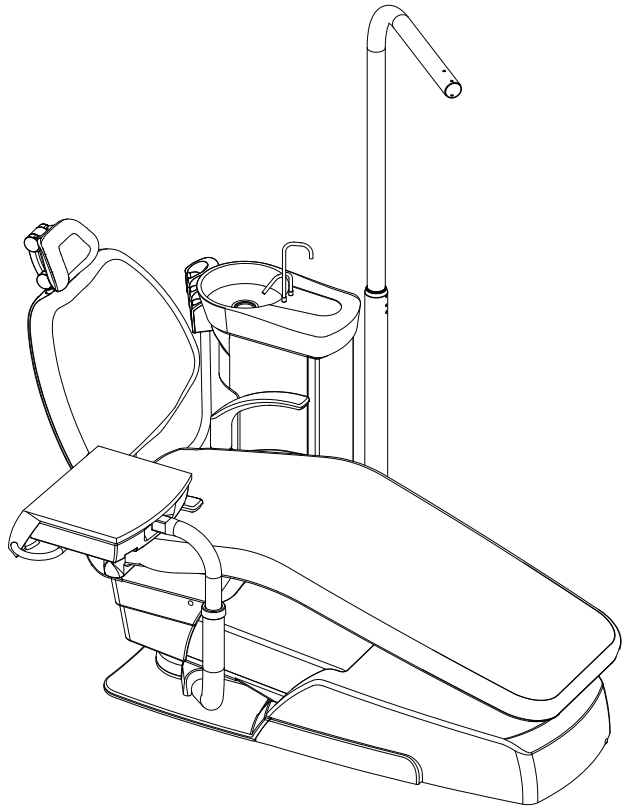
DENTAL UNIT AND CHAIR

VoyagerIII

OPERATING INSTRUCTIONS



Thank you for purchasing TAKARA BELMONT product.

- **This manual provides operating instruction for the Voyager III.**
- **Please read through this instruction manual carefully before using the product to ensure proper use. Failure to read the instruction manual before use may lead to an accident.**
- **After the installation has been completed, keep this instruction manual near the product for future maintenance. Refer this manual as needed.**
- **If you have any questions about this Manual or this product, please contact us.**
  If manual becomes unreadable or is lost, please request a new manual by contacting your dealer.
- **Installation should be conducted by authorized personnel only.**
  Follow instructions on installation manual.

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Belmont

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BOOK NO. 1E0A3WC0

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GENERAL INFORMATION

Intended Purpose of the Product

This product is an active therapeutic device intended for the exclusive use for diagnoses, treatments and relative procedures of dentistry. The product must be operated or handled by the qualified dentists or by dental staffs under the supervision of the dentist. Such dentists or dental staffs should instruct and/or assist the patients to approach to and leave from the product. Patients should not be allowed to operate or handle the product unless he/she is so instructed. The product is supplied together with the handpieces like electric micromotor, air turbine and/or motor, scaler and so on.

Compliance with Regulation and Directive

This product complies with MDR (EU) 2017/745 and RoHS Directive 2011/65/EU.

In case of disposal of equipment

When disposing the unit, appropriately dispose complying with all current applicable regulations and local codes. In EU area, EU directive on waste electrical and electronic equipment (WEEE) is applied on this product. In this directive, environment conscious recycling/abandonment is obligated.

Disposal of residue material

Please request a special contractor when you dispose amalgam.

A notice to the user and/or patient

Any serious incident that has occurred in relation to the device should be reported to the manufacturer and the competent authority of the Member State in which the user and/or patient is established.

Connectable handpieces for this product

Use the compatible handpieces as shown on the attached list for this unit.

Compatibility of Dental Light

This unit should be combined with the dental light described in the list of compatible dental light.

Important Notes

In case of the trouble, please contact your local authorized Belmont dealer.
Do not disassemble or attempt to repair.
Installation and repair should be conducted by authorized personnel only.
No modification is allowed except handpiece installation by authorized dealer technician.
Attempts at disassembly, repair or modifications may lead to abnormal operation and accidents.

Environmental Requirements

Usage environment

Ambient Temperature	: 0 to 40ºC
Humidity	: 10 to 95% (No condensation)
Atmospherical Pressure	: 700 to 1060 hPa

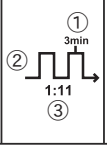
Transportation / Storage environment

Ambient Temperature	: -20 to +70ºC
Humidity	: 10 to 95% (No condensation)
Atmospherical Pressure	: 700 to 1060 hPa

Equipment is not suitable for use in environments with, flammable anesthetic gases, oxygen or nitrous oxide.

SYMBOLS

In this manual, on the labels, on the control panel of Voyager III, following symbols are used.
Confirm the meaning of each symbol.

Symbol	Description	Symbol	Description	Symbol	Description	Symbol	Description
	ON (power)		OFF (power)		Protective earth (ground)		Chair manual control
LP	Chair last position	0	Chair auto return	1	Chair preset 1	2	Chair preset 2
	To raise the chair		To lower the chair		To recline the backrest		To raise the backrest
	To raise the chair		To lower the chair		To recline the backrest		To raise the backrest
W	Water	A	Air		Service outlet (air)		Service outlet (Water)
	Syringe		Manufacturer		Manufacturing date and country		Separate collection for electrical and electronic equipment
EC REP	Authorized representative in the European community		Alternating current	SN	Serial number		Caution *The base color is yellow.
	General warning sign *The base color is yellow.		Type B Applied Parts	REF	Reference number	R.V.	Rated voltage
R.I.	Rated input		Dental Unit		Dental patient chair		Electronic instructions for use
MD	Medical device		① Maximum activation time ② Non-continuous operation ③ Duty cycle	CE 0197	Third-party certification stipulated in Medical Device Regulation: 2017/745		
	Refer to instruction manual/booklet *The color of black part is blue in the actual label.				Autoclave Symbol This symbol on component means that the component can be sterilized with an autoclave at 135℃ max.		

SAFETY PRECAUTIONS (Please observe safety precautions fully)

- Before use, read the “Safety precautions” carefully to ensure proper use.
- The following information is designed to ensure safe use of this product and to prevent injury and damage to you and others. The precautions contained here are classified depending on the severity and degree of imminence of possible injury or damage resulting from improper use. Be sure to follow all the information, which is important for safety.

Classification of precautions	Severity and degree of imminence of possible injury or damage
⚠ WARNING	This symbol indicates that “ignorance of these precautions may lead to severe injury or even death as a result of improper use.”
⚠ CAUTION	This symbol indicates that “ignorance of these precautions may lead to mild or moderate physical injury or damage to property as a result of improper use.”
NOTICE	This symbol indicates that “it is recommended to follow these precautions for safety.”

⚠ WARNING

1. Be sure to turn off the breaker for the equipment in the clinic when this product will not be used for a long period of time

Be sure to turn off breakers for equipment in the clinic when this product will not be used for a long period of time (following the completion of work, during the suspension of business, etc.). Insulation degradation may cause electrical fire.

2. Be sure to turn off the main switch upon completion of work or during work breaks

Be sure to turn off the main switch upon completion of work or during work breaks. This prevents incorrect operation due to accidental contact and associated hazards.

3. Never disassemble, repair or modify this product

Individuals other than certified repair technicians should not disassemble or attempt to repair and modify this product. This could lead to an accident, failure, electric shock or fire.

4. Be sure to establish a grounding connection

Be sure to establish a proper grounding connection. (Refer to a vendor for grounding connection.) Failure or electric leakage may lead to electric shock.

5. Use with caution in the presence of electromagnetic interference waves

Do not place this product around equipment generating electromagnetic waves (including communications equipment, elevators, etc.) as incorrect operation of this product may occur in the presence of electromagnetic interference waves. Do not use equipment generating electromagnetic waves, such as mobile phones, around this product.

6. Be sure to turn off the main switch when a high frequency surgical instrument (HF-Surg) is used.

Use of a HF-Surg may cause the equipment to malfunction due to generated noise. Be sure to turn off the main switch when using the HF-Surg.

7. Use with caution on patients with a cardiac pacemaker

Use this product with extreme caution on patients with a cardiac pacemaker. In the case of any abnormalities in patients during use, immediately turn off this product and discontinue use.

8. Handling of equipment in the case of a power failure

If the chair stopped at elevated position, chair will not go down. Help a patient to get off from the chair while paying attention to avoid patient’s injury. Pay attention the chair doesn’t fall down. When power comes back after power failure, to avoid unexpected movement, follow below instructions.

- Turn off the main power switch on dental unit.
- Put the handpieces in the holder.

SAFETY PRECAUTIONS (Please observe safety precautions fully)

⚠ WARNING

9. Immediately wipe off any water spills or leakage on the floor

Immediately wipe off any water spills or leakage on the floor. This could cause damage to the product, decreased strength of the floor may lead to physical injury including fall, or property damage.

10. When water leaking from the unit

In the case of water leaking from the unit, discontinue use, turn off the water main valve, main switch, breaker and contact your local authorized Belmont dealer.

11. Do not place objects weighing 3 kg or more on the Doctor's table

Do not place objects weighing 3 kg or more on the Doctor's table. This could cause damage to the Doctor's table, defective function or accidents.

12. Do not place an undue load on the arm

Do not get on or place an undue load on the table arm, cuspidor arm, assistant arm of this unit. This could cause the unit to topple or other accidents.

13. Use the turbine with a water check valve

Use the turbine with a water check valve. Contact your local authorized Belmont dealer when a turbine without a water check valve will be used.

14. Do not sit on other than seat

When the backrest is at the forward position. Do not sit on or place an undue load on the headrest or legrest of dental chair. This could cause the unit to topple or could damage the unit.

15. Ensure the maintenance of this product

- Failure to maintain this product may lead to physical injury or property damage.
- Refer to maintenance section in this manual.

16. Prohibition of maintenance

During operation, repair and maintenance are prohibited.

17. Prohibition of using this equipment adjacent to or stacked with other electronic equipment

Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation.If such use is necessary,this equipment and the other equipment should be observed to verify that they are operating normally.

18. Prohibition of placing portable RF communications equipment adjacent to this product

Portable RF communications equipment (including peripherals such as antenna cablesand external antennas) should be used no closer than 30 cm(12 inches) to any part of the VOYAGER III, including cables specified by the manufacturer. Otherwise,degradation of the performance of this equipment could result.

19. Development of subcutaneous emphysema

Cooling air (alone or spray) is released from the chip of the handpiece (micromotor and air turbine/motor)/the nozzle chip of the syringe. This may cause the patient to develop subcutaneous emphysema, so use cooling air with caution.

SAFETY PRECAUTIONS (Please observe safety precautions fully)

⚠ CAUTION

1. Only experienced personnel should use this product

Only dentists or other dental professionals should use this product.

2. Confirm safety before use

Before use, confirm that the parts are correctly and safely operating and that there are no obstacles around this product.

3. Close the water main valve and turn off the main switch upon completion of work

Be sure to close the water main valve and the main switch at the end of each workday to prevent water leakage from occurring.

4. Pay attention to patients and children

Keep your eyes on patients (especially, children) so that mischief or inadvertent operation of equipment will not lead to unexpected accidents.

5. Precautions for handling synthetic leather

● Stain caused by clothing dyes
The synthetic leather of this product may become stained by direct contact with clothes or belts. If there is stains, wipe clean as quickly as possible with a 10% detergent solution diluted using water to prevent permanent staining. In case the synthetic leather is wiped with a wet cloth, fully wipe off the moisture with dry cloth.

● Take care of deformation or stains due to direct contact
- Direct contact with other objects such as plastic products, painted items, solvents or adhesive tape may cause changes to the surface luster, cracking, deformation or peeling.
- Direct contact with newspaper or printed paper may cause stains.
- Direct contact with items of clothing such as printed images of T-shirts, or jeans may cause discoloration of the synthetic leather of this product.
- Direct contact with solvents such as benzene nail polish remover, alcohol may cause discoloration, melting of the surface, changes to surface luster, hardening/softening or peeling.
- Using bleach or bleached sheets may cause changes to surface luster or discoloration.
- Installing this product next to sources of excess heat such as irons or heaters may cause deformation or discoloration.
- Protect this product from direct sunlight by installing curtains. Failure to follow this instruction may cause changes, shrinking, discoloration or fading of the leather surface.
- Placing heavy objects for a long period of time may leave an imprint of wrinkles on the synthetic leather that cannot be removed.

6. Pay attention of the seating area

Do not place any hard and heavy article or any article having a sharp tip or edge on the chair's seating area. The synthetic leather may be damaged otherwise.

7. Precautions for sterilization

Do not sterilize besides the procedures that we provide. This could cause damage to the unit.

8. Discontinue use if you feel that "something is wrong"

Always be careful to inspect this product for looseness, rattling, tilting, wobbling, sounds, temperature, odors, etc. Immediately discontinue use at the first feeling that "something is wrong."

9. Read the documents accompanying the various pieces of equipment

Before use, be sure to carefully read the package inserts and Instruction Manuals accompanying the various pieces of equipment to ensure proper use.

10. Precautions when using water other than tap water

The water unit is intended for use with tap water. Caution should be exercised as the use of water other than tap water (water through a sterilizer of water systems, etc.) may result in failure of equipment.

11. Do not smack or rub this product

Do not smack or rub this product forcefully. This could cause damage to covers or defective function.

SAFETY PRECAUTIONS (Please observe safety precautions fully)

⚠ CAUTION

12. Be sure to operate switches with your hands

Be sure to operate switches with your hands, except the foot controller, which is operated with your foot.
Operation with body parts other than hands may cause damage or incorrect operation.

13. Be careful when operating chair auto mode switches (1, 2, 0, LP)

Immediately release any auto mode switches (1, 2, 0, LP) after depressing them, because when any auto mode switches are depressed more than 5 seconds, the chair position will be set up to preset with buzzer sound.

14. Keep your eyes on the patient during operation

- Confirm that the patient is seated in the proper position before operation of the chair and keep your eyes on the patient during operation.
- Please make sure there are no children around a dental chair except a patient. Keep children off from a dental chair except a child patient gets dental procedures.
- Before operating the chair, confirm that there are no obstacles around this product.
- Be careful that the stool will not be caught in the gap between the chair backrest. Damage to the backrest or stool may occur.
- Confirm that there are no obstacles between the base and pump cover. This could cause damage to the pump cover or accidents.

15. Pay attention during the headrest operation

- During headrest operation, confirm that the patient's headrest is in proper position and keep your eyes on the patient during operation.
- Do not set a headrest at the position where a patient feels a pain.
- The headrest will be come off from the backrest in case of pulling too much.
- Do not allow hands, fingers or hair to become entangled in the moving parts of the headrest or between the headrest and backrest section during operation.

16. Pay attention during the armrest rotation

- Before rotating the armrest, confirm that there are no obstacles around the armrest.
- Do not operate the chair with the armrest swing out 90 degrees. Confirm that the armrest is locked position (normal position) before operating chair.

17. Cautions at adjusting the Dr table height

- Do not place objects on the table during table height adjustment.
- Turn off the main switch before adjusting the table height.
- Be sure to slide down the collar on the lock ring after removing the lock ring.
- Please confirm whether a table is fixed. If the table is not fixed surely, it causes a fall and the accident during operation.

18. Pay attention during movement of the Doctor's table

- Pay attention to surroundings when you move the Doctor's table. Injury by the tips of handpieces, etc., may occur.
- Be sure to move the Doctor's table by holding the handle of the unit.

19. Do not place anything hot on the unit

Do not place anything hot on the unit. This could cause deformation or discoloration.

20. Put a cover on the scaler tip

After use, be sure to put the dedicated tip cover (if a cover comes with the unit) on the scaler in the holder.
If the cover is not used, injury from the scaler tip may occur.

21. Precautions for use of handpieces

Handpieces may have poor spraying performance or generate heat due to the lack of cooling water/cooling air.
In the case of the development of heat or an odor of something burning, immediately discontinue use and contact your local authorized Belmont dealer because burns may occur or dental pulp may be adversely affected.

22. Handling of the syringe

Be careful not to drop the syringe. Otherwise, it may break or the syringe may deform.

SAFETY PRECAUTIONS (Please observe safety precautions fully)

⚠ CAUTION

23. Do not use the handpiece with its hose twisted

Repeated actions of picking up and returning the handpiece may cause its hose twisted.
Check the hose periodically to see if it is not twisted. If twisted, unwind it before use.
Continual use of the handpiece with its hose twisted will cause the kinks in the hose or breaking of the wire, making the handpiece unusable.

24. Precautions for after using of the syringe

- After use, wipe off syringe nozzle, body contaminated with blood or saliva and clean it with cleaning agent as necessary.
- Sterilization with autoclave, be sure to use sterilization pouch.
- For cleaning of other syringes, observe the instructions shown in the package inserts and instruction Manuals included with the syringes. Before use, be sure to carefully read the package inserts and instruction manuals accompanying the various pieces of equipment (including optional articles) to ensure proper use.

25. Precautions after the cleaning of syringe

- Before use, check that the nozzle will not come off from the syringe. Do not use if the syringe nozzle comes loose.
- Make sure that the nozzle is tightened securely and will not come off when pressing the spray button. Do not use if the syringe nozzle comes loose.
- Do not subject the unit to shock. Doing so check that the nozzle will not come off from the syringe.

26. Precautions for cleaning of the solid corrector

Clean the filter with running water. Do not use brush to clean the filter which may damage to the filter.

27. Precautions for cleaning the syringe nozzle, saliva ejector tip

Cleaning must be done within 1 hour after use.
Replace with a new syringe nozzle and saliva ejector tip and do not take autoclave for following cases.

- Any waste material can not be removed by clogged hole.
- Contamination and solid material attached to vacuum handpiece and saliva ejector can not be removed.

28. Use of flow rate adjustment knobs

- Flow rate adjustment knobs for water and air are intended to increase/decrease the flow rate. Caution should be exercised as tuning the knob excessively may cause it to turn free.
- There is cupfiller flow rate adjusting screw (pinch valve) for maintenance. The flow rate is adjusted when installing the unit.

29. Precautions for sterilization of syringe nozzle, saliva ejector tip

- Sterilization by class B cycles.
- Sterilization temperature is 135 degrees or less.
- The cap, filter and body are made of resin. They may become deteriorated if they are sterilized in an autoclave many times.
- After autoclave sterilization, the cap, filter, body and valve are subject to discoloration, which does not have a negative effect on performance.
- The slide knob can be autoclave 100 times and is expendable supplies.
- Do not perform the drying process and dry naturally if the temperature for drying process is to exceed 135°C.
- If damage occurs to the sterilization pouch, discard and sterilize again using a new pouch.

30. Precautions for cleaning the product exterior

- For cleaning, do not use cleaning agents containing solvent or abrasives, thinners or oil-based alcohol (butanol and isopropyl alcohol), which may cause cracks. Clean with a wet soft cloth or use a mild detergent diluted to an approximately 10% solution. Wipe off water and residual disinfectant immediately.
- This could cause corrosion, damage or incorrect operation of the unit. They may facilitate rust generation.

31. Immediately wipe off drug solution when it comes into contact with this unit

Should drug solution or water come into contact with this unit, immediately wipe it off with a dry soft towel, etc. This could result in defective function or electric leakage as well as spotting or rusting.

SAFETY PRECAUTIONS (Please observe safety precautions fully)

⚠ CAUTION

32. Precautions for cleaning the Dr. instrument holder and the assistant holder

- Do not spray liquids directly onto the surfaces of the holder. In order to prevent damage to electrical components and system. Wipe off the holder surface with soft cloth moistened with cleaner or disinfectant. Wipe off with dry soft cloth to dried up of the holder after cleaning and disinfection.
- Completely dried up the cleaning solution before use the product.

33. Precautions for cleaning the vacuum and saliva ejector line

Do not use strongly acidic cleaning agents or alkaline pipe cleaning agents, which may cause corrosion of metals, etc.

34. Precautions for cleaning of the spittoon bowl

- Never use sandpaper, metal scrub brushes or abrasive cleaning agents to clean the spittoon bowl.
- Do not use strongly acidic cleaning agents or alkaline pipe cleaning agents, which may cause corrosion of metals, etc.
- Be careful not to apply unnecessary force to it when cleaning. (Be careful not to hit or drop it.)

35. Precautions for cleaning the vacuum hose, saliva ejector hose

The vacuum and saliva ejector hose can be disconnected by pulling them down for cleaning. Turn off the main switch of the unit before cleaning the hoses.

36. Do not use water other than purified water, distilled water or pure water for the water tank

- The water tank is intended only for use with purified water, distilled water and pure water.
- Do not use mouthwash or electrolyzed water, such as ConCool or povidone iodine, as they may cause clogged tubing or affect internal valves and equipment.

37. Set the pressure of the water tank at 200 kPa or less

Adjust the air supply pressure for the water tank to 200 kPa or less. An excessively high pressure may cause damage to the water tank.

38. Precautions for right/left handed conversion

- Make sure read through page 31 for instructions before perform with right and left handed conversion. This could cause physical injury or property damage.
- Take care not to contact the doctor table to the cuspidor during conversion.
- Take care not to pinch the vacuum hose and saliva ejector hose between the assistant arm and the cuspidor swing arm during this conversion.

39. Clean and sterilize the HVE tip, syringe nozzle before use

The HVE tip, syringe nozzle which contacts oral tissues, is provided without sterilization.
Cleaning and sterilization is necessary before use.

SAFETY PRECAUTIONS (Please observe safety precautions fully)

NOTICE

Troubleshooting and contact information

In the case of any problems, discontinue use, turn off the main switch and contact your local authorized Belmont dealer.

Check operation of the compressor

With no air supplied, this product does not operate even after turning on the main switch. Turn on the power of the compressor before operating this product.

Use dental film viewer / Panoramic film viewer

- Turn off the viewer when the viewer is not in use.
- Dental film viewer / panoramic film viewer are intended to be used for aiding observations, and should not be used for diagnostic purpose.

When lift up the headrest lever to unlock position (Single articulating headrest)

Push the headrest forward while lift the headrest lever, headrest section moves smoother.

Ensure the maintenance and inspection of this product

Refer to the section of maintenance and inspection.

Discoloration of resin

Resin materials are used in external components of the product. Carefully selected materials are used; however, discoloration may occur for reasons such as natural deterioration or the adherence of drug solutions.
To ensure use of the product for as long as possible, immediately wipe off any drug solutions adhered and avoid sunlight.

SAFETY PRECAUTIONS (Please observe safety precautions fully)

PRACTICE OF FLUSH OUT

PRECAUTIONS FOR WATER QUALITY

⚠ CAUTION

Practice the flush out of water retained in the unit at the beginning of each workday to maintain the quality of dental treatment water and ensure a steady supply of water to handpieces.

- After this unit has not been used for a long period of time (at the beginning of the week, in the morning, etc.), water retained in the hose inside the unit or water heater will create an environment where unwanted bacteria are likely to grow. In order to ensure safe treatment and untroubled operation of handpieces, practice the flush out of the unit water line at the beginning of each workday.

- It is recommended that flush out of water inside the unit and hose of handpieces should be performed with fresh water at the end of morning office hours and at the end of each workday to inhibit the growth of unwanted bacteria.

Standard time required for flush out of the unit water line

● **Handpiece line** Turbine Air Motor Scaler Syringe (Both Doctor' s and Assistant's)	Approximately 40 seconds per turbine, air motor, scaler and syringe (approximately 40 seconds when flush out of all of them is performed at the same time.) **⚠ CAUTION** Perform flush out of the scaler with it attached to the main unit. Otherwise, a malfunction may be caused.
● **Cuspidor line** Cup filler (water heater) Bowl flush	Approximately five minutes for water changing in the cup filler line.

PROCEDURE OF FLUSH OUT

● **Handpiece line** Pick up handpieces from the holder one at a time, leave the turbine untouched and remove the bar from the motor and hold the motor over the spittoon bowl. (When the flush out function is active, pick up all handpieces in clusters and hold them over the spittoon bowl.)	● **Without Flushout Function** Press the foot controller to flush out of the handpiece water. ● **With Flushout Function** Pick up the handpieces then turn on the flush out switch to flush out the handpiece water.
● **Cuspidor line** Cupfiller (water heater) Bowl flush	● The water filled to the cup, then drain the water of the cup to flushing out the cupfiller water. Repeat it 7~8 times.

SAFETY PRECAUTIONS (Please observe safety precautions fully)

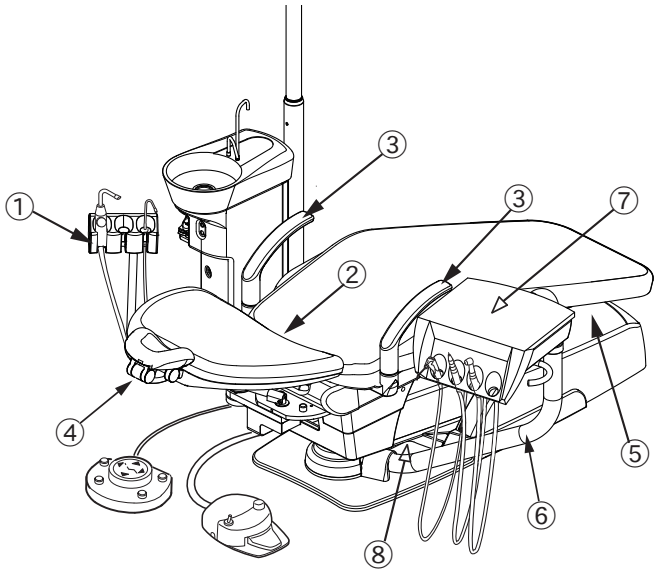
■ Caution Points During Operation of the Product

Description of Symbol Marks

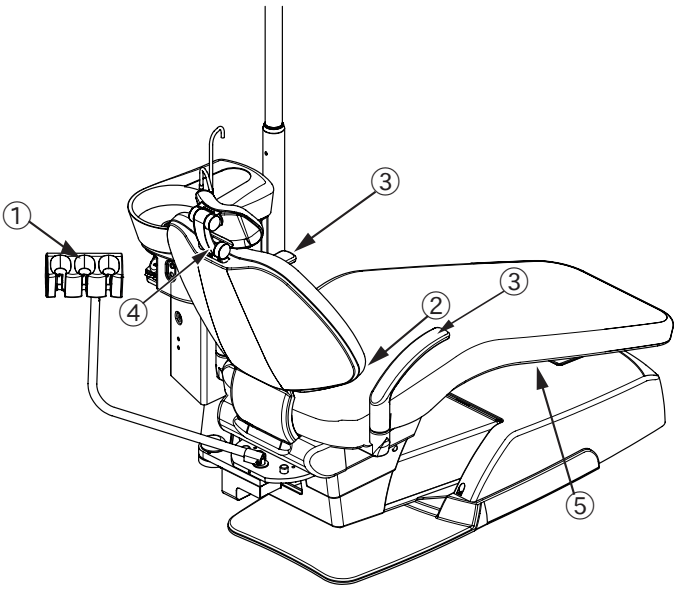
→ Caution areas such as moving parts, rotating parts and detachable parts to which caution should be paid.

→▷ Caution areas that are provided with an emergency stop mechanism.

Standard Type



Split Type



① Be aware of contact with the assistant's instrument holder.
Ensure that the upper body of the patient does not go beyond the armrest into the cuspidor unit.

② Take care not to be trapped by moving parts of the backrest.
Do not put hands or feet into the gap between the backrest and the seat.

③ Take care not to be trapped by the armrest.
Do not operate the chair with the armrest swing out 90 degrees.

④ Take care not to be trapped by moving parts of the headrest.
Do not allow hands, fingers, or hair to become entangled in the moving parts of the headrest.

⑤ Take care not to be trapped by the lower part of the seat.
Do not put hands or feet into the gap in the lower part of the seat.

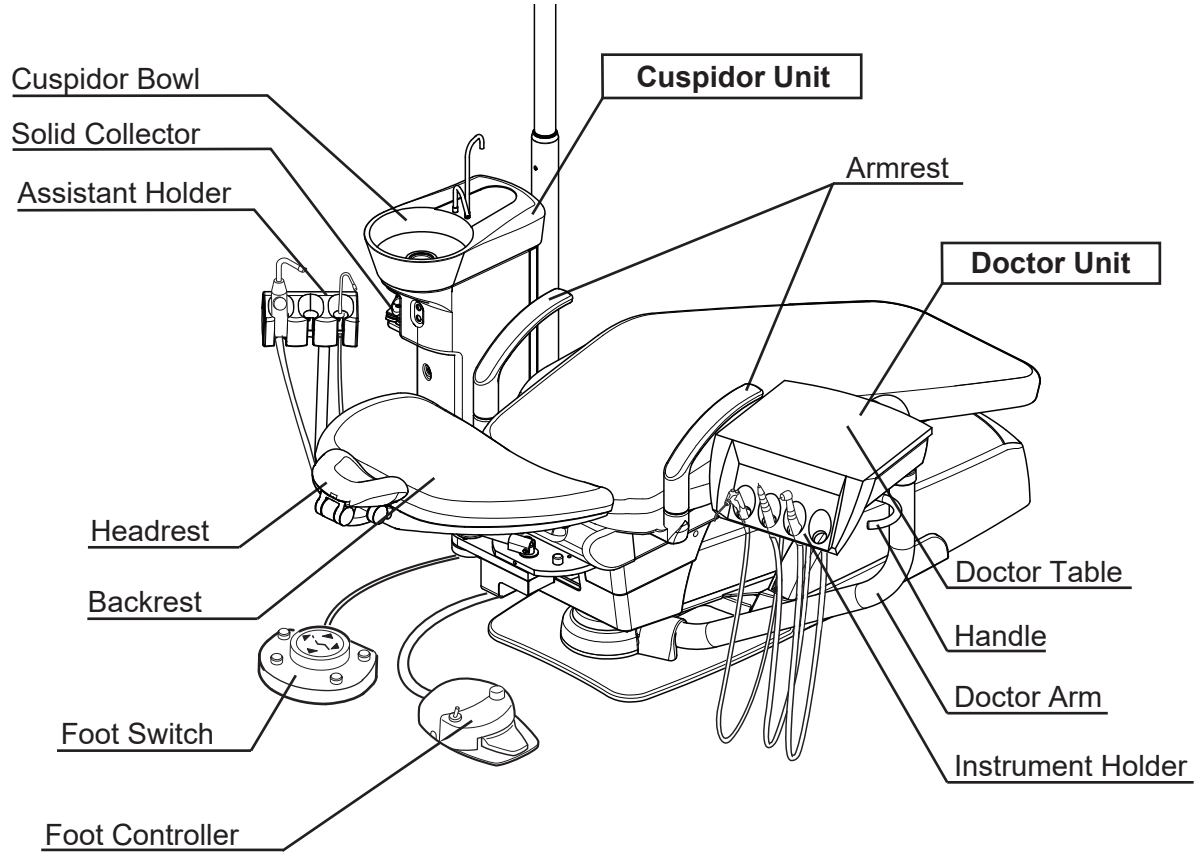
⑥ Check the locking mechanism of the primary arm.
Check that, when moving the instrument table to the back of the backrest, the chair lock indicator on the doctor control panel blinks red, and operation of the chair is halted.

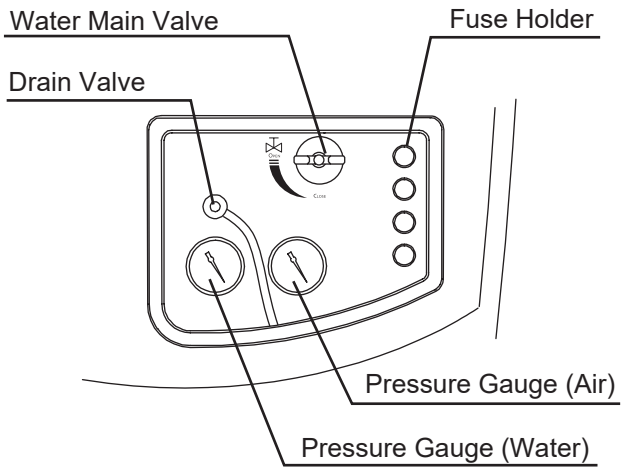
⑦ Be aware of interference between the chair and the table.
Do not move the table under the moving parts of the chair.

⑧ Take care not to be trapped between the sub link cover and the base plate
Do not allow feet or obstruct between the sub link cover and the base plate.

OVERVIEW AND MAJOR COMPONENTS

1. Overview and Major Components
1-1. Overview





1-2. Junction Box Section
Water main valve
Turn clockwise to open and counterclockwise to close.

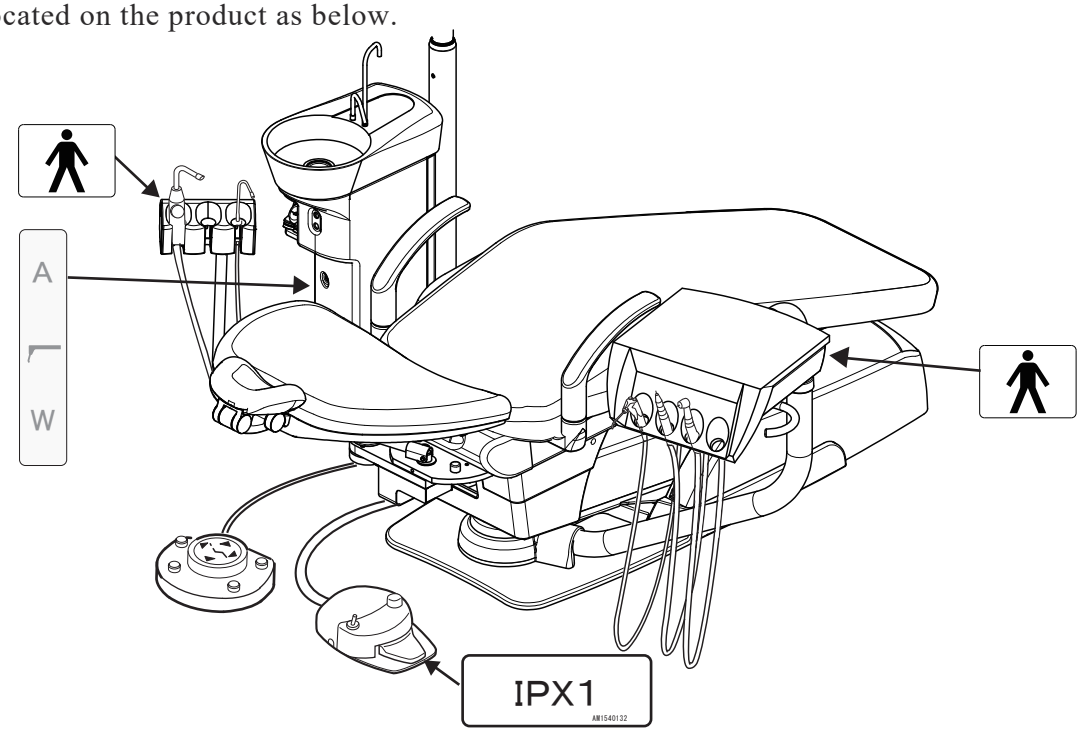
Drain Valve
Drains the water collected at the air filter on the main water supply line.

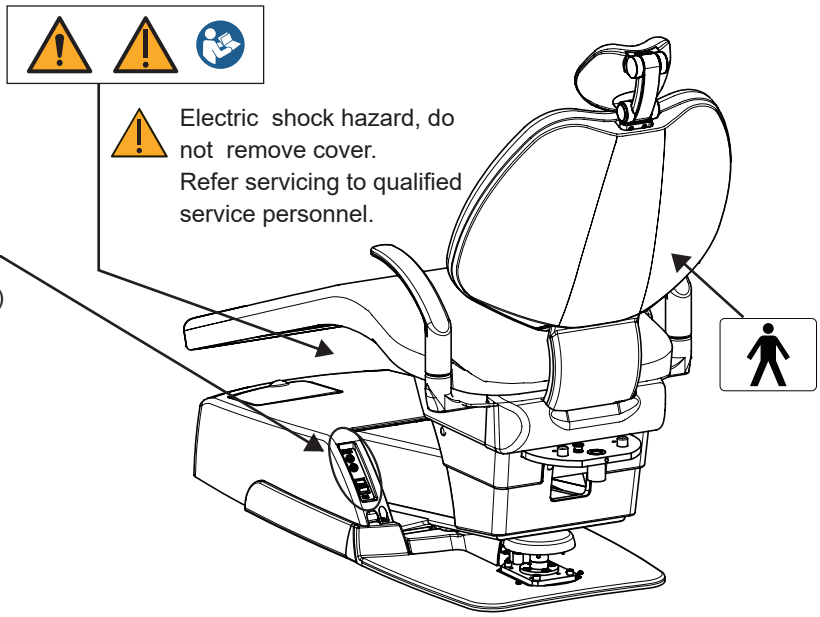
Fuse Holder
- The main fuse of units is built-in.
- If you are replacing a fuse, please replace to turn off the MASTER Switch / power switch of this product.
- The capacity of the fuse is listed on the left side of the fuse.

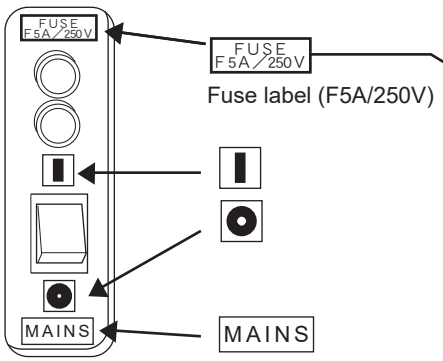
LOCATION OF THE LABELS

2. Location of the Labels

Labels are located on the product as below.



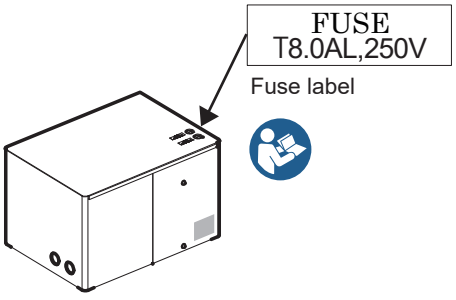




FUSE F5A/250V
Fuse label (F5A/250V)

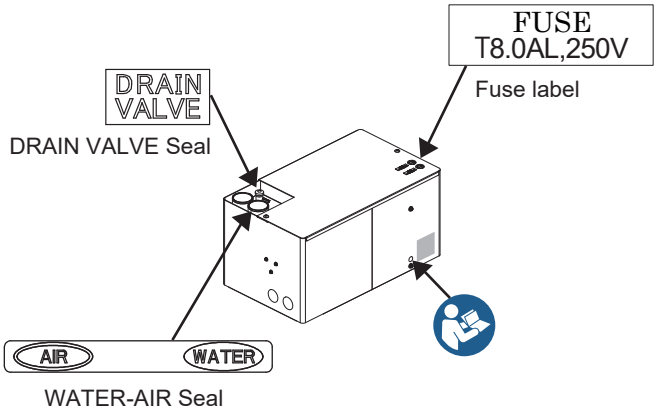
MAINS
Main mark (MAINS)

Module Type (Clean Water System Type)



Fuse label

Module Type (City Water System Type)



Fuse label

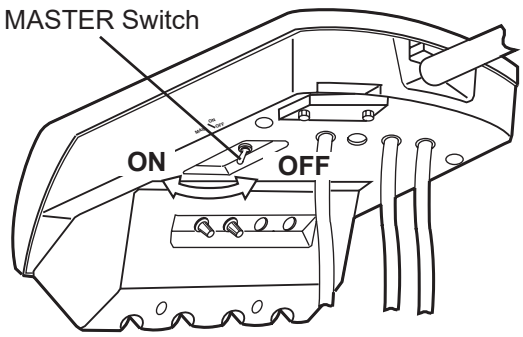
DRAIN VALVE Seal

WATER-AIR Seal

3. Operation

NOTE

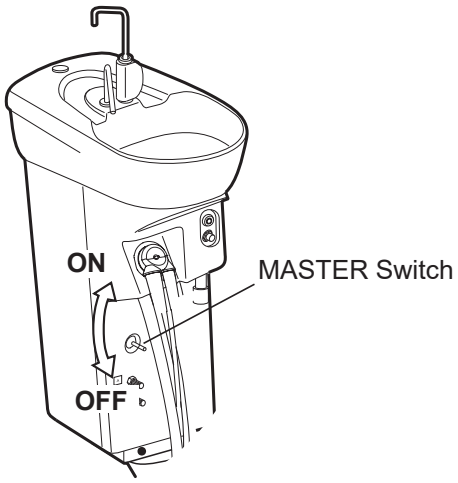
With no air supplied, this product does not operate even after turning on the main switch. Turn on the power of the compressor before operating this product.



3-1. Master Switch

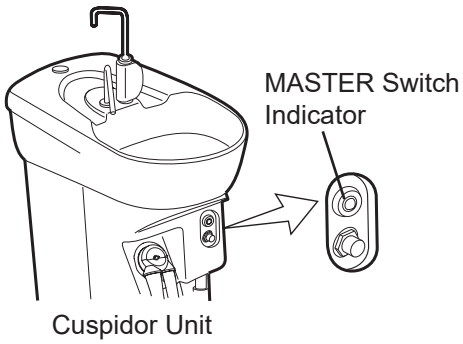
Standard Type

Turn ON the master switch located on the underside of the doctor table. The master switch indicator on the front of the cuspidor unit will lights up in green after turning on the master switch.



Split Type

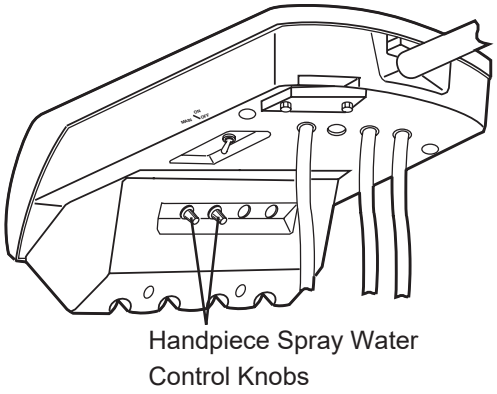
Turn ON the master switch on the front of the cuspidor unit. The master switch indicator on the front of the cuspidor unit will lights up in green after turning on the master switch.



WARNING

Be sure to turn off the main switch upon completion of work or during work breaks. This prevents incorrect operation due to accidental contact and associated hazards.

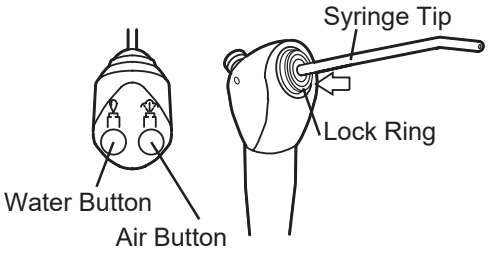
OPERATIONS AND FUNCTIONS



3-2. Doctor Unit

(1) Handpiece Spray Water Flow Control Knobs

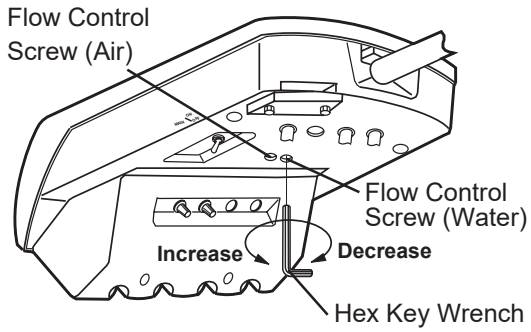
The handpiece is actuated by picking it up from the handpiece holder and operating the foot controller.
Operation of the each handpieces, please refer to the manufacturer's instruction manual attached to the individual equipment. The handpiece spray water flow control knobs are located under the doctor table provide for individual adjustment. Each handpiece spray water flow control knob is lines up from the facing left hand side HP1, HP2 . . . Turning a flow control knob counterclockwise increases flow volume and turning clockwise decreases.



(2) 3-Way Syringe

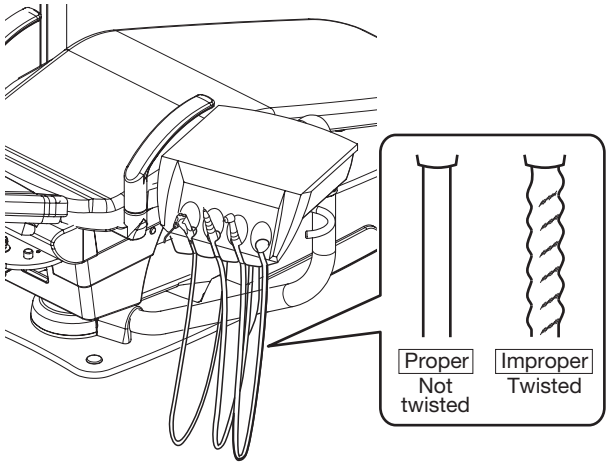
A- 3-Way Syringe Operation

Depressing either or both buttons, this syringe offers air, water and spray. Syringe tip can be rotated freely.
To remove syringe tip : Keep depressing the lock ring and pull out the syringe tip.
To set syringe tip : Keep depressing the lock ring, insert the syringe tip and release the lock ring.



B. 3-Way Syringe Flow Control Screw

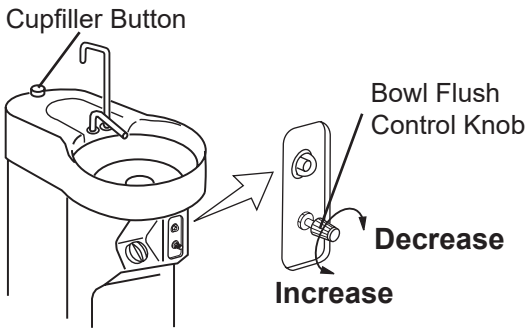
Air and/or water flow of 3-way syringe can be adjusted by the flow control screws located bottom of the table.
Facing right hand side screw controls air and left hand side controls water.
Turning a flow control screw counterclockwise increase flow volume and turning clockwise decrease. Use the hex key wrench supplied.

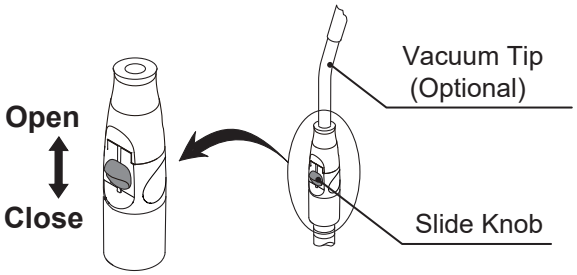


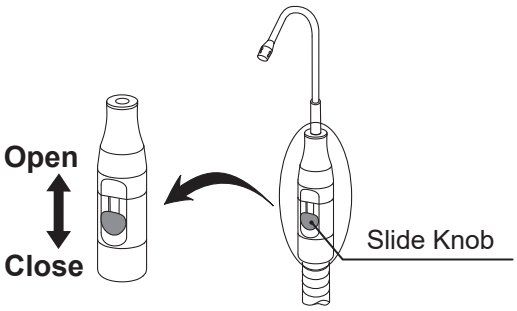
⚠ CAUTION

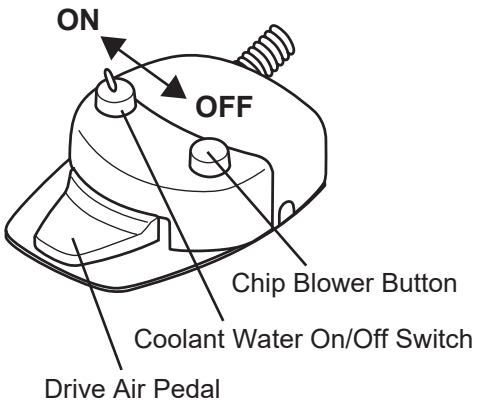
Repeated actions of picking up and returning the handpiece may cause its hose twisted. Check the hose periodically to see if it is not twisted. If twisted, unwind it before use. Continual use of the handpiece with its hose twisted will cause the kinks in the hose or breaking of the wire, making the handpiece unusable.

OPERATIONS AND FUNCTIONS









3-3. Cuspidor Unit Section

(1) Cupfiller

Keep pressing the cupfiller button until a cup is filled with water.

(2) Bowl Flush

Turn the bowl flush control knob counterclockwise, water flushes into the cuspidor bowl.
Further turning counterclockwise, increases the amount of flush water.

3-4. Assistant Instrument Holder Section

(1) Vacuum Handpiece

Suction begins when the vacuum handpiece is taken out of the instrument holder. Opening or closing the slide knob can control the suction flow rate. In case of the central vacuum system, suction will not stop immediately after the vacuum handpiece was returned to the instrument holder, but suction will continue for about 3 seconds by the function of delay circuit.

(2) Saliva Ejector Handpiece

Suction begins when the saliva ejector handpiece is taken out of the instrument holder. Suction stop immediately when the saliva ejector handpiece is returned to holder. Opening or closing the slide knob can control the suction flow rate.

3-5. Foot Controller

(1) Drive Air Pedal

Depressing the drive air pedal controls handpiece rotation speed. If you require coolant water from handpiece, turn on the coolant water On/Off switch before pressing drive air pedal.

(2) Coolant Water ON/OFF Switch

Spray water ON/OFF switch allows water to be turned on or off. Refer to 3-2 (1) of this manual for adjusting water of each handpiece.

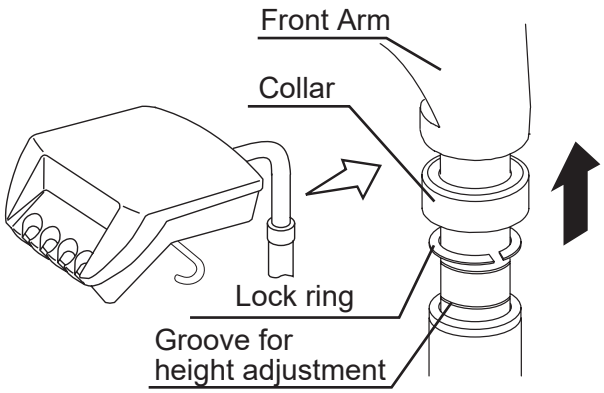
(3) Chip Blower Button

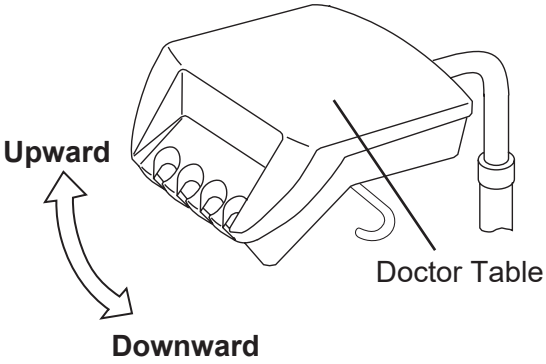
By depressing the chip blow button, chip blower comes out from handpiece without bur turning.

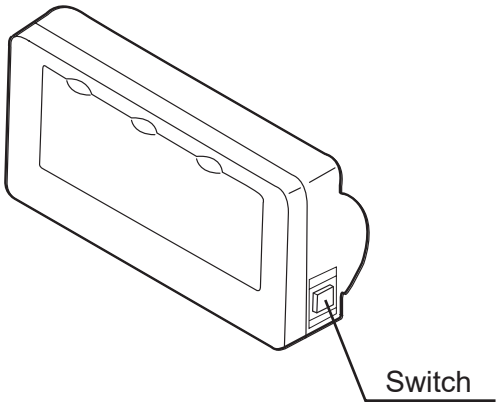
(4) Safety Device by Foot Control

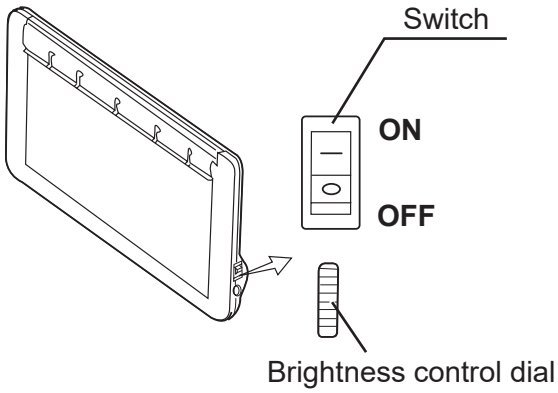
When the drive air pedal is being depressed and handpiece is running, all the chair control switches are inactivated. This is to prevent the chair from unexpected movement by any switch being touched accidentally.

OPERATIONS AND FUNCTIONS









3-6. Doctor Arm

Table Height Adjustment

- Doctor table height can be adjusted 3 positions.
- Hold and slightly lift up the doctor table, stopper ring will come up on upper swing arm post. Slide up or down the stopper ring to appropriate groove on upper swing arm post. Lower the doctor table to fix it at that height. Please confirm that a table is fixed to the lower course surely then.

3-7. Doctor Table Safety Lock Device

If excess pressure (upward or downward) is applied to the doctor table by the movement of chair, safety device stops the chair movement to protect the table from being damaged.

⚠ WARNING

Do not place objects weighing 3 kg or more on the Doctor's table. This could cause damage to the Doctor's table, defective function or accidents.

3-8. Dental Film Viewer (Optional)

The screen light is lit when the switch is pressed, and the screen light is off when the switch is pressed again.

NOTE

- **Turn off the light when the film viewer is not in use.**
- **Dental film viewer is intended to be used for aiding observations, and should not be used for diagnostic purpose.**

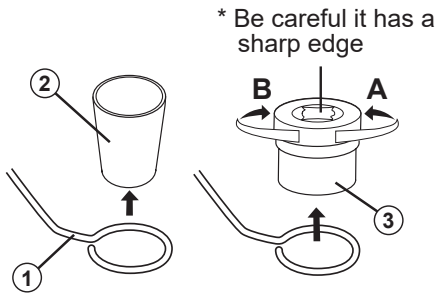
3-9. Panoramic Film Viewer (Optional)

- The screen light (LED light source) is lit when the switch is turned to the upper position (ON), and the screen light (LED light source) is off when the switch is turned to the lower position (OFF).
- The screen brightness increases when the brightness control dial is turned upward, and the screen brightness decreases when the brightness control dial is turned downward.

NOTE

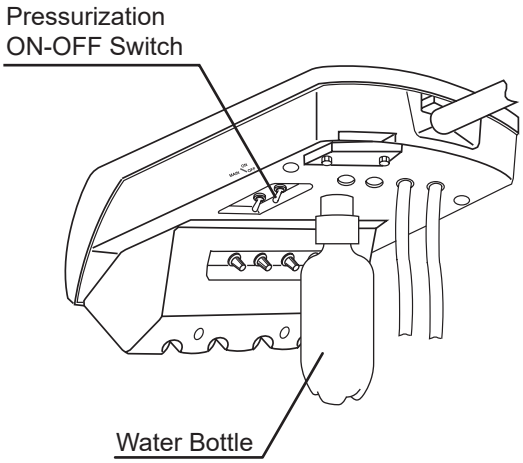
- **Turn off the light when the film viewer is not in use.**
- **Panoramic film viewer is intended to be used for aiding observations, and should not be used for diagnostic purpose.**

OPERATIONS AND FUNCTIONS



3-10. Waste Receptacle (Optional)

- Replace the paper cup (2) removing from the holder (1) when waste accumulates.
- The stainless waste receptacle may be detached when it is turned in direction A. It is fastened when turned in direction B. The lid has sharp portions that can easily catch cotton, etc. Be very careful when cleaning it.

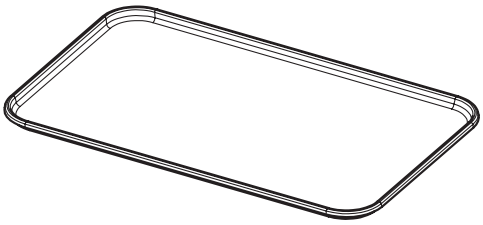


3-11. Clean Water System (Optional)

When the pressurization ON-OFF switch is set to ON, the water bottle may be used.

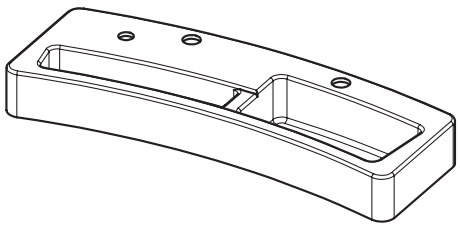
CAUTION

The water tank is intended only for use with purified water, distilled water and pure water.
Do not use mouthwash or electrolyzed water, as they may cause clogged tubing or affect internal valves and equipment.



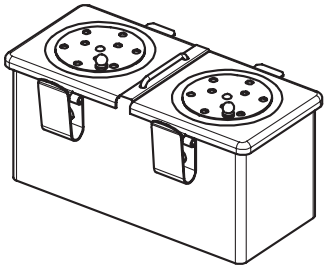
3-12. Tray (Optional)

Use it for keeps standard set on the tray.



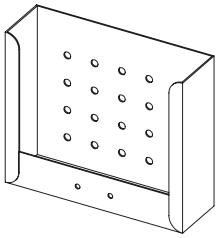
3-13. Sub Tray (Optional)

Use it for keeps cotton containers.

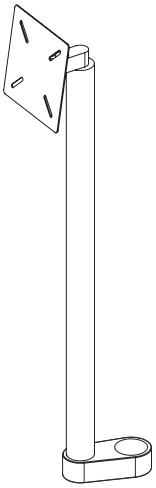


3-14. Cotton Containers (Optional)

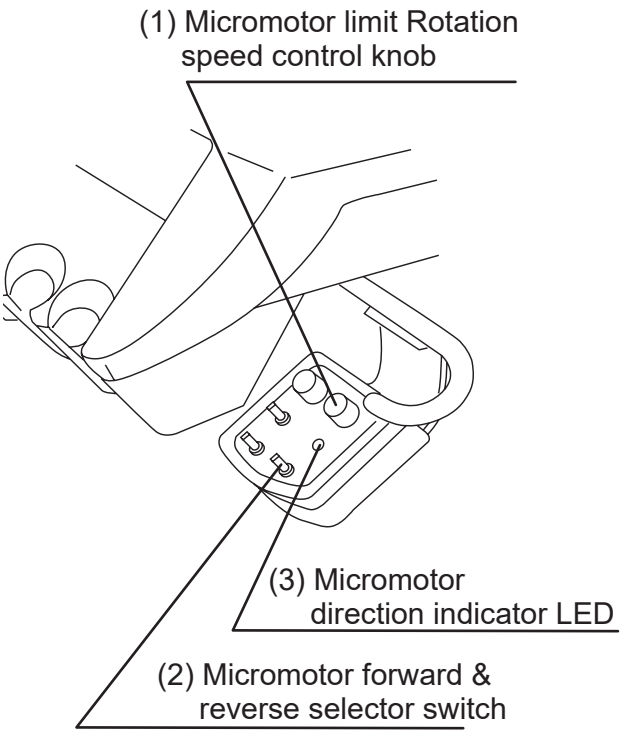
Use it for keeps clean cotton.



3-15. Tissue Box (Optional)
Use for set tissue into the tissue box.



3-16. Monitor Bracket (Optional)
PC.monitor can be mounted on this bracket.



3-17. Micromotor rotation control (optional)

(1) Micromotor limit rotation speed control knob

The knob controls the upper limit speeds in micromotor rotation.
If the knob is turned right, the upper limit speed increases, and if left, the speed decreases.

(2) Micromotor forward & reverse selector switch

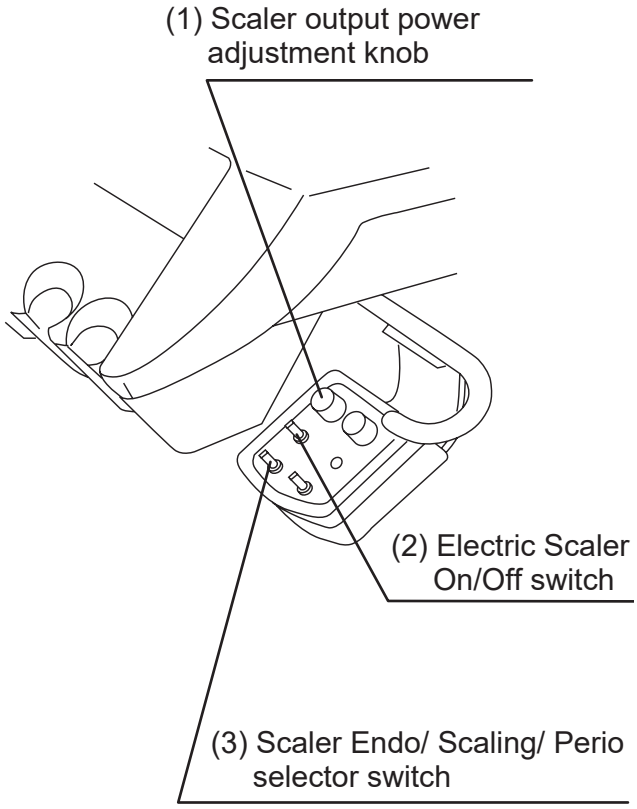
The switch changes the rotation direction in micromotor.
If the switch is turned to the right side, the motor rotates clockwise, if left side, the motor rotates counterclockwise.

(3) Micromotor direction indicator LED

The micromotor direction indicator LED will be indicated by the green and red.
Forward rotation : Indicates in Green
Reverse rotation : Indicates in Red

⚠ CAUTION

- **Be sure if the micromotor stops before changing the rotation direction.**
- **Read carefully the attached each micromotor's appendix and the manual. Use them correctly accordingly.**



3-18. Electric Scaler output power control (Optional)

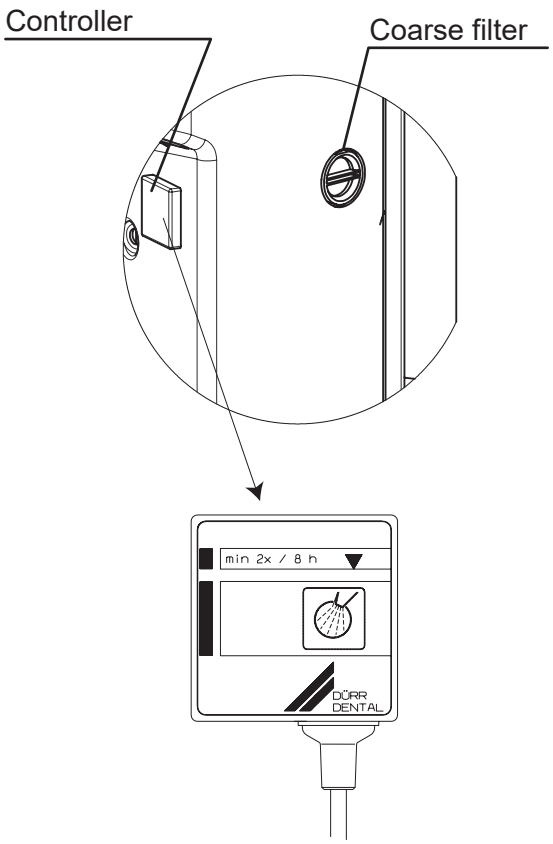
(1) Scaler output adjustment knob
The knob adjusts the output power of the electric scaler. If the knob is turned right, the output power increase, and if left, the power decreases.

(2) Scaler Endo/ Scaling/ Perio selector switch
Varios 170 scaler have 3 modes such as E (ENDO), S (SCALING) and P (PERIO) and can be chosen a mode by turning the switch. (Same for SP4055 NEWTRON)

(3) Electric scaler light switch
The switch turns the light ON/ OFF of Varios 170 scaler.

⚠ CAUTION

- **Be sure to put the scalaer's tip cover on or remove the tip before putting back the scaler to the holder to avoid being hurt by the tip.**
- **Read carefully the attached each scaler's appendix and the manual. Use them correctly accordingly.**



3-19. Spittoon valve (Optional)

Clean the coarse filter only when a substances are collected.

Operate rinsing function of the spittoon valve for twice a day (noon reset reriod and after work) in order to maintain the function of spittoon valve normally.

OPERATIONS AND FUNCTIONS

4. CHAIR OPERATING INSTRUCTIONS

4-1. MAIN SWITCH

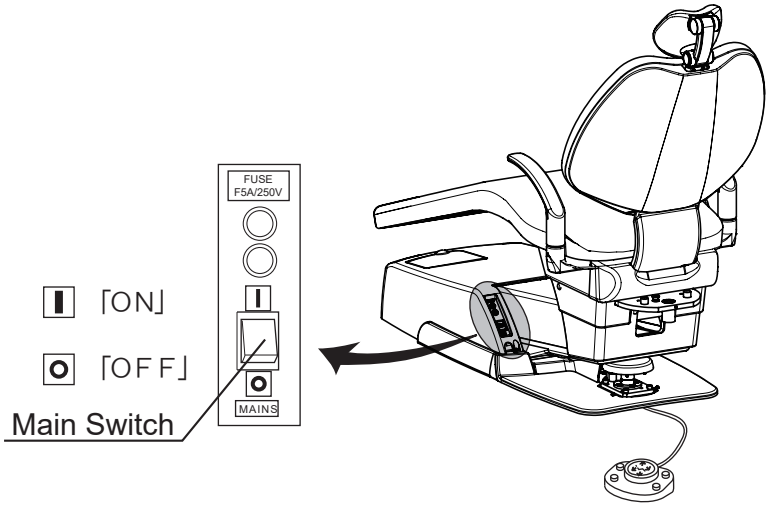
Turn on the main switch located on the left side of the pump cover. A green lamp in the main switch will illuminate.

⚠ WARNING

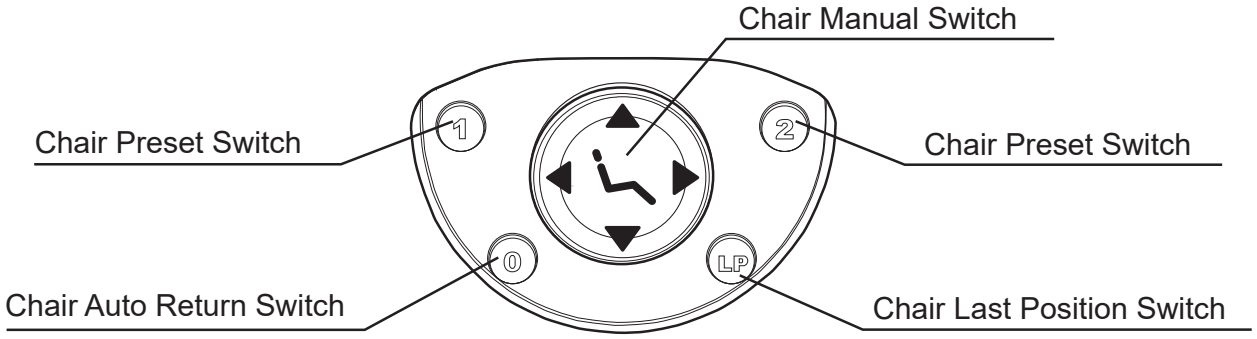
Be sure to turn off the main switch upon completion of work or during work breaks. This prevents incorrect operation due to accidental contact and associated hazards.

⚠ CAUTION

Be sure to operate switches with your hands, except the foot controller, which is operated with your foot. Operation with body parts other than hands may cause damage or incorrect operation.



4-2. Foot Switch



(1) Chair Manual Switch

Switches for manual up/down/backrest reclining of the chair.

Press ▲ will move the chair up.

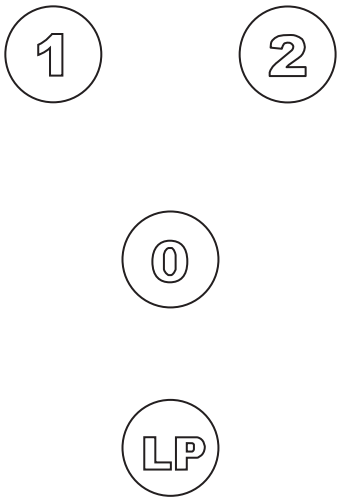
Press ▼ will move the chair down

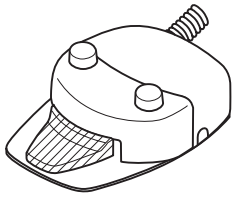
Press ◀ will recline the backrest.

Press ▶ will return the backrest.

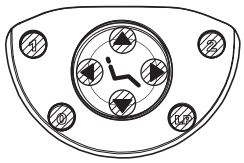
*The chair is moving while pressing a switch.

OPERATIONS AND FUNCTIONS





Foot Controller



Foot Switch

(2) Chair Auto Switch
Chair Preset Switch

- Momentarily press the ① switch, the chair will move to desired preset 1 position automatically.
- Momentarily press the ② switch, the chair will move to desired preset 2 position automatically.

Auto Return Switch

Momentarily press the ⓪ switch will lower the chair to the initial position and raise the backrest.

Last Position Switch

Momentarily press the LP switch with the chair in the treatment position moves the chair to the rinsing position and another press of this switch returns the chair to the original fine-tuned treatment position.

Cancellation Function

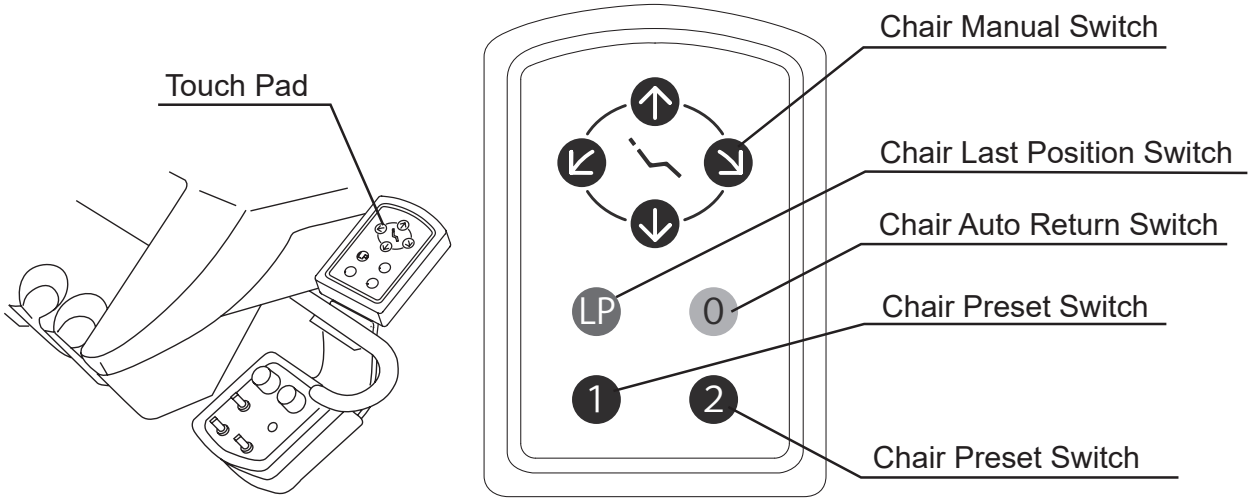
During automatic movement (1,2,0,LP) by depressing shaded area ▨, the automatic movement will be cancel and stopped immediately.

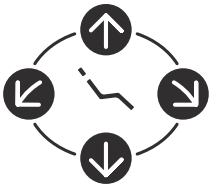
⚠ CAUTION

- **Immediately release any auto mode switches after depressing them, because when any auto mode switches are depressed about five seconds, the chair position will be set up to preset with buzzer sound.**
- **Confirm that the patient is seated in the proper position before operation of the chair and keep your eyes on the patient during operation.**
- **Before operating the chair, confirm that there are no obstacles around this product.**
- **Be careful that the stool will not be caught in the gap between the backrest when the chair is operated with an auto-switch. Damage to the backrest, stool or Doctor's table may occur.**

OPERATIONS AND FUNCTIONS

4-3. Touch Pad (Optional)





(1) Chair Manual Switch

Switches for manual up/down/backrest reclining of the chair.

Press ↑ will move the chair up.

Press ↓ will move the chair down

Press ↙ will recline the backrest.

Press ↘ will return the backrest.

*The chair is moving while pressing a switch.

(2) Auto Mode Control

Chair Preset Switch

• Momentarily press the 1 switch, the chair will move to desired preset 1 position automatically.

• Momentarily press the 2 switch, the chair will move to desired preset 2 position automatically.

Auto Return Switch

Momentarily press the 0 switch will lower the chair to the initial position and raise the backrest.

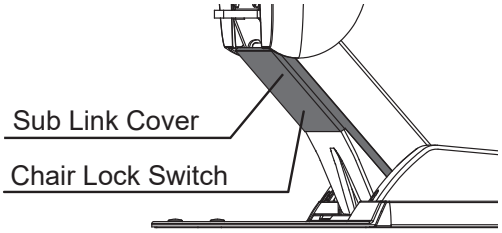
Last Position Switch

Momentarily press the LP switch with the chair in the treatment position moves the chair to the rinsing position and another press of this switch returns the chair to the original fine-tuned treatment position.

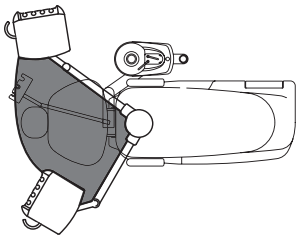
⚠ CAUTION

- **Immediately release any auto mode switches after depressing them, because when any auto mode switches are depressed about five seconds, the chair position will be set up to preset with buzzer sound.**
- **Confirm that the patient is seated in the proper position before operation of the chair and keep your eyes on the patient during operation.**
- **Before operating the chair, confirm that there are no obstacles around this product.**
- **Be careful that the stool will not be caught in the gap between the backrest when the chair is operated with an auto-switch. Damage to the backrest, stool or Doctor's table may occur.**

4-4. Chair motion stop function (safety function)



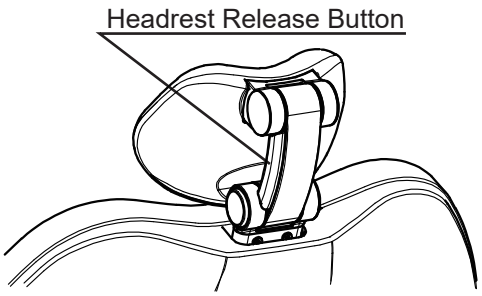
When pressure is detected between the base and the sub link cover. The chair will moving up for a certain period of time and stopped automatically.

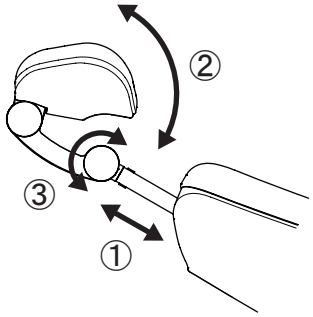


When the doctor table is turned to the back side of the backrest and chair auto motion of the chair is locked.

4-5. Headrest

Twin Articulating Headrest





① Height Adjustment

Hold the headrest bar with both hands and adjust headrest height by pulling out or pressing down on the headrest bar.

② & ③ Angle Adjustment

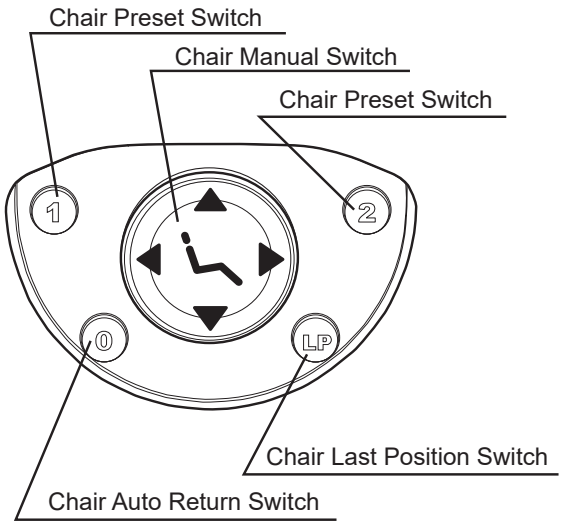
Hold the headrest release button to unlock the twin axis mechanism and adjust headrest angle. The headrest angle is locked when the headrest release button is released.

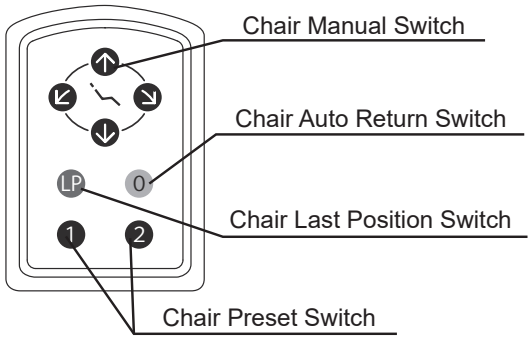
* Does not move the right side release button of headrest, it is fixed.

⚠ CAUTION

- **The headrest will be come off from the backrest in case of pulling too much.**
- **Do not allow hands, fingers or hair to become entangled in the moving parts of the headrest.**
- **Be sure that the headrest is not rattling or making abnormal noise. Moving the headrest while rattling may result in an accident or injury.**

OPERATIONS AND FUNCTIONS





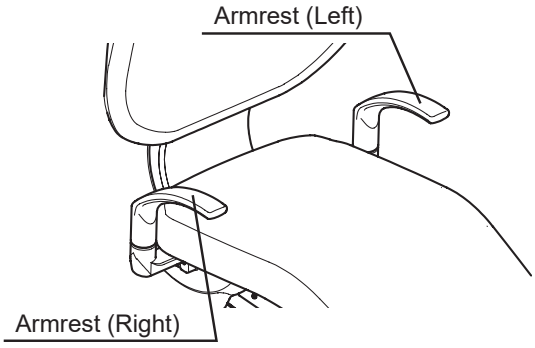
4-6. Chair Auto Operation Setting

(1) Preset position setup procedures

1. Move the chair to the treatment position using manual switches.
2. Upon deciding of the desired treatment position, keep pressing preset switch ① , ② or ⓪ to be set for about 5 seconds. The buzzer sounds from the chair, and setup has been completed.
3. To change the set position, perform the procedures steps 1 and 2 above.

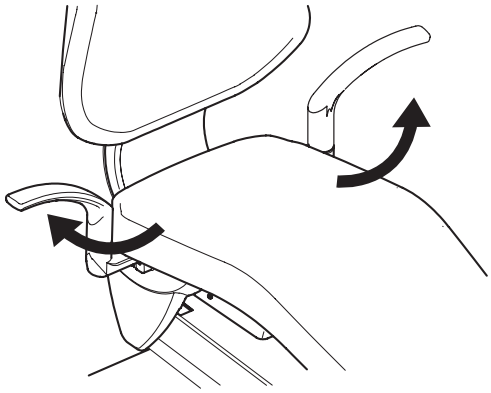
(2) Last position setup procedures

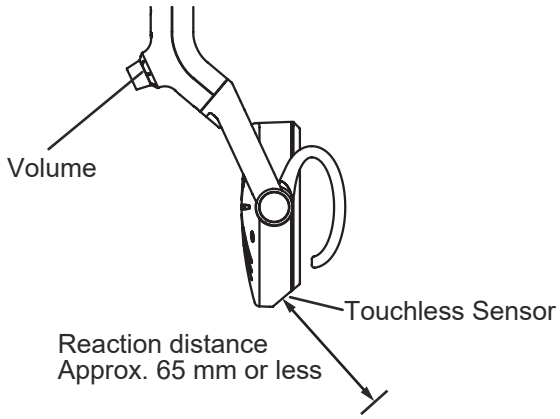
1. Move the chair to the rinsing position using manual switches.
2. Upon deciding the desired rinsing position, keep pressing last position switch LP for about 5 seconds. The buzzer sounds from the chair, and setup has been completed.
3. To change the set position, perform the procedures steps 1 and 2 above.

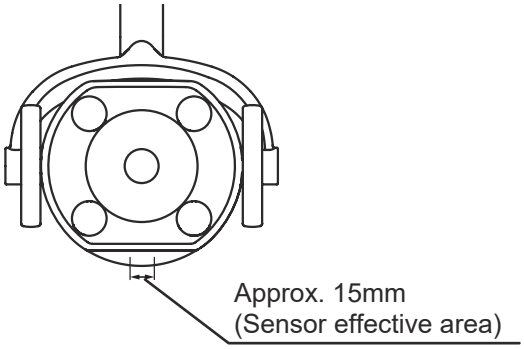


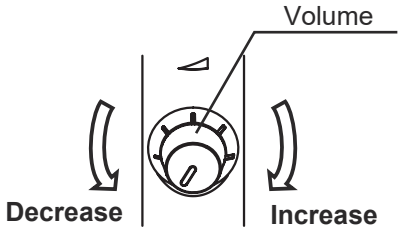
4-7. Armrest Rotation

The right side armrest (optional) can be rotated 90 degrees to the outside.









4-8. 300LED Dental Light (Type 320S)

(1) Touchless Switch

The dental light turned on when you approach your hand within approximately 65 mm from the touchless switch surface. It goes out when you approach your hand again.

* If the surface of a touchless switch becomes unclean, this may affect the sensitivity of the sensor.
Please wipe the surface of a touchless switch with a soft cloth.

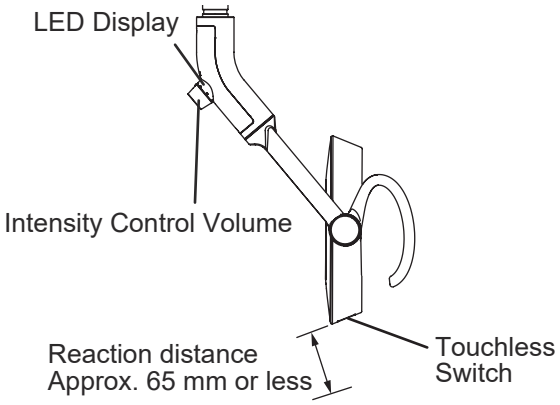
(2) Mode Selection

During normal treatment mode, while the light is on, place and hold your hand within 65mm from the touchless sensor for certain time. The light intensity will be automatically reduced to the composite mode. To switch back to the normal treatment mode, place your hand by the touchless sensor for certain time again.

* When the light is turned off in the composite mode, it goes on in the normal treatment mode when it is turned on.

(3) Intensity Control (Only for normal treatment mode)

It can adjust intensity by intensity control volume.
During composite mode, intensity can't be adjusted.



4-9. 900 Dental Light (Type 920PAS)

(1) Main Switch and Operation Switch

The dental light can be turned on and off with the touchless switch.

(2) Touchless Switch

The dental light turned on when you approach your hand within approximately 65 mm from the touchless switch surface. It goes out when you approach your hand again.

* If the surface of a touchless switch becomes unclean, this may affect the sensitivity of the sensor.

Please wipe the surface of a touchless switch with a soft cloth.

(3) Intensity Control (Only for normal treatment mode)

It can adjust intensity by intensity control volume.

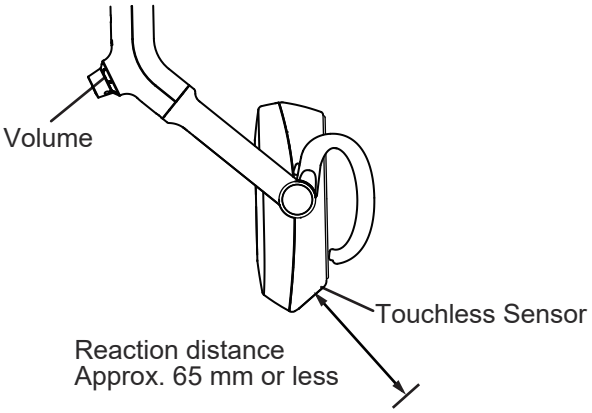
	LED Display
Normal Treatment Mode	Light ON (Green)

(4) Changing into composite mode

When you hold your hand within 65 mm from the touchless switch for certain time, the LED display begins to blink in green and the mode changes to composite mode. When you leave your hand once and hold it above the touchless switch again for certain time, the LED display is lit in green and mode changes to the normal treatment mode.

* When the light is turned off in the composite mode, it goes on in the normal treatment mode when it is turned on again.

	LED Display
Composite Mode	Blinks (Green)



4-10. EURUS LIGHT

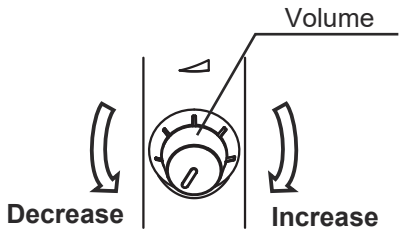
(1) Touchless Switch

The dental light turned on when you approach your hand within approximately 65 mm from the touchless switch surface. It goes out when you approach your hand again.

* If the surface of a touchless switch becomes unclean, this may affect the sensitivity of the sensor.
Please wipe the surface of a touchless switch with a soft cloth.

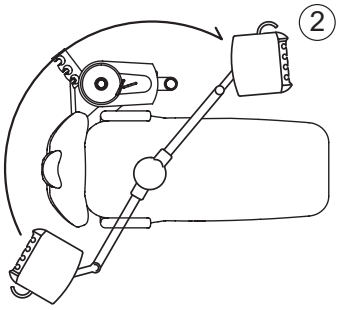
(2) Mode Selection

During normal treatment mode, while the light is on, place and hold your hand within 65mm from the touchless sensor for certain time. The light intensity will be automatically reduced to the composite mode. To switch back to the normal treatment mode, place your hand by the touchless sensor for certain time again.
* When the light is turned off in the composite mode, it goes on in the normal treatment mode when it is turned on.



(3) Intensity Control (Only for normal treatment mode)

It can adjust intensity by intensity control volume.
During composite mode, intensity can't be adjusted.



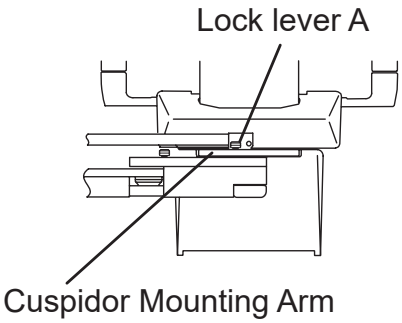
5. Right/Left handed dentistry conversion

Please confirm before convert to right or left handed position

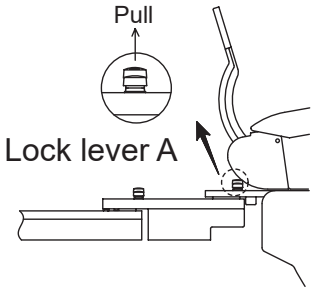
① Bring the chair to the lowest position and backrest upright position.

- Turn off the main switch for safety.
- Confirm that there are no obstacles around this product.

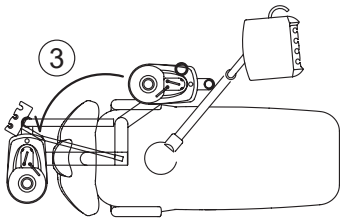
Example : Change Right handed position to left handed position.



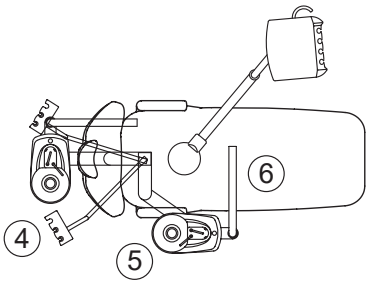
② Swing the doctor table to the cuspidor side.



③ Pull up the lock lever A on the cuspidor mounting arm and swing the cuspidor unit to behind the chair.



④ Remove the assistant holder from assistant arm and swing the assistant arm to other side. Reattach the assistant holder to the assistant arm.



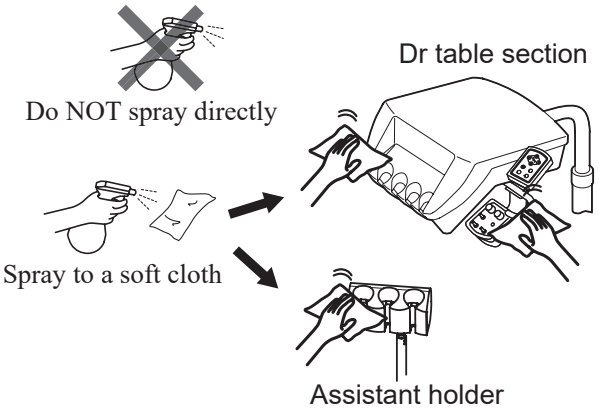
⑤ Swing the cuspidor unit to the other side and lock the cuspidor mounting arm with lock lever A.

⑥ Swing the dental light slightly to other side.

⚠ CAUTION

- **Be carefully when moving the doctor table. Not to contact the doctor table with the cuspidor unit.**
- **Take care not to pinch the vacuum hose and saliva ejector hose between the assistant arm and the cuspidor swing arm during this work.**

CARE AND MAINTENANCE



6. Care and Maintenance

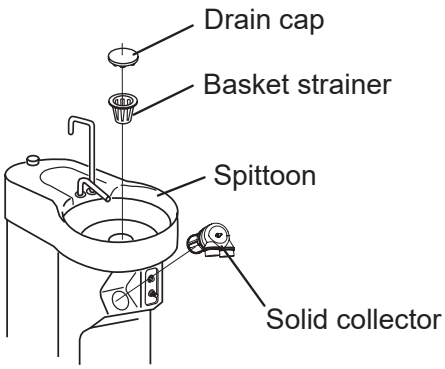
6-1. Unit Section

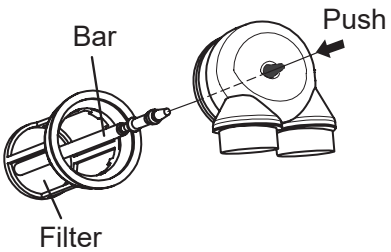
(1) Cleaning and disinfection of product exterior

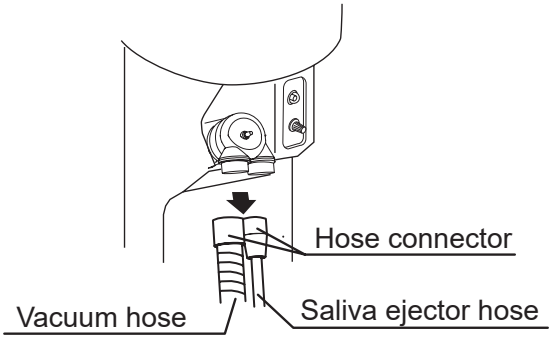
- Use FD366 made by Dürr or ethanol as sprayed to a soft cloth for cleaning and disinfection of the product exterior.
- Clean the metallic parts and resin parts with a wet soft cloth.

⚠ CAUTION

- **Do not spray liquids directly onto unit surfaces, holder and operation panel. In order to prevent damage to electrical components and system.**
- **If there is stains, wipe clean as quickly as possible with a 10% detergent solution diluted using water to prevent permanent staining and fully wipe off the moisture with dry and soft cloth.**
- **For cleaning the resin cover, do not use cleaning agents containing solvent or abrasives, thinners or oil-based alcohol (butanol and isopropyl alcohol), which may cause cracks.**
- **Wipe off water and residual disinfectant immediately. This could cause corrosion, damage or incorrect operation of the unit.**







(2) Cleaning of Spittoon Section

Remove the drain cap and the basket strainer in center of the spittoon and clean them.

(3) Solid Collector

Detach and wash the filter in the solid collector of the cuspidor unit at the end of each workday. If sucked substances are collected, the suction force of the vacuum is reduced.

1. Pull out and detach the filter in the solid collector from cuspidor unit.
2. The filter can be removed from solid collector by pushing the bar from front side of the solid collector and clean with running water.

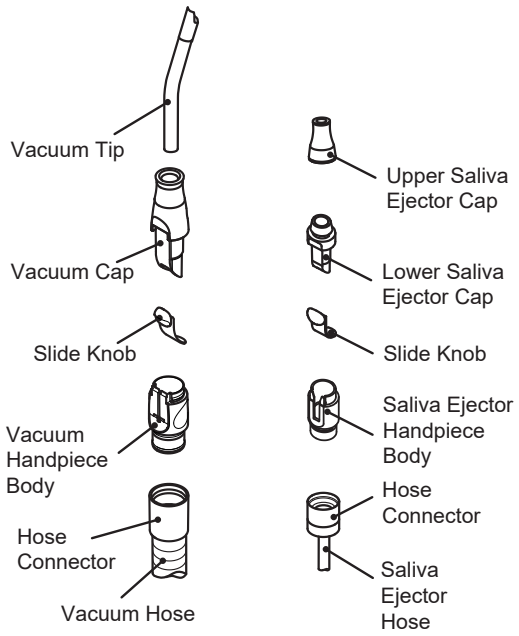
* The filter is expendable supplies. If damage occures to the filter, replace with new filter.

⚠ CAUTION

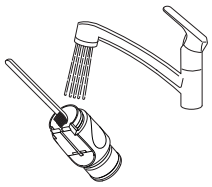
Clean the filter with running water.
Do not use brush to clean the filter which may damage to the filter.

The vacuum hose and saliva ejector hose may be disconnected by pulling them down. They may be cleaned in running water.

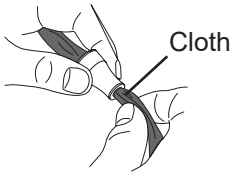
CARE AND MAINTENANCE



Vacuum handpiece and saliva ejector handpiece



Cleaning of hole and sliding part



Cleaning the area
(brush is unable to reach)

(4) Handpiece

1. Vacuum Handpiece / Saliva Ejector Handpiece

Cleaning must be done every after use to patients.
For effective sterilization, washing for removing contamination and immersion by a cleaning agent are required. Then, rinse by water in order to remove residual cleaning agent on medical device.
Take following procedures from cleaning to sterilization.
* Use the disposable saliva ejector tip.

[Disassembly]

Disassemble the handpiece for the preparation of cleaning as the following figures show.
Pull the hose connector to disconnect the vacuum hose.

[Cleaning by hand]

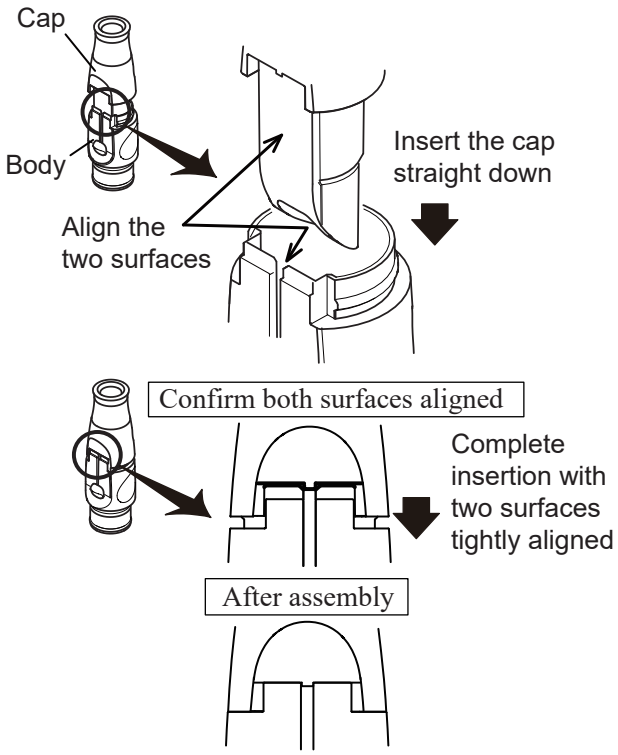
1. Wipe off the surface contamination by a cloth while rinsing the surface by running clean warm water at 40±5 degrees. Scrub the intubation or hole, slide groove and filter by a cleaning brush or by a tooth brush with running clean warm water at 40±5 degrees. Wipe off by a cloth for the area which brush is unable to reach.
2. Check whether contamination is removed or not after cleaning. Continue the cleaning if contamination is remained.
3. Immersed with an alkaline disinfection or detergent for 5 minutes. (We recommend to use ID212 made by Dürr)
4. Rinse thoroughly by distilled water at ordinary temperature or by clean water for more than 1 minute.

⚠ CAUTION

Cleaning must be done within 1 hour after use.
Replace with a new vacuum handpiece and saliva ejector handpiece for following cases.
- **Any waste material can not be removed by clogged hole.**
- **Contamination and solid material attached to vacuum handpiece and saliva ejector can not be removed.**

CARE AND MAINTENANCE

Assembly before sterilization (Vacuum Handpiece)



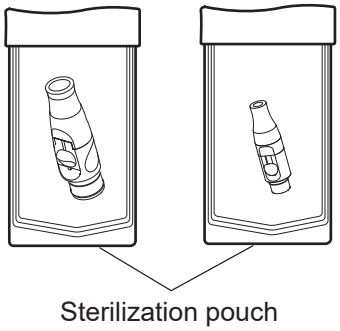
[Sterilization]

Sterilization must be done every after use to patients. Vacuum Tip/Vacuum Cap/ Vacuum Handpiece Body/ Saliva Ejector Handpiece Body can be autoclave. Vacuum handpiece body and saliva ejector body have to assemble before autoclave.

When assembling the vacuum handpiece, align the two surfaces; a flat surface of the cap and the surface of the sliding groove of the body. Then, slide the cap into the body straight.

*** Do not insert it twisted.**

Vacuum Handpiece and Saliva Ejector Handpiece



A. Insert the handpiece in a sterilization pouch and seal it.
B. Autoclave for 3 min. at 134℃ and dry for 15 min.
Sterilization with autoclave is permitted up to 250 times. However, sterilization of the slide knob with autoclave is permitted up to 100 times (because of application of load at the time of sliding).

Storage

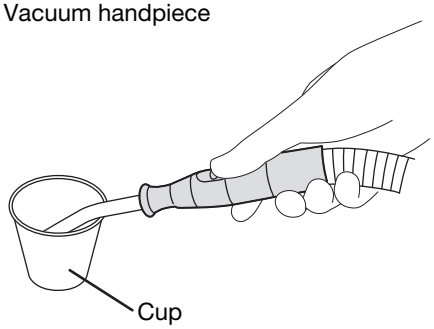
After sterilizing the handpiece, keep it in the sterilization pouch and store in a dark and cool place.

⚠ CAUTION

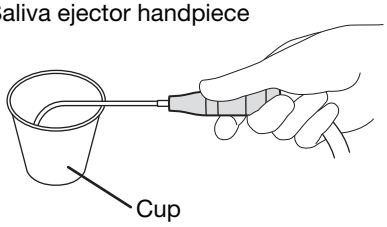
- **Sterilization by class B cycles.**
- **Sterilization temperature is 135 ℃ or less.**
- **The cap, filter and body are made of resin. They may become deteriorated if they are sterilized in an autoclave many times.**
- **After autoclave sterilization, the cap, filter, body and valve are subject to discoloration, which does not have a negative effect on performance.**
- **The slide knob can be autoclave 100 times and is expendable supplies.**
- **Do not perform the drying process and dry naturally if the temperature for drying process is to exceed 135℃.**
- **If damage occurs to the sterilization pouch, discard and sterilize again using a new pouch.**

CARE AND MAINTENANCE

Vacuum handpiece



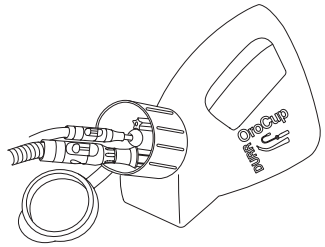
Saliva ejector handpiece



Vacuum handpiece / Saliva ejector handpiece
Suction a cup of water (approx. 100 ml) or more into the vacuum and saliva ejector handpieces after use by a patient. This is to clean and dilute the medicine used and to prevent the handpieces deteriorating.

⚠ CAUTION

Some medicines used for the procedure may cause deterioration of the handpiece. It may dissolve, deform, or damage part of the handpiece, possibly resulting in leaks from the handpiece or suction failure. This will ultimately makes the handpiece unusable.
Please wash them properly to ensure long-term use.



Cleaning vacuum and saliva ejector lines

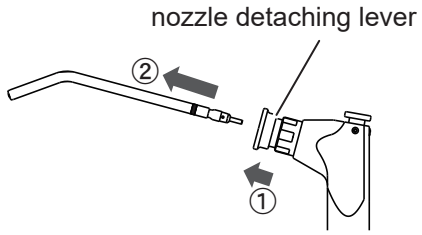
2. Cleaning of vacuum / saliva ejector lines
The sucking unit comes into contact with secretions, spit and blood that contain bacteria every day. Be sure to clean and sterilize it at the end of each workday.
Recommended cleaner : Orotol Plus made by Dürr.

⚠ CAUTION

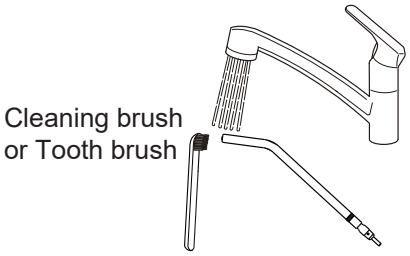
Do not use strongly acidic cleaning agents or alkaline pipe cleaning agents, which may cause corrosion of metals, etc/

3. Micromotor / Air Motor / Turbine / Scaler
Observe instructions given in handpiece instruction manuals for the care of handpieces.

CARE AND MAINTENANCE



Disassembly



Cleaning

4. Cleaning of Belmont 77 syringe

[Disassembly]

To prepare for washing, disassemble the nozzle as shown in the figure. Pull the ① nozzle detaching lever to unlock the nozzle, ② then the nozzle is detachable.

[Washing]

Hand washing

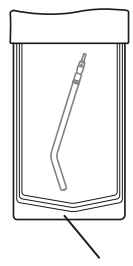
Wipe off the surface contamination by a cloth while rinsing the surface by running clean warm water at 40±5 ℃.
Scrub the tip and joint part of nozzle by a cleaning brush or by a tooth brush with running clean warm water at 40±5 ℃.
Check whether contamination is removed or not after cleaning. Continue the cleaning if contamination is remained.
Immersed with an alkaline disinfection or detergent for 5 minutes. (We recommend to use ID212 made by Dürr)
Rinse thoroughly by distilled water at ordinary temperature or by clean water for more than 1 minute.

Hand washing/Ultrasonic bath

Clean nozzle under running water for 30 seconds with a soft brush and place in an ultrasonic bath with an enzymatic cleaner to remove superficial debris prior to sterilization.
If debris remains, the nozzle will not be properly sterilized.

⚠ CAUTION

- **Cleaning must be done every after use to patients.**
- **Wash the nozzles immediately after use.**
- **If chemicals or foreign substances adhere to the nozzle, failure may result or discoloration may occur. Therefore, cleaning and washing must be done before autoclave sterilization.**
- **If the dirt cannot be removed, replace the nozzles.**
- **The handpieces can be autoclaved up to 250 times.**



Sterilization pouch
Sterilization

[Sterilization]

Choose the appropriate method from the following sterilization cycles depending on the type of the autoclave sterilizer in your clinic:

[Dynamic-Air-Removal]

1. Insert the nozzle in a sterilization bag and seal it.
2. Autoclave them at a temperature of

134ºC for 3 minutes with a 15-minute drying time.

[Gravity displacement]

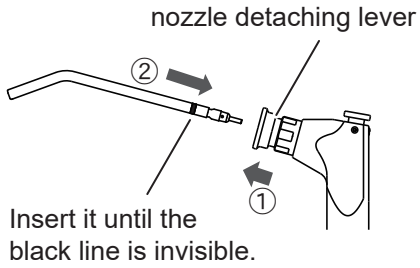
1. Insert the nozzle in a sterilization bag and seal it.
2. Autoclave them at a temperature of

132ºC for 15 minutes with a 30-minute drying time.

CARE AND MAINTENANCE

⚠ CAUTION

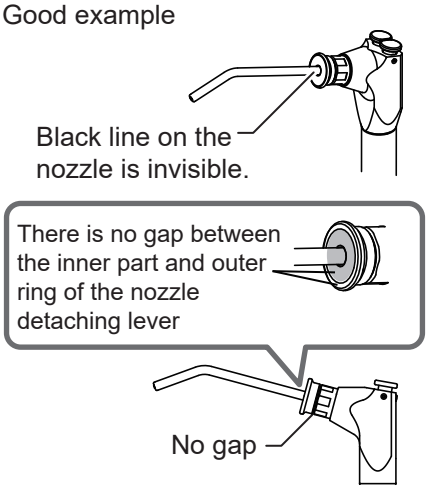
- **Sterilization must be done every after use to patients.**
- **Sterilization by class B cycles.**
- **Sterilization temperature is 135°C or less.**
- **Do not perform the drying process and dry naturally if the temperature for drying process is to exceed 135°C.**
- **If damage occurs to the sterilization pouch, discard and sterilize again using a new pouch.**



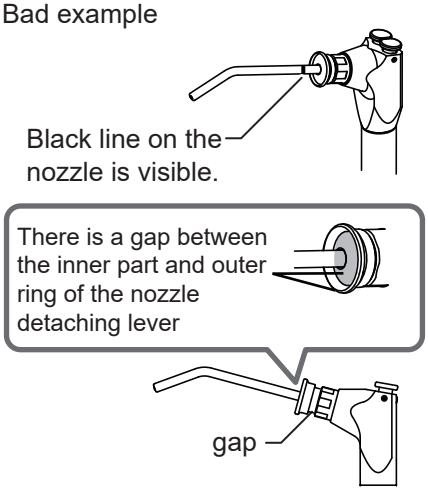
Attaching the nozzle

Example of attaching nozzle

Good example



Bad example



[Storage]

After sterilizing the nozzle, keep it in the sterilization pouch and store in a dark and cool place.

[Attaching the nozzle]

Pull the ① nozzle detaching lever and insert the nozzle until ② the black line is invisible shown in the left figure. Release the nozzle detaching lever and pull the nozzle a little. It clicks and locked.

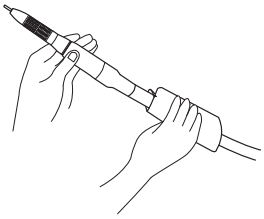
After the nozzle is attached, confirm that the nozzle cannot be detached when pulling it.

Follow the example of attaching nozzle shown in the figure, and check the nozzle is securely attached.

⚠ WARNING

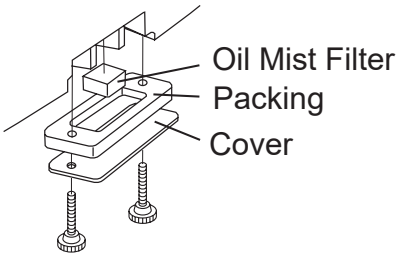
If 77 type 3way syringe is used with its nozzle not securely attached, it may burst out when spraying water or air, and may harm users or other people. Confirm that the nozzle is securely attached before its use.

CARE AND MAINTENANCE



5. Handpiece hose

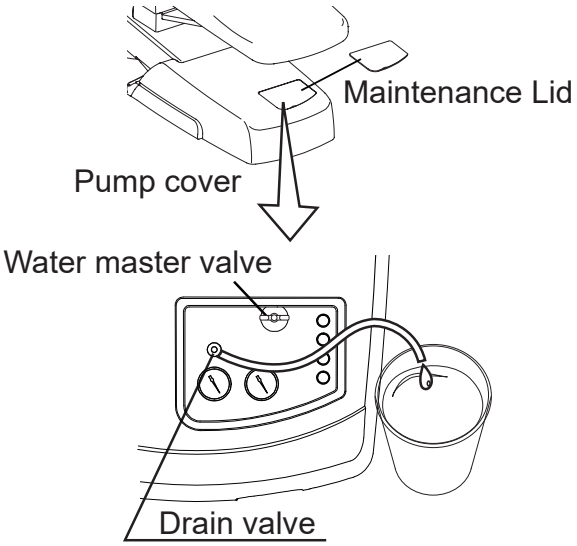
Carefully wipe away the filth from the handpiece hose by using FD366 made by Dürr sprayed to a soft cloth for cleaning and disinfection.



6. Oil mist separator

Handpiece oil mist separator is located rear side of the doctor table.

Once a week open the oil mist separator and clean the oil mist filter.



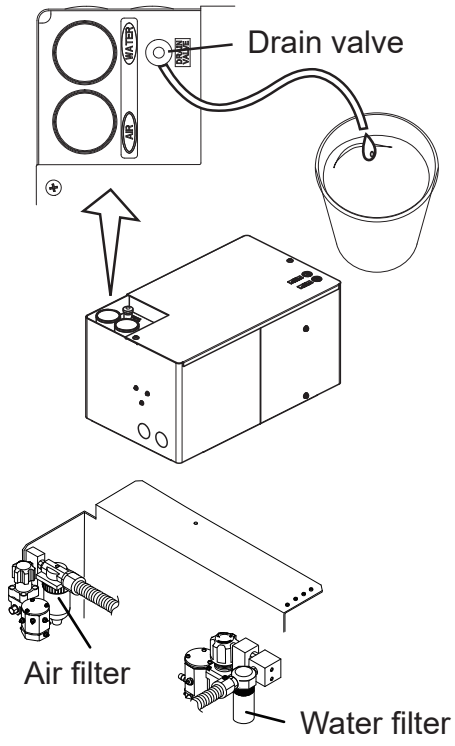
7. Cleaning air filter drain valve and discharging water from air compressor

- Drain valve is used to discharge water from the air filter.
- Turn the drain valve counterclockwise to discharge water collected in the air filter once a week at least.
- If water enters the unit, the air turbine, air motor or syringe, etc., may become defective. Be sure to turn the drain valve clockwise to close the valve after discharging water from the air filter.
- Open the drain valve of the air compressor to discharge collected water once a week.
- It is recommend that the compressor with air dryer or auto drain function for use.
- Turn OFF the main water valve after daily operation and for long term intervals.
- Filter Replacement

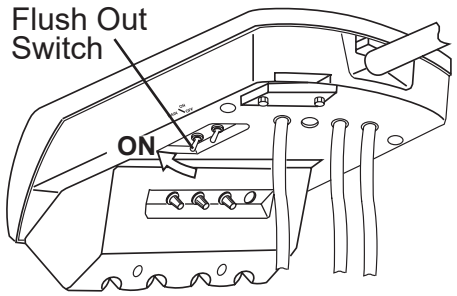
  The water filter in the junction box needs to be replaced at least once a year.

  The air filter in the junction box needs to be replaced at least once every three years. Contact your local service representative for replacement.

Module Type
(City Water System Type)



CARE AND MAINTENANCE

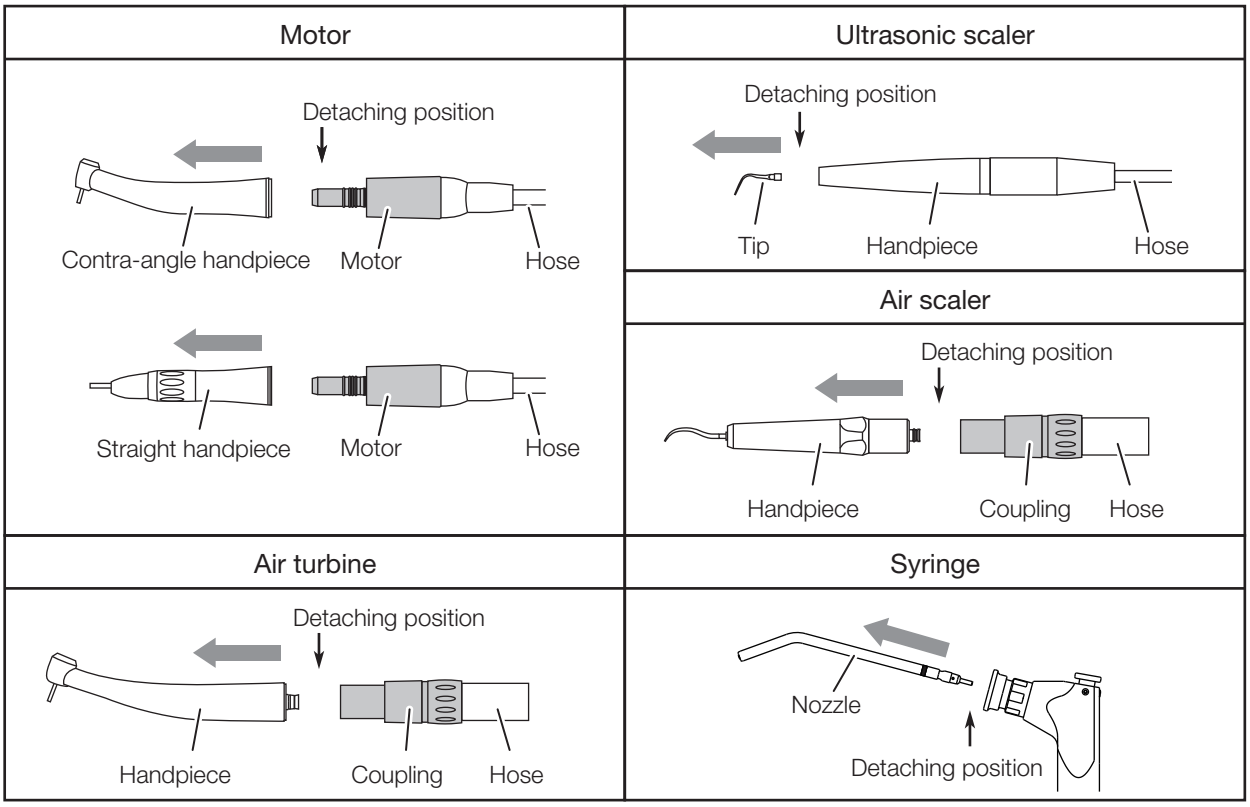


8. Flush out system (Optional)

Fluh out switch is located underneath the doctor table. Pick up a handpiece from the handpiece holder, then turn on the flush out switch by pushing the lever to the right. While pushing the lever, coolant water from the handpiece keeps coming out. To stop the flush out, take your finger off the lever.

Preparing handpieces/syringe for flushing

Set the right side of the detaching position in the cuspidor bowl.

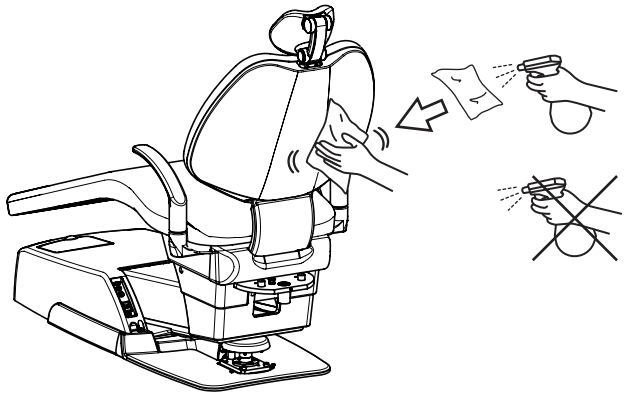


NOTICE

- **After flushing, wipe the handpiece with a soft cloth to remove excess moisture.**
- **When picking up the handpiece after flushing, remaining air may be discharged. This is normal.**

CARE AND MAINTENANCE

6-2. Chair Section



• The surface of the chair's seating area is made of synthetic leather. Apply dry wiping, wipe the surface with wet cloth or moistened with a 10% detergent solution diluted using water. In case the synthetic leather is wiped with a wet cloth, fully wipe off the moisture with dry cloth.

•If the color of clothing or belt remained on the synthetic leather, wipe it off with cloth moistened with a 10% detergent solution diluted using water as soon as possible, to avoid penetration.

•In case the synthetic leather is wiped with a wet cloth, fully wipe off the moisture. If it remains, hydrolytic degradation may be accelerated. Do not use solvent and bleach.

•Use FD366 made by Dürr for cleaning and disinfection of the product exterior.

• Apply dry wiping using a dry and soft cloth to metallic and resin cover areas.

⚠ CAUTION

- **If there is stain, wipe clean as quickly as possible with a 10% detergent solution diluted using water to prevent permanent staining and fully wipe off the moisture with dry and soft cloth.**
- **Do not place any hard and heavy article or any article having a sharp tip or edge on the chair's seating area. The synthetic leather may be damaged otherwise.**
- **For cleaning the resin cover, do not use cleaning agents containing solvent or abrasives, thinners or oil-based alcohol (butanol and isopropyl alcohol), which may cause cracks.**
- **If any metallic area is wetted, wipe off the moisture as soon as possible. They may facilitate rust generation.**

7. Care Storage, Lifetime, Disposal and Restrictions of Use

7-1. Storage method

Strictly observe the following points when the product will not be used for a long period of time.

1. MASTER Switch
   Be sure to turn off the main switch at the end of each workday.
2. Water / Air main valve
   • Be sure to turn the main water valve counterclockwise to the close position at the end of each workday.
   • Be sure to turn the main air valve counterclockwise to the close position at the end of each workday.
3. Be sure to turn off the compressor breaker and then discharge air from the compressor.
   (Be sure to turn off the power.)
4. Be sure to turn off the vacuum pump breaker. (Be sure to turn off the power.)
5. Be sure to turn off the equipment breaker on the clinic's electrical panel.
6. Chair
   Turn OFF the main switch at the lowest seat position after daily operation and for a long term interval.

7-2. Lifetime

The durable period of this product is 10 years (self-certification based on in-house data), provided regular maintenance and inspection is done. However, parts requiring periodical maintenance have different durability periods. See the section on maintenance and inspection.

7-3. Consumable parts

The consumable parts are predicted to be abrasion, deterioration, and changes in external appearance or damage through use. Please note that repair or replacement of these parts is not covered by warranty, and fees will be required.

* The level and period of abrasion, deterioration or damage may differ depending on the usage environment and usage conditions of this product.

7-4. Stock period of parts

Our company will keep maintenance parts of the products such as consumables and periodical replacement parts, etc., for 10 years after sales.

Note : Maintenance parts means parts necessary for repair services for restoring the original conditions and functions of the product and maintaining those functions.

BEFORE ASKING FOR REPAIRS

BEFORE ASKING FOR REPAIRS

If any of phenomena described below has occurred, make the following checks before asking for repairs.

Phenomenon	Check point and result	Action to be taken
The product does not work at all.	MASTER Switch／Main Switch is not on.	Turn on MASTER Switch／Main Switch.
	Air compressor power is not on.	Turn on the power.
	Equipment circuit breaker in the clinic cabinet panel is not on.	Turn on the equipment circuit breaker.
The chair does not work.	Locking device for motion stop is activated.	Unlock the device. See pages 19 & 26.
Water is not supplied.	Water main valve is closed.	Open the water main valve.
	Water flow rate control valve or knob for handpiece or the like is closed.	Open the valve or knob.
Vacuum suction does not work.	Vacuum pump power is not on.	Turn on the power.
	Filter of solid collector is filthy.	Clean the filter.
	Filter of vacuum handpiece is filthy.	Clean the filter.
Saliva ejector handpiece does not make suction.	Filter of saliva ejector handpiece is filthy.	Clean the filter.
	Solid collector is not installed correctly.	Have a solid collector mounting correctly.

If the unit does not normally work even if actions were taken upon checkup stated above, then stop using the unit, turn off the MASTER Switch Main switch and contact your local authorized Belmont dealer.

DIMENSIONS AND SPECIFICATIONS

9. Specifications

9.1. Standard Type

● Product Code ---------- AC-V3L-CD230V

● Power Consumption ---------- AC230V 4.0A

● Frequency ---------- 50Hz

● Fuse ---------- Primary

Junction Section : 8.0A/250V (Breaking capacity : 80A/250VAC)
Operating speed : Time lag Size : 5.0 x 20mm

Chair : 5A/250V (Breaking capacity : 50A/250VAC)
Operating speed : Fast blow Size : 5.0 x 20mm

Power Plug : 13A/240V(Breaking capacity : 6kA/264VAC)
Operating speed : Fast blow Size : 6.3 x 25.4mm

Secondary

Cuspidor Section : 6.3A/250V (Breaking capacity : 63A/250VAC)
Operating speed : Fast blow Size : 5.0 x 20mm

● Weight ---------- Doctor + Cuspidor 62kg
Chair 126kg

● Maximum Load ---------- Chair (maximum patient mass) 150kg
Doctor table 3kg

● Air main pressure ---------- 0.5MPa

● Water main pressure ---------- 0.2MPa

● Dental Light ---------- 300LED DENTAL LIGHT TYPE 320S
900 DENTAL LIGHT TYPE 920PAS
EURUS LIGHT

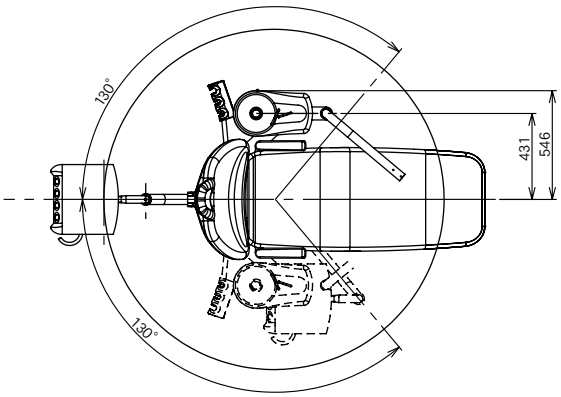
● Classification of foot controller ---------- IPX1 (applicable standard IEC60529)

● Protection class against electric shock ---- Class I equipment

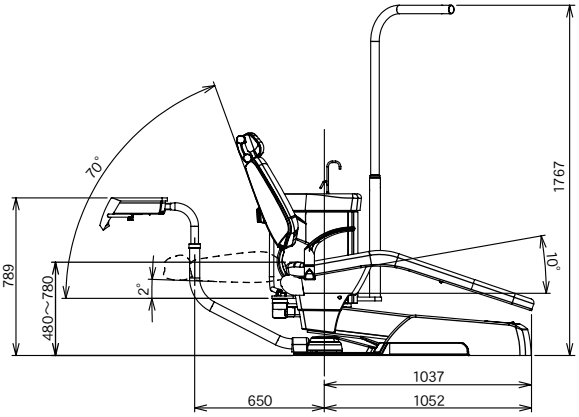
● Applied parts ---------- Type B applied parts : Handpiece for unit, Seat for chair
(List of compatible handpieces)

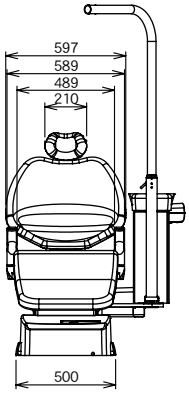
● Mode of operation ---------- Non-Continuous Operation
Duration of Maximum Operating Time : 3min, DUTY 1:11

● Service Life ---------- 10 years



Dimensions (Figures represent standard values)
Unit : mm
Dimensional tolerance : ± 10%





Refer to the rating plate for the capacity of power supply.
The specification is subject to change without notice.

DIMENSIONS AND SPECIFICATIONS

9. Specifications

9.2. Split Type

● Product Code ---------- AC-V3L-CDS230V

● Power Consumption ---------- AC230V 4.0A

● Frequency ---------- 50Hz

● Fuse ---------- Primary

Junction Section : 8.0A/250V (Breaking capacity : 80A/250VAC)
Operating speed : Time lag Size : 5.0 x 20mm

Chair : 5A/250V (Breaking capacity : 50A/250VAC)
Operating speed : Fast blow Size : 5.0 x 20mm

Power Plug : 13A/240V(Breaking capacity : 6kA/264VAC)
Operating speed : Fast blow Size : 6.3 x 25.4mm

Secondary

Cuspidor Section : 6.3A/250V (Breaking capacity : 63A/250VAC)
Operating speed : Fast blow Size : 5.0 x 20mm

● Weight ---------- Cuspidor 30kg
Chair 126kg

● Maximum Load ---------- Chair (maximum patient mass) 150kg

● Air main pressure ---------- 0.5MPa

● Water main pressure ---------- 0.2MPa

● Dental Light ---------- 300LED DENTAL LIGHT TYPE 320S
900 DENTAL LIGHT TYPE 920PAS
EURUS LIGHT

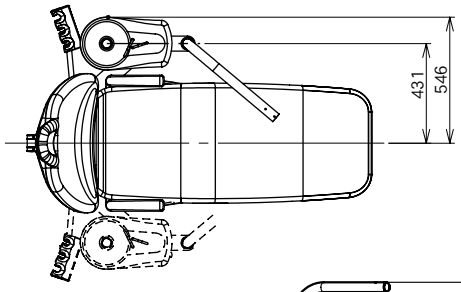
● Classification of foot controller ---------- IPX1 (applicable standard IEC60529)

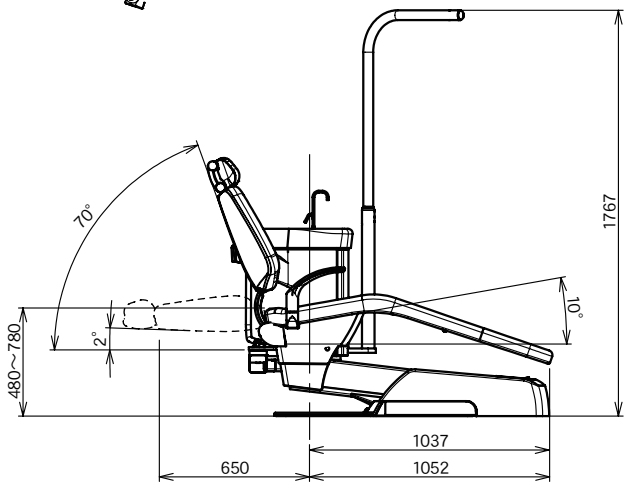
● Protection class against electric shock ---- Class I equipment

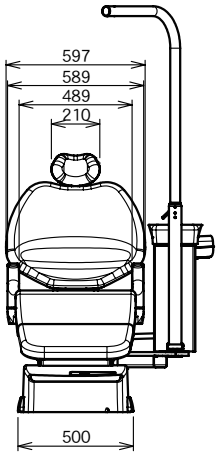
● Applied parts ---------- Type B applied parts : Handpiece for unit, Seat for chair
(List of compatible handpieces)

● Mode of operation ---------- Non-Continuous Operation
Duration of Maximum Operating Time : 3min, DUTY 1:11

● Service Life ---------- 10 years







Dimensions (Figures represent standard values)
Unit : mm
Dimensional tolerance : ± 10%

Refer to the rating plate for the capacity of power supply.
The specification is subject to change without notice.

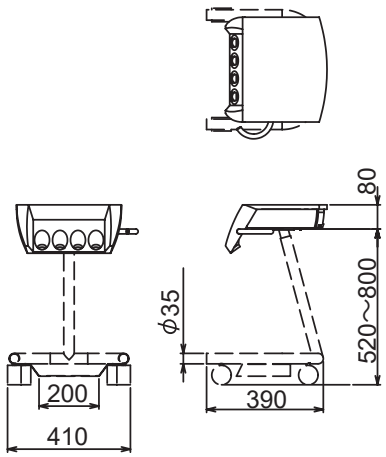
DIMENSIONS AND SPECIFICATIONS

9.Specifications

9.3. Module Type (Clean Water System Type)

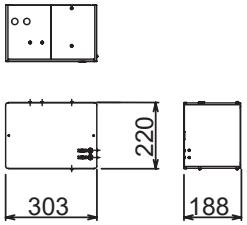
- Product Code ---------- AU-V3L-D-E
- Power Consumption ---------- AC230V 4.0A/4.0A
- Frequency ---------- 50/60Hz
- Fuse ---------- Primary
  - Junction Section 8.0A/250V (Breaking capacity : 80A/250VAC)
    Operating speed : Time lag Size : 5.0 x 20mm
  - Power Plug : 13A/240V(Breaking capacity : 6kA/264VAC)
    Operating speed : Fast blow Size : 6.3 x 25.4mm
- Weight ---------- Doctor Table 20kg
- Air main pressure ---------- 0.5MPa
- Classification of foot controller ---------- IPX1 (applicable standard IEC60529)
- Protection class against electric shock ---- Class I equipment
- Applied parts ---------- Type B applied parts : Handpiece for unit, (List of compatible handpieces)
- Service Life ---------- 10 years

Doctor table Section



Dimensions (Figures represent standard values)
Unit : mm
Dimensional tolerance : ± 10%

Junction Section



Refer to the rating plate for the capacity of power supply.
The specification is subject to change without notice.

DIMENSIONS AND SPECIFICATIONS

9. Specifications

9.4. Module Type

● Product Code ---------- AU-V3L-D-EFR (City Water System Type)
AU-V3L-D-EFRW (Clean Water System Type)

● Power Consumption ---------- AC230V 0.8A/0.8A

● Frequency ---------- 50/60Hz

● Fuse ---------- Primary
Junction Section : 8.0A/250V (Breaking capacity : 80A/250VAC)
Operating speed : Time lag Size : 5.0 x 20mm
Power Plug : 13A/240V(Breaking capacity : 6kA/264VAC)
Operating speed : Fast blow Size : 6.3 x 25.4mm

● Weight ---------- Doctor Table 20kg

● Air main pressure ---------- 0.5MPa

● Water main pressure ---------- 0.2MPa

● Classification of foot controller ---------- IPX1 (applicable standard IEC60529)

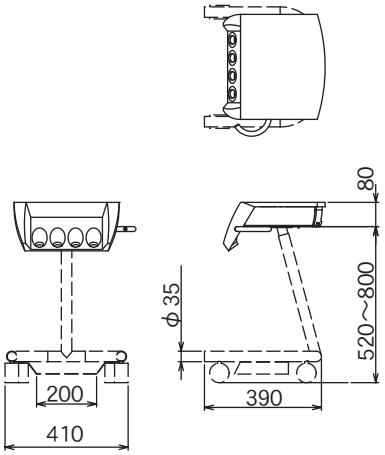
● Protection class against electric shock ---- Class I equipment

● Applied parts ---------- Type B applied parts : Handpiece for unit, (List of compatible handpieces)

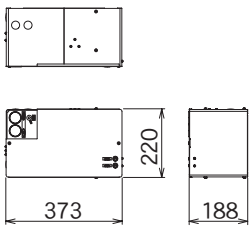
● Service Life ---------- 10 years

Doctor table Section

Dimensions (Figures represent standard values)
Unit : mm
Dimensional tolerance : ± 10%



Junction Section



Refer to the rating plate for the capacity of power supply.
The specification is subject to change without notice.

DIMENSIONS AND SPECIFICATIONS

9.5. Specifications for Air/Water/Suction

● Water supply : Pressure: 0.2-0.4 MPa
Minimum water flow: 6 L/min
Hardness : Less than 2.14mmol/L (< 12-dH)
pH: 6.5-8.5
Particle water filter : 100 µm
Water quality : Must satisfy the national requirements pertaining to drinking water.
Comply with the national requirements concerning the connection of the Voyager III to the public drinking water supply.

● Air supply : Pressure: 0.5-0.7 MPa
Minimum flow rate: 100 L/min
Humidity : 10 to 95% (No condensation)
Oil contamination : Max 0.5mg/m^3
Particle contamination : Particle size (1 m - 5 m), less than 100/m^3
Particle air filter : 5 µm

● Type of air volume flow rate : type 1: high - volume suction system

● VH-18 HVE : Tip size:Φ11/Φ16

MAINTENANCE AND INSPECTION

10. Maintenance and Inspection

10-1. Guide for daily maintenance and inspection (Maintenance and inspection by user)

Management of maintenance and inspection of medical equipment should be implemented by the user (medical institution).

For safe use of this product, it is necessary that inspection should be conducted in the specified frequency on the items described below.

No.	Item	Frequency	Inspection method and diagnosis	Influence if inspection not conducted	Maintenance required in case of nonconformity
1	Check of safety functions	Before start	Make sure the chair auto movement stops by any of the following actions. • when foot controller pedal is depressed. • when Dr.table is moved to upward or downward. • when any of foot switch is depressed • when Dr.table is located behind the chair. • When sub link cover is pushed.	Unexpected personal injury and troubles may arise due to motion of the chair during medical treatment and due to pinching between doctor section and chair.	Contact your local authorized Belmont dealer if any abnormality arises.
2	Check for leakage of water, air and oil.	Before start	Leakage of water,air and oil shall not be observed around the product.	The product will not normally work, and troubles may arise.	Contact your local authorized Belmont dealer if any abnormality arises.
3	Check of motions of equipment	Before start	①Air turbine revolution,water flow, air flow and so forth shall be free of abnormality. ②Micromotor revolution, water flow and so forth shall be free of abnormality. ③Scaler vibration, water flow and so forth shall be free of abnormality.	Troubles such as injury in patient's oral cavity and equipment failure may arise.	Control the water flow in accordance with "Control of components" described in the instruction manual. If any other abnormality arises, refer to the instruction manual attached to individual equipment. Contact your local authorized Belmont dealer if recovery is not achieved.
4	Check of air turbine bar	For each patient	Appropriate bar shall be positively mounted. Make sure to refer to the instruction manual attached to individual equipment.	The bar will not normally work and troubles may arise.	If abnormality such as flaw and deformation is found on the bar, replace the bar in accordance with the instruction manual attached to individual equipment.
5	Check of scaler tip	For each patient	Appropriate tip shall be positively mounted and be correctly used. Make sure to refer to the instruction manual attached to the scaler.	The tip will not normally work and troubles may arise.	If the tip was worn or deformed, replace the tip in accordance with the instruction manual attached to the scaler. Contact your local authorized Belmont dealer if any other trouble arises.
6	Check for the lock of the nozzle	For each patient	Check that the nozzle of Type 77, 3-way syringe is securely locked. Check that the locked nozzle does not detach when pulling it.	The nozzle may burst out and harm users or other people.	Securely lock the nozzle. When any malfunction is observed, please contact your local authorized Belmont dealer.
7	Care Vacuum and saliva ejector handpiece	After closing	Flush the suction line, and then clean the filter of the vacuum or saliva ejector handpiece.	Faulty suction may arise.	Clean the suction line and filter in accordance with "Method for care" described in the instruction manual.
8	Care Cuspidor section	After closing	Clean the cuspidor and dust filter.	Faulty water drainage may arise.	Execute dust removal and cleaning in accordance with "Method for care" described in the instruction manual.
9	Care Solid collector	After closing	Clean the filter of the solid collector.	Vacuum suction will become weak.	Clean the filter in accordance with "Method for care" described in the instruction manual.

MAINTENANCE AND INSPECTION

No.	Item	Frequency	Inspection method and diagnosis	Influence if inspection not conducted	Maintenance required in case of nonconformity
10	Care Exterior	After closing	Chemical, filthy water and so forth shall not be found (attached or remaining) on the product exterior.	Discoloration and deterioration to the exterior, and corrosion and rusting to metallic components may arise.	Execute wiping in accordance with "Method for care" described in the instruction manual.
11	Check of main switch and main valves	After closing	The product main switch shall be off, and water/air main valves shall be closed.	Product failure and troubles may arise.	Contact your local authorized Belmont dealer if the main switch cannot be turned off or if the main valve cannot be closed.
12	Product's moving parts	Once every week	No abnormal noise or the like shall be produced from product's moving parts when the product is operated.	The product will not normally work and troubles may arise.	Contact your local authorized Belmont dealer if any abnormality arises.
13	Care Drain valve	Once every week	Water may enter the air line, and equipment failure may arise.	Drain the water from the air filter drain valve.	Drain the water from the air filter in accordance with "Method for care" described in the instruction manual.
14	Care Oil mist separator	Once every week	Sponge of oil mist separator shall not saturate with oil.	Normal output will not be produced due to inferior handpiece exhaust.	Discharge the oil in accordance with "Method for care" described in the instruction manual.
15	Check of water pressure and air pressure	Once every month	Check the water and pneumatic pressures using the pressure gauge in the junction box section. Main water pressure : 0.2 MPa Main air pressure : 0.5 MPa	The product does not function properly, preventing proper treatment or procedure.	If the pressure is out of the range of the main water pressure/main air pressure, please contact your local authorized Belmont dealer.
16	Check of conditions of table section	Once every month	The table shall be free of inclination, and water shall not flow on the table.	Injury caused by falling of goods located on the table and other troubles may arise.	Contact your local authorized Belmont dealer if any abnormality arises.

MAINTENANCE AND INSPECTION

10-2. Guide for Periodical Check-up

Some parts and components of the products are degraded or deteriorated depending on the frequency of use.
Annual check-up and maintenance, as well as replacement of consumable parts, are required.
The required parts (including consumable parts) are listed below. It may be different from the following list depending
on the option of the unit.
For check-up and repair, contact your local authorized Belmont dealer.

10-3. Parts and components that require periodical check-up

No.	Parts Description	Standard Lifetime	No.	Parts Description	Standard Lifetime
1	Vacuum handpiece body	3 years	12	Pressure gauge	3 years
2	Saliva ejector handpiece body	3 years	13	Arm section of moving parts	7 years
3	Foot controller	5 years	14	Control PCBs.	5 years
4	Water hose	3 years	15	Headrest moving parts	5 years
5	Drain hose	3 years	16	Backrest moving parts	5 years
6	Air hose	3 years	17	Legrest moving parts	5 years
7	Electric wiring of moving parts	5 years	18	Armrest moving parts	5 years
8	Regulator	3 years	19	Hydraulic parts (O-ring, Packing)	5 years
9	Valves	3 years			
10	Switches	5 years	20	Solenoid valve	7 years
11	Film viewer body part	5 years			

10-4. Consumable parts

No.	Parts Description	No.	Parts Description
1	Slide knob for vacuum handpiece body	6	Vacuum hose
2	Slide knob for Saliva ejector handpiece body	7	Saliva ejector hose
3	Vacuum tip	8	Filter for oil mist separator
4	Saliva ejector nozzle	9	Filter (Air & Water)
5	Handpiece tubings		

⚠ WARNING

Execute the maintenance in accordance with this instruction manual and operating manual attached to each individual equipment (Dental light, Handpiece, etc..) .
Failure to maintain this product may lead to physical injury or property damage.

ELECTROMAGNETIC COMPATIBILITY (EMC)

ELECTROMAGNETIC COMPATIBILITY(EMC)

This product complies with EMC Standard EN 60601-1-2:2015+AMD1:2021.

1. Precautions regarding EMC and compliance with accompanying documents

Medical electrical equipment requires special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in this booklet.

2. Effects of RF communication devices

Portable and mobile RF communication devices can affect medical electrical equipment.

3. Installation exclusion environment

Hospitals except for near active HF SURGICAL EQUIPMENT and the RF shielded room of an ME SYSTEM for magnetic resonance imaging,where the intensity of EM DISTURBANCES is high.

4. Electromagnetic emission declaration

Guidance and manufacturer's declaration – electromagnetic emissions		
The VOYAGER III is intended for use in the electromagnetic environment specified below. The customer or user of the VOYAGER III should ensure that it is used in such an environment.		
Emissions test	**Compliance**	**Electromagnetic environment - guidance**
RF emissions CISPR 11	Group 1	The VOYAGER III only uses RF energy for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference with nearby electronic equipment.
RF emissions CISPR 11	Class B	The VOYAGER III is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/Flicker emissions IEC 61000-3-3	Complies	

⚠ WARNING

Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation.If such use is necessary,this equipment and the other equipment should be observed to verify that they are operating normally.

5. Electromagnetic immunity declaration 1

Guidance and manufacturer's declaration – electromagnetic immunity			
The VOYAGER III is intended for use in the electromagnetic environment specified below. The customer or user of the VOYAGER III should ensure 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	±8 kV contact ±15 kV air	±8 kV contact ±15 kV air	Flooring should be wood, concrete, or ceramic tiles. If the floor is covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines ±1 kV for input/output lines	The mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV differential mode ±2 kV common mode	±1 kV differential mode ±2 kV common mode	The mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	0% Ut ; 0.5 cycles 0°,45°,90°,135°,180°, 225°, 270° and 315° 0% Ut ; 1cycle and 70% Ut ; 25/30 cycles at 0°, single phase 0%Ut ; 250/300 cycles	0% Ut ; 0.5 cycles 0°,45°,90°,135°,180°, 225°, 270° and 315° 0% Ut ; 1cycle and 70% Ut ; 25/30 cycles at 0°, single phase 0%Ut ; 250/300 cycles	The mains power quality should be that of a typical commercial or hospital environment. If the user of the VOYAGER III requires continued operation during mains power interruptions, it is recommended that the VOYAGER III be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	30 A/m	30 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Proximity magnetic fields IEC 61000-4-39	134.2kHz 65A/m, Pulse Modulation 2.1kHz 13.56MHz 7.5A/m, Pulse Modulation 50kHz	134.2kHz 65A/m, Pulse Modulation 2.1kHz 13.56MHz 7.5A/m, Pulse Modulation 50kHz	Proximity magnetic fields should be at levels characteristic of a typical location in a professional healthcare facility environment.
Note Ut is the AC mains voltage prior to the application of the test level.			

ELECTROMAGNETIC COMPATIBILITY (EMC)

6. Electromagnetic immunity declaration 2

Guidance and manufacturer's declaration – electromagnetic immunity			
The VOYAGER III is intended for use in the electromagnetic environment specified below. The customer or user of the VOYAGER III should ensure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment - guidance**
Conducted RF IEC 61000-4-6	3V 0.15MHz～80MHz 6V 0.15MHz～80MHz in ISM and amateur radio bands	3V 0.15MHz～80MHz 6V 0.15MHz～80MHz in ISM and amateur radio bands	Warning: Portable RF communications equipment (including peripherals such as antenna cablesand external antennas) should be used no closer than 30 cm(12 inches) to any part of the VOYAGER III,including cables specified by the manufacturer. Otherwise,degradation of the performance of this equipment could result.
Radiated RF IEC 61000-4-3	3V/m 80MHz～2.7GHz 80% AM (1 kHz)	3V/m 80MHz～2.7GHz 80% AM (1 kHz)	
Near electromagnetic field caused by RF wireless communication devices IEC 61000-4-3	See the table below	See the table below	

Near electromagnetic field caused by RF wireless communication devices

Test frequency (MHz)	Modulation	IEC 60601 test level	IEC 60601 compliance level
385	Pulse modulation[a)] 18Hz	27V/m	27V/m
450	Frequency modulation ±5kHz shift 1kHz sine wave	28V/m	28V/m
710 745 780	Pulse modulation[a)] 217Hz	9V/m	9V/m
810 870 930	Pulse modulation[a)] 18Hz	28V/m	28V/m
1720 1845 1970	Pulse modulation[a)] 217Hz	28V/m	28V/m
2450	Pulse modulation[a)] 217Hz	28V/m	28V/m
5240 5500 5785	Pulse modulation[a)] 217Hz	9V/m	9V/m
Note a) The carrier is modulated by a square wave with a 50% duty cycle.			

⚠ WARNING

Portable RF communications equipment (including peripherals such as antenna cablesand external antennas) should be used no closer than 30 cm(12 inches) to any part of the VOYAGER III,including cables specified by the manufacturer.
Otherwise,degradation of the performance of this equipment could result.

7. Essential performance

Unless operated by the chair control switch, the chair will not make any movements. Unless operated by the foot controller, the handpiece will not move except for sounding a buzzer and switching the indicator on/off. Loss or decline of essential performance may cause the chair or handpiece to move unexpectedly, causing harm to the patient, operator or people or objects around the patient or operator.

LIST OF COMPATIBLE HANDPIECES

12. List of Compatible Handpiece

SYRINGE	DCI 3WAY
AIR TURBINE	NSK (PTL-CL-LED+M900L)
AIR MOTOR	NSK (M205+M65)
	NSK (M205+M25L)
MICROMOTOR	BIEN AIR MCX / Optima int
	BIEN AIR MCX / Control box
	NSK NLX plus / Multi Pad
	NSK NLX nano / Multi Pad
SCALER	NSK VARIOS VS170 SCALER / Multi Pad
	NSK VARIOS VS170 LUX SCALER / Multi Pad
	DENTSPLY CAVITRON SCALER (TYPE G139)
	SATELEC SP NEWTRON
	SATELEC SP NEWTRON LED
	SATELEC SP4055 NEWTRON
Curing Light	SATELEC MINI LED STD OEM
Intraoral Camera	ACTEON SOPRO 617
	ACTEON SOPRO CARE

LIST OF COMPATIBLE DENTAL LIGHT

13. List of Compatible Dental Light

DENTAL LIGHT	300LED DENTAL LIGHT TYPE 320S
	900 DENTAL LIGHT TYPE 920PAS
	EURUS LIGHT

DECLARATION OF CONFORMITY

14. Declaration of Conformity

We declare under sole responsibility that the device listed below is in conformity with the MDR (EU)2017/745, RoHS Directive: 2011/65/EU based on category 8 of Annex I, and, if applicable, with any other relevant Union legislation that provides for the issuing of an EU declaration of conformity.

Product Type : DENTAL UNIT AND CHAIR (CLASS IIa)
Product Name: VOYAGER III

" CLASS IIa " is defined by the rule 9 of MDR Annex VIII.
The product has been designed and manufactured in accordance with the European standards as listed in the Declaration of Conformity.

EC REP

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