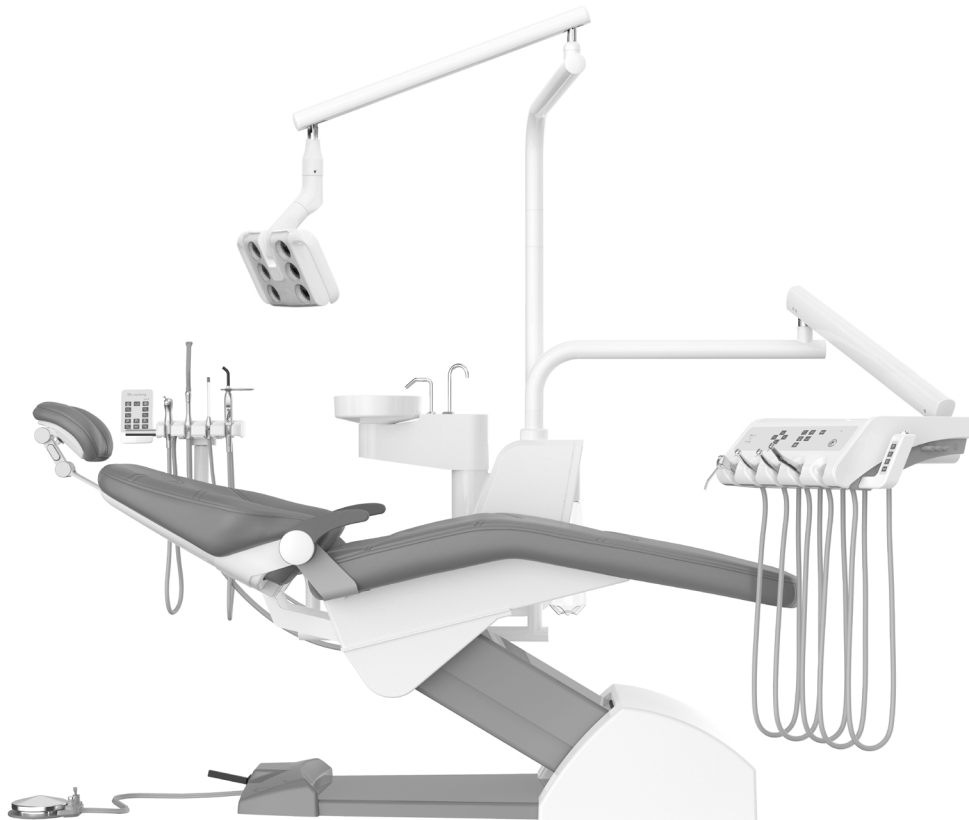


Comfortek® X1

Dental Operating Unit

Instruction for Use



Beyes®
The Next Standard

Important

- The instructions should be thoroughly read and understood before operating the unit and chair.
- After installation, store this manual in a safe place for maintenance reference.
- If you have any questions on the product, please contact us.
- If this manual becomes unreadable or lost, please contact your dealer.
- Installation should be conducted by authorized personnel only.
- Follow instructions in the manual.

Beyes Dental Inc.

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General Information

Dear Dental User,

Our dental treatment units are specifically designed to meet the needs of dental professionals. The unit design emphasizes hygienic treatment, with components engineered for easy cleaning and maintenance. The concept behind the unit is to optimize workflow in the dental practice while providing a clean and healthy treatment environment for both dentists and patients.

Contact information

Beyes Dental Inc.
55 Laurier Drive, Morrisburg, Ontario K0C 1X0, Canada
Toll Free: 1-855-603-1888
Email: info@beyes.ca
Web: www.beyesdental.com

Intended Use of the Product

This product is an active therapeutic device intended for dentists, dental hygienists, and dental assistants for standard patient treatment procedures in the dental operatory.
The product must be operated or handled by qualified dentists or dental staff under the supervision of a dentist. Such personnel should instruct and/or assist patients when approaching or leaving the unit.
Patients must not operate or handle the product unless they have been properly instructed.

Application range

This dental unit is suitable for diagnosis, treatment, and procedures performed in dental clinics.

Environmental Requirements for Operation:

- Ambient Temperature: 41°F to 104°F (5°C to 40°C)
- Humidity: 30% to 75%
- Atmospheric Pressure: 10 psi to 15.1 psi (700 hPa to 1060 hPa)
- Maximum Operating Altitude: 3000 m above sea level

Environmental Requirements for Transportation and Storage

- Ambient Temperature: 7°F to 158°F (-20°C to 70°C)
- Humidity: 10% to 95%
- Atmospheric Pressure: 10 psi to 15.1 psi (700 hPa to 1060 hPa)

This equipment is not suitable for use in environments containing air- or flammable anesthetic gases, oxygen, or nitrous oxide.

Compatibility of Handpieces

Use only handpieces listed in the attached document titled List of Compatible Handpieces for this unit.

Important Notes

In case of malfunction, please contact a Beyes office or your dealer. Do not disassemble or attempt repairs. Disassembly, repair, or modification should only be performed by a qualified repair technician. Unauthorized attempts may result in abnormal operation or accidents.

This manual provides installation instructions for the Comfortek X1.

Disposal of Residual Material

Please contact a licensed waste disposal contractor when disposing of amalgam.

Disposal of Equipment

When disposing of the chair, ensure it is done in accordance with all applicable regulations and local codes. Within the EU, this product is subject to Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE), which mandates environmentally responsible recycling and disposal.

Safety Information

- Before use, read the Safety Precautions carefully to ensure proper operation.
- The following information is provided to ensure safe use of this product and to prevent injury or damage to you or others. These precautions are categorized according to the severity and likelihood of potential injury or damage resulting from improper use. Be sure to follow all safety instructions carefully.

Classification of precautions

 WARNING!	This symbol indicates that failure to follow these precautions may result in serious injury or death due to improper use.
 CAUTION	This symbol indicates that failure to follow these precautions may result in minor or moderate physical injury, or damage to property due to improper use.
NOTICE	This symbol indicates that it is recommended to follow these precautions to ensure safety.



WARNING!

1. Turn off circuit breakers during extended periods of non-use

Be sure to turn off the circuit breakers for clinic equipment when this product will not be used for an extended period (e.g., after completing daily work, during temporary business closures, etc.). Insulation degradation may result in an electrical fire.

2. Turn off the main switch after use or during breaks

Be sure to turn off the main switch after completing work or during work breaks. This prevents accidental operation and associated hazards.

3. Never disassemble, repair, or modify this product

Only certified repair technicians may disassemble, repair, or modify this product. Unauthorized handling may result in accidents, equipment failure, electric shock, or fire.

4. Ensure proper grounding

Establish a proper grounding connection. (Consult your vendor for guidance.) Failure to do so, or electrical leakage, may lead to electric shock.

5. Use with caution near electromagnetic interference

Do not place this product near equipment that generates electromagnetic waves (e.g., communication devices, elevators), as it may cause malfunction.

Additionally, avoid using devices that generate electromagnetic interference, such as mobile phones, near this product.

6. Do not sit on areas other than the seat

When the backrest is in the forward position, do not sit on or place excessive weight on the headrest or leg rest of the dental chair. Doing so may damage the unit or cause it to topple.



WARNING!

1. Do not apply excessive force to the arm

Do not stand on or apply excessive force to the arm of the unit or the dental chair armrest. Doing so may cause the unit to topple or result in other accidents.

2. Wipe up any water spills or leaks immediately

Immediately clean up any water spills or leaks on the floor. Moisture may weaken floor integrity, potentially leading to falls or property damage.

3. Turn off the main switch when using electrocautery equipment

Be sure to turn off the main switch when electrocautery is in use, as electrical noise may interfere with the operation of this product.

4. Use with caution on patients with cardiac pacemakers

Use this product with extreme caution on patients with cardiac pacemakers. If any abnormalities occur during use, immediately turn off the product and discontinue use.

5. Ensure regular maintenance of this product

6. Failure to maintain this product may lead to physical injury or property damage.

7. Refer to the maintenance section of this manual.

8. Always use the dental light's mirror cover

9. Ensure the mirror cover is in place when the dental light is turned on. Direct contact with the lamp may cause burns.

10. Refer to the dental light's instruction manual for further details.

11. Turn off power before replacing lamps

12. Always turn off the power when replacing the dental light lamp to prevent electric shock.

13. Use only dedicated halogen lamps.

14. Immediately after burnout, the halogen lamp and holder may still be hot. Allow them to cool before replacement.

15. Do not touch halogen lamps with bare hands.

16. Refer to the dental light's instruction manual for more information.

17. Do not place heavy objects on the Doctor's table

Do not place objects weighing 2.5 kg or more on the Doctor's table. Doing so may cause damage, malfunction, or accidents.

18. Handling the equipment during a power failure

If the equipment stops during use due to a power outage or other cause, place the handpiece in the holder and turn off the main switch.

19. Connection to a public drinking water system

Installation must comply with national plumbing regulations (e.g., EN 1717 / DIN 1988).

The water used must meet national drinking water quality standards.

Safety Information



CAUTION

1. Use only by qualified personnel

This product should be used only by dentists or other trained dental professionals.

2. Confirm safety before use

Before operation, ensure all components are functioning properly and that there are no obstructions around the unit.

3. Monitor patients and children

Pay close attention to patients—especially children—to prevent accidental or unintended operation that may lead to injury.

4. Discontinue use if abnormalities are detected

Be alert for signs of malfunction, including looseness, rattling, tilting, wobbling, unusual sounds, temperature changes, or odors. Discontinue use immediately if anything seems abnormal.

5. Do not strike or rub the product

Do not hit or rub the unit forcefully, as this may damage the covers or cause malfunction.

6. Use only tap water

The water system is designed for use with tap water. Using other types of water (e.g., from sterilizers or alternative systems) may cause equipment failure.

7. Flush water lines daily

Flush the water lines before beginning clinical procedures each day to maintain water quality and ensure consistent water supply to handpieces.

Refer to the flushing procedure in this manual.

8. Do not place hot objects on the Doctor's table

Avoid placing hot items on the Doctor's table, as this may cause deformation or discoloration.

9. Do not heat an empty water heater

Operating the water heater without water may cause it to burn out and could result in fire.

10. Cover the scaler tip after use

After use, always place the dedicated tip cover (if provided) on the scaler in its holder. Failure to do so may result in injury.

11. Shut off main water valve and power switch after use

At the end of each workday, be sure to close the main water valve and turn off the main switch to prevent water leakage.

12. Monitor the patient during operation

- Ensure the patient is seated properly and observe them throughout the procedure.
- During automatic table movements, pay attention to surrounding components. Contact with the backrest, stool, or Doctor's table may cause damage.

13. Precautions when using handpieces

- For safety, confirm that rotation has completely stopped before changing the speed of the micromotor or inserting/removing a bur.
- Refer to the instruction manuals for the included handpieces and optional accessories for further guidance.
- Only use compatible handpieces as listed in the attached List of Compatible Handpieces.



CAUTION

1. Observe caution around hoses

Do not step on any hoses (e.g., bellows hose, vacuum hose, or saliva ejector hose). Doing so may damage the hose and pose a tripping hazard.

2. Use only dental paper cups with the sensor cup filler (optional)

Use dental paper cups with the optional sensor cup filler. The sensor may not function properly with cups made of stainless steel, plastic, or dark/patterned paper, as these materials may interfere with sensor detection.

3. Use only purified, distilled, or pure water in the water tank

4. The water tank is intended exclusively for use with purified, distilled, or pure water.

5. Do not use mouthwash or electrolyzed solutions (e.g., ConCool, povidone-iodine), as these can clog tubing or damage internal valves and components.

6. Set water tank pressure to 200 kPa or less

Adjust the air supply pressure for the water tank to a maximum of 200 kPa. Excessive pressure may damage the tank.

7. Read all accompanying documentation before use

Before using any equipment, carefully read the package inserts and instruction manuals, including those for optional accessories, to ensure proper and safe operation.

8. Precautions for handling synthetic leather

9. Staining from clothing dyes

Synthetic leather may become stained from direct contact with clothing or belts. If staining occurs, wipe it off promptly using a 10% water-diluted detergent solution to prevent permanent marks.

10. Deformation and staining from direct contact

Avoid direct contact with the following, as they may cause damage such as discoloration, surface cracking, peeling, or deformation:

- Plastic items, painted objects, solvents, adhesive tape
- Printed paper (e.g., newspapers)
- Clothing with printed images or dark dyes (e.g., T-shirts, jeans)
- Solvents such as benzene, nail polish remover, or alcohol
- Bleach or bleached materials
- Heat sources like irons or heaters
- Prolonged exposure to direct sunlight

11. Additional notes:

12. Prolonged placement of heavy objects may leave permanent wrinkles or indentations.

13. Protect the unit from sunlight using curtains or blinds to avoid fading, shrinking, or discoloration.

14. Operate switches with hands only

Switches should be operated only by hand, except for the foot controller, which is designed for foot use. Using other body parts may cause malfunction or damage.

Safety Information



CAUTION

1. Use caution when moving the Doctor's table

- Be aware of your surroundings when moving the Doctor's table. Injury may occur from contact with handpiece tips or other instruments.
- Always move the Doctor's table using the designated handle.

2. Clean the solid collector filter with running water only

Detach the filter from the solid collector and rinse it thoroughly with running water. Do not use brushes, as they may damage the filter.

3. Avoid contact injuries during automatic movement

Exercise caution during automatic operation of the dental unit.

- Check the surroundings to avoid contact with the backrest, stool, or Doctor's table.
- Confirm the patient is seated properly, and closely monitor the patient throughout the operation.

4. Wipe off drug solutions immediately upon contact

If a drug solution or water comes into contact with the unit, promptly wipe it off with a dry, soft cloth. Failure to do so may result in malfunction, electrical leakage, staining, or corrosion.

5. Precautions for cleaning the operation panel (membrane switches)

Sanitizing spray droplets may penetrate behind the operation panel and cause switch failure.

Clean the surface using a paper towel moistened with sanitizing solution—do not spray directly onto the panel.

6. Precautions for cleaning the spittoon bowl

- The spittoon bowl is made of glass or ceramic (depending on the model). Do not subject it to impact or wash it with hot water, as it may crack or break.
- Do not use sandpaper, metal brushes, or abrasive cleaners.
- Avoid using strong acids or alkaline pipe cleaners, which may corrode metal components.

7. Be aware of water discharge when attaching/detaching the spittoon bowl

Turn off the main switch before attaching or detaching the spittoon bowl. The cup filler sensor may react to your hands and unintentionally activate, causing water to spill.

8. Precautions for cleaning the resin cover

Do not use cleaners containing solvents, abrasives, thinners, or oil-based alcohols (e.g., butanol or isopropyl alcohol). These substances may cause cracking of the resin surface.

9. Precautions when cleaning the weight-sensing cup filling sensor

Do not clean the weight-sensing cup filling sensor with water, as it is not waterproof and may malfunction. Refer also to the precautions for cleaning the resin cover, as described in item 24.

NOTICE

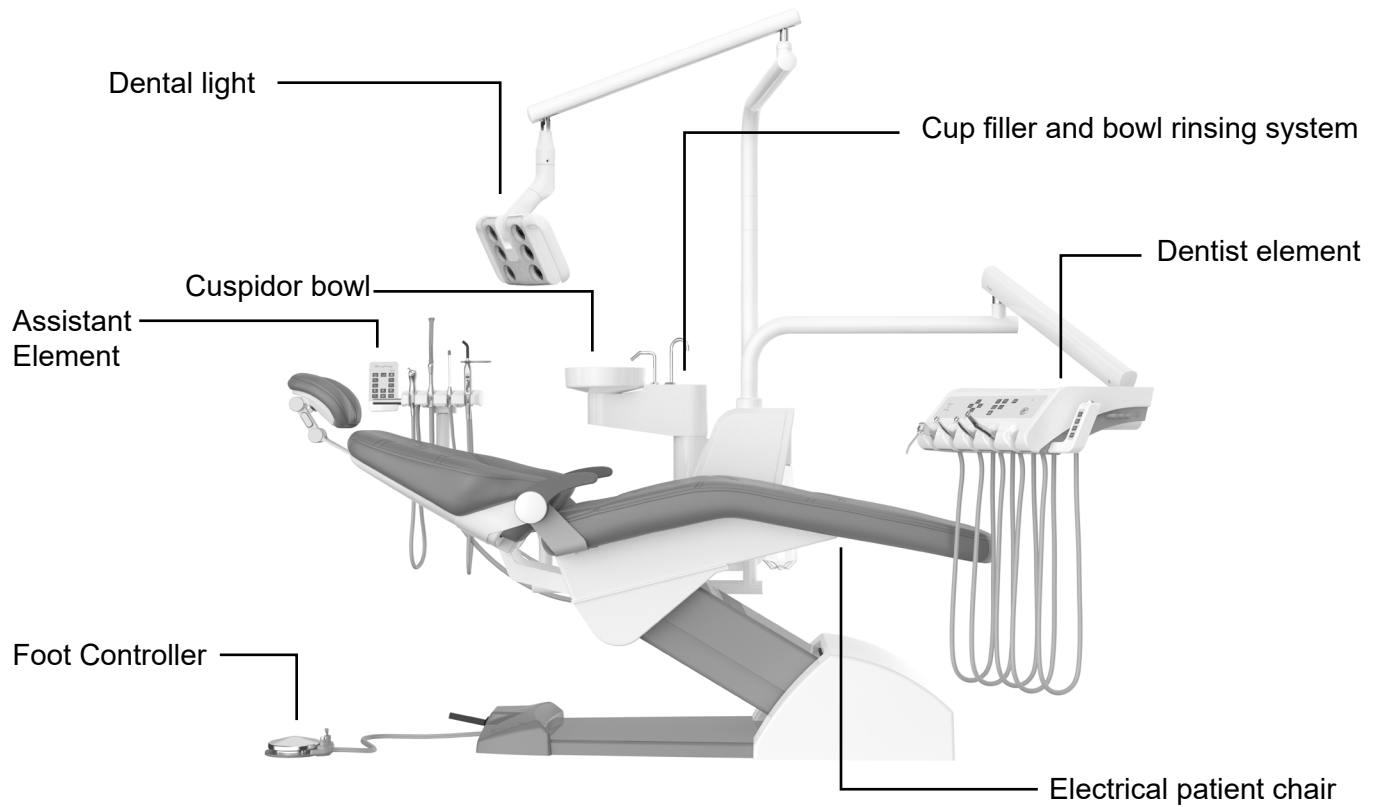
1. Troubleshooting and contact information

If any issues occur, immediately discontinue use, turn off the main switch, and contact your dealer or our company.

2. Check compressor operation

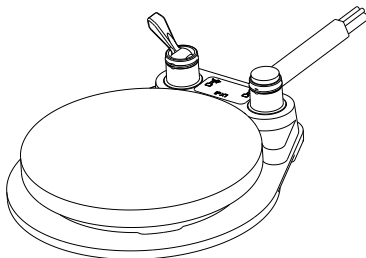
This product will not operate without air supply, even if the main switch is turned on. Ensure the compressor is powered on before operating this unit.

Overview and Major Components

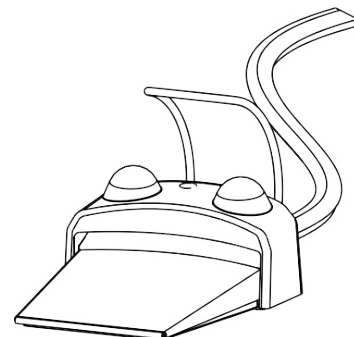


Foot Controller

- Disc foot control



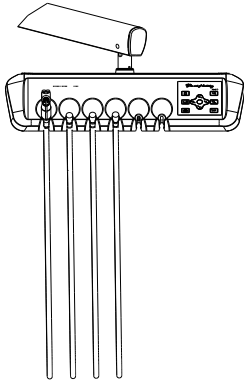
- Lever foot control



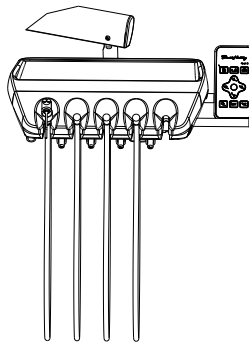
Product Structure

Dentist element

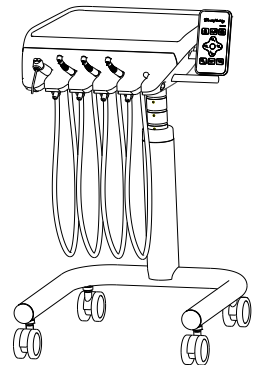
Instrument tray (traditional) with control panel



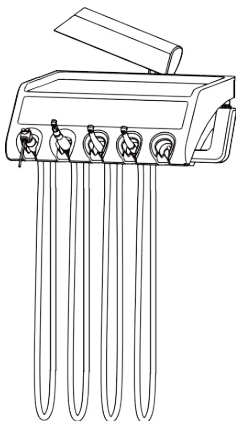
Instrument tray (traditional) with control panel



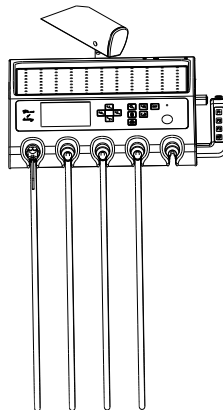
Instrument tray (traditional cart type) with control panel



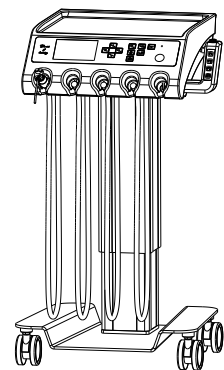
Instrument tray (traditional) with control panel



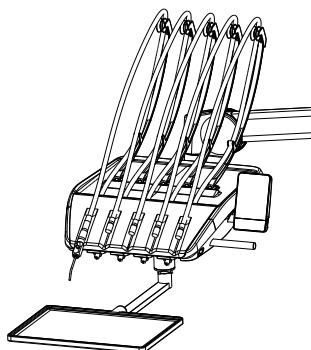
Instrument tray (traditional) with luxury touch display control panel



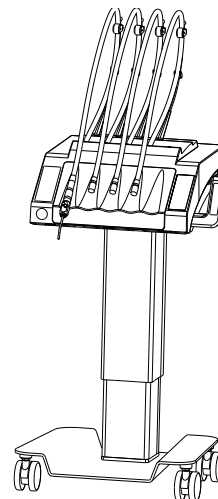
Instrument tray (traditional cart type) with luxury touch display control panel



Instrument tray (continental)



Instrument tray (continental cart type)



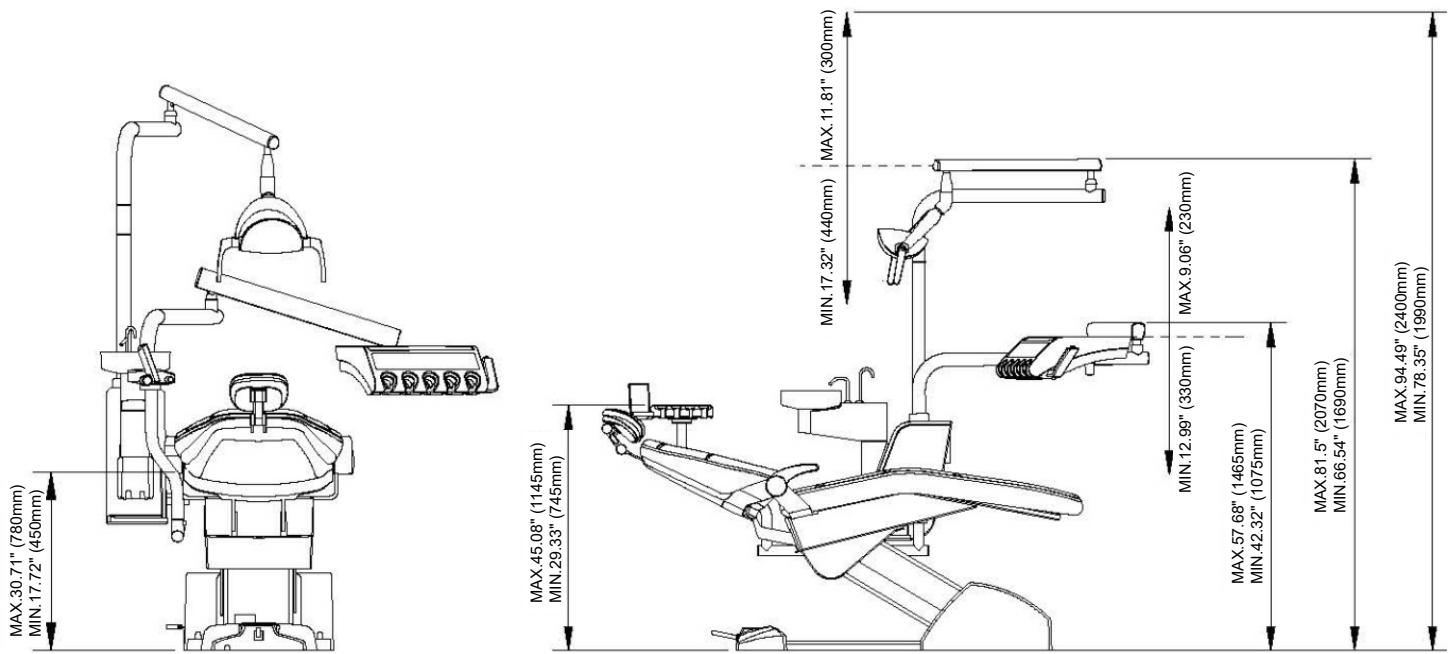
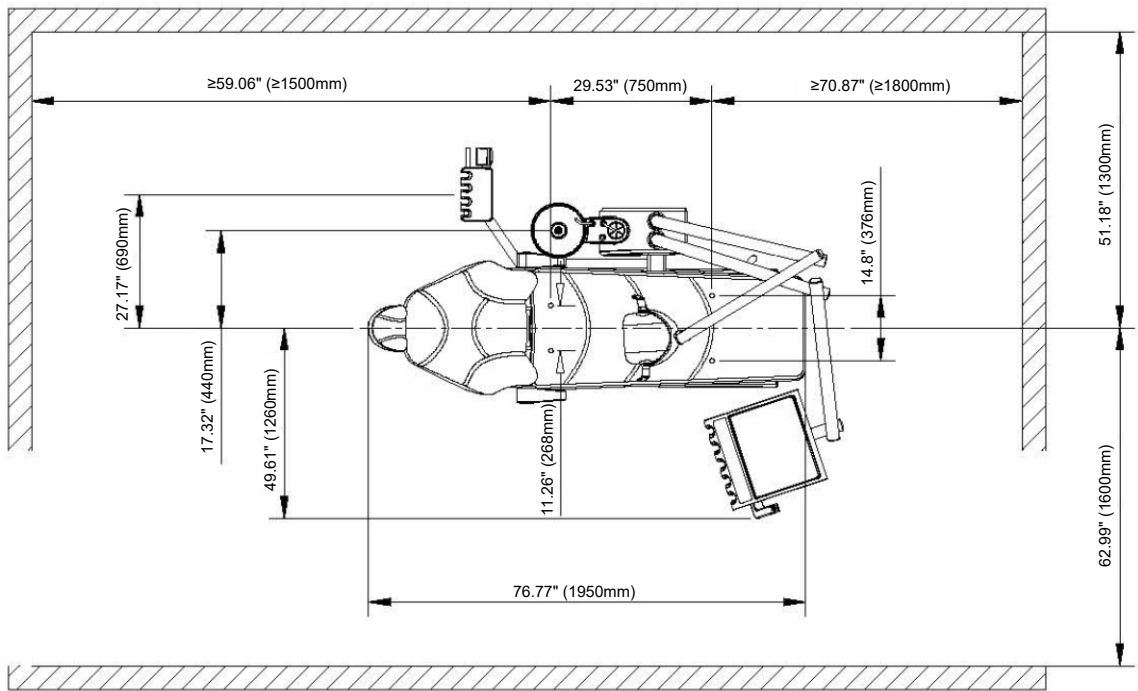
Product Specification

Item	Details
Input power supply	220-230V~, 110-115V~, 50Hz/60Hz
Maximum power dissipation	300VA
Electrical classification	Group 1
EMC classification	Group 1, Class B
Degree of protection against electrical shock	 Type B applied parts
Protection class	Class I device
Device class in accordance with Directive 93/42/EEC	Class II equipment
Mode of operation	Drive motors for chair operation: intermittent use, maximum 10% duty cycle (maximum 2 minutes ON / 18 minutes OFF). This is a permanently connected unit. Operation is not permitted in mobile vehicles.
Power cable requirement	Type: 227 IEC (RVV) 3 × 0.75 mm ² , in accordance with IEC 60227 standard.
Water supply pressure	0.20-0.40Mpa/2.0-4.0 bar
Air supply pressure	0.55-0.8 MPa/ 5.5-8.0 bar
Dental light maximum illuminance	≥25000lux
Weight	185kg
Electrical patient chair carry capacity	≥1470 N(=150 KG)
Maximum height of the Patient Chair from the floor	≥780mm±10mm
Minimum height of the Patient Chair from the floor	≤460mm±20mm
Backrest movement range	110°-180°
Headrest extension range	0-100mm
Dimensions(length *width*height)	1950 x (1200mm~1800mm) x 2000mm
Warranty	8 years parts, 1 year labor & parts

Product Specification

Utility Specifications and Requirements

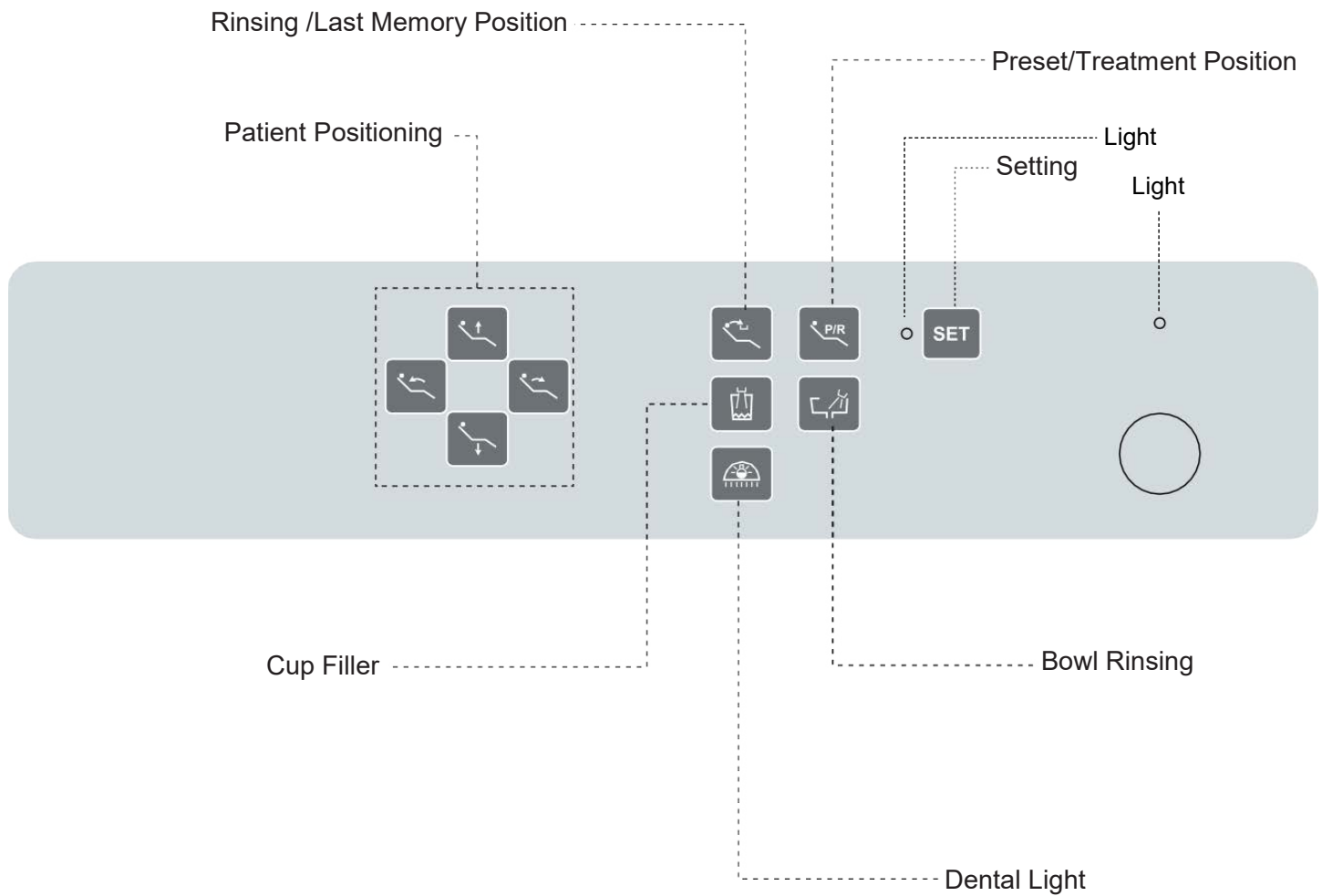
	Pressure/Vacuum	Flow	Other Requirements
Air	5.5 bar (0.55 MPa) to 8 bar (0.8 MPa)	80 L/min (without Venturi suction system) or 130 L/min (with Venturi suction system).	- Air Quality Requirements (in accordance with ANSI/ADA Specification No. 94): - Humidity limit: Dew point must not exceed -20°C at atmospheric pressure. - Particulate contamination limit: Not more than 100 particles per cubic meter for particle sizes between $1\text{ }\mu\text{m}$ and $5\text{ }\mu\text{m}$. - The air used for driving turbines, cooling the drive system, and supplying the cooling spray must be oil-free, dry, and hygienically clean. Install a steam trap (type K) to ensure proper air quality. - Air filter specification: Effective mesh size must be 40 microns.
Water	2.5 bar (0.25 MPa) to 4 bar (0.4 MPa)	10 L/min minimum	- Water quality must comply with the WHO Drinking Water Quality Guidelines. - Water supply must meet local plumbing codes, including provisions for backflow prevention. - pH range: 6.5 to 8.5 - Maximum particle size: $< 100\text{ }\mu\text{m}$ - Water hardness limit: Less than 2.14 mmol/L ($< 12^{\circ}\text{dH}$) - Water filter specification: Effective mesh size of 60 microns
Vacuum	Maximum vacuum: 0.18 bar minimum vacuum: 0.15 bar	Wet 255L/min minimum	Solids filter maximum mesh opening size is 0.8mm
	Air vacuum type does not require suction pipe	Wet 130L/min minimum	Solids filter maximum mesh opening size is 0.8mm



Explanation of Symbols Used

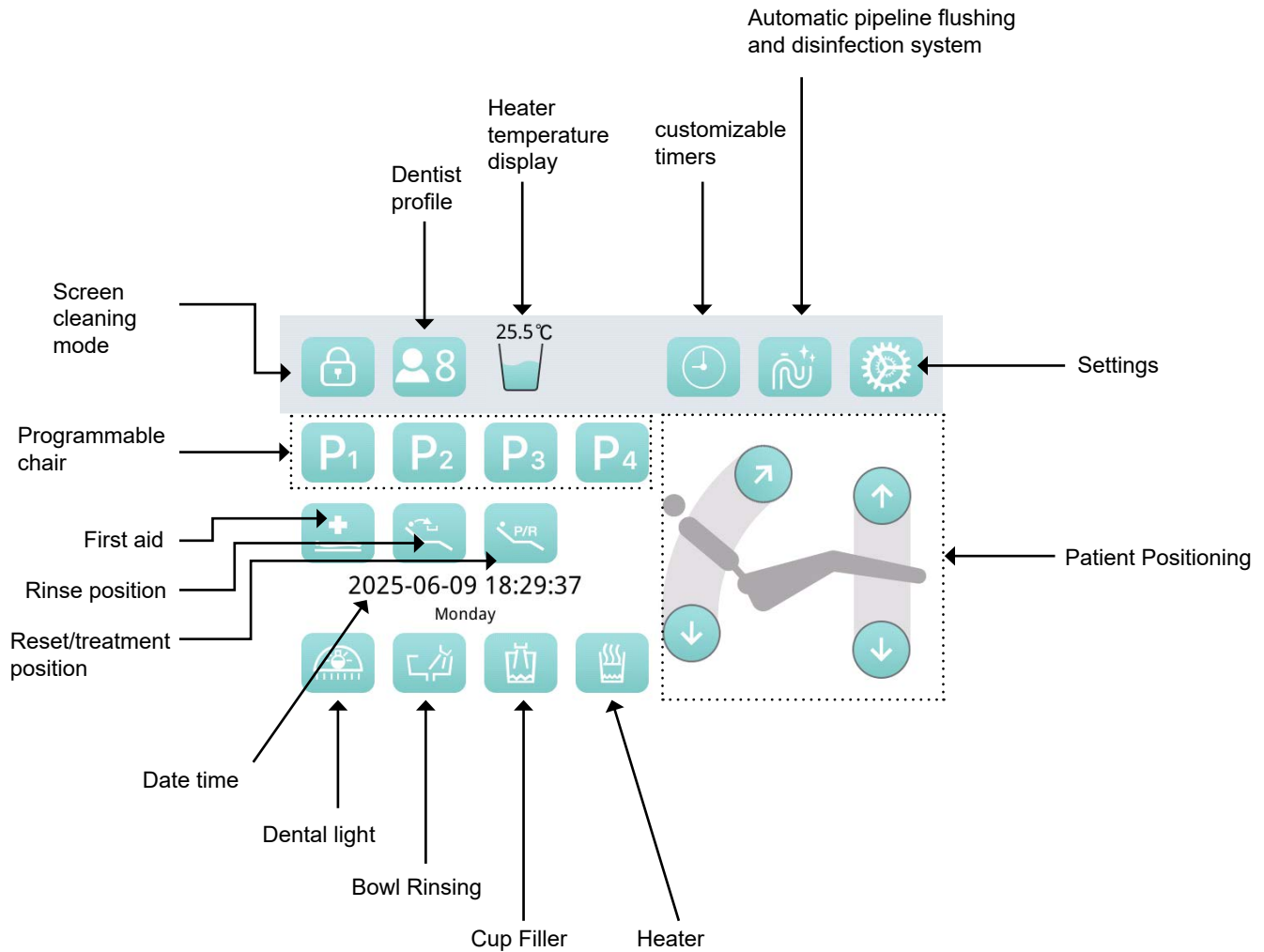
Symbols	Definition	Symbols	Definition
	ON		Fill cup
	OFF		Rinse bowl
	Attention		Dental light
	Patient chair up		Protective grounding
	Patient chair down		Clean with water
	Backrest leans forward		Can be sterilized in an autoclave at 135 °C / 275 °F
	Backrest leans backward		
	Rinsing position		Handpiece water pressure adjuster
	Reset/treatment position		Handpiece air pressure adjuster
	Serial number		Date of manufacture
	Manufacturer		Authorised representative in the European Community
	Caution: Consult accompanying documents.	IPX1	Protected against dripping water
	Type B applied part		Caution: Hot Surface

Delivery Tray Panel



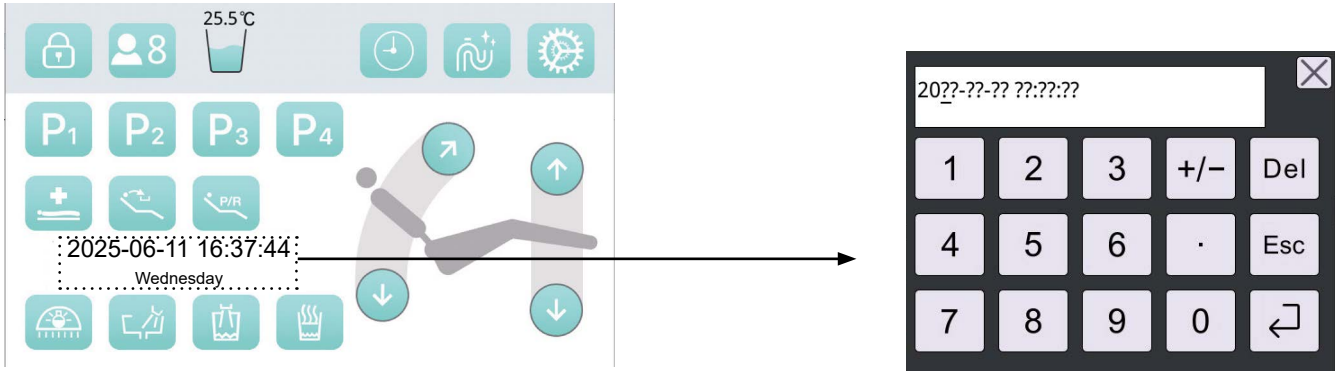
Operation Instruction

Touch Screen



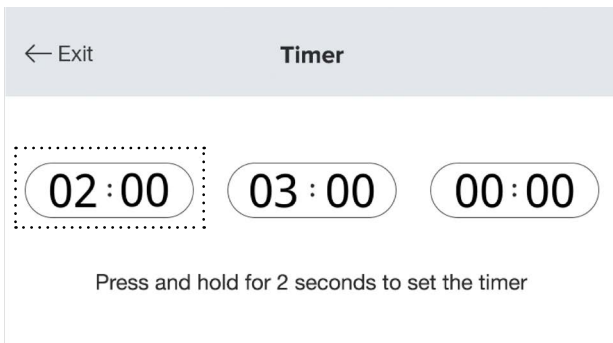
1. Date and Time setting

Select and hold the clock to adjust time settings.

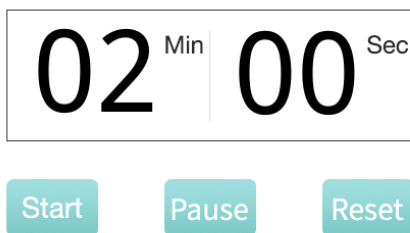


2. Customizable timers

a. Select  at the top of the screen to display the timer screen .

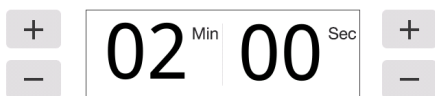


b. Select a countdown timer icon to display the timer screen and start the timer.



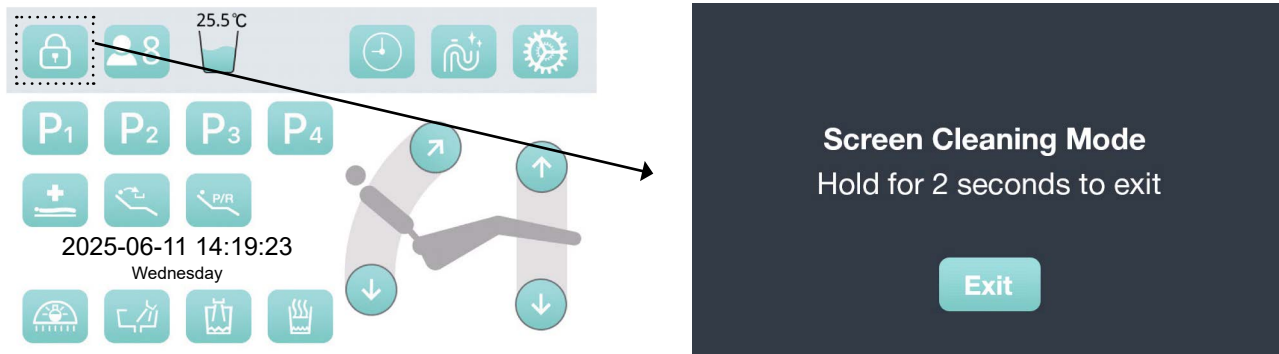
You can set a specific time:

- Select and hold a timer icon until the Timer Settings window appears.
- Select Back to save the settings and return to the home screen.



Operation Instruction

3. Screen Lock and Screen Saver

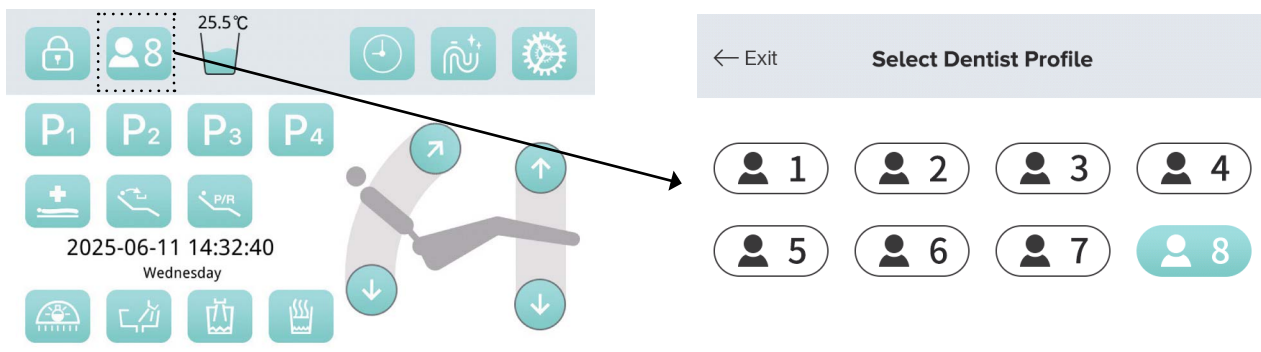


Select  at the top of the screen to activate the screen lock .

The screen lock allows you to barrier protect and clean/disinfect the touchscreen without unintentionally activating any commands.

Hold  for 2 seconds to exit.

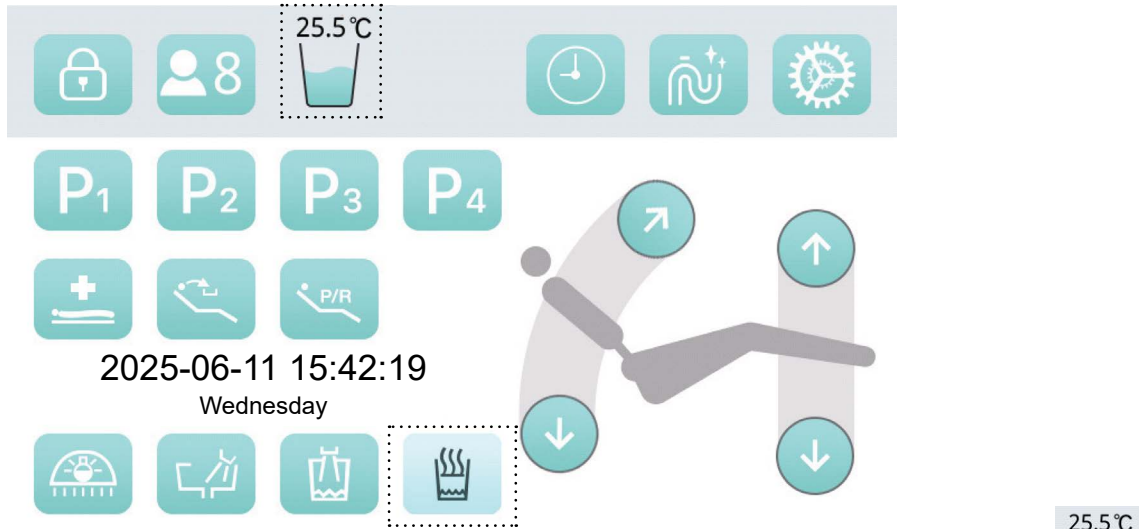
4. Dentist Profiles



When the system is powered on, it will automatically select the Dentist profile from before the system was shut down.

After selecting the Dentist Profile, most settings adjustments and personalization settings will be saved to that Dentist Profile. Some general settings are applicable to all Dentist Profiles.

5. Heater

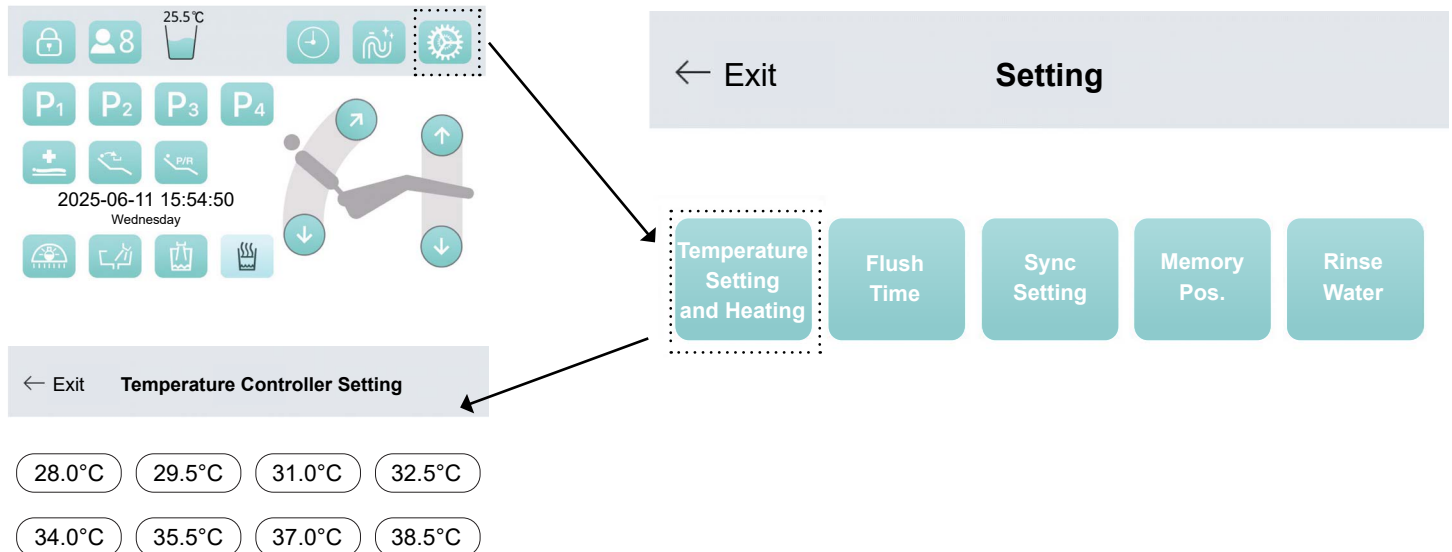


When the system is equipped with a heater and the heater is in the on position,  it displays the temperature of 150mL of water continuously flowing from the supply pipe (the actual temperature may slightly differ from the displayed temperature).



Be careful of burns

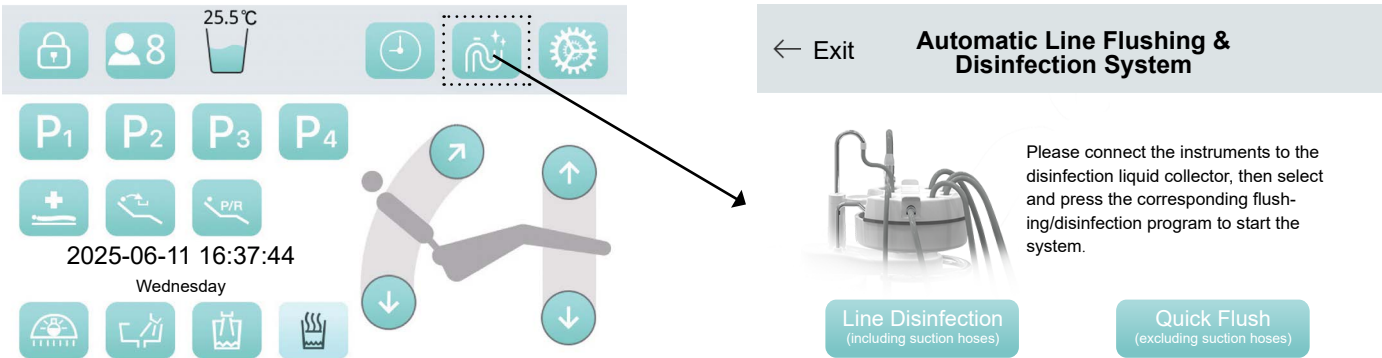
Be careful to customize the water temperature of the supply pipe.



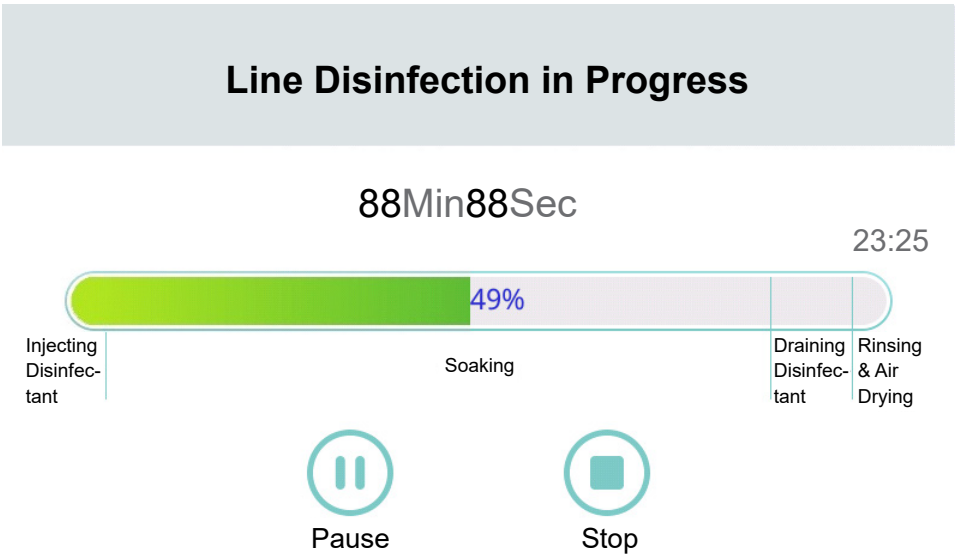
- Press the settings key to enter the settings page.
- Press the heating and temperature key to enter the temperature selection page.
- Choose the desired water temperature.
- Press 'Exit' to save and return to the previous page.

Operation Instruction

6. Automatic pipeline flushing and disinfection system (optional configuration)



- a. When the system is equipped with a pipeline automatic flushing and disinfection system, press  the button to enter the pipeline automatic flushing and disinfection preparation state.
- b. Select the automatic flushing and disinfection mode to start the system.

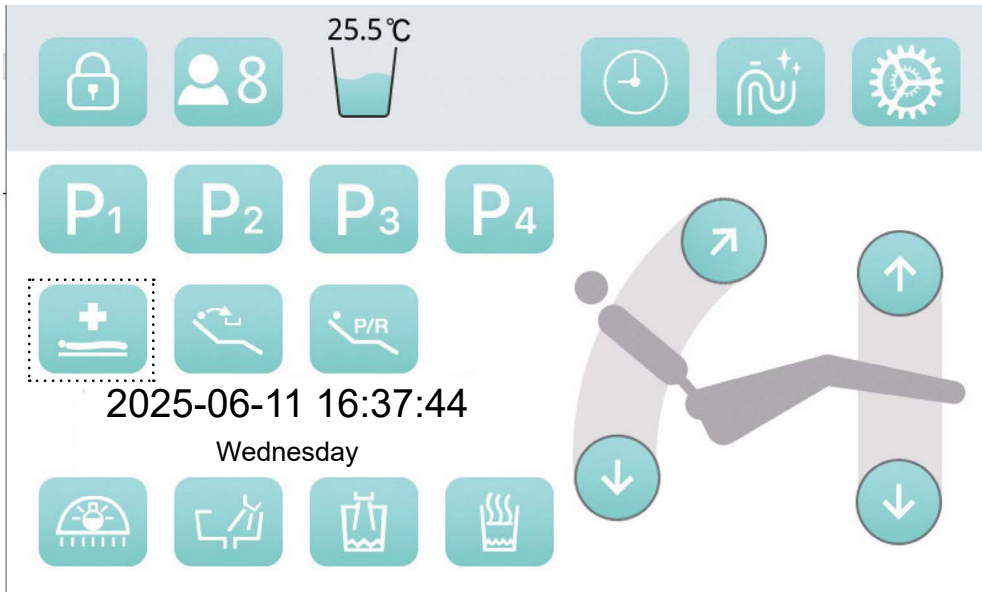


The system can be paused or stopped at any time during operation.

NOTICE

For other information about the automatic flushing and disinfection system for pipelines, refer to its separate user manual.

6. First Aid Station



Emergency position: When a patient experiences an emergency during examination or treatment and needs to lie flat for rescue, press  the button, and the dental chair will move at the fastest speed to the lowest backrest position, with the seat approximately 55cm above the ground. This allows the patient's body to lie flat while maintaining a position with the head low and the legs elevated at about -5° for anti-shock treatment.



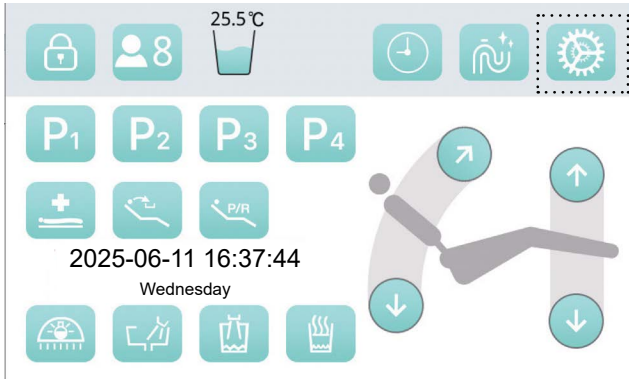
CAUTION

Ensure that the patient is positioned safely before using the manual or preset chair controls. Never leave the patient unattended while the chair is in motion. Always take extra care with small children and patients with limited mobility.

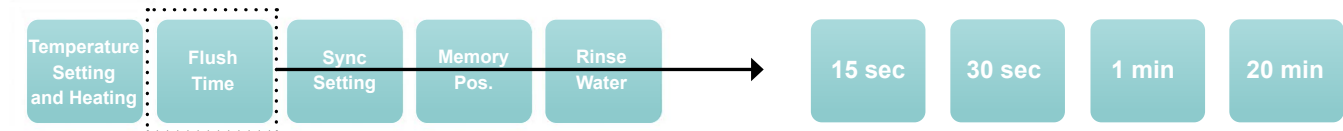
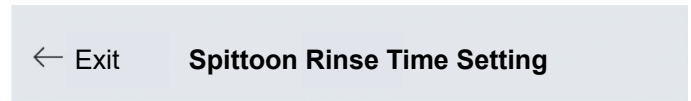
To stop the chair at any point during preset movement, select any chair positioning button on the footswitch or touch control.

Operation Instruction

7. Setting

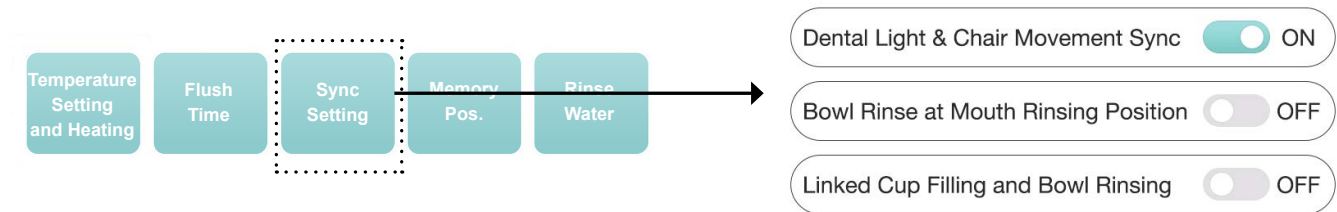
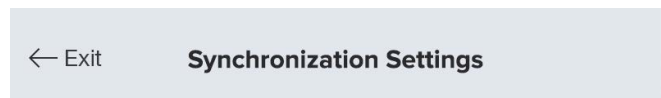


a. Set the sputum bowl flushing time



b. Select a time, press 'Exit' to save and return to the previous page.

c. Automatic synchronization function



Dental Light Auto On/Off Feature

The light turns off when you move the chair. The dental light automatically turns on once chair motion stops.

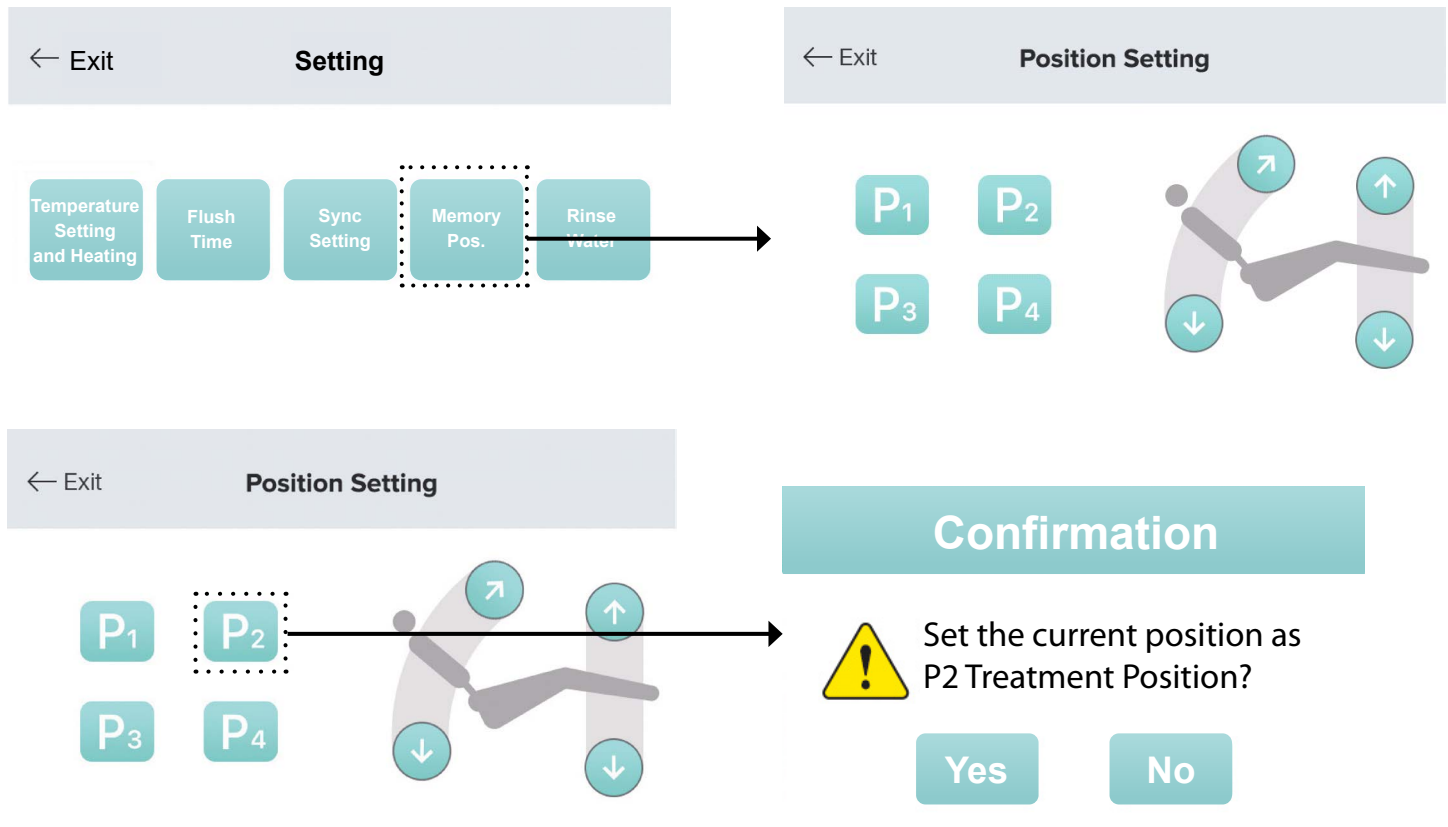
Bowl Rinse at Mouth Rinsing Position

When the dental chair is pressed to the rinsing position, the saliva ejector automatically flushes as the dental chair moves to the rinsing position.

Linked Cup Filling and Bowl Rinsing

When the water cup is activated to be filled with water, the sputum cup is automatically rinsed. To activate the above three automatic sync functions, simply touch the corresponding status icon to switch it to 'ON', and press 'Exit' to save and return to the previous page.

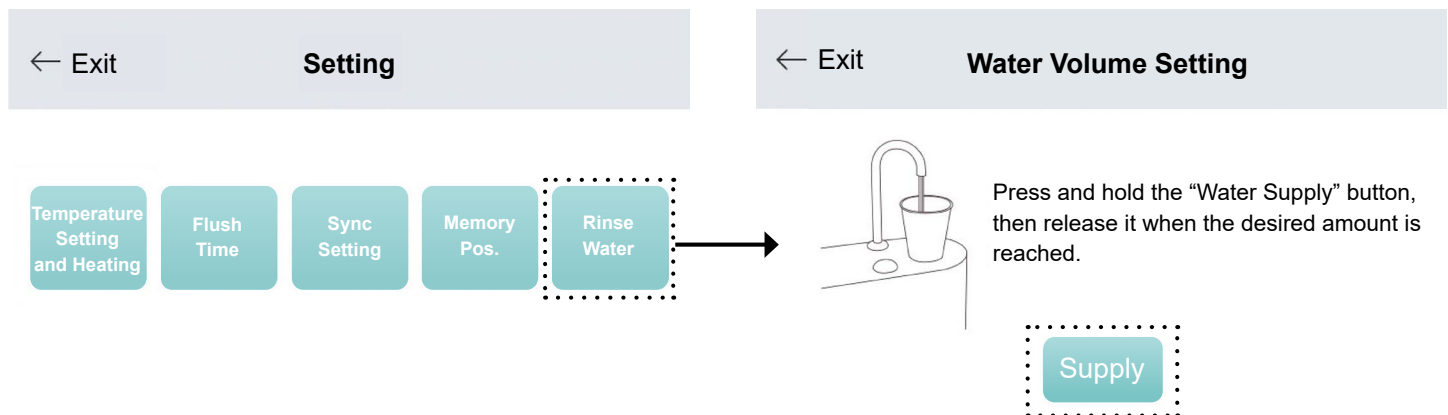
d. Programmable chair position



The chair position information is saved in the current “Dentist Profile”, and you can reuse the previous settings by selecting the “Dentist Profile” again.

- Use the manual chair controls to reposition the chair.
- Select the chair position icon you wish to define.
- Press ‘Yes’ to save.
- Repeat the above process to set other chair positions.

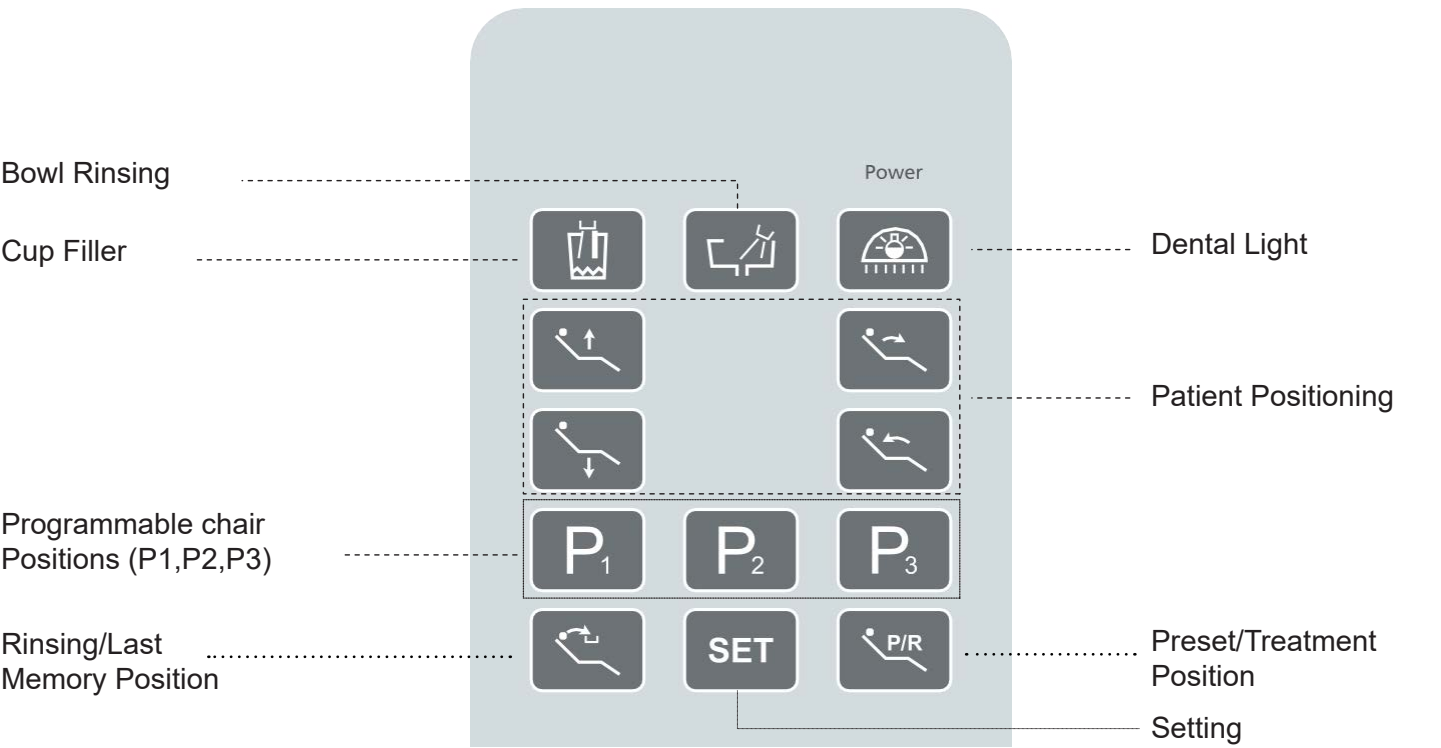
e. Water Supply Time Setting



- Press and hold the “Water Supply” button, then release it when the desired amount is reached.
- Press “Exit” to save and return to the previous page.

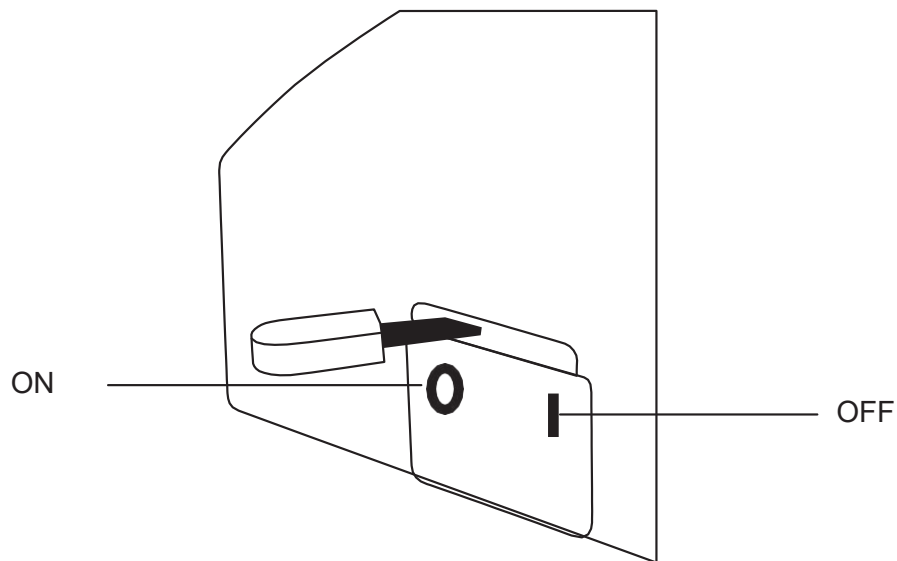
Operation Instruction

Assistant Element Panel

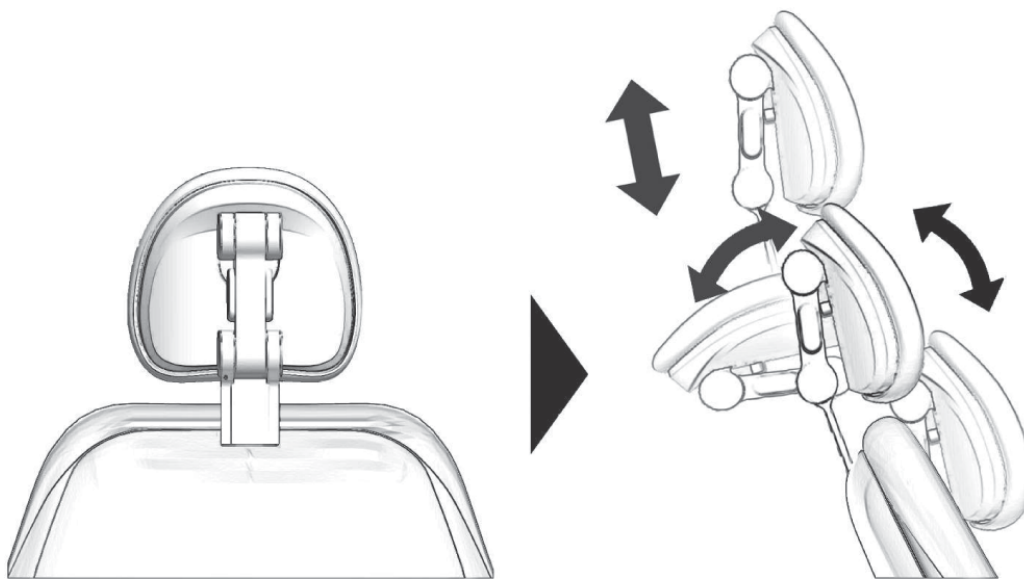


Dentist(Assistant) Element Panel	Function	Dentist(Assistant) Element Panel	Function
P₁ P₂ P₃	Programmable chair		Rinsing/Last Memory Position
	Patient Positioning		Preset/Treatment Position
	Bowl Rinsing		Dental Light
	Cup Filler		Setting

General Switch (water, air and electricity)

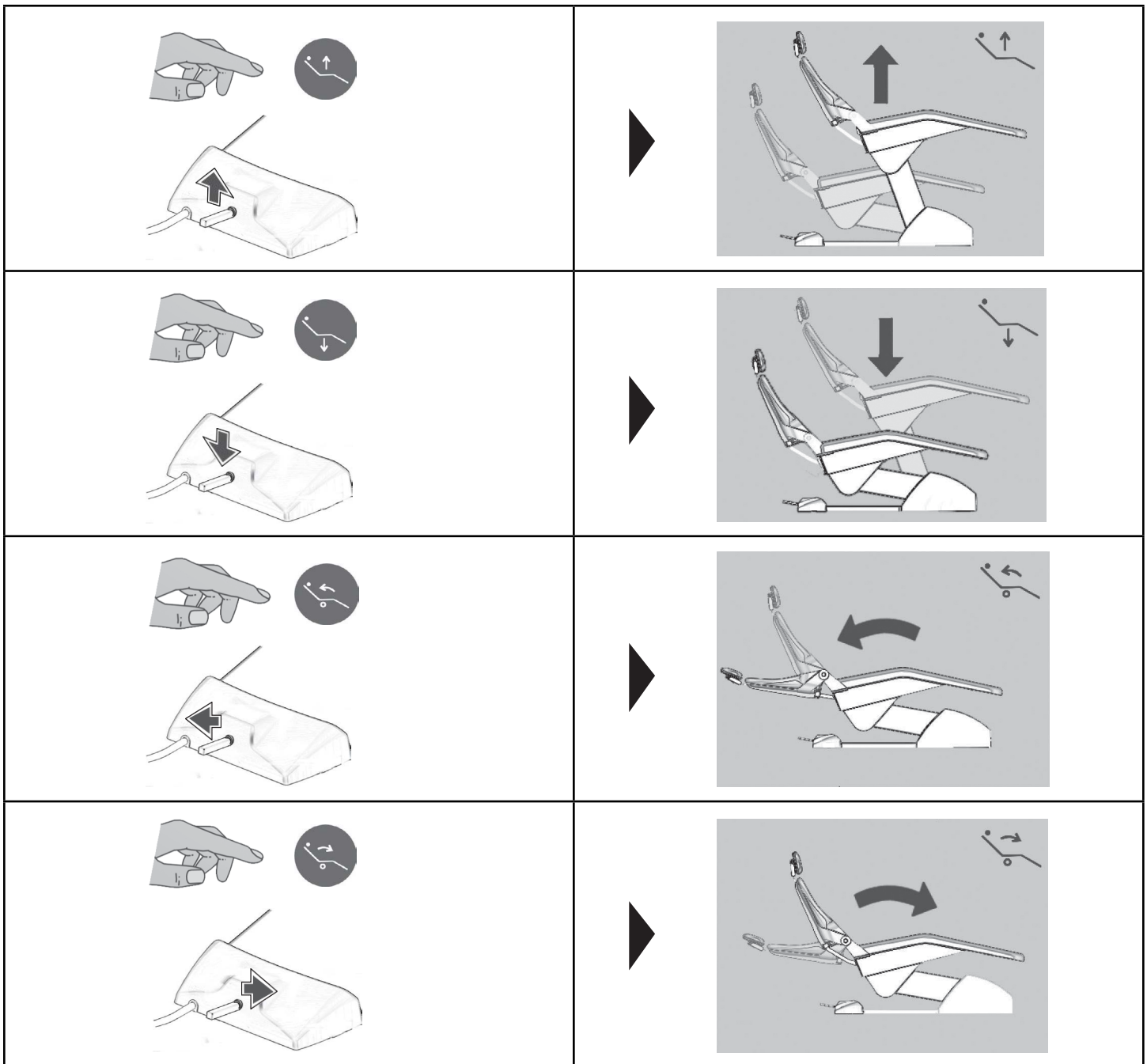


Headrest



Patient Chair

Patient Positioning

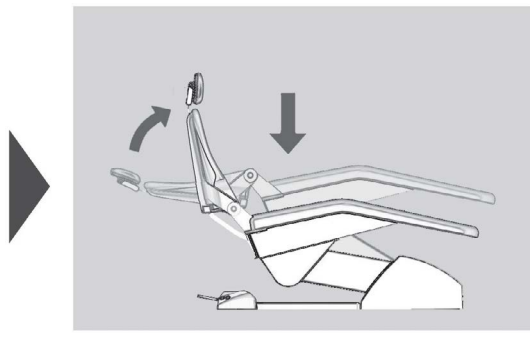
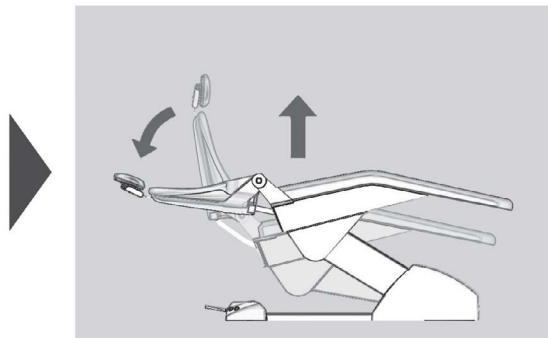
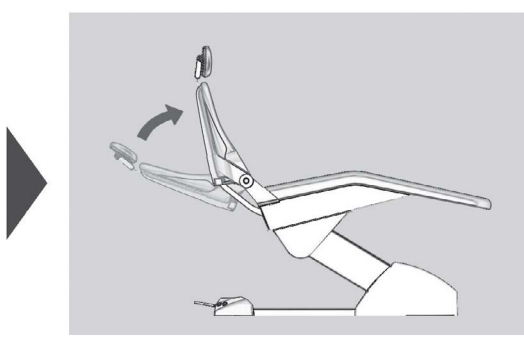
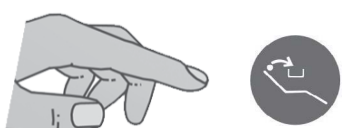
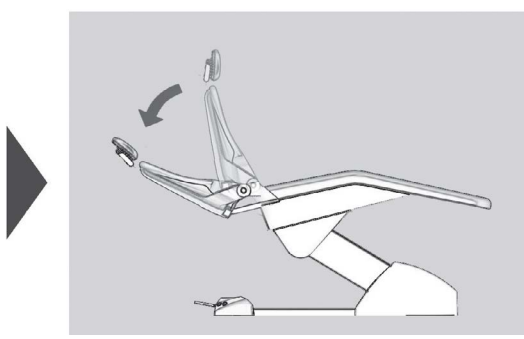


CAUTION

Ensure there are no objects nearby when operating the chair or backrest. The stool and armrest must not obstruct the chair's movement.

The maximum allowable weight for items placed on the patient seat fitting is 185 kg.

Control of Preset Positions

Reset Position 	
Treatment Position 	
Rinsing Position 	
Last Memory Position 	

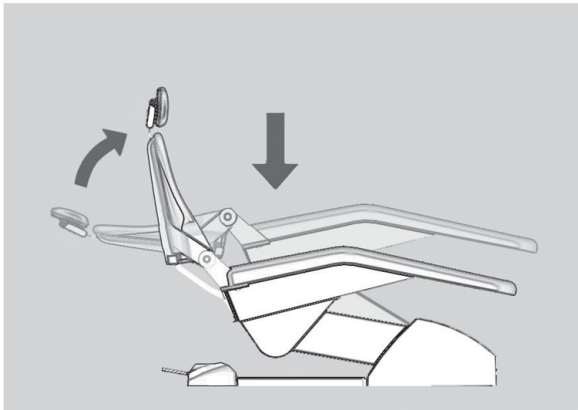
Patient Chair

Programmable chair positions



Set your desired chair position

① Adjust the chair to your desired chair position



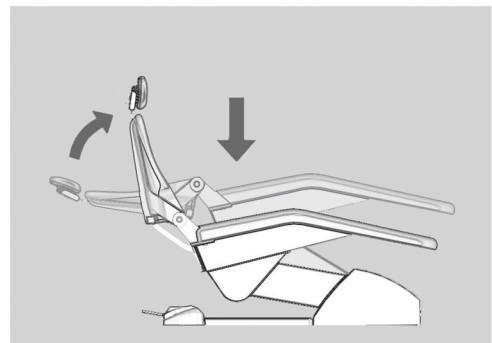
②



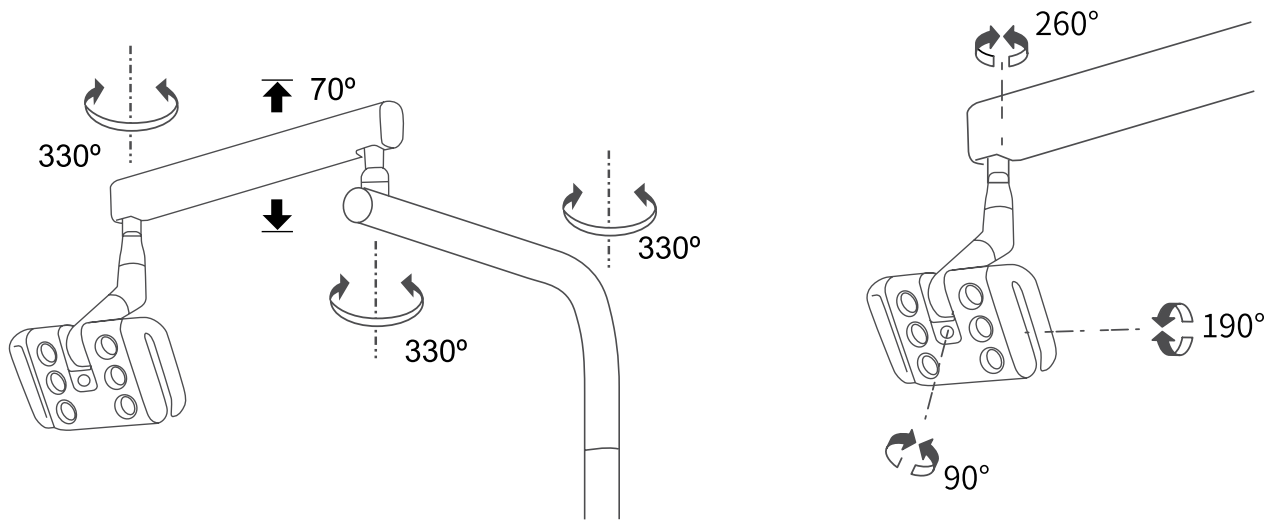
④



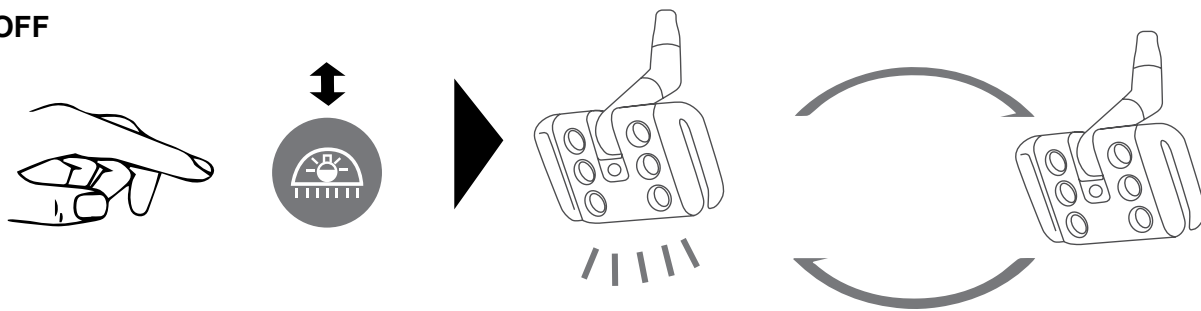
Use the programmed position



Movement

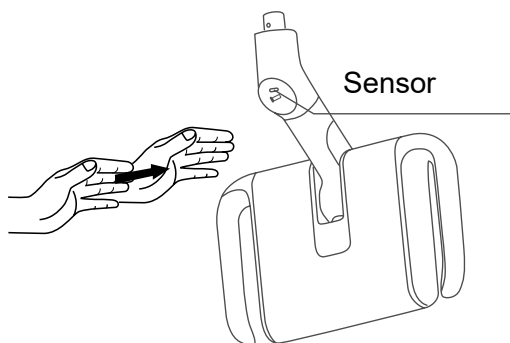


ON/OFF

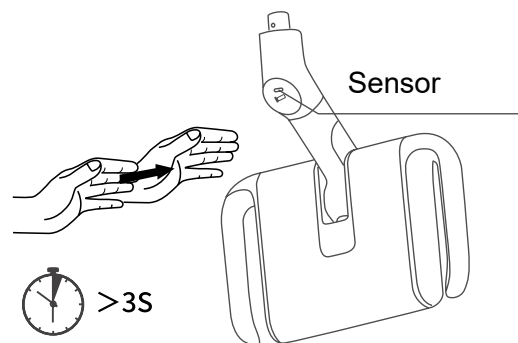


Intensity Adjustment

1. Light mode switching

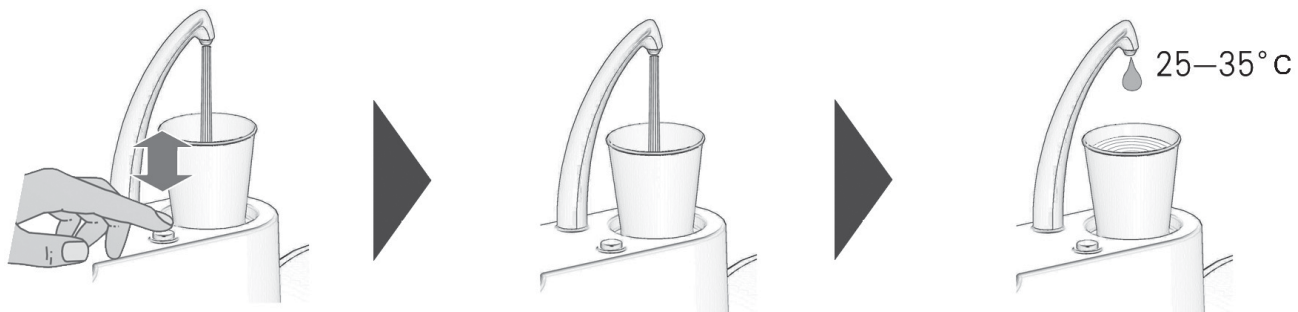


2. Dimming control

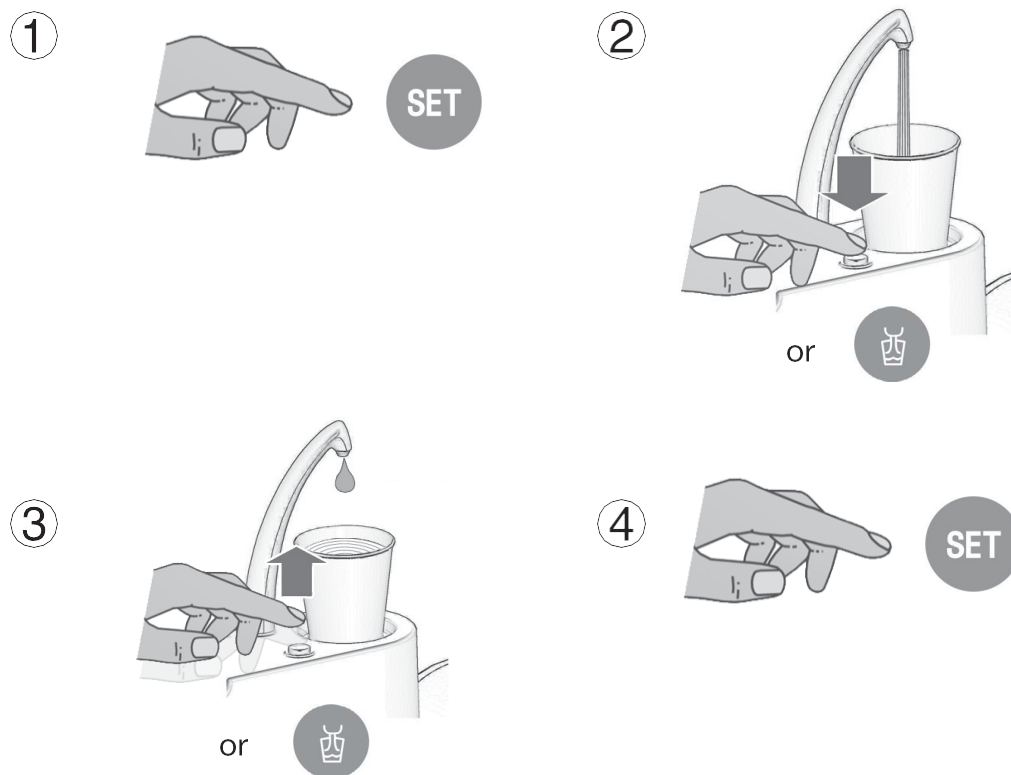


Water Unit

Cup Filler



Setting Process



This setting is retained after the power is turned off.

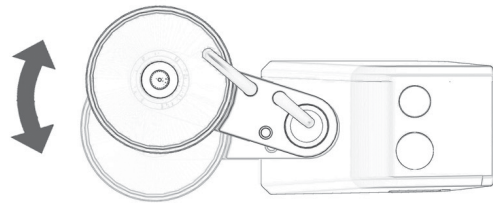


The auto volume should be no less than 100ml. Do not set the timing of cup filler when the bowl rinse is working

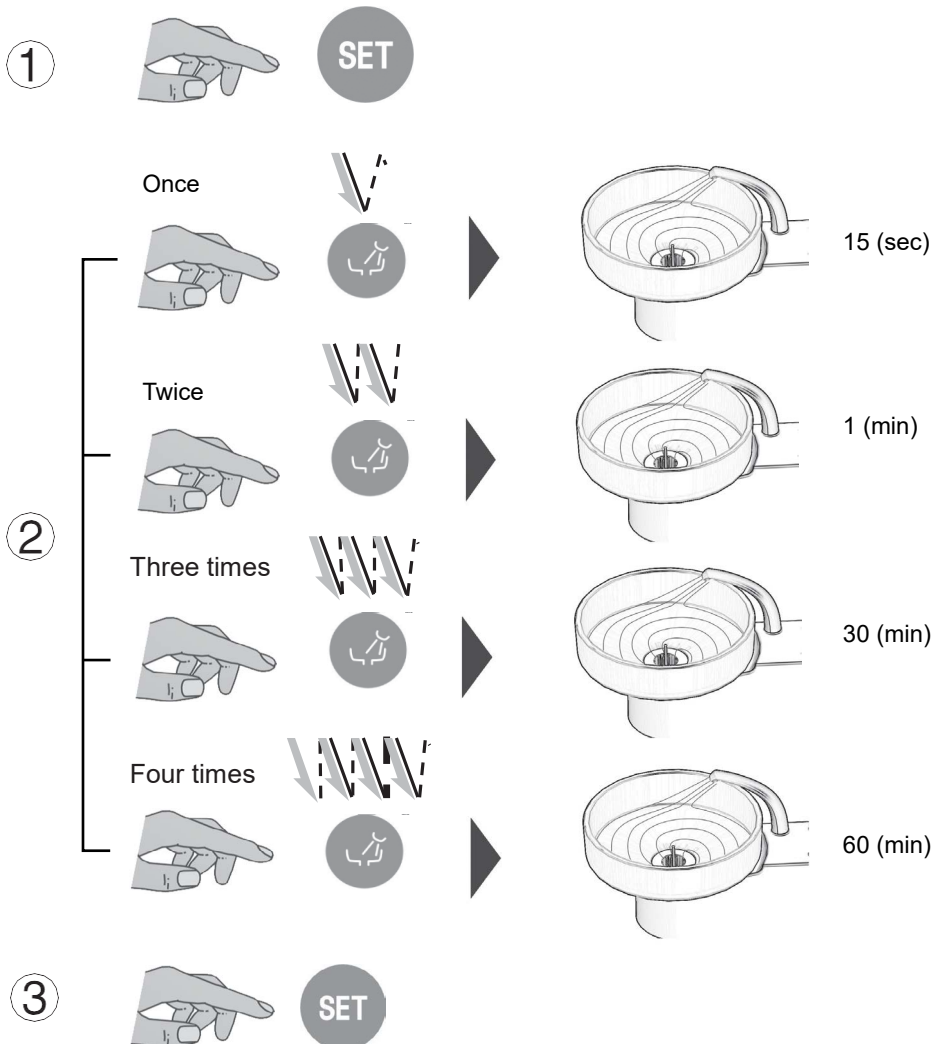
Bowl Rinsing



Swiveled Cuspidor Bowl

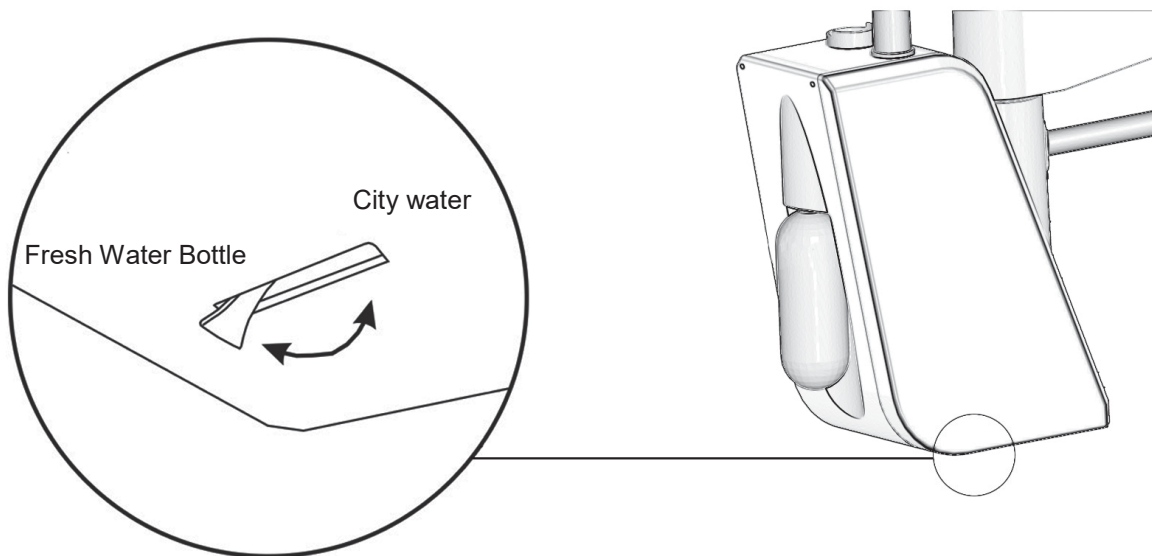


Setting Process



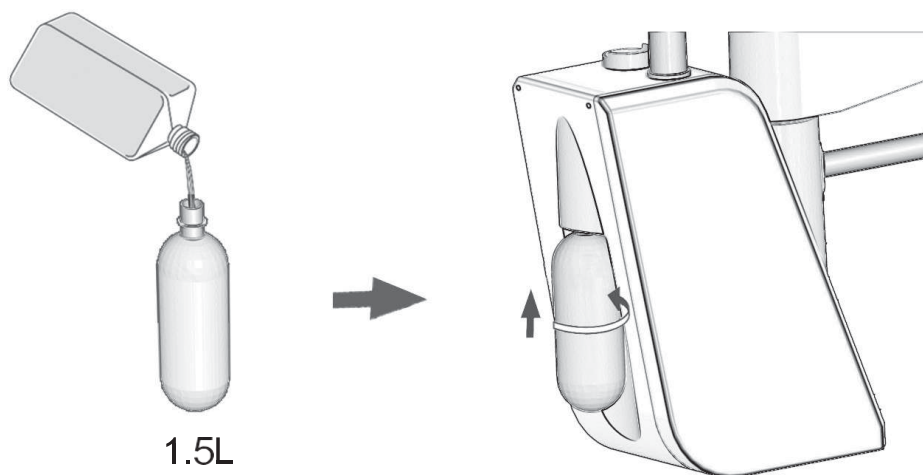
Water Unit

Switch of Water Supply Source



The user can switch between city water and distilled water

Fresh Water Bottle



Turn the water bottle counterclockwise to detach it from the unit.

Water supply

The treatment center offers two methods of water supply:

1. Fresh Water Bottle Supply

The treatment center is supplied via a fresh water bottle, which provides water to all water-carrying instruments and the cup filler.

2. City Water Supply

The treatment center is connected to the city water supply, which provides water to all water-carrying instruments and the cup filler.



CAUTION

Microorganisms can multiply in the water, potentially increasing the risk of health hazards.

- Never operate the treatment center without proper disinfectants.
- Regularly check the microbial levels in the water used by the treatment center.

Switching the Treatment Center's Water Supply Between Fresh Water Bottle and City Water

- Switch to the left: Activates fresh water bottle supply
- Switch to the right: Activates city water supply

Fresh Water Bottle Supply

If the quality of city water is unsuitable for patient treatment, the treatment center can be supplied using a fresh water bottle (for all water-carrying instruments and the cup filler).

In this case, distilled water—recommended to be mixed with disinfectant at a 100:1 ratio (e.g., 10 mL of disinfectant per 1 liter of water)—must be filled into the transparent fresh water bottle. The disinfectant helps reduce microbial growth in the water lines.



CAUTION

It is important to empty the fresh water bottle before any extended downtime of the treatment center.

NOTICE

Always fill the fresh water bottle with food-grade distilled water (containing fewer than 100 colony-forming units per mL). Do not use drinking water, such as water from beverage bottles.

Aqua purificata or aqua destillata may be used as suitable forms of distilled water.

It is recommended to replace the fresh water bottle annually.

City Water Supply (without a permanent water disinfection system)

The treatment center is supplied by city water, which feeds all water-carrying instruments and the cup filler.

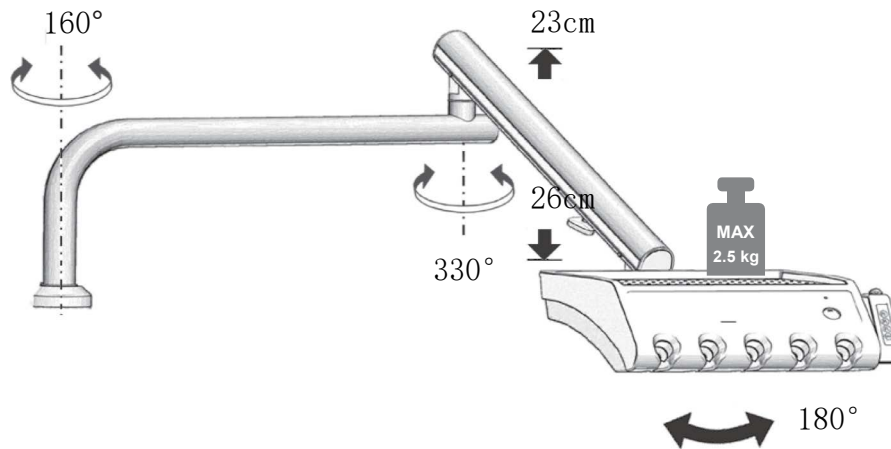


WARNING

The treatment center should only be operated with city water if the water quality is verified to meet required standards.

Dentist Element

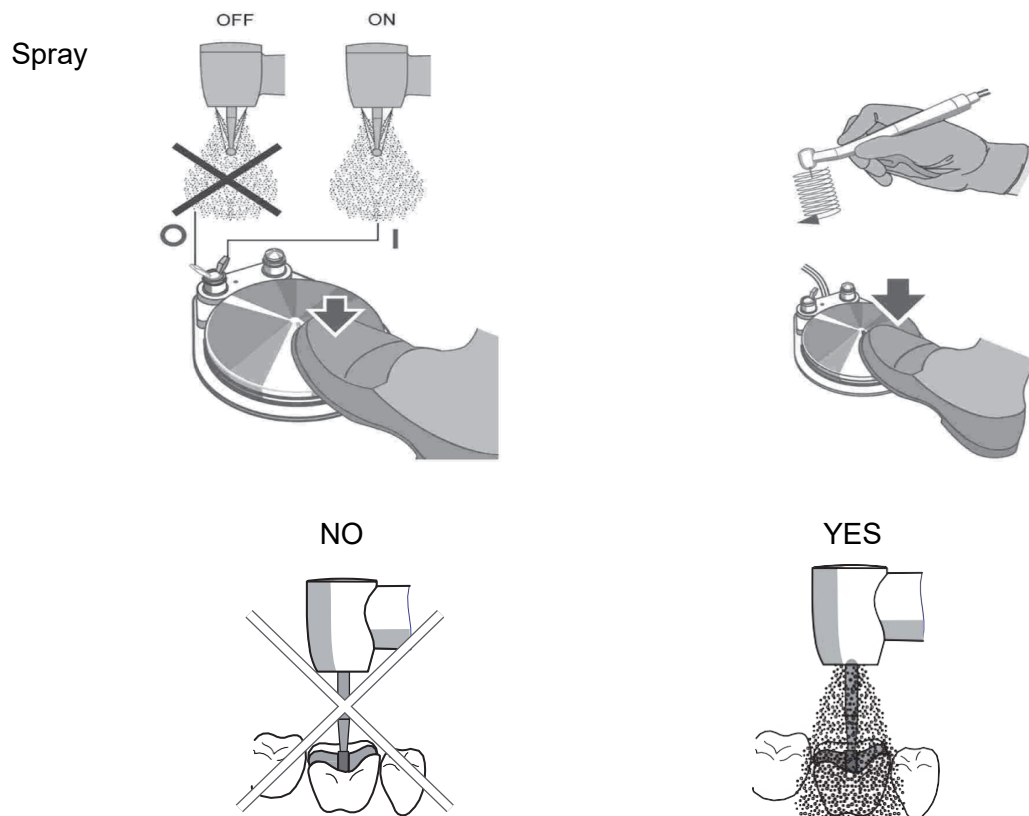
Arm Adjustment



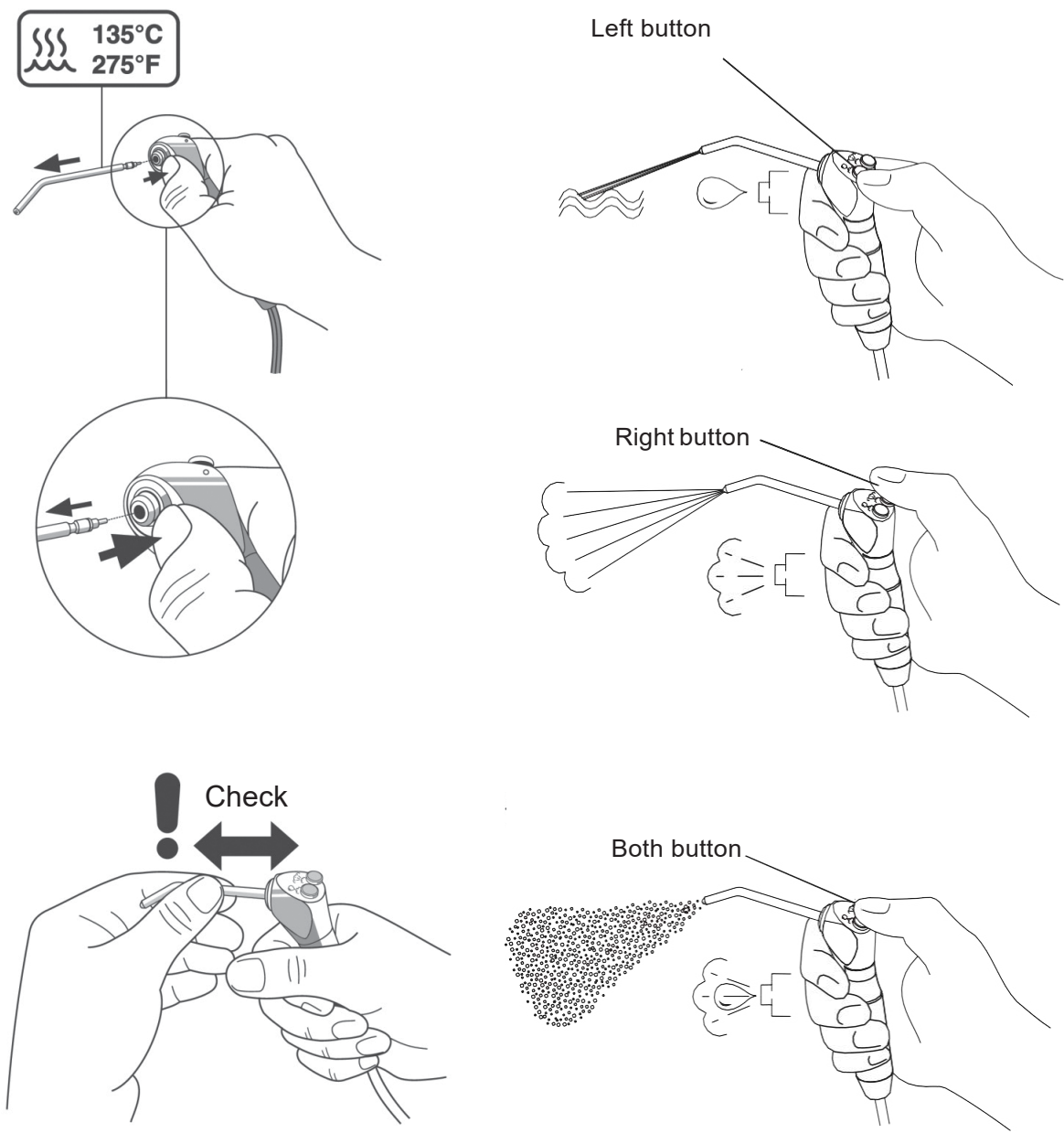
CAUTION

Placing loads greater than 2.5 Kg on the Doctor's Table can cause damage to the product.

Control of Instrument

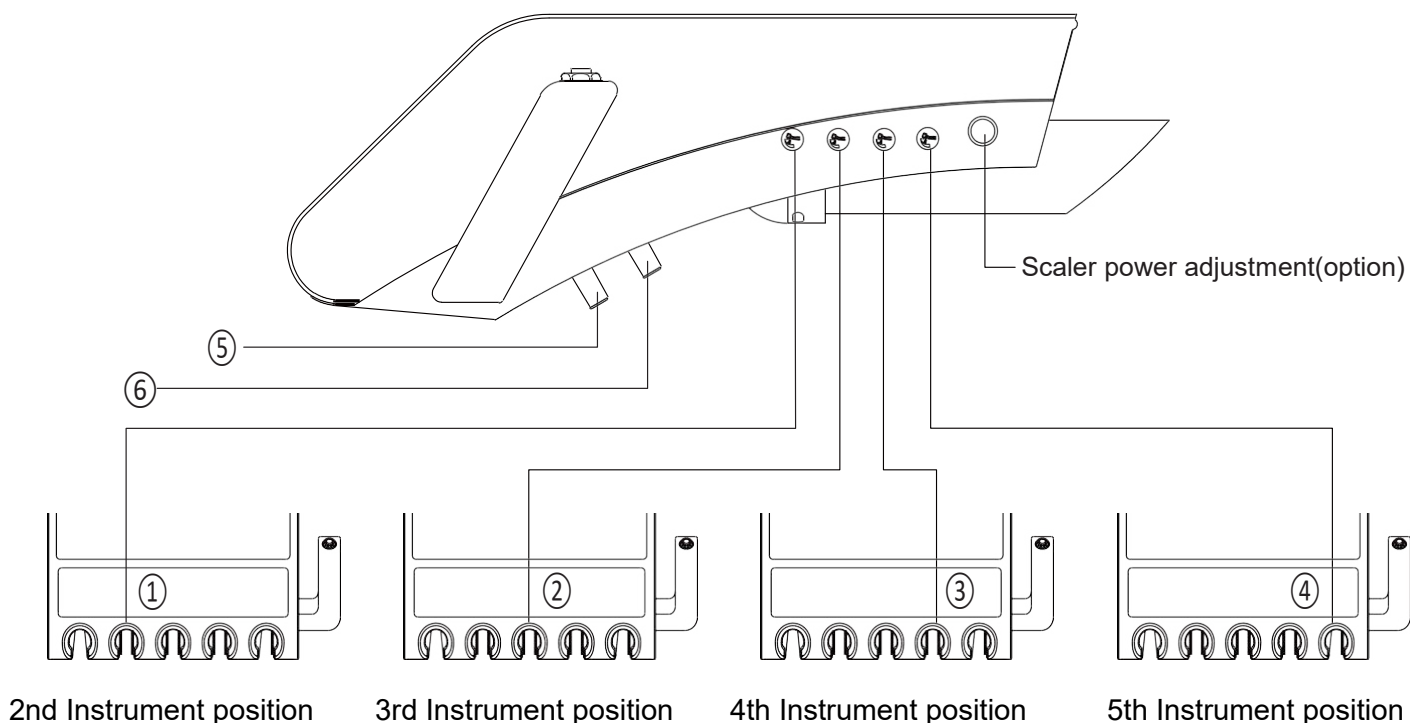


3-Way Syringe

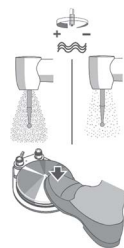


Dentist Element

Air/Water Pressure Adjustment



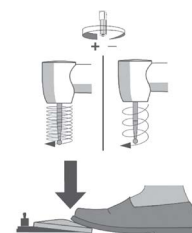
1. Spray amount adjustment of 2nd position
2. Spray amount adjustment of 3rd position
3. Spray amount adjustment of 4th position
4. Spray amount adjustment of 5th position(handpiece or scaler)



5. Spray air adjustment



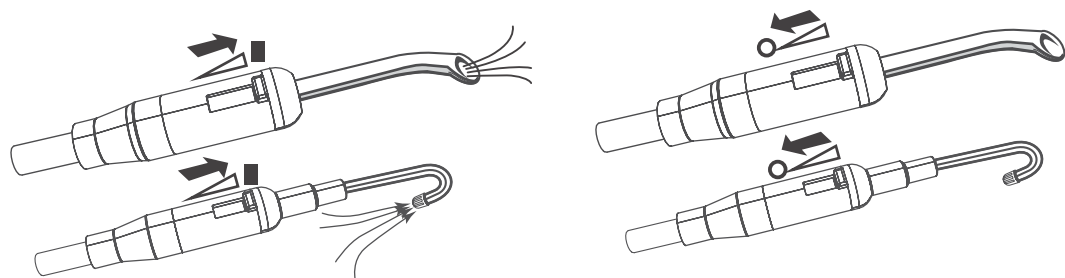
6. The drive air can be adjusted individually for each bur drive.



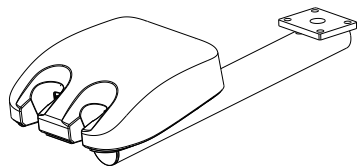
0.22-0.25MPa

0.30-0.35MPa

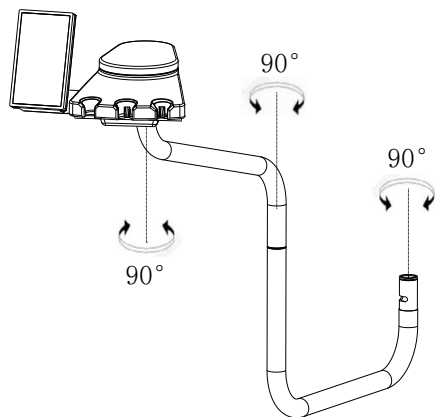
Saliva Ejector



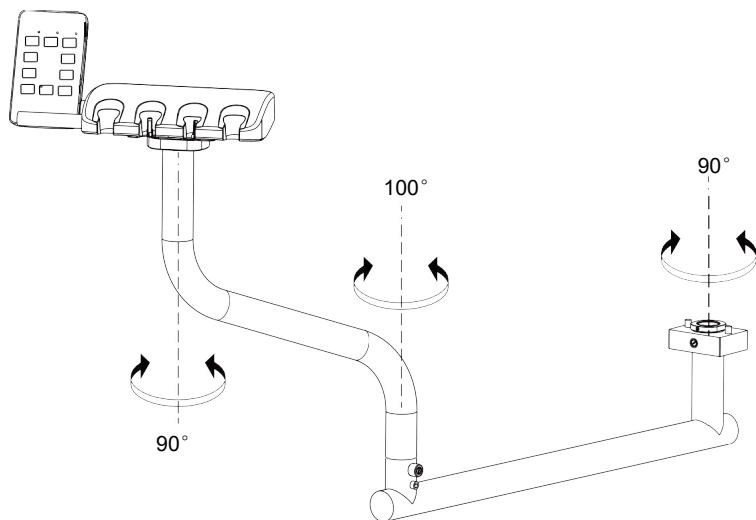
Assistant Element



2 instrument position on assistant side



3 instrument position on swiveling assistant side with control panel

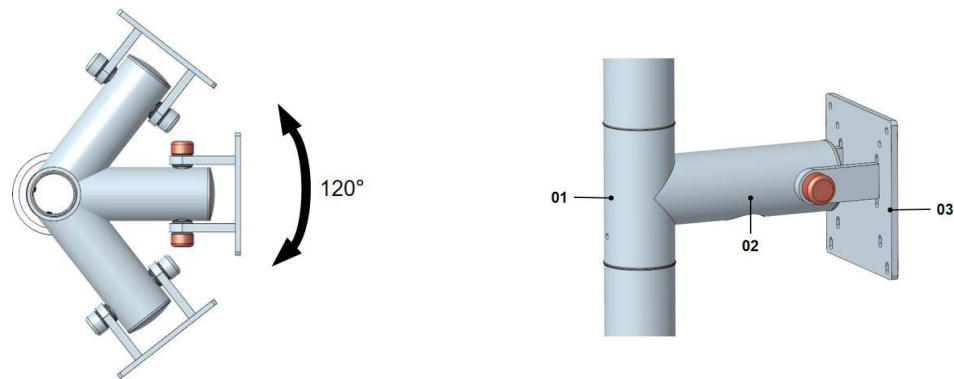


4 instrument position on premium swiveling assistant side with premium control panel

Other Accessories - Option

Monitor Arm

This component supports the monitor and allows it to be fixed in various positions as desired by the user.



No.	Name	Function and Method of Operation
1	Pole Arm	Section mounted to the chair
2	Main Arm	Monitor Support and Rotation Section
3	Monitor Bracket	Monitor Mounting Section



CAUTION

Suggested monitor size is less than 19”, with a maximum size of 21” and weight under 4 kg.

Care, Cleaning and Maintenance

Barrier Protection

Barrier protection is recommended for all applicable touch and transfer surfaces.

Touch surfaces are areas that come into contact with hands and may become points of cross-contamination during dental procedures. Transfer surfaces are areas that come into contact with instruments and other inanimate objects.

Barriers must comply with the medical device regulations specific to your region.



CAUTION

If barriers are used, always replace the barrier film after each patient.

Patient Chair

To maintain the quality of the upholstery, use barrier covers rather than relying solely on chemical disinfectants. Barriers significantly extend the life of the upholstery and help preserve its luxurious appearance and soft texture.

For routine cleaning, use a mild detergent solution with water. Surface disinfectants should be used only if the barrier has been compromised or if there is visible spatter on the upholstery.



CAUTION

Minimize the use of surface disinfectants on upholstery, as chemical exposure can lead to deterioration and reduce the lifespan of upholstered surfaces.



CAUTION

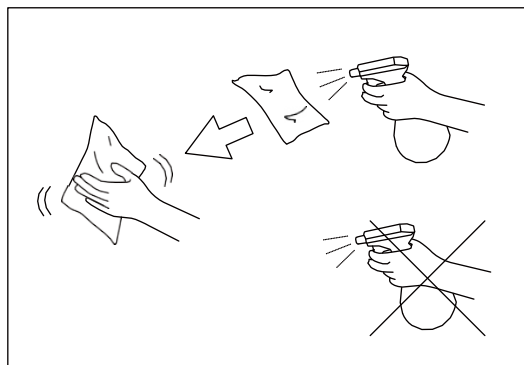
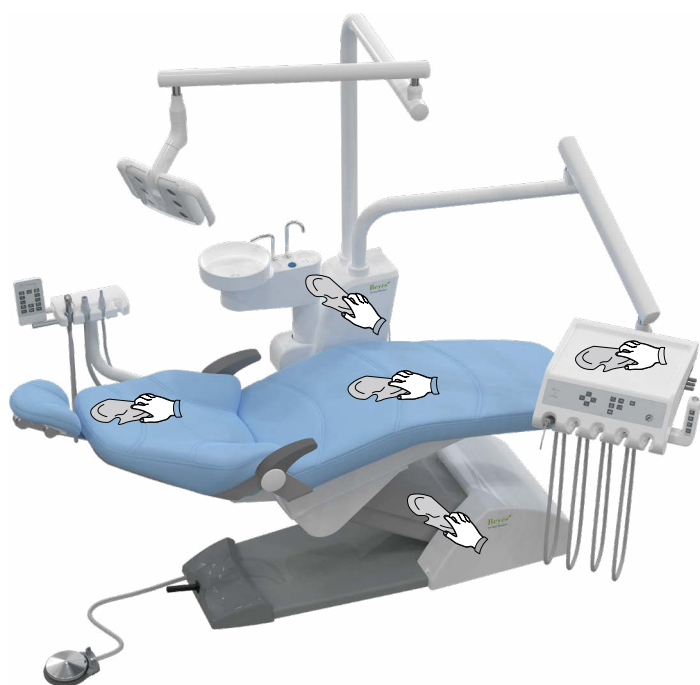
- Disposal

All waste must be recycled or disposed of in strict accordance with applicable national regulations, in a manner that ensures safety for both people and the environment.

- Disposal of Electronic and Electrical Devices

In accordance with EC Directive 2002/96 on waste electrical and electronic equipment (WEEE), this product is subject to the directive and must be disposed of accordingly within Europe.

Care, Cleaning and Maintenance



Chair Cleaning

The surface of the chair's seating area is made of synthetic leather. For routine care, use dry wiping or wipe the surface with a cloth moistened with water or a diluted neutral detergent.

- If clothing or belt dye transfers onto the synthetic leather, wipe it off immediately with a cloth moistened with diluted neutral detergent to prevent penetration caused by plasticizers.
- If the synthetic leather is cleaned with a damp cloth, ensure all moisture is thoroughly wiped off. Residual moisture may accelerate hydrolytic degradation. Do not use solvent-based bleach.
- For metallic areas, use a dry, soft cloth for cleaning. If any part becomes wet, wipe off the moisture immediately to prevent rust.
- Clean resin covers using a soft cloth moistened with water.

Chair Sterilization

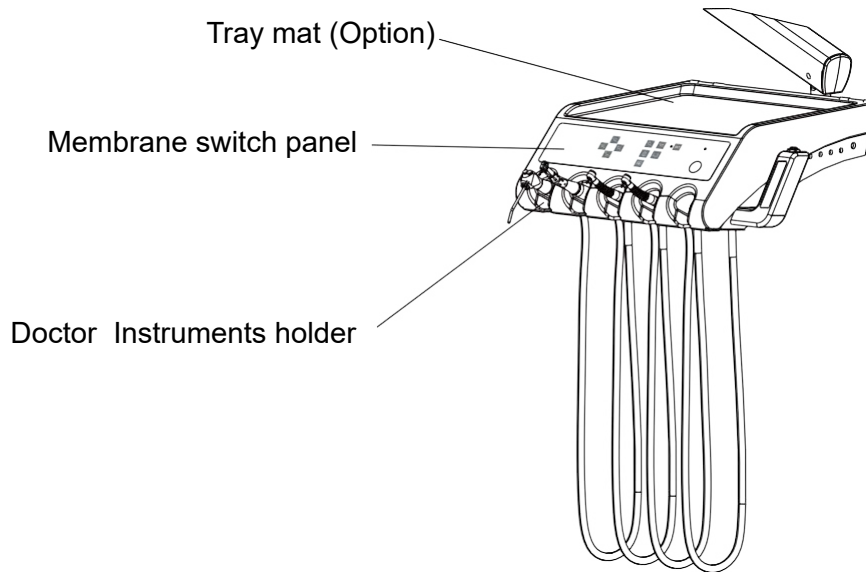
- For cleaning and surface sterilization of the chair exterior, use FD 333 or FD 366 (manufactured by Dürr) or ethanol.
- Apply the disinfectant by spraying it onto a soft cloth or paper towel—do not spray directly onto the chair.
- Do not operate the product until the sterilizing liquid has completely dried.

NOTICE

- Do not place any hard, heavy, or sharp-edged items on the chair's seating area. Doing so may damage the synthetic leather.
- When cleaning the resin cover, do not use solvents or detergents containing abrasive agents. Also, avoid using any chemicals not specified for this unit, as they may cause the resin cover to crack. Use a soft cloth moistened with water or a diluted neutral detergent.
- Never use strongly acidic or alkaline pipe detergents, or materials containing metal, as these may cause corrosion.

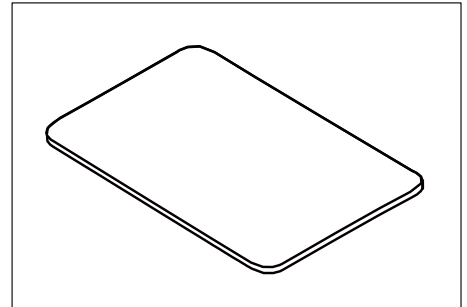
Care, Cleaning and Maintenance

Dentist element



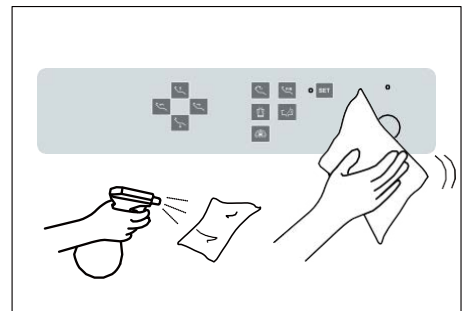
Tray mat (Optional)

- The tray mat can be detached and sterilized in an autoclave: 20 minutes at 121 °C or 12 minutes at 132 °C. Be sure to remove any residues and rinse thoroughly with running water before sterilization.
- Always place the tray mat in a sterilization pouch before autoclaving.
- The tray mat is made of resin and may degrade over time with repeated sterilization. The maximum allowable autoclave sterilization frequency is 250 cycles.
- Discoloration may occur after autoclave sterilization; this does not affect the performance of the tray mat.



Membrane switch panel

- For cleaning and disinfection, use FD 333 or FD 366 (manufactured by Dürr) or ethanol. Spray the solution onto a soft cloth—do not spray directly onto the panel.
- After cleaning, wipe the membrane switch panel with a dry, soft cloth to remove any remaining moisture and allow it to dry completely.



CAUTION

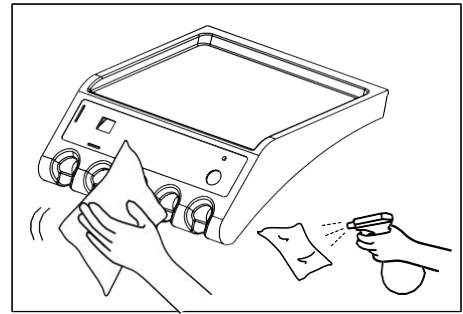
If the surface of the membrane switch panel is cleaned with a disinfectant or similar agent, ensure that all chemical residue is thoroughly wiped away. Penetration of chemicals to the back of the membrane may cause switch malfunction.

Care, Cleaning and Maintenance

Dentist element

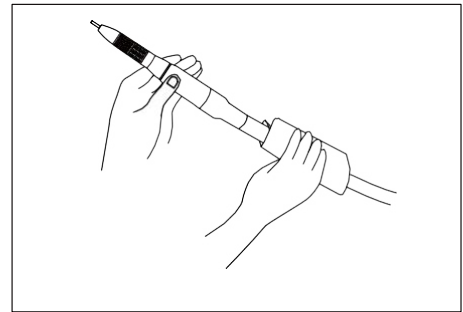
Doctor Instrument Holder

- For cleaning and disinfection, use FD 333 or FD 366 (manufactured by Dür) or ethanol. Spray the solution onto a soft cloth—do not spray directly onto the holder.
- After cleaning and disinfection, wipe the instrument holder with a dry, soft cloth to ensure all moisture is removed and the surface is completely dry.



Handpiece Hose

- Carefully wipe the handpiece hose with a soft cloth moistened with alcohol or a similar disinfectant to remove any debris or contamination.

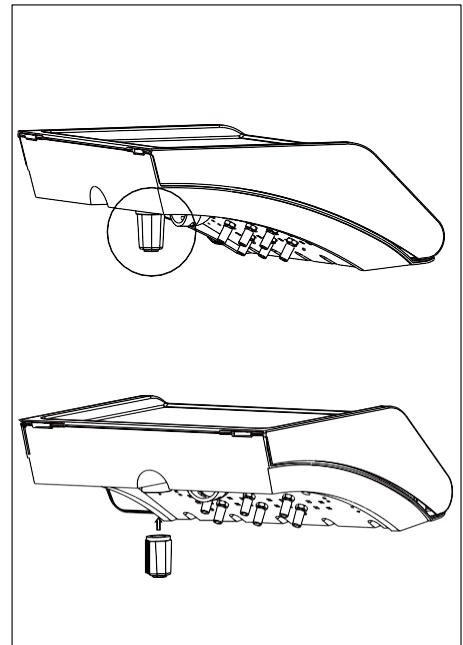


NOTICE

Follow the care instructions provided in the handpiece instruction manuals.

Oil Mist Separator (Optional)

- The oil mist separator collects oil contained in the exhaust air from the handpieces.
- Dispose of the collected oil when it reaches the red line on the oil reservoir.
- To remove the oil reservoir, rotate it counterclockwise.



Care, Cleaning and Maintenance

Water Unit

Dental Unit Waterline

Regular monitoring of water quality in dental treatment units is essential.

The testing frequency should be based on your water quality indicators and test results. Initially, perform testing once per month.

If all treatment rooms meet the clinic's water quality standards for three consecutive months, you may reduce the testing frequency to once every three months.

In addition to conducting laboratory tests, you may also use a Total Count Tester as a simplified method for water quality testing. Follow the steps below:

1. Prepare the sampling outlets

Remove any dental handpieces, accessories, or motors. Wipe the pipeline outlets (e.g., spray gun nozzle, dental handpiece hose terminals) with an alcohol pad to eliminate external contaminants.

2. Collect water samples

Collect equal amounts of water from each sampling outlet.

For example, if there are two dental handpiece hoses and two spray outlets, collect approximately one-quarter of the total sample volume from each outlet. Follow the monitor manufacturer's instructions for proper collection and handling.

3. Store and process the samples

Follow the monitor instructions for proper storage and processing of the collected samples.

The results obtained from the monitoring steps will help you assess the water quality in each treatment room of the dental unit. These results can also guide you in determining the next steps for maintenance or disinfection, such as continuing with routine maintenance or performing a shock treatment.

Dental unit water quality guidelines and requirements may vary by region and are typically measured in colony-forming units (cfu/ml). A threshold of 200 cfu/ml is recommended as an action level for water quality.

You may also need to follow local guidelines or requirements, which may set additional action thresholds for clinics. If the test results exceed the action threshold, it is recommended to clean the waterline.

Below is the procedure recommended by Beyes for dental unit waterline cleaning and maintenance.

* Step 1: Add Waterline Cleaner

1. Check the water bottle and water supply switch (set to the "right side" for City Water Supply).
2. Detach the water bottle from the unit and fill it with 1.2L of Waterline Cleaner, then reattach the bottle to the unit.
3. Set the water supply switch to the left side for bottle water.
4. Remove the handpiece, scaler, and other accessories from the hose.
5. Activate the handpiece hoses and air/water syringes until the Waterline Cleaner exits the outlets.
6. Set the water supply switch back to the "right side" for City Water Supply.
7. Turn off the dental unit. Allow the Waterline Cleaner to treat the waterlines for at least 12 hours before proceeding to Step 2.

* Step 2: Flush Dental Unit Waterlines

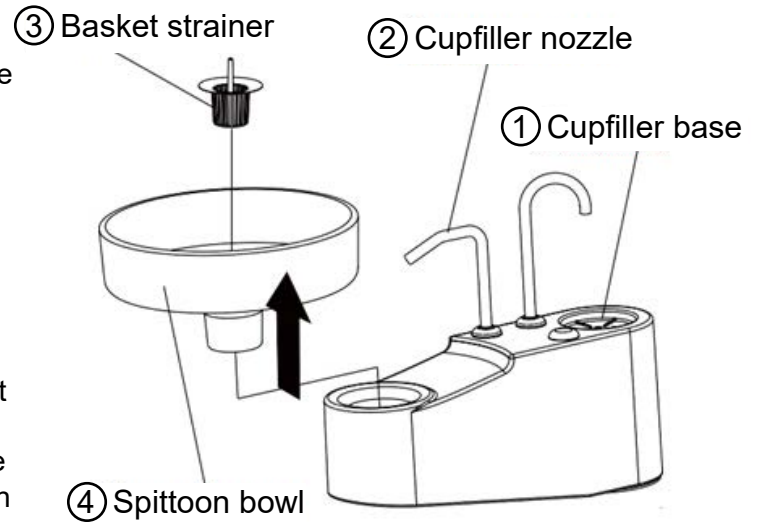
1. Turn on the dental unit. Flush the waterlines with water for a sufficient amount of time to remove any excess Waterline Cleaner.
2. Detach the spittoon and water bottle to clean them.

Care, Cleaning and Maintenance

Water Unit

Cleaning the Spittoon Bowl

- Use MD 550, manufactured by Dürr, to clean the spittoon bowl. Detach the spittoon bowl following the steps below:
 1. Swing the cup filler nozzle outward.
 2. Remove the three drain caps and pull out the basket strainer.
 3. Pull out the spittoon bowl. After cleaning, reassemble all parts by following the reverse procedure.
- Wash the cup filler base, drain caps, and basket strainer with running water.
- The basket strainer in the spittoon bowl is prone to clogging. Clean it thoroughly at the end of each workday.



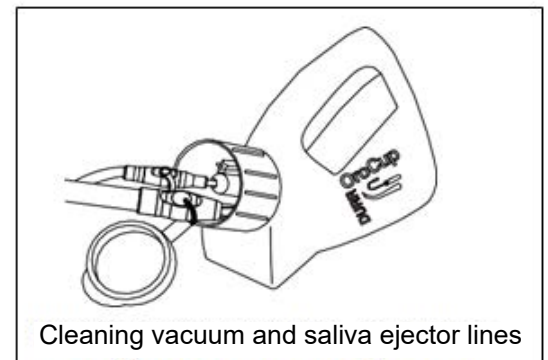
CAUTION

- The spittoon bowl is made of glass and may break if impacted. Do not wash it with hot water, as this may cause it to break.
- Never use sandpaper, metal scrub brushes, or abrasive cleaning agents to clean the spittoon bowl.
- Avoid using strongly acidic cleaning agents or alkaline pipe cleaners, as these may cause corrosion of metal parts.
- Always turn off the main switch when attaching or detaching the spittoon bowl or cup filler tray. Otherwise, contact with hands or objects during attachment or detachment may cause water to discharge, including bowl rinse water, which can lead to rusting of metal components.
- Be careful not to apply unnecessary force when cleaning the spittoon bowl. Take care to avoid hitting or dropping it.

Cleaning of Vacuum / Saliva Ejector Lines

The suction unit comes into contact with secretions, saliva, and blood, all of which may contain bacteria. Be sure to clean and sterilize it at the end of each workday to ensure proper hygiene.

Recommended Cleaner: Orotol Plus, manufactured by Dürr.



CAUTION

Do not use strongly acidic cleaning agents or alkaline pipe cleaners, as they may cause corrosion of metal components.

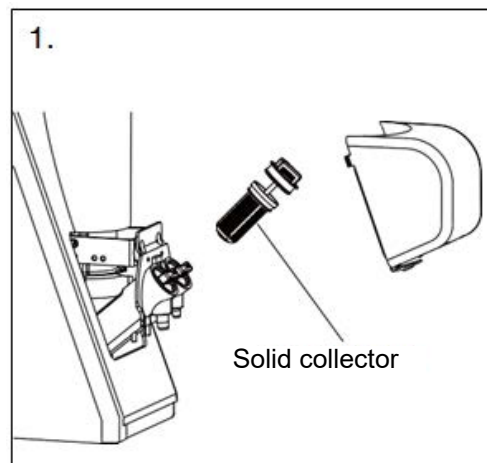
Care, Cleaning and Maintenance

Water Unit

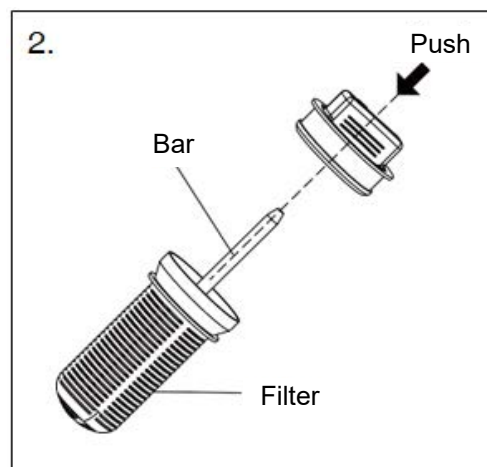
Cleaning of the solid's collector

Detach and wash the filter in the solid's collector of the Cuspidor unit at the end of each work day. If sucked substances are collected, the suction force of the vacuum is reduced.

1. Pull out and detach the filter in the solid's collector from cuspidor unit.



To remove the filter from the solid's collector, push the bar from the front side of the collector and clean the filter with running water.



CAUTION

- Clean the filter carefully with running water. Do not use a brush to clean the filter, as this may cause damage.

NOTICE

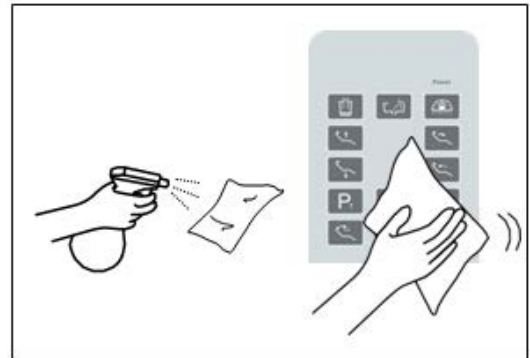
After daily operation, run two cups of clean water through the handpieces to clean the inside.

Care, Cleaning and Maintenance

Assistant Element

Assistant Membrane Switch Panel

- For cleaning and sterilization, use FD 333 or FD 366 (manufactured by Dürr) or ethanol. Spray the solution onto a soft cloth—do not spray directly onto the panel.
- After cleaning, wipe the panel with a dry, soft cloth to ensure it is completely dry.

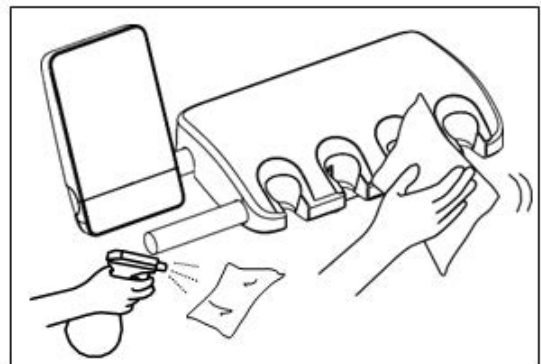


CAUTION

In case the surface of the membrane switch panel is wiped with disinfectant agent or the like, fully wipe away the chemical. Membrane switch malfunction may arise if the chemical penetrates to the back face of the membrane.

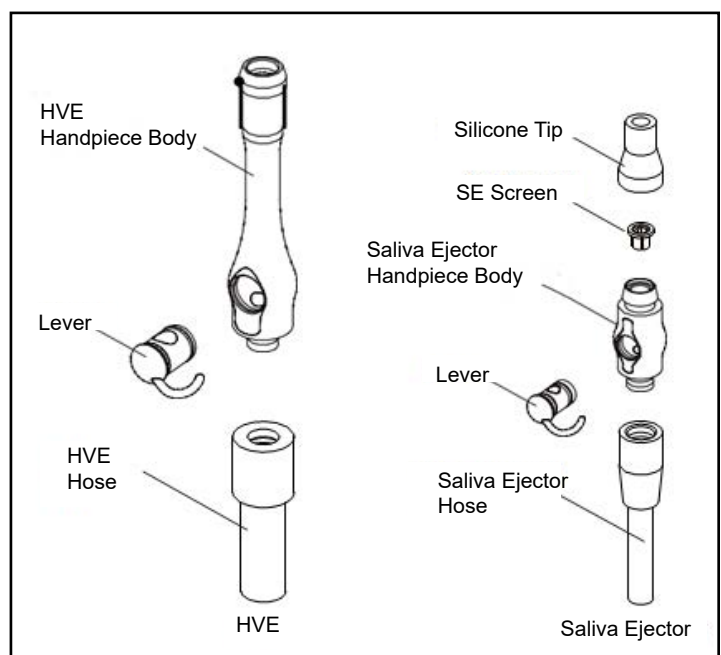
Assistant Instrument holder

If the surface of the membrane switch panel is cleaned with a disinfectant or similar agent, ensure that all chemical residue is thoroughly wiped away. If the chemical penetrates to the back of the membrane, it may cause a malfunction.



Cleaning of Vacuum Handpiece / Saliva Ejector Handpiece

1. Remove the HVE (High-Volume Evacuator) from the hose and clean it thoroughly.
 2. After daily operation, run two cups of clean water through the suction line to clean the interior.
- Note: After cleaning the HVE and Saliva Ejector, lightly apply white Vaseline to the rubber O-rings to prevent damage.
- Use disposable saliva ejector tips.



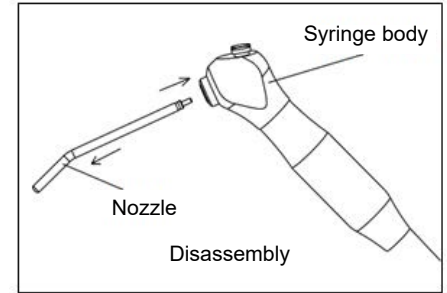
Care, Cleaning and Maintenance

Air Water Syringe

Cleaning of syringe

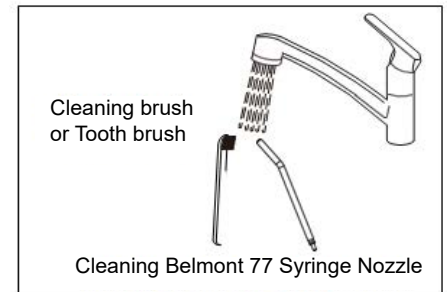
- Disassembly

Remove the nozzle from the syringe by turning it in the direction indicated by "A."



Cleaning by Hand

1. Wipe off surface contamination with a cloth while rinsing the surface under clean warm water at $40\pm 5^{\circ}\text{C}$. Scrub the tip and joint of the nozzle with a cleaning brush or toothbrush, using running clean warm water at $40\pm 5^{\circ}\text{C}$.
2. Rinse thoroughly with distilled water at room temperature or clean water for at least 1 minute.
3. Check if the contamination has been removed after cleaning. If contamination remains, continue cleaning.
4. Immerse the nozzle in an alkaline detergent solution for 5 minutes. (We recommend using ID212, manufactured by Dürr.)
5. Rinse thoroughly with distilled water at room temperature or clean water for at least 1 minute.



CAUTION

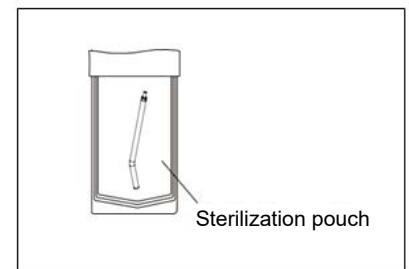
Cleaning must be done within 1 hour after use. Do not autoclave the handpiece in the following cases:

- If contamination or solid material attached to the handpiece cannot be removed.

Sterilization of syringe

The nozzle can be sterilized in an autoclave. Sterilization with an autoclave is permitted up to 250 times.

1. Insert the handpiece into a sterilization pouch and seal it.
2. Autoclave for 20 minutes at 121°C or 4 minutes at 135°C
After sterilization, apply a thin and even layer of Vaseline to the two O-rings.
3. Tighten the nut firmly in direction B to secure the nozzle.



Storage

After cleaning the nozzle, store it in a clean, dry place.



CAUTION

- Sterilization should be done using Class B cycles.
- The sterilization temperature should be 135°C or lower.
- Skip the drying process if the temperature exceeds 135°C .
- If the sterilization pouch is damaged, discard it and re-sterilize using a new pouch.
- Before use, ensure that the nut is firmly tightened.

Care, Cleaning and Maintenance

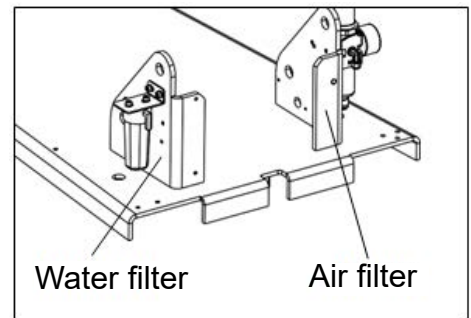
Utility Box Section

Filter Replacement

The water filter in the junction box needs to be replaced at least once a year.

The air filter in the junction box needs to be replaced at least once every three years.

Contact your local service representative for filter replacement.



Product Exterior

Cleaning of Product Exterior

- Clean the metallic parts with a dry, soft cloth. If water comes into contact with the product, wipe it off immediately to prevent rusting.
- Clean the resin parts with a soft cloth moistened with water.

Sterilization of Product Exterior

- Use FD 333 or FD 366 (manufactured by Dürr) for cleaning and bacteria elimination on the product exterior.

NOTICE

Wipe off water and residual disinfectant immediately. Failure to do so may result in corrosion and rusting.

Care, Cleaning and Maintenance

Maintenance

Components	Verification Frequency	Cleaning and Replacement Conditions	Maintenance procedure
Water filter	Each month	Polluted Filter	• Turn off the power and water supply. • Open the front cover and remove the plastic container holding the water filter. • Remove the filter element and clean it with water or replace it as necessary. • Reinstall the filter and close the front cover.
		Polluted Filter	
		Used for more than one year	
Air pressure relief valve	Each month	Water volume above 3/4 of the container	• Turn off the power and water supply. • Open the front cover, press the 3-way syringe to release the air inside and expel the water. • Reinstall the front cover.
		Water unclean	
		Used for more than one week	
Dirt trap	Each day	Used more than one week	• Clean with water.

Note: Please dispose of the waste according to local regulations.

Care, Cleaning and Maintenance

Troubleshoot

Malfunction	Cause Analysis	Solution
No power to dental light	• Damaged bulb • Ineffective contact • Poor connection in sockets • Twisted cables at joints	• Replace bulb • Adjust with tools • Adjust with tools • Replace cable
No water from either cup filter or bowl rinsing	• Twisted or pinched hose • Damaged electromagnetic valve	• Adjust or replace hose • Replace electromagnetic valve
Suctions blockage	• Blockage in the assistant element filter • Blockage in the hose	• Clean filter • Clean hose with water

Note: Please dispose of the waste according to local regulations.

Care Storage, Lifetime, Disposal and Restrictions of use

Storage Method

Strictly follow the steps below when the product will not be used for an extended period (e.g., after completing work, during business closures, etc.):

1. Main Switch

- Always turn off the main switch at the end of each workday to stop the supply of air, water, electricity, and other utilities.
- Strictly adhere to this instruction to prevent water leakage and electrical accidents.

2. Water Main Valve

- Turn the main water valve counterclockwise to the "Close" position at the end of each workday.

3. Compressor

- Turn off the compressor breaker, then discharge air from the compressor. Ensure the power is turned off.

4. Vacuum Pump

- Turn off the vacuum pump breaker. Ensure the power is turned off.

5. Electrical Panel

- Turn off the equipment breaker on the clinic's electrical panel. Ensure the power is turned off.

The expected lifetime of this product is 8 years (based on self-certification using in-house data) from the date of manufacture and shipment, assuming regular maintenance and inspections are conducted. However, parts that require periodic maintenance have different durability periods. Please refer to the section on maintenance and inspection for more details.

Consumable Parts

Consumable parts are subject to wear, deterioration, and changes in external appearance or damage through use. Please note that repair or replacement of these parts is not covered by the warranty, and associated fees will apply. The level and duration of wear, deterioration, or damage may vary depending on the environment and conditions under which the product is used.

Stock Period of Parts

Our company will maintain stock of essential maintenance parts, including consumables and periodic replacement parts, for ten years after the product is sold.

Note: Maintenance parts refer to components necessary for repair services to restore the product to its original condition and maintain its functionality.

Disposing of Equipment

When disposing of the unit and chair, ensure they are disposed of in accordance with all applicable regulations and local codes. In the EU, EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE) applies to this product. This directive mandates environmentally conscious recycling and disposal.

List of Cmpatible Handpieces

TURBINE	LOW SPEED	MICROMOTOR	SCALER
AirLight M800	Maxso Air Motor	Maxso E800 System	Comfort-Sonic P9
AirLight X800	Maxso Contra Angle		Comfort-Sonic P6 Plus
AirLight Surgical 45	Maxso Straight		
Maxso M200			
Maxso M200E			
Maxso Surgical 45			
Maxso X200			

EMC Declaration

Guidance and Manufacturer's Declaration – Electromagnetic Emissions		
The product is intended for use in the electromagnetic environment specified below. The customer or the user of the product should assure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 1	The product must emit electromagnetic energy to perform its intended function. Nearby electronic equipment may be affected.
RF emissions CISPR 11	Class B	The product is suitable for use in all establishments except for domestic ones and those directly connected to the public low-voltage power supply network that serves buildings used for domestic purposes.
Harmonics emissions IEC 61000-3-2	Not applicable	
Voltage fluctuations/flicker emissions IEC 61000-3-3	Not applicable	

Table 202 - Declaration - electromagnetic immunity

Guidance and manufacturer's declaration - electromagnetic immunity			
The product is intended for use in the electromagnetic environment specified below. The customer or the user of the product should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.

EMC Declaration

Table 204 - Declaration - electromagnetic immunity

Guidance and manufacturer's declaration - electromagnetic immunity			
The product is intended for use in the electromagnetic environment specified below. The customer or the user of the product should assure that it is used in such an environment.			
Immunity test	IEC 60501 test level	Compliance level	Electromagnetic environment - guidance
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	3 Vrms 150 kHz to 80 MHz 3 V/m 80 MHz to 2.5 GHz	3 Vrms 3 V/m	Portable and mobile RF communications equipment should not be used closer to any part of the product, including cables, than the recommended separation distance, which is calculated based on the frequency of the transmitter. $d = 1,2 \sqrt{P}$ $d = 1,2 \sqrt{P}$,80 MHz to 800 MHz $d = 1,2 \sqrt{P}$,80MHz to 2.5GHz W Here, P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer, and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be below the compliance level for each frequency range. Interference may occur in the vicinity of equipment marked with the following symbol: 
NOTE 1 At 80MHz end 800 M Hz. the higher frequency range applies. NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			

1. Field strengths from fixed transmitters, such as base stations for radio(cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the product is used exceeds the applicable RF compliance level above, the product should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the Model Number or Type Number -by manufacturer.
2. Over the frequency range 150 kHz to 80 MHz, field strengths should be less than [Vi]V/m.

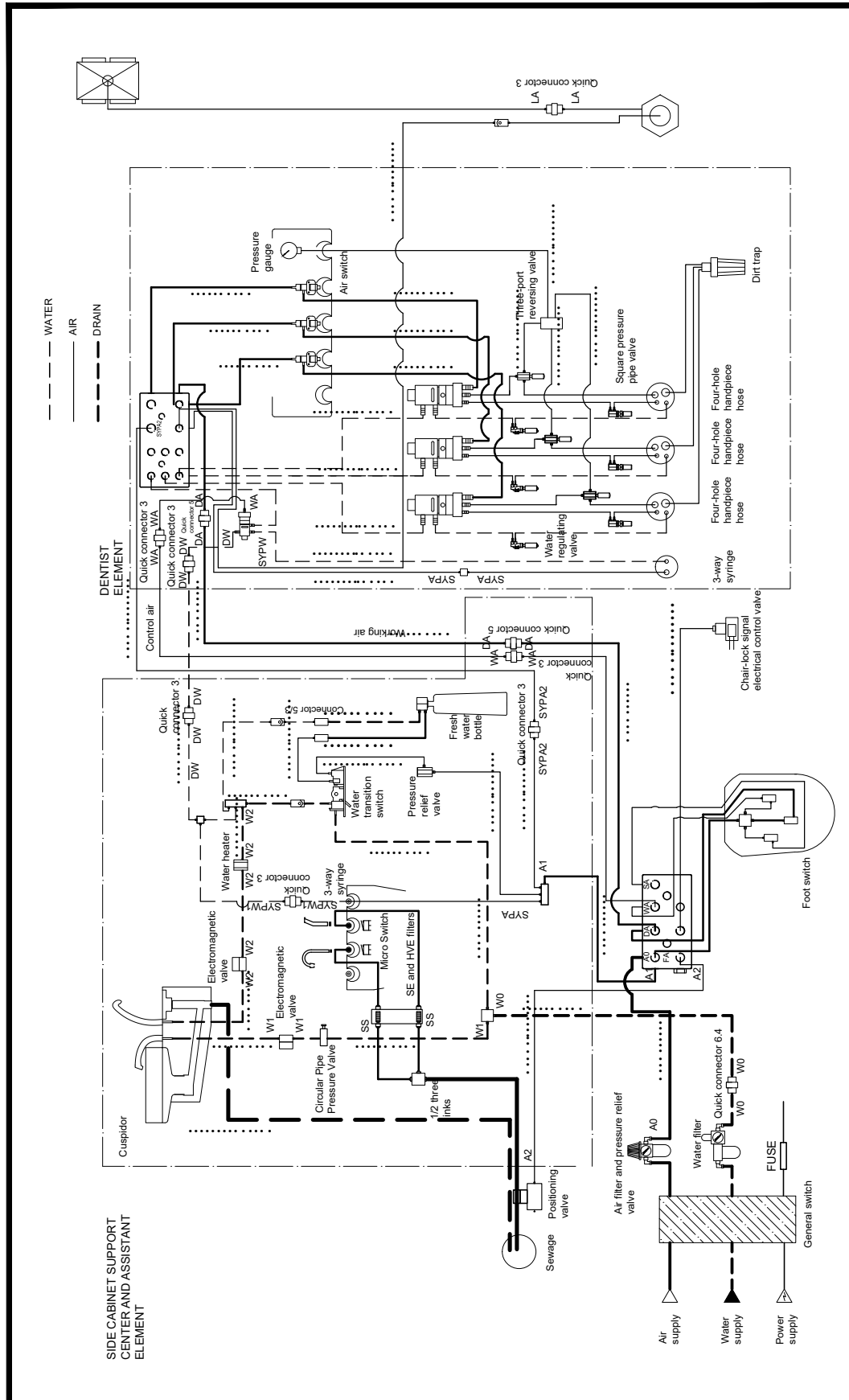
Table 206 - Recommended separation distances between portable and mobile RF communications equipment and the product

Recommended separation distances between portable and mobile RF communications equipment and the product			
The product is intended for use in an electromagnetic environment where radiated RF disturbances are controlled. The customer or user can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the product, as recommended below, based on the maximum output power of the communications equipment.			
Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz $d = 1,2\sqrt{P}$	80 MHz to 800 MHz $d = 1,2\sqrt{P}$	80 MHz to 2.5 GHz $d = 1,2\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23
For transmitters rated at a maximum output power not listed above, the recommended separation distance (d) in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W), as specified by the transmitter manufacturer.			
NOTE 1 At 80 MHz and 800 MHz. the separation distance for the higher frequency range applies			
NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection structures, objects and people.			

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Water-air Layout



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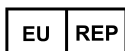
The Next Standard



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