue and all items in the window will turn black (which means that programming is enabled).

5. Select the date format.



   Press the arrow to scroll through the different format options:

   - dd.mm.yyyy (day, month, year)
   - mm.dd.yyyy (month, day, year)
   - yyyy.mm.dd (year, month, day)

6. Change the day, month and year with the plus (+) and minus (-) buttons.



7. Press **OK**. The pop-up window closes and the new date is shown on the display.

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17.8 Wireless foot control

17.8.1 Pairing wireless foot control

If no wireless foot control is connected to your dental unit, or if you want to change the current wireless foot control to another, you must pair the dental unit and the foot control.



1. Press **Program**.



2. Press **Foot control**.
   The *Wireless foot control* window opens.



3. Make sure you are on the Configuration tab. If not, press **Configuration**.



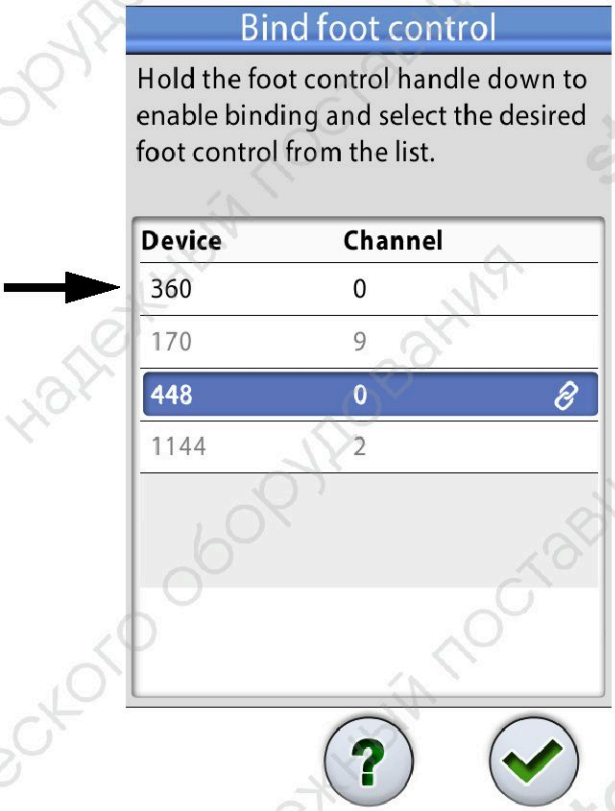
4. The *Foot control serial no* field displays the current foot control's serial number. If you want to change the foot control, press **Edit**.
   The *Bind foot control* window opens.

NOTE
On the foot control, the serial number can be found on its underside.

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5. Press and hold down the handle of the foot control that you want to pair your dental unit with to select it.

   The selected foot control is shown with a black font on the list (marked with arrow in the picture below).



   The foot control that is highlighted in blue is the currently paired foot control.

NOTE

For information on the different markings in the *Bind foot control* window, press Questionmark.

6. While holding the handle down, start pairing by touching the name of the selected foot control (black font) on the list.

   A confirmation message is displayed on the dental unit's control panel.

7. Press **OK** to confirm the start of the pairing process.

8. Release the foot control handle.

   Once the pairing is done, a message is displayed on the dental unit's control panel and the paired foot control is highlighted in blue on the list.

   If the pairing is not successful, you will receive a notification, after which you can retry to perform the pairing.

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9. Press **OK** to exit the window.

17.8.2 Changing battery indicator visibility



1. Press **Program**.



2. Press **Foot control**.
   The *Wireless foot control* window opens.



3. Make sure you are on the Configuration tab. If not, press **Configuration**.



4. Toggle **Battery** to change the battery indicator visibility on the touch screen.
   A grey button means that the battery indicator is not displayed, and a blue button that it is displayed.



5. Press **OK**. The changes are saved and the pop-up window closes.

17.8.3 Adjusting radio settings

The following describes how to optimise the communication between the dental unit and the wireless foot control.



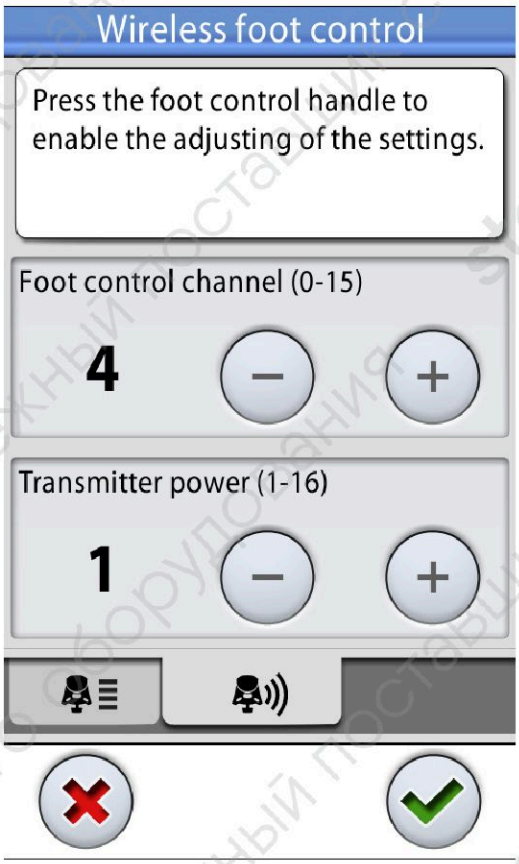
1. Press **Program**.



2. Press **Foot control**.
   The *Wireless foot control* window opens.

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3. Open the *Radio* tab.



NOTE
If the Foot control channel and Transmitter power fields are inactive, you must press the foot control handle to enable the adjusting of the settings.

4. Select the foot control channel by pressing the **Minus** (-) and **Plus** (+) buttons.

   You can freely choose between the channels 1 and 16, but, to minimise radio signal interference, no two foot controls within 10 meters of each other should have the same channel.

5. Adjust the transmitter power by pressing the **Minus** (-) and **Plus** (+) buttons.

   Select the lowest power level and increase it, if needed. The value range is 1 (lowest) to 6 (highest).



6. Press **OK** to confirm your selections and exit the programming mode.



To exit the programming mode without confirming, press **Cancel**.

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18 CALIBRATING CLOCK



1. Press **Program**.



2. Press **About this unit**.
3. Select **Service**.
   A new window opens.
4. Select **Clock calibration**.
   A new window opens.



5. The dental unit asks you to set the current time. Press **Calibrate**.
6. Set the current time by changing the hour, minute and second values with the **plus** (+) and **minus** (-) buttons.
   It is recommended that you check the current time from an NTP server.



7. Press **OK** to exit the calibration window.
8. Wait for a minimum period of 7 days for the clock to calibrate. However, a calibration period of 2-3 weeks is recommended.



9. Press **Program** to complete the calibration sequence after the minimum calibration period.



10. Press **About this unit**.
11. Select **Service**.
    A new window opens.
12. Select **Clock calibration**.
    A new window opens.

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13. The dental unit informs that it is ready to calibrate. Press **Calibrate**.



If you at this point want to reset the calibration (the clock resumes the time it had before you started the calibration process), press the **Reset** button. You will be asked to confirm the reset in a new window.

14. Adjust the time to match the correct time by changing the hour, minute and second values with the **plus** (+) and **minus** (-) buttons.

    When you adjust the time, it is recommended that you check the correct time from an NTP server.



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

NOTE

The calibration can also be reset at this point, if you, for example, notice that an error has been made during the calibration process.

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19 CLEANING, DISINFECTION AND MAINTENANCE

The purpose of this recommendation is both to keep the simulation system clean and to teach the students infection control practices.

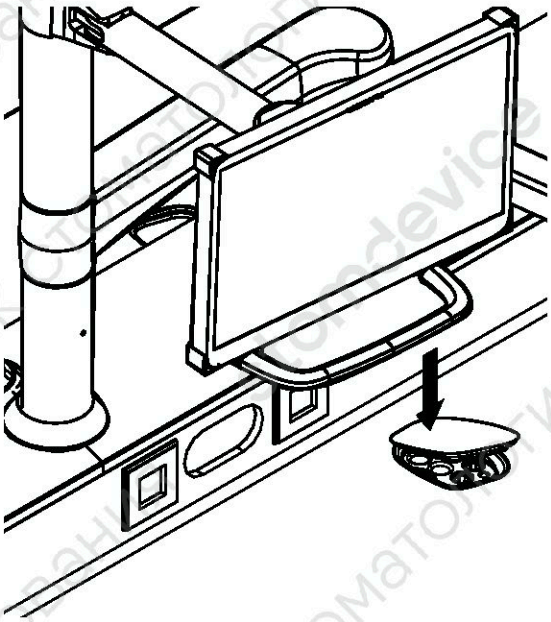
NOTE

Do not use cleaning agents in aerosol or spray form directly on any surfaces.

NOTE

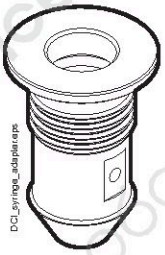
All parts must be cleaned before disinfecting or autoclaving them.

19.1 Instrument hoses

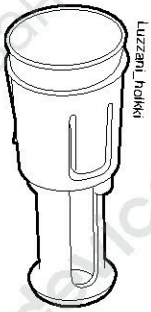


Use the integrated instrument flushing holder to flush the instrument hoses. Open the cover by pushing down one corner (marked by arrow in figure).

The slot in the flushing holder into which the DCI or the Luzzani Minibright syringe is inserted must be equipped with an adapter for the syringe. The adapter keeps the syringe in position during flushing.



Adapter for
DCI syringe



Adapter for
Luzzani Minibright syringe

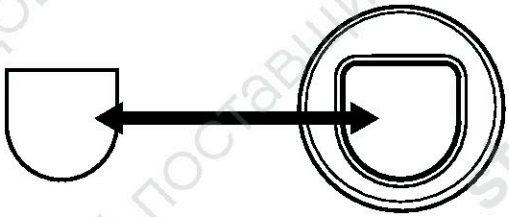
DCI syringe: Remove the syringe cover and place the syringe in the flushing holder. Lock the syringe into place with a rotating movement when the syringe is in the holder.

Luzzani Minibright syringe: Remove the metallic syringe cover and place the syringe in the flushing holder. Lock the syringe into place by pushing it downwards until you hear a click.

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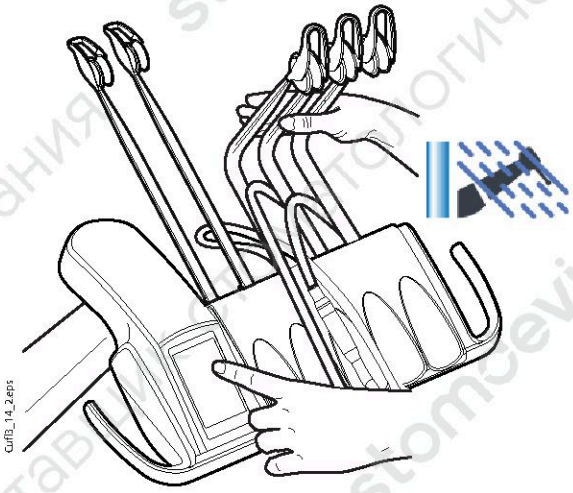
Luzzani Ergo syringe: Remove the metallic syringe cover and place the syringe in the flushing holder. Note the orientation of the syringe. It does not require an adapter and must be placed in the holder as shown below.



19.1.1 In the morning

Instrument flushing





1. Select the maintenance mode by touching **Maintenance** on the touch panel.
2. Remove the instrument handpieces from the instruments and clean them according to the manufacturer's instructions.
3. Remove the hoses of the instruments to be flushed from the balanced instrument arms and place the instruments into the openings in the flushing holder. Remember the adapter for the syringe.
4. Start the flushing cycle by bending the instrument arms of those instruments (including syringe) that are to be flushed to an angle of at least 90° and simultaneously selecting **Long flushing** on the touch panel.
5. Release the instrument arms. The flushing procedure continues automatically.
6. Once the flushing cycle is finished, remove the instruments from the flushing holder.

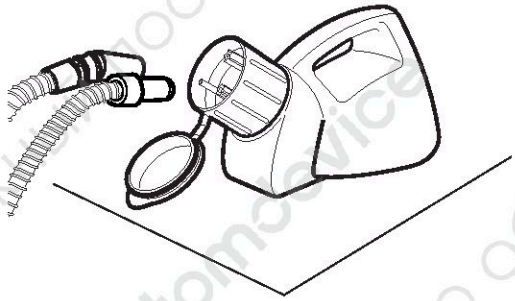
   Attach the handpieces to the instruments. Put back the syringe cover and insert the tip to the syringe. Place the instrument hoses back to the balanced instrument arms. Bend the syringe arm 90° to complete the flushing.

   Place the flushing holder cover back to its position.

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Suction system



Use the Orocup rinsing bottle or respective for flushing the suction system.

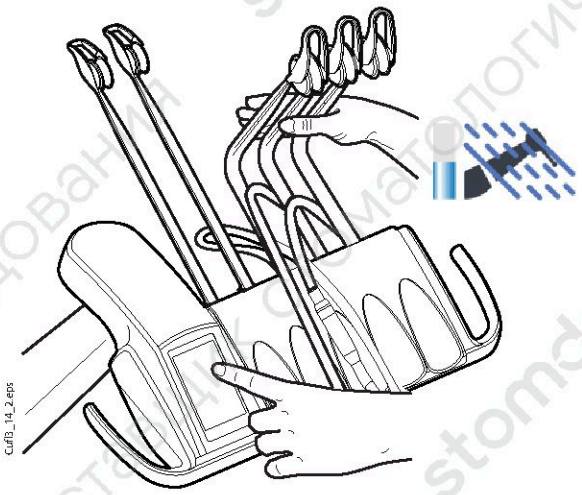
1. Fill the rinsing bottle (Orocup) with 1 l of water.
2. Place the rinsing bottle onto a flat surface (e.g. the tray). Remove the suction handpieces from their holders and push them into the inserts inside the cap of the rinsing bottle.
3. Feed the water through the suction hoses.

19.1.2 After every session

Instrument flushing



1. Select the maintenance mode by touching **Maintenance** on the touch panel.
2. Remove the instrument handpieces from the instruments and clean them according to the manufacturer's instructions.
3. Remove the hoses of the instruments to be flushed from the balanced instrument arms and place the instruments into the openings in the flushing holder. Remember the adapter for the syringe.



4. Start the short flushing cycle by bending the instrument arms of those instruments (including syringe) that are to be flushed to an angle of at least 90° and simultaneously selecting **Short flushing** on the touch panel.
5. Release the instrument arms. The flushing procedure continues automatically.
6. Once the flushing cycle is finished, remove the instruments from the flushing holder.

   Attach the handpieces to the instruments. Put back the syringe cover and insert the tip to the syringe. Place the instrument hoses back to the balanced instrument arms. Bend the syringe arm 90° to complete the flushing.

   Place the flushing holder cover back to its position.

Suction system

1. Remove the used aspirating tips.
2. Rinse the suction tubes by aspirating one glass of water with each suction tube.

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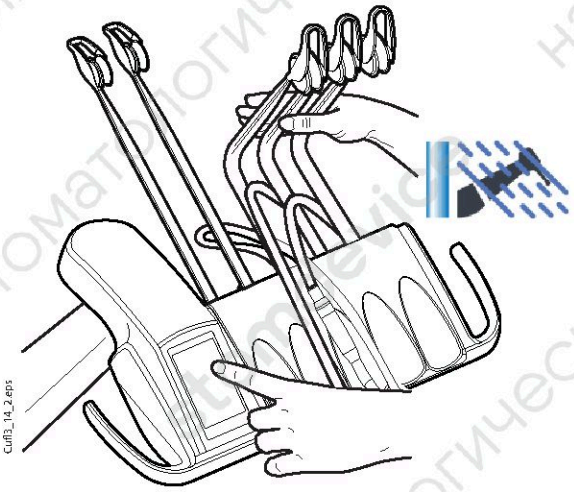
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19.1.3 In the evening

Instrument flushing



1. Select the maintenance mode by touching **Maintenance** on the touch panel.
2. Remove the instrument handpieces from the instruments and clean them according to the manufacturer's instructions.
3. Remove the hoses of the instruments to be flushed from the balanced instrument arms and place the instruments into the openings in the flushing holder. Remember the adapter for the syringe.



4. Start an intensive instrument flushing cycle by bending the instrument arms of those instruments (including syringe) that are to be flushed to an angle of at least 90° and simultaneously selecting **Long flushing** on the touch panel.
5. Turn off the unit immediately after the flushing.

Suction system

1. Remove the used aspirating tips.
2. Rinse the suction tubes by aspirating one glass of water with each suction tube.
3. Clean the suction handpieces by wiping them with Dürr FD 333.

19.1.4 Weekly

Suction handpieces

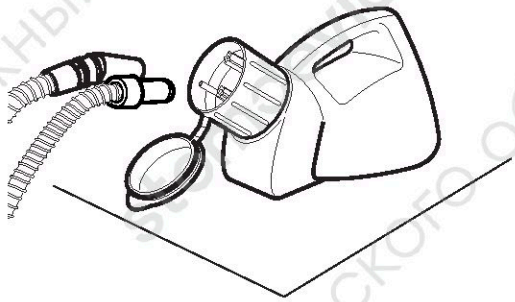
Clean the suction handpieces.

For more information, see section 19.5 "Cleaning suction handpieces" on page 87.

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19.1.5 Monthly

Suction system



Use the Orocup rinsing bottle or respective for cleaning/ flushing the suction system.

To clean the suction system first place the rinsing bottle (Orocup) onto a flat surface (e.g. the tray).

Use cleaning solution **once a week** to clean the suction hoses. Pour 20 ml of Orotol Plus or equivalent cleaning solution and 1 litre of water in the Orocup and shake it well.

Remove the suction handpieces from their holders and push them into the inserts inside the cap of the rinsing bottle. Allow the cleaning solution in the bottle to empty.

NOTE

Do not use dish washing detergents.

After feeding the solution, return the suction hoses immediately back to their holders.

19.2 Instrument flushing holder

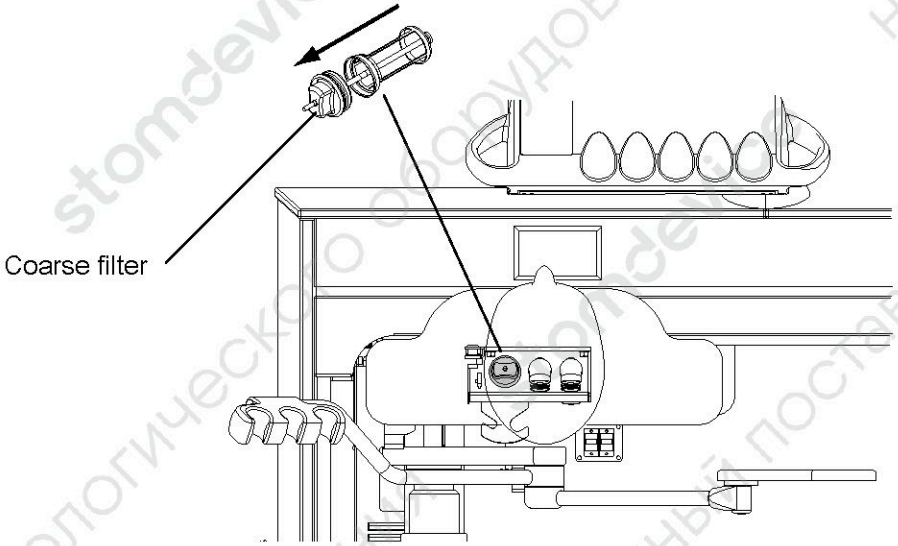
Clean the instrument flushing holder in a washer-disinfector at 93°C or autoclave it at 135°C.

Remove the syringe adapter from the flushing holder before cleaning. The adapter is cleaned in the same way as the instrument flushing holder.

Note that the flushing holder cover can not be autoclaved.

19.3 Coarse filter

Empty the coarse filter daily and replace it weekly.

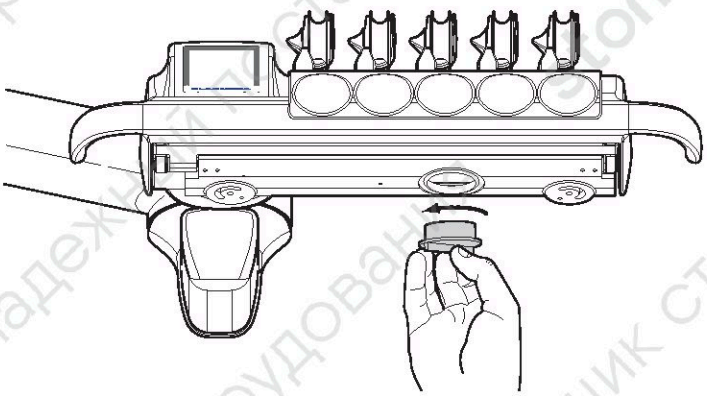


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19.4 Oil collector

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.



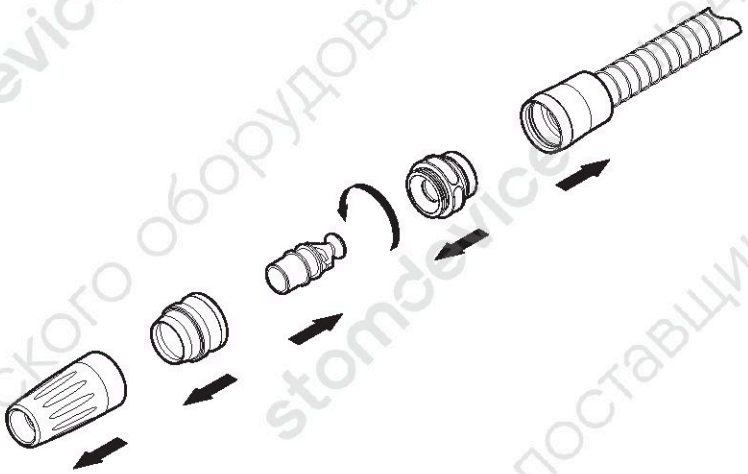
19.5 Cleaning suction handpieces

The following explains how the suction handpieces can be disassembled for cleaning.

High-volume handpiece

Unscrew the handpiece from the suction tube for cleaning.

If necessary, the handpiece can be completely disassembled for more thorough cleaning. The handpiece parts can be autoclaved up to 135°C.

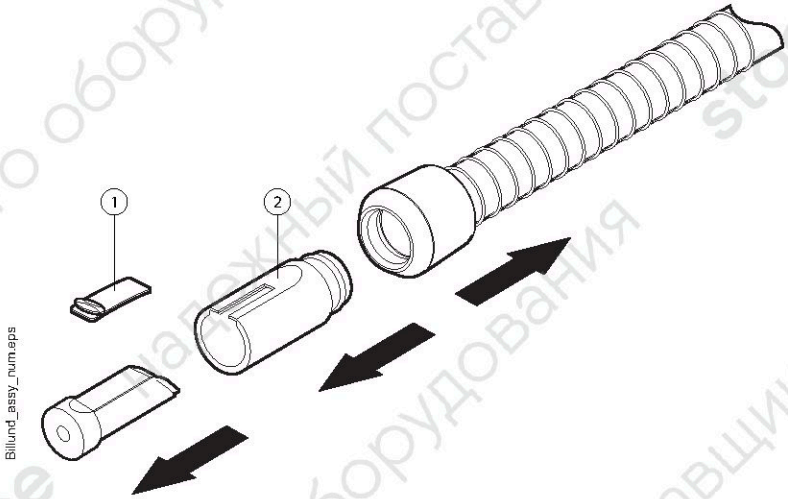


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Saliva handpiece

The saliva handpiece can be disassembled for cleaning by pulling out the end of the handpiece and removing the core (2) and the adjuster (1). The handpiece parts can be autoclaved up to 135°C.



19.6 Instrument arms and instrument hoses

The instrument arms can be removed from the console. They can be cleaned with a non-abrasive cleaning agent.

The instrument hoses can be removed for cleaning and for covering with protective sleeves, and they can also be replaced by the user. See section 7.1 "Instrument console" on page 16.

NOTE

Make sure that the unit is switched off before opening the quick connectors.

NOTE

The instrument hoses can not be autoclaved.

19.7 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.

Intraoral camera

Clean and service the intraoral camera according to the information supplied with the instrument. Throw away the disposable hygiene sleeve after use.

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19.8 Unit surfaces

All exposed surfaces should be periodically wiped clean with a non-abrasive cleaning agent designed for use with simulation units.

NOTE

To avoid damage, any splashed disinfectant or cleaning solution must be wiped immediately from the surfaces of the simulation unit.

Disinfecting

Stronger agents can be used for disinfecting the surfaces of the simulation unit. Dürr FD 333 / FD 322 or a similar disinfecting solution.

NOTE

Do not use spray disinfection solution on suction arms.

19.9 Foot control

The foot control surfaces should be periodically wiped clean with a non-abrasive cleaning agent designed for use with simulation units.

19.10 Cleaning operating light

All operating light surfaces should be periodically wiped clean with a non-abrasive cleaning agent designed for cleaning dental units. When cleaning the light assembly make sure that the cloth is almost dry.

Disinfecting

Stronger agents can be used for disinfecting the surfaces of the light. We recommend Dürr FD 333 / FD 322 or a similar disinfecting solution.

When needed, polish the cover with a dry and soft lint-free cloth.

19.11 Monitor

Clean the monitor according to the instructions given by the manufacturer.

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20 HELP & ERROR MESSAGES

20.1 Overview

The control panel displays three types of safety messages: notifications, help messages and error messages.

Notifications are typically issued for guidance in maintenance situations, for example, when instruments are flushed. Notifications are blue in colour.

Help messages are green and provide helpful information for the user. They are displayed, for example, if you are using the unit or instrument incorrectly, or if the function is not allowed for some reason. The help message disappears automatically when the situation is corrected. However, some help messages have a **Close** button that allow you to close the message before it is automatically closed.



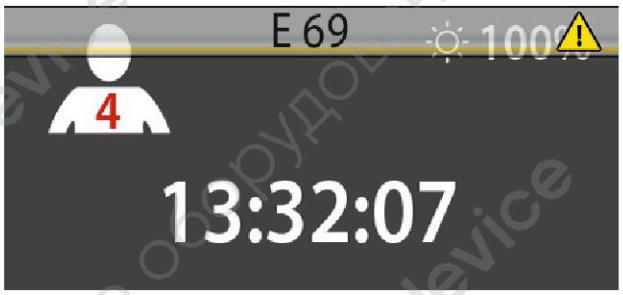
Error messages warn of a fault in the workplace and require actions from the user. To correct the error situation, and thus to close the error message, follow the instructions in the message. Some error messages contain a **question mark** that you can press to receive more information about the error.



NOTE

The level of detail displayed in the error messages is configurable. Contact your Planmeca dealer.

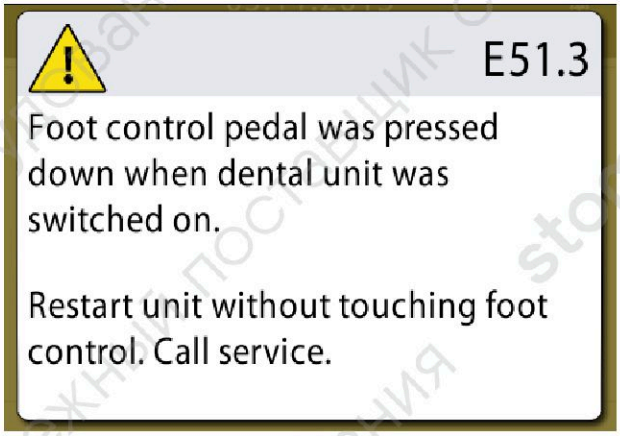
When a help or error message is issued, it is displayed as a semi-transparent bar at the top of the display.



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Press the help/error bar to open the help/error message.





The **Minimise** button allows you to minimise the help or error message to a help or error bar.

20.2 Help messages

The following table lists the help messages.

NOTE

In case the unit is not equipped with the Waterline Cleaning System, the WCS related help messages can be disabled. Contact your Planmeca dealer.

Table 10: Help messages

HELP CODE	MEANING	ACTION OR EXPLANATION
HE1	Amalgam collector is 95% full.	Replace or empty the collector as soon as possible, or at least before the next patient. Pressing the program button allows to continue the operation until the collector is 100% (totally) full.
HE2	Amalgam collector is 100% full.	Replace or empty the collector immediately. The suction system cannot be used before the collector is emptied or replaced.
HE3	Patient chair cannot be driven down because safety switch is activated.	Check that the space under the seat is free and nothing is touching the plate at the bottom. The chair can be driven normally after the possible obstruction has been removed.
HE4	This left-hand instrument position allows only syringe.	The leftmost position in the console is reserved for the syringe only. Replace this instrument with a syringe. Place the other instrument to one of the four right-hand places.
HE5	This instrument position does not accept syringe.	Remove the syringe from this position and replace it with any other kind of instrument. The syringe must be placed in the leftmost place.

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Table 10: Help messages

HELP CODE	MEANING	ACTION OR EXPLANATION
HE6	Patient chair cannot be driven when instrument is in use.	Stop the instrument (release the foot control pedal) to be able to run the chair.
HE7	Patient chair up/down movement is not allowed when cuspidor door is open.	Close the cuspidor door to be able to run the chair up/down or to a pre-programmed position.
HE8	Chair height can not be programmed this high in automatic positions for patient safety reasons.	Run the chair slightly down to be able to program this position into memory.
HE9	This scaler cannot currently be used with this unit.	This scaler needs a dedicated electronics that is not installed, or the scaler electronics installed is not compatible with this scaler.
HE10	Wait while configuring the dental instrument setup.	Wait a few seconds for the unit to check your instrument configuration, since it has changed.
HE11	Software download mode is on.	
HE12	Unit's internal error reporting is disabled.	The unit operates normally but no errors are reported (exhibition use). Use service mode n.15 to turn error reporting back on. See service mode n.15 in Technical manual, chapter "Service mode" for details.
HE13	Instrument cannot run because of patient security violation.	Return the foot control pedal once to the middle position to start the instrument. Instruments do not start if the standard foot control pedal is already pushed to the right or left when the instrument is picked up from the instrument console.
HE14	This dental instrument is not recognised (new type of instrument).	To be able to operate this new instrument the MCB software must be updated. See Technical manual, section "Upgrading software" in chapter "Parts replacement & repair" for details.
HE15	This button has no function at the moment.	Instruments: Pick up a dental instrument before attempting to alter its settings; or if the instrument is selected, this function is not allowed with this instrument. Other buttons: the unit does not have this function.
HE16	Operating light is dimmed and polymerisation light can be used.	This feature enables easier work with composite materials, minimising the risk of operating light induced curing. This feature is triggered by picking up and returning the polymerisation light to its holder without starting it. The operating light returns to normal at the same instance any control is touched or another instrument selected. The feature can be disabled, see service mode n.73 in Technical manual, chapter "Service mode" for details.
HE17	No syringe connected to instrument console.	The console syringe must be re-connected, otherwise there is an air-leak from the syringe QC whenever an instrument or device that requires air pressure is used.

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Table 10: Help messages

HELP CODE	MEANING	ACTION OR EXPLANATION
HE18	No instrument hose connected to this instrument place.	The instrument is picked up, but there is no hose connected at this location. Check that all hoses go to the right instrument arms.
HE19	No syringe connected to connector located on cuspidor.	The assistant's syringe must be re-connected, otherwise there is an air-leak from the assistant's syringe QC whenever an instrument or device that requires air pressure is used. Install the syringe or disable the syringe using service mode n.84. For details on the service mode, see Technical manual, chapter "Service mode".
HE20	Connector located on cuspidor allows only syringe, other instruments cannot be connected to this connector.	The assistant's syringe QC cannot control the currently connected instrument.
HE21	Flow of both spray air and spray water are programmed to zero (no flow).	Enter the spray programming mode to set a flow other than zero, see Technical manual, section "Instrument spray flow rates" in chapter "Touch panel functions" for details.
HE22	Main air/water valve operation is not set to automatic (A) in SM 12 (air)/13 (water). Reboot unit. HE22 again: Contact service.	This is just a reminder that either of the main valves is temporarily set to always be either on or off, although they should be set to automatic (n = A).
HE23	Automatic/manual chip blow cannot be used when sterile water function is selected.	
HE24	Programming of selected setting is disabled.	The programming of the selected setting is disabled. Disable the protection using service mode n.0. For more information, see Technical manual, chapter "Service mode".
HE25	Planmeca Compact e help message: Patient chair cannot be driven into automatic chair position.	Swivel the patient chair with automatic legrest before driving the chair to the automatic position. Check that the chair type in service mode n.103 is correct. (See service mode n 103 in Technical manual, chapter "Service mode".)
HE26	Drive chair upwards, then lower backrest. If patient chair is attached to unit, chair's automatic positions are not switched on.	Drive the chair upwards before lowering the backrest. If this help message is shown while the patient chair is attached to the unit, it means that you have forgotten to switch on the chair’s automatic positions. To clear the message, put the operation mode switch on the cuspidor side of the chair base in the “AUTO” position (switch up).
HE27	Drive backrest upwards, then lower chair. If patient chair is attached to unit, chair's automatic positions are not switched on.	Drive the backrest upwards before lowering the chair. If this help message is shown while the patient chair is attached to the unit, it means that you have forgotten to switch on the chair’s automatic positions. To clear the message, put the operation mode switch on the cuspidor side of the chair base in the “AUTO” position (switch up).

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Table 10: Help messages

HELP CODE	MEANING	ACTION OR EXPLANATION
HE28	Planmeca Compact WE's help message.	Connect the lifter cable.
HE29	Drive chair downwards, then lower backrest. If patient chair is attached to unit, chair's automatic positions are not switched on.	Drive the chair downwards before lowering the backrest. If this help message is shown while the patient chair is attached to the unit, it means that you have forgotten to switch on the chair's automatic positions. To clear the message, put the operation mode switch on the cuspidor side of the chair base in the "AUTO" position (switch up).
HE30	Unit is waiting for container to be attached.	Attach the container (or perform long flushing or use service mode n.101).
HE31	Switch unit off, leave disinfectant in unit for min. 8 h. Switch unit on. Remove container, fill it with water and attach to unit.	Turn off the unit if needed. When the unit is turned back on, remove the container, fill it with water and attach it again to the unit (or perform long flushing or use service mode n.101).
HE32	Pre-rinsing cycle is completed and container should be removed.	Remove the container (or perform long flushing or use service mode n.101).
HE33	Unit is waiting for main water to be turned on.	Open the tap (or perform long flushing or use service mode n.101).
HE34	No instr. selected when starting instr. flushing or waterline cleaning.	Select (remove from holder, bend the balanced instrument arm) at least one instrument and syringe.
HE35	Instruments are locked for safety reasons. Make sure the inlet water tap is open. Place instruments to the flushing holder and press Instr. spray button to perform instrument flushing.	Perform long instrument flushing.
HE36	After flushing: Return instruments to instrument console.	
HE37	Waterline Cleaning System cycle has been interrupted.	
HE38	Waterline cleaning system help message: Low water pressure during final rinsing.	
HE39	Syringe misplaced or flow not detected in WCS.	The help message will disappear after bending the syringe instrument arm and placing the syringe again in the flushing holder.
HE40	Too many Bien-Air MX Brushless Micromotors.	A maximum of two is allowed.
HE41	Insert suction tubes to STCS holder, add disinfectant and press green start button (upper button).	
HE42	STCS program completed. Return suction tubes to unit suction arm and close STCS box cover.	
HE43	STCS program cancelled.	

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Table 10: Help messages

HELP CODE	MEANING	ACTION OR EXPLANATION
HE44	Incorrect suction tube amount detected. Return them to unit suction arm, place them back to STCS holders and start cleaning.	
HE45	Set WMS to Domestic Water Supply -mode and wait until WMS bottle is full. Then start STCS cleaning.	STCS can not be used when WMS is set to Bottled Water -mode.
HE46	Suction use is forbidden or there are no suction tubes in dental unit configuration.	The value of service mode n.83 is 0.
HE47	STCS Orotol pressure is low. (In automatised STCS: Fill Orotol container).	
HE48	WMS must be set to Bottled water off and Bottle on -modes before starting STCS cleaning sequence.	Bottled water off = domestic water is used Bottle on = bottle is used; domestic water is run through the bottle.
HE50	No cup in cup holder. Sensor does not recognise cup when pressing cup fill button.	Place a cup on the cup holder. Or change the setting of service mode n 115.
HE51	Bowl is above patient chair when driving chair up.	If the unit has a bowl, move the bowl to the rest position. If the unit has an OP delivery arm safety switch, check that the OP delivery arm is not blocking the chair movement.
HE52	Patient chair can not be driven upward because safety switch of side delivery arm is released.	
HE53	Patient chair can not be driven downward because safety switch of side delivery arm is released.	
HE54	Cup is inserted in cup holder.	Remove the cup and make sure the cup fill tube is above the bowl.
HE60	WMS: Container almost empty in Domestic water supply -mode.	Reduce water use for a moment.
HE61	WMS: Container almost empty in Bottled water -mode.	Reduce water use and fill the container as soon as possible.
HE62	WMS: Container switch is turned off.	Switch on the container switch.
HE63	Cuspidor door is open.	Close the door.
HE64	Fill container with disinfectant over upper sensor.	
HE65	Fill container with water over upper sensor.	
HE66	Wait 8 hours or switch unit off for the night.	
HE67	Instrument flush cancelled. Return instruments to instrument console.	
HE68	Romexis connection lost.	Make sure the Ethernet cable is attached and Romexis is running.
HE70	Brushless micromotor is stuck or broken.	
HE71	Romexis user id already in use.	Check the id or select another one.
HE72	Incompatible Romexis version.	RFID is not supported with this version of Romexis.

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Table 10: Help messages

HELP CODE	MEANING	ACTION OR EXPLANATION
HE73	Failed to copy user profile from Romexis.	Failed to copy user profile from Romexis.
HE74	RFID reader missing.	RFID reader is either missing or not functional.
HE75	Yearly maintenance in <#> days.	Contact service for yearly maintenance.
HE76	Yearly maintenance performed.	
HE80	Headrest length safety feature activated when driving headrest. Check that nothing is blocking headrest movements.	Check that nothing is blocking the headrest movement. The headrest can be driven normally after the possible obstruction has been removed.
HE81	Headrest angle safety feature activated when driving headrest. Check that nothing is blocking headrest movements.	Check that nothing is blocking the headrest movement. The headrest can be driven normally after the possible obstruction has been removed.
HE82	Connecting to wireless foot control was successful.	Connection was established with the requested foot control.
HE83	Foot control emergency switch is active.	Release the foot control handle to deactivate the switch.
HE84	Connecting to wireless foot control failed.	Connection with the requested foot control could not be established. Make sure the foot control is active (connect to a charger, if possible), is in the vicinity of the unit, and try again.
HE85	SW update denied. Chair was moving or instrument was in use while starting SW update.	The chair was moving or an instrument was in use while starting the software update.
HE86	SW update denied. Incorrect control panel type was detected while starting SW update.	An incorrect control panel type was detected while starting the software update.
HE87	Software update halted. Activate the wireless foot control by pressing the handle.	Wireless foot control has to be activated before it can be updated.
HE88	Wireless foot control configuration was successful.	Wireless foot control channel and power settings were successfully changed.
HE89	Wireless foot control configuration failed.	Wireless foot control channel and power settings could not be changed. Make sure the foot control is active (connect to a charger, if possible), is in the vicinity of the unit, and try again.
HE90	This button has no function at the moment, press Pos Sel, Chair/Headr/Light Sel first.	
HE91	Stop (Help) button pressed.	
HE92	Help (Stop) button pressed.	
HE93	This button has no function at the moment because there is no motorised light.	
HE94	Clock calibration failed. Maximum calibration range exceeded.	
HE95	Patient chair automatic position cannot be reached because legrest is unlocked or armrests are blocking movement.	

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Table 10: Help messages

HELP CODE	MEANING	ACTION OR EXPLANATION
HE96	RFID already in use.	RFID already in use.
HE97	Failed to bind RFID to user.	Failed to bind RFID to user.
HE98	User not found.	A user could not be found with this RFID tag. Log in with local user 1-4 and create a new user, or bind the RFID tag to an existing Romexis user.
HE99	Unit has been switched off without performing long flushing after water has been used. Perform long flushing.	This help message can be disabled, see service mode n.99 for details.
HE200	Detected new software update. Confirm to install?	
HE201	Detected new software update SD-card. Confirm to install 5.3.0.9.R ?	
HE210	Software update. Installing to Control panel bootloader sw. DO NOT TURN POWER OFF.	Do not turn the power off while the software is being updated.
HE212	Software update. Installing to Control panel application sw. DO NOT TURN POWER OFF.	Do not turn the power off while the software is being updated.
HE214	Software update. Installing to Control panel application sw. DO NOT TURN POWER OFF.	Do not turn the power off while the software is being updated.
HE216	Software update. Downloading from server. DO NOT TURN POWER OFF.	Do not turn the power off while downloading software from the server.
HE218	Software update. Installing to Main PCB. DO NOT TURN POWER OFF.	Do not turn the power off while the software is being updated.
END	Flushing completed. Remove syringe from flushing holder and return it to console. If syringe is removed, return it to flushing holder.	
DOOR	Cuspidor door is open.	Close the door.
FC.LD	Move foot control pedal to leftmost position. Press pedal down and hold. While holding, push centre knob briefly in 'chair up' direction.	Move the foot control pedal to the leftmost position. Press the pedal down and hold. While holding, push the centre knob briefly in the ‘chair up’ direction.
FC.LU	Move foot control pedal to leftmost position and hold. While holding, push centre knob briefly in 'chair up' direction.	Move the foot control pedal to the leftmost position and hold. While holding, push the centre knob briefly in the ‘chair up’ direction.
FC.CD	Press foot control pedal down and hold. While holding, push centre knob briefly in 'chair up' direction.	Press the foot control pedal down and hold. While holding, push the centre knob briefly in the ‘chair up’ direction.
FC.CU	Keep foot control pedal in rest position (centre). Push centre knob briefly in 'chair up' direction.	Keep the foot control pedal in the rest position (centre). Push the centre knob briefly in the ‘chair up’ direction.

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Table 10: Help messages

HELP CODE	MEANING	ACTION OR EXPLANATION
FC.RD	Move foot control pedal to rightmost position. Press pedal down and hold. While holding, push centre knob briefly in 'chair up' direction.	Move the foot control pedal to the rightmost position. Press the pedal down and hold. While holding, push the centre knob briefly in the ‘chair up’ direction.
FC.RU	Move foot control pedal to rightmost position and hold. While holding, push centre knob briefly in 'chair up' direction.	Move the foot control pedal to the rightmost position and hold. While holding, push the centre knob briefly in the ‘chair up’ direction.
FC.--	To exit foot control calibration mode, press and hold down calibration switch for 4 seconds.	

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20.3 Error messages

The following table lists the error messages, which are mainly intended to assist the technician.

Table 11: General error messages

ERROR CODE	EXPLANATION
E1.01	Main water valve short circuit.
E1.02	Main air valve short circuit.
E1.03	Bowl rinse valve short circuit.
E1.04	Cup filling valve short circuit.
E1.05	Water flush valve short circuit.
E1.06	Separator pulse valve short circuit.
E1.07	Ejector valve short circuit.
E1.08	Extra out 1 short circuit.
E1.09	Extra out 2 short circuit.
E1.10	Extra out 3 short circuit.
E1.11	Separator start signal / Microvac's start valve short circuit.
E1.12	Assistant syringe water valve short circuit.
E1.13	Separator alarm reset signal short circuit.
E1.14	PLANET output (ELMP) short circuit.
E1.15	Not used or not in the manuals.
E2.01	Incoming water valve open circuit.
E2.02	Incoming air valve open circuit.
E2.03	Bowl rinse valve open circuit.
E2.04	Cup filling valve open circuit.
E2.05	Main Control PCB output open circuit warning.
E2.06	Separator pulse valve open circuit.
E2.07	Main Control PCB output open circuit warning.
E2.08	Main Control PCB output open circuit warning.
E2.09	Main Control PCB output open circuit warning.
E2.10	Main Control PCB output open circuit warning.
E2.11	Separator start signal open circuit / Microvac valve open circuit.
E2.12	Assistant syringe water valve open circuit.
E2.13	Separator alarm reset signal open circuit.
E2.14	Main Control PCB output open circuit warning.
E2.15	Not used or not in the manuals.
E3.1	Incoming air pressure compared to water pressure is too low.
E3.2	General pressure problem.
E3.3	General pressure problem.

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Table 11: General error messages

ERROR CODE	EXPLANATION
E3.4	Internal air pressure (after regulator) is too low.
E3.5	Internal air pressure (after pres. regulator) is too high.
E4.1	Short circuit in cable from MCB to control panel / suction holder in branch 1.
E4.2	Short circuit in cable from MCB to control panel / suction holder in branch 2.
E5	Unsupported device attached.
E6.01	Cuspidor up -safety circuit error.
E6.02	Cuspidor down -safety circuit error.
E6.03	Chair down -safety circuit error.
E6.04	Bowl up -safety circuit error.
E6.05	Bowl down -safety circuit error.
E6.07	Console up -safety circuit error.
E6.08	Console down -safety circuit error.

Table 12: Power supply related error messages

ERROR CODE	EXPLANATION
E7	Power supply related error messages. IPS voltage failure on MCB.
E8	Power supply related error messages.
E9	Internal operating voltage too low. Unit functionality may be limited.
E10	Internal operating voltage too high.
E11.1	OP-light fuse (F5) and/or Water heater fuse (F7) has blown on the MCB.
E11.2	Separator fuse (F6) and/or Syringe heater fuse (F8) has blown on the MCB.
E11.3	Either of the +24V electronics fuses (F9 or F10) has blown on the MCB.
E11.4	Rectifier D5 or D1 short circuit or either of the 24V electronics fuses (F3 or F4) has blown on the MCB. Chair, instrument and headrest control not allowed.
E11.5	Separator fuse (F5) has blown on the MCB.
E11.6	Water heater fuse (F6) has blown on the MCB.
E11.7	Syringe heater fuse (F7) has blown on the MCB.
E11.8	Polymerisation light fuse (F8) has blown on the MCB.
E12.1	SELV voltage too low. Unit functionality may be limited.
E12.2	SELV voltage too high.
E13	Mains frequency outside acceptable range.
E14	IPS temperature measurement sensor error.
E15	IPS heatsink is running too hot on MCB.
E16	Attached scaler electronics is of new type.
E16.1	New type of scaler electronics is attached to MCB.
E16.2	New type of scaler electronics is attached to IMUX.

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Table 12: Power supply related error messages

ERROR CODE	EXPLANATION
E16.3	Scaler electronics slot does not match with scaler hose connection.
E16.4	Other instrument than scaler is connected to slot where scaler electronics is.
E17	Power Supply related error messages.
E18	Power Supply related error messages.

Table 13: Control panel related error messages

ERROR CODE	EXPLANATION
E19.1	Control panel in branch 1 is of new type.
E19.2	Control panel in branch 2 is of new type.
E20.1	Control panel 1 button stuck.
E20.2	Control panel 2 button stuck.
E21	Control panel related error messages.
E22	Control panel related error messages.

Table 14: Instrument related error messages

ERROR CODE	EXPLANATION
E23	Polymerisation light bulb has blown or is not properly attached to socket.
E24	Control panel related error messages.
E25	Satelec mini LED polymerisation light requires newer IMUX PCB version.
E26	Instrument related error messages.
E27	Instrument related error messages.

Table 15: Instrument multiplexer related error messages

ERROR CODE	EXPLANATION
E28.1	Reference resistor signal out of bounds when unit is switched on.
E28.2	Active instrument signal out of bounds.
E28.3	Syringe signal out of bounds.
E28.4	Reference resistor signal out of bounds when instrument is activated.
E28.5	Syringe signal changes during use (blinking).
E29	Voltage error in fibre light power supply in IMUX.
E30	Instrument multiplexer related error messages.
E31	Instrument multiplexer related error messages.
E32.1	IMUX is not responding. IMUX cable disconnected or failure in cable or IMUX.

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Table 15: Instrument multiplexer related error messages

ERROR CODE	EXPLANATION
E32.2	IMUX software is not compatible (IMUX is of new type) with MCB software.
E32.3	IMUX data error (cable short circuit).
E32.4	IMUX communication error.
E32.5	Wrong IMUX type or wrong unit type.
E33.1	Syringe select valve short circuit.
E33.2	Instrument 1 select valve short circuit.
E33.3	Instrument 2 select valve short circuit.
E33.4	Instrument 3 select valve short circuit.
E33.5	Instrument 4 select valve short circuit.
E33.6	Instrument multiplexer related error messages.
E33.7	Drive/Cooling air valve short circuit.
E33.8	Air coolant valve short circuit.
E33.9	Water coolant valve short circuit.
E34	Not used or not in the manuals.
E34.1	Syringe select valve open circuit.
E34.2	Instrument 1 select valve open circuit.
E34.3	Instrument 2 select valve open circuit.
E34.4	Instrument 3 select valve open circuit.
E34.5	Instrument 4 select valve open circuit.
E34.6	Instrument multiplexer related error messages.
E34.7	Drive/Cooling air valve open circuit.
E34.8	Air coolant valve circuit.
E34.9	Water coolant valve circuit.
E35.1	Drive/Cooling air pressure sensor output <0.2 V.
E35.2	Air coolant pressure sensor output <0.2 V.
E35.3	Water coolant pressure sensor output <0.2 V.
E35.4	Differential pressure sensor output <0.2 V.
E36.1	Drive/Cooling air measurement over range.
E36.2	Spray air measurement over range.
E36.3	Spray water measurement over range.
E36.4	Differential pressure sensor output >5 V.
E37	Pressure sensor cable not properly attached to IMUX.
E38	Instrument multiplexer related error messages.
E39	Drive (cooling) air valve control servo cannot maintain pressure to instrument.
E40	Instrument multiplexer related error messages.
E41	Instrument multiplexer related error messages.

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Table 15: Instrument multiplexer related error messages

ERROR CODE	EXPLANATION
E42	Air coolant (spray air) control servo cannot maintain required pressure.
E43	Instrument multiplexer related error messages.
E44	Instrument multiplexer related error messages.
E45	Water coolant (spray water) control servo cannot maintain required pressure.
E46	Instrument multiplexer related error messages.

Table 16: Suction holder related error messages

ERROR CODE	EXPLANATION
E47	Suction holder is of new type.
E47.1	Suction holder in branch 1 is of new type.
E47.2	Suction holder in branch 2 is of new type.
E48.1	No suction holders detected.
E48.2	Suction holder related error messages.
E48.3	Suction holder related error messages.
E48.4	Suction holder related error messages.
E49.1	Suction holder PCB or its cable is faulty in branch 1.
E49.2	Suction holder PCB or its cable is faulty in branch 2.
E50	Unidentified STCS jumper configuration.
E50.1	WMS must be set to Bottle water off -mode when starting STCS cleaning sequence.

Table 17: Foot control related error messages

ERROR CODE	EXPLANATION
E51.1	Foot control related error messages.
E51.2	Foot control is not responding.
E51.3	Foot control pedal was pressed down when dental unit was switched on.
E51.4	Foot control pedal was not in home pos. when dental unit was switched on.
E51.5	Foot ctrl chair ctrl knob was not in home pos. when dent. unit was switched on.
E51.6	Foot control left knob is either stuck or active at power-up or after pedal use.
E51.7	Foot control right knob is either stuck or active at power-up or after pedal use.
E52	Foot control is of new type, update MCB software.
E52.1	Incompatible wireless foot control receiver software
E52.2	Incompatible wireless foot control software
E52.3	Incompatible foot control software
E53	Foot control data error (cable short circuit).

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Table 17: Foot control related error messages

ERROR CODE	EXPLANATION
E54.0	Foot control error.
E54.1	Foot control EEPROM write failure.
E54.2	Foot control EEPROM read failure.
E54.3	Pedal too far from sensors, channel A.
E54.4	Pedal too far from sensors, channel B.
E54.5	Sensor plate is tilted too much to either side, checksum error.
E54.6	Sensor plate is too close to PCB, channel A.
E54.7	Sensor plate is too close to PCB, channel B.
E54.8	Foot control re-trigger error.
E54.9	Foot control calibration error.
E55	Wireless foot control connection lost

Table 18: Operating light related error messages

ERROR CODE	EXPLANATION
E56	Operating light erroneously connected or short circuit in push button.
E57	Incompatible SingLED software
E58	Operating light bulb burned out.

Table 19: Separator system related error messages

ERROR CODE	EXPLANATION
E59.1	Separator reports functional error.
E59.2	Separator reports functional error.
E60	Separator is not responding or separator cable is faulty.
E61	Separator is flooded with too much water.
E62	Newly attached separator is of new type and cannot be controlled by MCB.
E63.1	WMS seems to be installed, although it should not be (according to service mode).
E63.2	No WMS is installed, although it should be according to service mode.

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Table 20: Patient chair related error messages

ERROR CODE	EXPLANATION
E64	Seat pos. potentiometer or its cable is faulty or disconnected.
E65	Lift motor does not run or no signal from position potentiometer.
E65.1	Lift motor does not run. EmeStop relay PCB/cables or position sensor/cable may be faulty.
E66	Lift motor or its position potentiometer cable has a wrong connection.
E67	Backrest position potentiometer or its cable is faulty or disconnected.
E68	Backrest motor does not run or no signal from position potentiometer.
E68.1	Backrest motor does not run. EmeStop relay PCB/ cables or position sensor/ cable may be faulty.
E69	Backrest motor or its position potentiometer cable has a wrong connection.
E70	
E70.1	Lift motor error.
E70.2	Backrest motor error.
E71	Patient chair -related.

Table 21: MAIN CPU related error messages

ERROR CODE	EXPLANATION
E72.1	Program (Flash-EPROM) error. Main software is corrupted. Replace Flash-EPROM.
E72.2	Program (Flash-EPROM) error. Boot software is corrupted. Replace Flash-EPROM.
E72.3	Program (Flash-EPROM) error.
E72.4	Data transfer error while updating main PCB SW from control panel memory device.
E73.1	EEPROM error, CPU EEPROM erase/program failure, replace CPU.
E73.2	CPU configuration register contents are wrong, replace CPU.
E73.3	CPU EEPROM checksum error.
E73.4	CPU EEPROM checksum programmed. Replace CPU if error occurs often.
E74.1	RAM error, External RAM test failure, replace RAM.
E74.2	CPU RAM test failure, replace CPU.
E75.1	CPU error, WD reset.
E75.2	Illegal OP-code.
E75.3	Illegal vector.
E75.6	Mains voltage failure.
E75.7	Clock monitor reset.

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Table 21: MAIN CPU related error messages

ERROR CODE	EXPLANATION
E76	Main PCB hardware test failed.
E77	Error in communicating with external device reserved for future use.
E79	IMUX water pressure cannot be released during WCS cycle.

Table 22: Headrest related error messages

ERROR CODE	EXPLANATION
E80.1	Motorised headrest is not found (according to service mode configuration).
E80.2	Motorised headrest is found, but is not set in service mode configuration.
E80.3	Headrest joystick (dentist side) stuck or cable broken.
E80.4	Headrest joystick (assistant side) stuck or cable broken.
E81	Motorised headrest communication error (may be too old or wrong software or loose cables or short circuit).
E81.1	Motorised headrest communication error.
E82	Headrest SW is incompatible with MCB SW.
E82.1	Headrest SW is incompatible with MCB SW.
E82.2	Incompatible headrest software.
E90	Water leak detected.
E90.1	Water leak detected. Water use allowed temporarily.

Table 23: Maintenance related errors

ERROR CODE	EXPLANATION
E91	Yearly maintenance overdue.

Table 24: Software upgrade error messages

ERROR CODE	EXPLANATION
E99	Software upgrade failure.
E99.1	MCB software upgrade failure.
E99.2	IMUX software upgrade failure.
E99.3	Control panel software upgrade failure.
E99.4	Operating light software upgrade failure.
E99.5	Motorised headrest software upgrade failure.
E99.6	Foot control software upgrade failure.
E99.7	Wireless foot control software upgrade failure.
E99.8	Wireless foot control receiver software upgrade failure.

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Table 25: Error messages generated by control panel

ERROR CODE	EXPLANATION
EP19.3	Control panel version mismatch.
EP19.5	Control panel software upgrade has failed or memory card is faulty.
EP21.1	Control panel display is faulty.
EP21.2	Control panel data error.
EP21.5	Unable to read Main PCB software version.
EP21.6	Control panel software not installed or software error.
EP21.7	Touch panel is not working.

20.4 Viewing help and error message history

The simulation unit keeps a log of all help and error messages. It can be viewed from the *About this unit* window.



1. Press **Program**.

2. Press **About this unit**.

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



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3. Press **Message history**.
The following window opens.





Move up and down on the list with the arrow buttons.

When you click on a message, the message is opened into a new window.

The message history window can be filtered by message type.
In the picture above, all types are listed:



Messages related to cleaning cycles



Help messages



Error messages

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4. Optional: Filter messages by toggling the **Message type** buttons.

   A grey button means that the message type is not listed, and a blue button that it is listed.



5. Optional: Delete the message history by pressing **Delete message history**.

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

CAUTION

Carefully consider when the deletion of message history is appropriate as it contains information that is valuable to the Planmeca service technician.



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



NOTE

The Save message history to USB -option is meant to be used only by a qualified Planmeca service technician.

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21 BENCH SIMULATION UNIT DISPOSAL

In order to reduce the environmental load over the product's entire lifecycle, Planmeca products are designed to be as safe as possible to manufacture, use and dispose of.

Parts which can be recycled should always be taken to the appropriate processing centres, after hazardous waste has been removed. Disposal of obsolete units is the responsibility of the waste possessor.

All parts and components containing hazardous materials must be disposed of in accordance with waste legislation and instructions issued by the environmental authorities. The risks involved and the necessary precautions must be taken into account when handling waste products.

Table 26: Disposal of parts and components

Part	Main materials for disposal	Recyclable material	Waste disposal site	Hazardous waste (separate collection)
Frame and covers				
- metal	Aluminium	X		
	Galvanised steel	X		
- plastic	PVC			X
	PUR		X	
	Other plastics	X		
- corian			X	
- plywood			X	
- rubber			X	
- glass		X		
- porcelain			X	
Motor		(X)		
Component boards		(X)		
Cables, transformers	Copper	X		
	Steel	X		
Amalgam separator *)				
- filters				X
- collectors				X
Packing	Wood	X		
	Cardboard	X		
	Paper	X		
Other parts			X	

*) Refer to the instructions supplied by the manufacturer.

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22 TECHNICAL SPECIFICATIONS

Original manufacturer

PLANMECA Oy, Asentajankatu 6, 00880 Helsinki, FINLAND
phone: +35 20 77950 500, fax: +358 20 7795 555, www.planmeca.com

Colours

Painted parts:	RAL-9016

Mechanical dimensions

Installed:	See template for details

Weight of one workplace

150 kg (331 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 psi to 15 psi)

Storage conditions

Temperatures:	-5 °C to +60 °C (+23 °F to +140 °F)
Relative humidity:	5% RH to 95% RH; non-condensing humidity
Air pressure:	700 hPa to 1060 hPa (10 psi to 15 psi)

If the unit has been stored at temperatures below +10 °C (+50 °C) 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.

Unit operating conditions

Temperatures:	+15 °C to +35 °C (+59 °F to +95 °F)
Relative humidity:	5% RH to 95% RH; non-condensing humidity
Air pressure:	800 hPa to 1060 hPa (12 psi to 15 psi)
Altitude:	< 2000 m (less than 1.25 miles)

Mains voltage and frequency

Mains voltage setting:	100V~ 115V~ 220-240V~
Mains frequency:	50 or 60 Hz

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Fuse rating and type

F1, F2 = Schurter 0001.1014 10A/250V/FAST ACTING/HIGH BR CAP. (100V, 115V)
F1, F2 = Bussmann S501-10-R 10A 250V FAST ACTING/HIGH BR CAP. (100V, 115V)
F1, F2 = Schurter 0001.1012 6.3A/250V/FAST ACTING/HIGH BR CAP. (220V – 240V)
F1, F2 = Bussmann S501-6.3-R 6.3A 250V FAST ACTING/HIGH BR CAP. (220V- 240V)
F3,F4 = 4A/250V/Fast act./High br. cap, Schurter 0001.1010 OR Bussmann S501-4-R
F5 = 8A/250V/Fast act./High br. cap, Schurter 0001.1013 OR Bussmann S501-8-R
F6-F8 = 6.3A/250V/Fast act./High br. cap, Schurter 0001.1012 OR Bussmann S501-6.3-R

Power consumption

Maximum:	500 W (at maximum rated mains voltage)

Electrical classification

Class I

Water supply

Pressure range:	min. 300kPa (44 psi), max. 900 kPa (130 psi)
Flow rate:	≥ 4 l / min (maximum consumption at any instance)
Quality:	hardness; ≤ 8 °dH (1°dH= 20mg Ca/ 3 litres of water)
Connection:	1/4”

Air supply

Pressure range:	min. 550 kPa (80 psi), max. 900 kPa (130 psi)
Flow rate:	≥ 55 litres / minute (maximum consumption at any instance) If the simulation unit is equipped with technician’s air gun, the consumption is 100 litres / minute.
Air quality:	Medical grade, dry and oil-free
Connection:	1/4”

Suction connection

Vacuum:	≥ 150 mbar
Flow rate:	≥ 550 l/ min
Connection:	Ø 50 / 46 mm

Drain connection

Capacity:	min. 10 l/min
Connection:	Ø 50 / 46 mm

Foot control power supply (optional)

Type:	MENB1010A0903F01

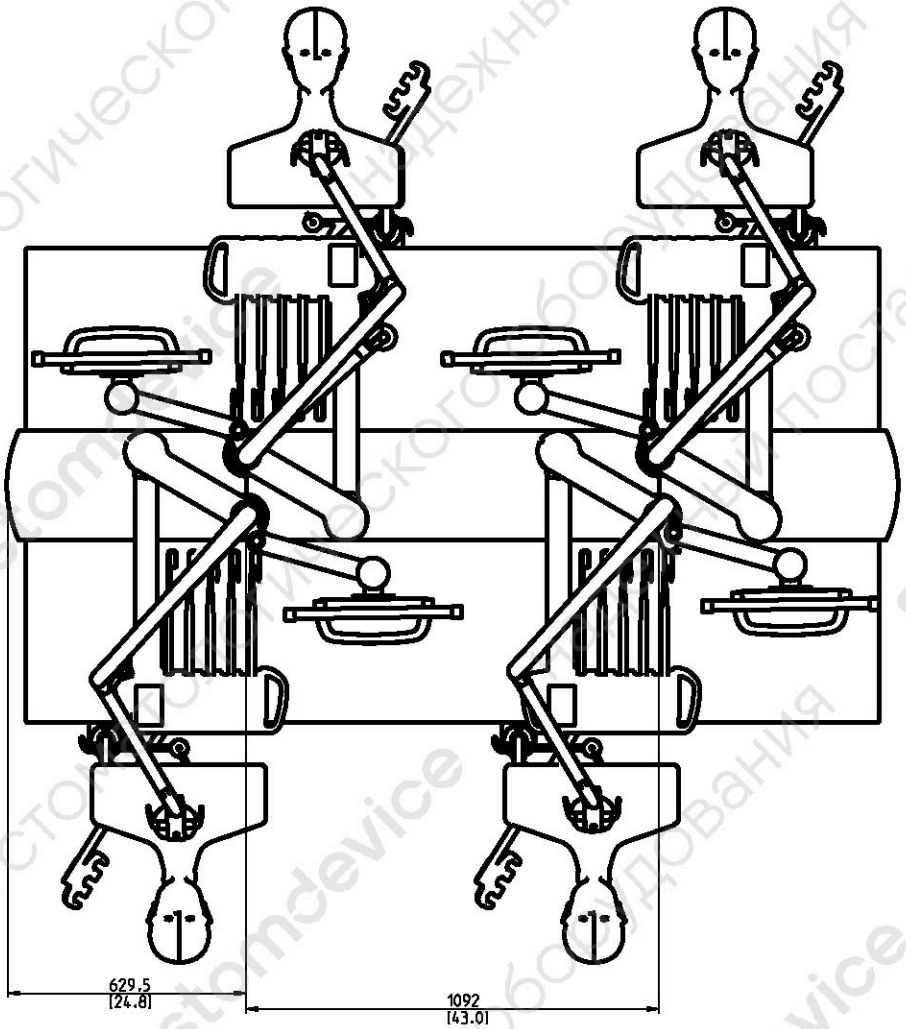
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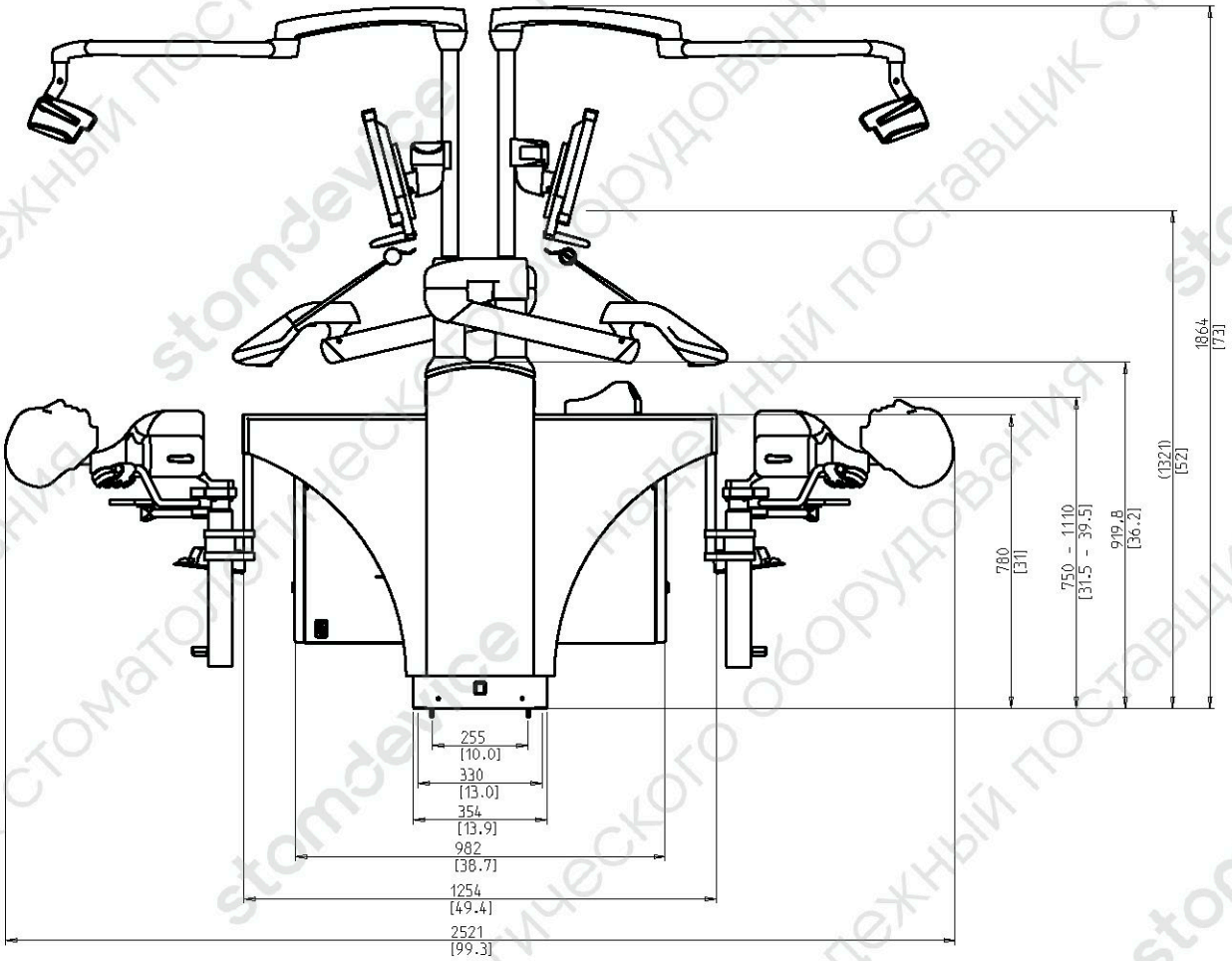
Wireless foot control (optional)

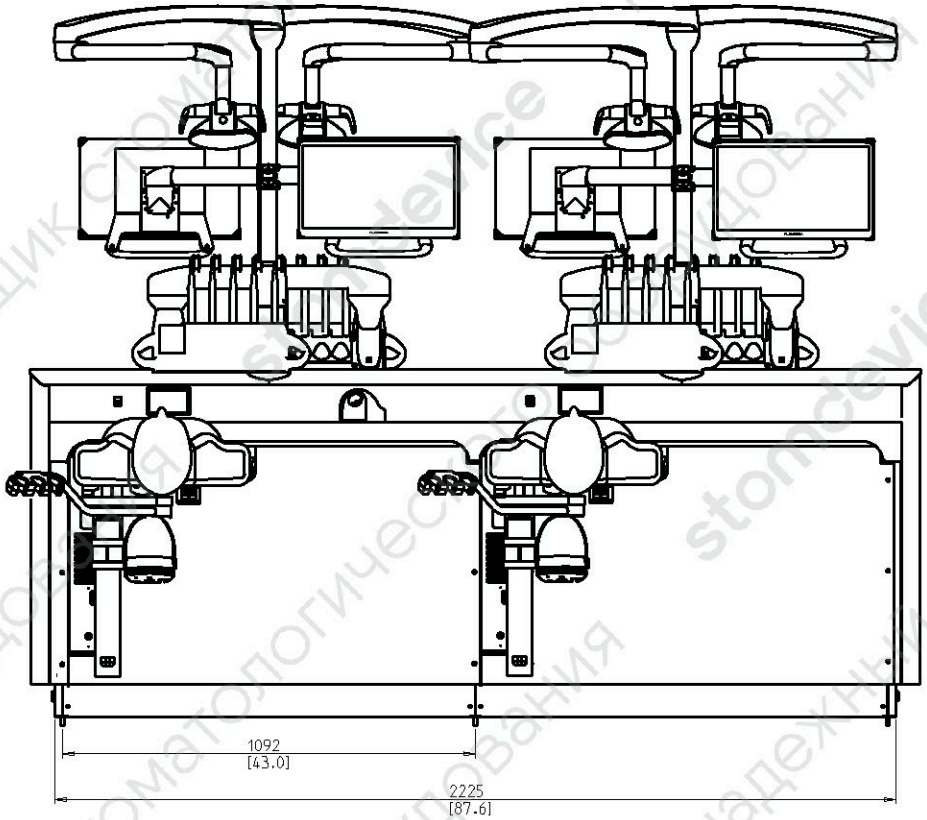
Battery size:	AA, LR6
Battery type:	NiMH 1.2V, min 2050mAh, low self-discharge, UL-listed (USA, Canada only)

22.1 Dimensions



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22.2 Water consumption of Planmeca Compact i bench simulation

Part	Water consumption
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.

22.3 FCC Class B Notice for wireless foot control

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Modifications: Any modifications made to this device that are not approved by Planmeca may void the authority granted to the user by the FCC to operate this equipment.

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