English

Owner´s Manual

CE
0499

Water Unit Syncrus G1
Cód. 77000000087 Rev.00

GNATUS

PRESENTATION OF MANUAL

INSTRUCTIONS FOR USE

Technical Name: Odontological cuspidor

Brand: Gnatus

Trade Name: Water Unit Syncrus G1

Manufacturer / Distribuitor:
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ATTENTION

For greater safety:

Read and understand all the instructions contained in these Instructions for Use before installing or operating this Equipment.

Note: These Instructions for Use must be read by all the operators of this Equipment.

INDEX

IDENTIFICATION OF EQUIPMENT

Dear Customer

Congratulations. You have made a good choice when you decided to buy a GNATUS QUALITY product comparable to the best products available in the World. This manual is a general presentation of your product and it will give you important details to help you to solve possible problems.

Please, read it and keep this with you.

Indication of Equipment

This equipment is for dental use use only. It must be operated and utilized by specialized professional (certified professional, according to the legislation of the country) and following the instructions of the manual. The operation of the equipment required, for the professional, the utilization of correct instruments and it should to be in perfect conditions of the use, and to protect the professional, the patients and others, in the eventual danger situation.

Principles and fundamentals applied to the product functioning

Auxiliary waste collector unit, has suctors which suction is caused by venturi system or vacuum pump with compressed air.

Identification

Technical Name: Odontological cuspidor
Brand: Gnatus
Trade Name: Water Unit Syncrus G1

IDENTIFICATION OF EQUIPMENT

Equipment Description

Water unit for dental purposes and for auxiliary tasks such as water supply for waste collection and activation of the spittoon and the dental suction unit; ambidextrous (serves right-handed and left-handed); coupled to the chair.

Housing structure built in Steel with the body coated in high-impact polystyrene and UV protection. High-brightness epoxy-based flat painting, polymerized in an oven at 250ºC, phosphate treated and corrosion and cleaning products resistant.

*It has 90º moving, prioritizing ergonomy and allowing the auxiliary approximation.

Ceramic spittoon cube; deep and easy-to-remove for hygiene and asepsis, comes with drain for solid retention.

Plain, rounded, light and flexible hoses, without grooves and with a quick fitting that easily connects without the necessity for tools.

Water conductors that wash the cube and cup holder corrosion resistant.

With waste filter making cleaning and disinfection easier.

Activating record and water regulation in the cube and *coaster.

*Electric controls for activating the water in the cube, coaster, Bio-System and water heating at the triple syringe.

Suction units with easy-to-use individual triggering that allows an excellent operational performance; a better visualization of the operatory field to the professional with contamination risk reducing by the aerosol and for higher comfort to the patient.

*High power suction units with electric low voltage individual activating, allows smoothness and precision on the activation.

*Triple syringe with a removable and autoclavable rotary nozzle.

*Reaching arm: terminal support with wide horizontal moving that allows an ideal approximation to the operatory field and great accessibility to the available resources. Optimizes the work prioritizing ergonomy and biosafety.

EN ISO 9001/2000 and EN ISO 13485/2003 Quality System, assuryng the products are manufactured under standart procedures.

Products manufactured in agreement with RDC 59/00 - ANVISA - (Sanitary Surveillance National Agency).

***Curing Light**

Product Features:

Designed to carry out curing resin material through a curing process. The wavelength of 440nm - 460nm associated with high energy emitted by Curing Light enables the multifunctionality of this device.

It has high power LED with efficient coupling and optical distribution, providing speed and security procedures. Ensures proper photo-activation of materials without wasting light.

The LED system of this machine has long service life, equivalent to 36 million 10-second cycles without loss of power and efficiency in the photo activation.

The reduced weight of the pen and its anatomical design ensure a more comfortable and practical professional work.

Operation control with display and buttons on the pen itself.

Programmable operating time.

- 10, 20, 40, 60, 80 and 90 seconds with sound signal (beep) every 10 seconds.
- Shows the elapsed time and the end of the operation.
- No special optical filters.
- Low power consumption.

* Optional item

IDENTIFICATION OF EQUIPMENT

- Low cost of replacement.

The cold light does not emit heat as conventional bulbs - Low temperature light polymerizes the resin without damaging the tooth pulp and prevents thermal expansion problems.

- The forced ventilation system, transmitting unpleasant noise is not necessary.
- High strength piece

Conductive light removable tip, made of high strength polymer and easy maintenance

- Suitable for single bleaching or up to three teeth.

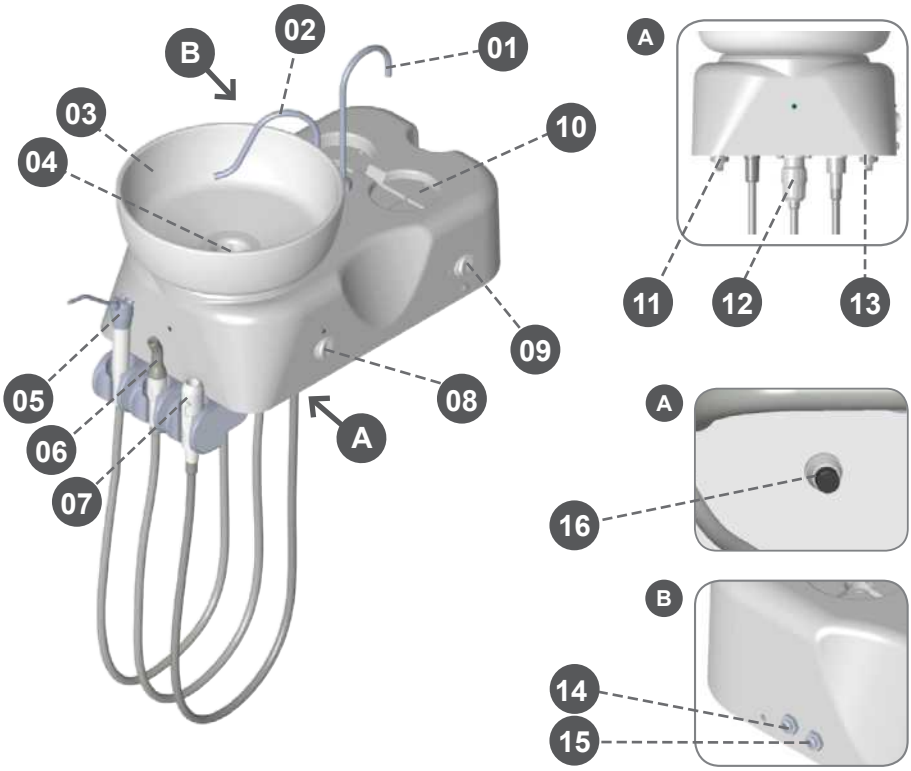
Swivel eye protection - Ensures full protection without compromising the visual field.

***Bicarbonate jet SET/ Hand Jet**
Product Features:
See Owner's Manual – Hand jet

* Optional item

MODULES, ACCESSORIES, OPTIONALS AND CONSUMPTION MATERIALS

The content on this page is informative; the equipment can be different from those illustrated. Therefore, when purchasing the product check the technical compatibility between equipment, coupling and accessories.



* 01 - Water conductor cup holder
  02 - Water conductor bowl
  03 - Bowl
  04 - Drain
* 05 - Triple syringe
* 06 - Venturi type suctor
* 07 - Vacuum pump suctor
* 08 - Driving to the water in the bowl
* 09 - Water cupfiller activation
* 10 - Cupfiller
  11 - Bowl flush adjustment
* 12 - Sucker filter
* 13 - Cupfiller flush adjustment
* 14 - Air output
* 15 - Water output
* 16 - Bio System

* Items 08 and 09 with programmable timer for water triggering in the cube and in the coaster for an interval previously defined by the professional.

* Optional item

MODULES, ACCESSORIES, OPTIONALS AND CONSUMPTION MATERIALS

01

02

03

04

05

06

07

08

09

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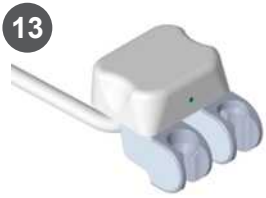
11

12

13



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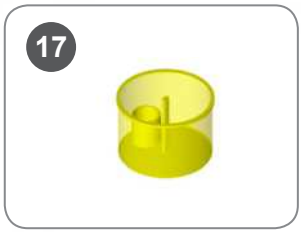
MODULES, ACCESSORIES, OPTIONALS AND CONSUMPTION MATERIALS



The drawing illustrates all optional items (page 08 and 09). Therefore, your equipment will consist only of the chosen items selected during your purchase option.

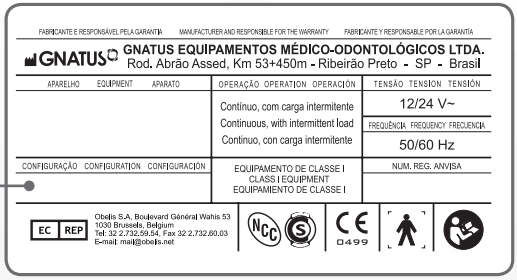
The use of any part, accessory or material not specified or provided in these instructions is of entire responsibility of the user.

* 01.Terminals:
  TB: Borden terminal
  TM: Midwest terminal
  FO: Optical fiber Terminal
  MME: Electric microengine Terminal
* 02.Curing light + tip for 3 teeth
* 03.Water triggering pedal for the bowl or cup holder.
* 04.Bicarbonate jet kit "Jet Hand"
* 05.Arm reach coupling with capacity for 5 tips
* 06. Arm reach coupling with capacity for 3 tips
* 07. Seringa tríplice com corpo totalmente metálico ou com manopla injetada em termoplástico "Kit aquecedor opcional"
* 08. Triple syringe with a fully metallic body or with an injected handle in thermoplastic "Optional heater Kit"
* 09.Aspirators:
  Venturi type aspirator
  Bigger Aspirator for Vacuum Pump
  Smaller Aspirator for Vacuum Pump
  Aspirator cleaning brush
  Aspiration cannula
* Obs: Suction units available with fully metallic cups
* 10. Bio-System triggering
* 11.Water selection valve - reservoir/network
* 12.Master valve (System that allows the cutting of the water and air flow to the office.)
* 13.Arm reach coupling with capacity for 2 tips
* 14. Water conductors that wash the cube and the Stainless Steel coaster, removable and autoclavable.
* 15.Cube made of injected material
* 16.Lid the drain
* 17. Bigger filter

MODULES, ACCESSORIES, OPTIONALS AND CONSUMPTION MATERIALS

Units may be made composed by:

Optional	Acronyms
1 BV sucker	TBV
1 Venturi sucker	TV
1 Venturi sucker + 1 BV sucker	2T
2 Venturi suckers	2 TV
2 BV suckers	2T BV
1 Syringe + 1 Venturi sucker	S TV
1 Syringe + 1 BV sucker	S TBV
1 Syringe + 1 Venturi sucker +1 BV sucker	3T
1 Syringe + 2 Venturi sucker	3T V
1 Syringe + 2 BV sucker	3T BV
1 Syringe + 1 Photo +1 Terminal High Speed + 1 Terminal micro motor + 1 Venturi sucker	5T
1 Syringe + 1 Photo + 1 Terminal High Speed + Terminal micro motor + 1 BV sucker	5T BV
Curing Light	OPTI
Cup holder	E
Intra Oral Camera	CAM
Arm reach	ALC
Complete equipment	FULL



Identification label "responsible field to identify the product configuration."

TECHNICAL SPECIFICATIONS

Technical features of the Unit and its accessories

General

Classification of Equipment as per ANVISA:
Class II
Classification of Equipment as per standard IEC 60601-1:
Protection against Electric Shock - Type B and Class I Equipment (IEC 60601-1)

Power Supply

Inlet air pressure
60 - 80 PSI ±2
Voltage in equipment (coming from dental chair)
12V~ and 24 V~

Other specifications

Net weight (complete version)
3 Kg
Gross weight (complete version)
3,5 Kg
Venturi suction system – Maximum vacuum
220 mm/Hg
Venturi suction system – Volumetric displacement
30 l/min

Specifications of Curring Light

Power
5,2VA
Light source
1 LED
Active medium
Semicondutor Led (InGaN)
Wavelength
440nm - 460nm
Timer
90 seconds

TECHNICAL SPECIFICATIONS

Timer alarm
sound alarm with beep every 10 seconds and 4 beeps at the end of the cycle
Activation
Through the hand-piece button
Light conductor
Made out of special polymer, rotational, removable and reuse sable.
Hand-piece body
ABS injected

The materials used to produce the equipment are Biocompatible.

Pay attention while using this equipment together with other movable equipment, in order to avoid collisions.

Standards applied:

NBR 60601-1:1997 - Equipamento Eletromédico- Parte 1: Prescrições gerais para segurança;
NBR ISO 14971:2004- Medical devices - application of risk management medical devices;
NBR ISO 9687: 2005 - Dental equipment - graphical symbols;
EN ISO 13485-2003 - Quality systems - medical devices;
IEC 60601-1-2:2007 - Compatibilidade Eletromagnética.

Use of different cables, transducers and accessories from those specified may result in increased emissions or decreased immunity of the equipment.

TECHNICAL SPECIFICATIONS

Electromagnetic Emissions

Guidelines and manufacturer's declaration - electromagnetic immunity

The Water Unit is made to be used in the electromagnetic environments specified below. The client or the user of the Water Unit must be sure that it is used in such environment.

Immunity test	ABNT test level NBR IEC 60601	Level of compliance	Electromagnetic Environment Directives
			It is advisable that portable and mobile RF communication equipment is not used near any part of the equipment, including cables, with a separation distance less than the one recommended, calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance: $d = 1,2\sqrt{P}$ $d = 1,2\sqrt{P}$ 80 MHz thru 800MHz $d = 2,3\sqrt{P}$ 800 MHz thru 2,5MHz
RF conducted IEC 61000-4-6	3 vrms 150 kHz up to 80 MHz	3 Vrms	Where P is the nominal maximum power of output of the transmitter in watts (W), as per the manufacturer of the transmitter, and d is the recommended separation distance in meters (m). It is advisable that the fiel intensity from the RF, transmitter as determined by means of electric inspection on-site, [a] is less than the level of compliance in each frequancy range [b]. There may be interference near the equipment marked with the following symbol: 
RF radiated IEC 61000-4-3	3 V/m 88 MHz up to 2,5 GHz	3 V/m	

NOTE 1 At 80MHz and 800MHz, the highest frequency range applies.

NOTE 2 These directives may not be applicable in every situation. The electromagnetic transmission is affected by the absorption and reflection of structures, objects and people.

a The field intensities set by the fixed transmitters, such as radio base stations, telephones (mobile phone, wireless) land mobile radio, amateur radio, AM and FM radio transmissions and TV transmissions can not be predicted with accuracy. Due to the RF fixed transmitters is recommended to install an electromagnetic inspection at the local in order to evaluate the electromagnetic environment. If at the place where the equipment is be using the field intensity level exceeds the conformity level for the RF above, is recommended to observe if the operations are normal. Whether abnormal operations are observed, additional procedures shall be necessary such as reorientation or replace the equipment.

b Whether above the frequency range of 150kHz to 80 MHz is recommended a field intensity below than 3 V/m.

TECHNICAL SPECIFICATIONS

Electromagnetic Emissions

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Immunity test	**ABNT Test level NBR IEC 60601**	**Level of compliance**	**Electromagnetic environment Directives**
Electrostatic discharge(ESD) IEC 6100-4-2	± 6 kV Contact ± 8 kV Air	± 6 kV Contact ± 8 kV Air	Floors should be wooden, concrete or ceramic. If the floor is covered with synthetic material, the relative humidity should be at least 30%
Quick electric transitory phases / train of pulses ("Burst") IEC 61000-4-4	± 2 kV in power supply lines ± 1 kV in input / output lines	± 2 kV in power supply lines ± 1 kV in input / output lines	It is advisable that the quality of the power supply should be that of hospital or typical commercial environment
Surges IEC 61000-4-5	± 1 kV lines (s) to lines (s) ± 2kV lines (s) to ground	± 1 kV lines (s) to lines (s) ± 2kV lines (s) to ground	It is advisable that the quality of the power supply should be that of hospital or typical commercial environment
Reduction, interruption and variance of voltage in power supply input lines IEC 61000-4-11	< 5% *Ut* (>95% drop in *Ut*) for 0,5 cycle 40% *Ut* (60% drop in *Ut*) for 5 cycles 70% *Ut* (30% drop in *Ut*) for 25 cycles < 5%*Ut* (>95% drop in *Ut*) for 5s	< 5% *Ut* (>95% drop in *Ut*) for 0,5 cycles 40% *Ut* (60% drop in *Ut*) for 5 cycles 70% *Ut* (30% drop in *Ut*) for 25 cycles < 5% *Ut* (>95% drop in *Ut*) for 5s	The recommended power supply quality is the same as used for commercial or hospital environment. If is required a continuous use during energy supply outages, it is recommended that the equipment be feed by an uninterruptible power supply or a battery.
Magnetic field in frequency of power supply (50/60Hz) IEC 61000-4-8	3 A/m	0,3 A/m	If an image distortion occurs, may be necessary place the equioment far from the supply frequency or to installa magnetic armour. The frequency magnetic field shall be measured at the installment place to assure that it is low enough.
NOTE *Ut* is the a.c. power supply voltage before the application of the test level			

TECHNICAL SPECIFICATIONS

Electromagnetic Emissions

Recommended distances between portable and mobile RF communication equipments and the Water Unit

The Water Unit is made to be used in an electromagnetic environment in which RF disturbances are controlled. The client or the user of the Water Unit may help preventing electromagnetic interference by keeping a minimal distance between mobile and portable RF communication equipment (transmitters) and the Water Unit, as recommended below, in accordance with the maximal voltage output of the communication equipment.

Transmitter Maximum Output (W)	Separation distance according to transmitter frequency (M)		
	150 kHz to 80 Mhz d= 1,2√p	80 kHz to 800º Mhz d= 1,2√p	800 kHz to 2,5º GHz d= 2,3√p
0,01	0,12	0,12	0,23
0,1	0,38	0,38	0,73
1	1,2	1,2	2,3
10	3,8	3,8	7,3
100	12	12	23

For transmitters with a maximum nominal output power not listed above, the recommended d separation distance in meters (M) can be determined using an equation applicable to the frequency of the transmitter, where P is the transmitter maximum nominal output in watts (W) according to the transmitter manufacturer.

NOTE 1 At 80 MHz and 800 MHz, is applied the separation distance for the higher frequency range.

NOTE 2 These guidelines may not apply to all situations. The absorption and reflection from structures, objects and people affect the electromagnetic propagation.

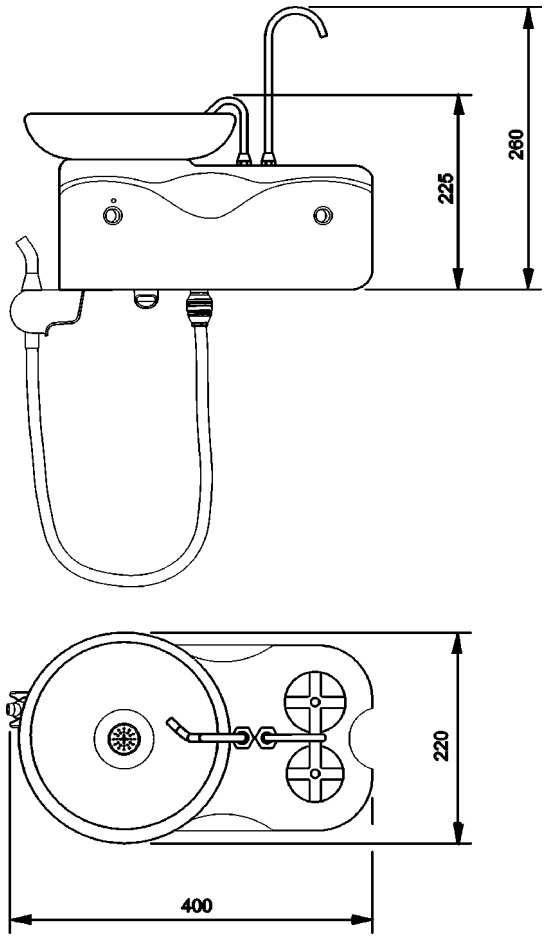
Eletromagnetic emissions

The Water Unit is made to be used in the electromagnetic environments specified below. The client or the user of the Water Unit must be sure that it is used in such environment.

Emission test	Compliance	Eletromagnetic environment - Guide
RF emissions ABNT NBR IEC CISPR 11	Group 1	This equipment uses RF energy only for internal functions. However, its emissions are too low and it's unlikely to cause any interference in the equipments next to it.
RF emissions ABNT NBR IEC CISPR 11	Class B	This equipment is proper to be used in all establishments; including domestic settings and those directly connect to a public low voltage distribution which feeds domestic buildings.
Emissions of harmonics IEC 61000-3-2	Class A	
Fluctuation of Voltage / Emissions of flicker IEC 61000-3-3	As per	

TECHNICAL SPECIFICATIONS

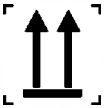
Dimensions (mm)



TECHNICAL SPECIFICATIONS

Packing symbols

It determines the maximum quantity of boxes which can be stacked during transportation and storage "as per packaging".

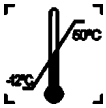


Packing to be transported and / or stored with the harrows up.

Packing to be transported and / or stored with care (should not suffer drop and neither receive impact).

Packing to be transported and / or stored avoiding humidity, rains and wet floor.

The packing must be stored and transported away from direct sun light exposure.



Temperature limit for the packing to be stored or transported.

Product symbols

Careful : It indi cates an important instruction for the operation of the product. Not following it can cause dangerous malfunctioning.

Note: It indi cates useful information for operation of the product.

Important: It indicates an instruction of safety for operation of the product. Not following it, can lead to serious danger to the patient.

Landing (in many parts of the equipment) indicates the condition of being landed.

B type equipment

Warning - Consult the manual

High-speed with FO

Curring Light

Triple syringe

BV ejector

Ejector type Venturi

Bicarbonate Jet

Water heating activation

TECHNICAL SPECIFICATIONS

Product symbols

Bowl's water flow

Cup filling

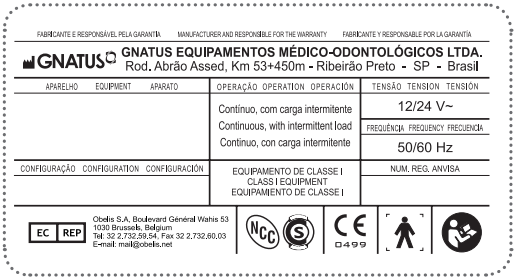
Bowl water flux regulation

Cup holder water flux regulation

Bio-System operation

EC REP Authorized representative in the European Community

Content of accessible and non-accessible demarcations



INSTALLATION OF EQUIPMENT

The installation of this equipment requires specialized technical assistance (Gnatus).

OBS: These information also make part of the Manual of Installation and Maintenance of the equipment that can be found with the authorized Gnatus technician.

- This equipment shall only be able to be unpacked and installed by a Gnatus authorized technician, under penalty of losing the warranty, as only (s)he has the information, suitable tools and training required to execute this task.
- Gnatus bears no responsibility for damages or accidents caused by poor installation executed by a technician not authorized by Gnatus.
- Only after the equipment has been installed and duly tested by the authorized technician representing Gnatus, will it be ready to start work operations.

OPERATION OF EQUIPMENT

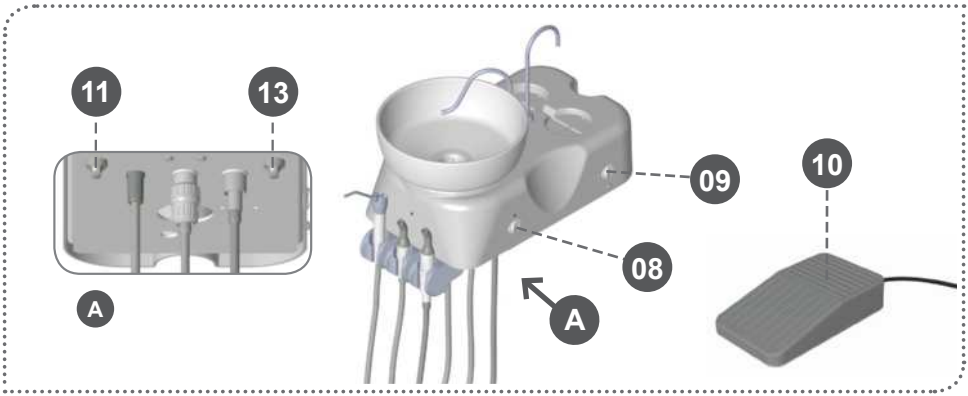
Driving and regulation of water in the cup holder*

To drive flow of water in the cup holder, hold the button (09) until the desired amount, to regulate the flow of water, use the register (13).

Driving and regulation of water basin

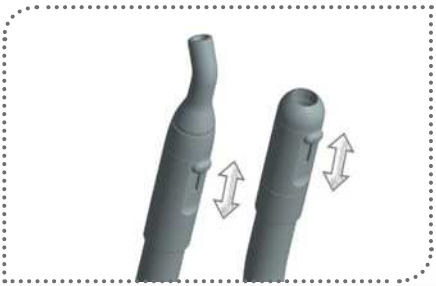
Basin water is available on all models.

To regulate the water flow in the bowl, use the registry (11) and for triggering the flow, press the key* (08) or the pedal* (10) and to deactivate, press it again.



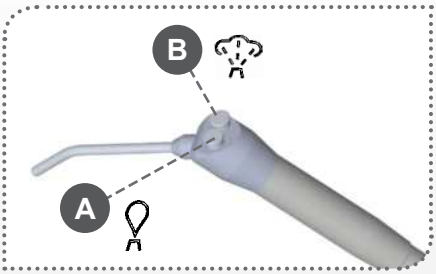
Ejectors operation

The ejectors (both BV and Venturi) start working automatically when retired from the tips support the BV ejectors feature suction flow adjustment , and its regulated moving the lever located at the ejector up or down.



Use of 3-Way Syringe*

- Press button (A) for water to come out, (B) for air to come out or both simultaneously to obtain a spray.



* Optional item

OPERATION OF EQUIPMENT

Terminal Drive

Progressive pedal * (fig.01.)

For the operation of rotary instruments, remove support the instrument to be used, actuate on the foot control (C).

Progressive pedal with water blocking system for hand pieces * (fig.02.)

For the operation of rotary instruments, remove support the instrument to be used, actuate on the foot control (C).

To actuate the water of hand pieces locking system, turn the key (D) Off to unlock. Return to starting position to block.

Pedal Chip Blower * (fig.03.)

For the operation of rotary instruments, remove from the support the instrument to be used, operate the foot control by moving the lever (A) with your feet.

The power (supply air) can be controlled by the operator with more or less pressure on the pedal lever (A).

The "chip-blower" system allows air flow release with the turbine stopped (air function).

Pressing the button (B), will trigger air to the tips.

Pressing the key (B) and moving the lever to the right (A) together, will trigger turbine high speed air and water (spray).

Fig.1

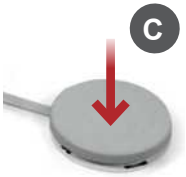


Fig.2

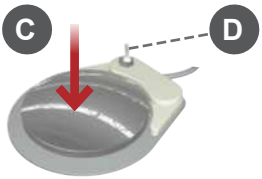
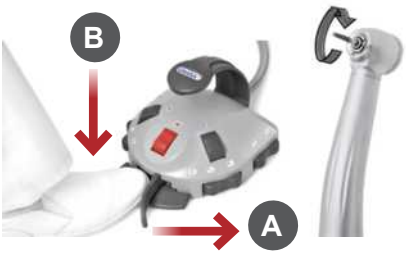


Fig.3



Adjustment of Spray of "TB/TM high and low rotation terminals"*

The adjustment is made via a valve positioned in the terminal. Turn it in a clockwise direction to reduce the spray and in a counter- clockwise direction to increase it.

Note: As the "TB" double terminal does not have a spray this adjustment is not required.

* Optional item

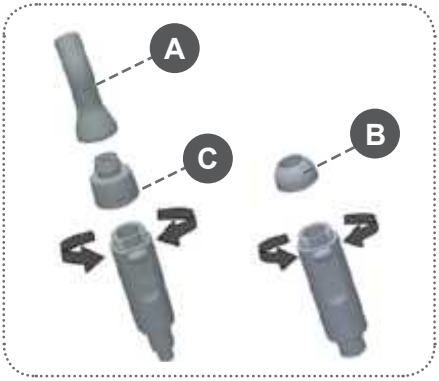
OPERATION OF EQUIPMENT

Replacement of the standard of cannula coupling

If there is the necessity of using the cannula (A) in the BV suctor, make the replacement of the cannula coupling, as the procedure below:

-Remove the coupling (B) by unscrewing it from.

-Screw the coupling (C) in the aspirator BV set and attach the coupling tube.



Coupling of tube of 6.5 mm

The curve of the coupling of the cannula was designed for better handling, but can also be cut at the location indicated with the aid of a knife.

Curing Light Activation*

Select application time, press time selection button (01), which values are: 10s (standard mode), 20s, 60s, 80s and 90s.

To initiate a polymerization cycle, press the timer trigger (02), which generates a short beep every 10 seconds and a 4 beeps at the end of cycle.

To interrupt a polymerization cycle just activate the timer trigger again (02).

IMPORTANT:

Keep the light conductor tip (03) at least 2mm away from the restoration.

Keep the light conductor (03) always protected by an expendable PVC film, which must be changed for every patient. This procedure protects the light conductor from scratches and other residues.

Use the polymerization time recommended by the compound resin manufacturer and always perform restorations in incremental layers with a maximum thickness of 2mm.

OPERATION OF EQUIPMENT

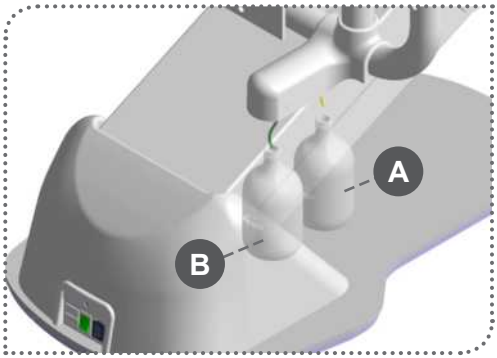
WARNING

- Never aim the blue light beam towards the eyes
- Use the eyesight protection (04)
- In order to protect the eyes, the eyesight protection (04) filters only the blue light used for the resins polimerization, and it allows ambient light to pass through.

How to provision the reservoirs

Water - Syringe / Handpieces

Remove the reservoir (B) uncoiling it on clockwise and make the replacement of water. After the replacement put it back coiling on anticlockwise. Always use filtered water or aseptic products.



Bio-System*

Remove the reservoir (A) uncoiling it on clockwise and make the replacement. Use a chlorinated water solution 1:500.

Preparing the solution:

From a solution of hypochlorite of sodium at 1% a solution of chlorine at 500 p.p.m. is prepared.

How to prepare the solution: Take 25ml of hypochlorite of sodium at 1% and dilute it in 500 ml of water (1 to 20). Such solution should be prepared daily.

IMPORTANT:

Follow this proportion strictly to avoid damages in the equipment and to have an efficient result in the disinfection.

Bio-System*

Remove the terminal hand parts. Take the hand parts of terminals to the sink or tank of water unit.

Completely open the spray register of the terminals. Press the Bio-System triggering button for some seconds, located under the coupling panel reaching arm of the water unit, to perform the disinfection of internal components with bactericidal liquid. Then, trigger the control pedal for a few seconds to perform rinsing in order to remove chemical residues of bactericidal liquid internally retained in the components of water unit.

Important: This procedure should be done in the beginning of the workday and after each patient.

Bicarbonate Jet "Jet Hand"

Refer to Owner's Manual of Jet Hand (available for viewing and downloading via www.gnatus.com.br/manuais)

* Optional item

PRECAUTIONS, RESTRICTIONS AND WARNINGS

Transportation, storage and operation

This equipment must be transported and stored observing the following directions:
- Avoid falls and impacts;
- Keep it dry, do not expose it to rain, water drops or wet floor;
- Keep it away from water and direct sunlight, and in it original wrapping;
- Don't move it over irregular surfaces, protect it from rain and observe the maximum stack quantity specified in the packaging;
- Transportation and storage temperature range: -12°C to 50°C.
- Ambient temperature range recommended by Gnatus +10 ° C to +35 ° C.

The Equipment maintains its condition of safety and efficacy, provided that it is maintained (stored) as mentioned in this instruction of use. Thus, the equipment will not lose or alter its physical and dimensional features.

Sensitivity to environmental conditions in normal situations of use

The equipment has been planned not to be sensitive to interference such as magnetic fields, external electrical factors, electrostatic discharge, pressure or variance of pressure, provided that the equipment is installed, maintained, clean, preserved, transported and operated as per this instruction for use.

Precautions and warnings "during the installation" of equipment

- The equipment should only be installed by Gnatus authorized technical assistance or technicians.
- Position the unit in a place where it will not get wet.
- Install the unit in a place where it will not be damaged by the pressure, temperature, humidity, direct sunlight, dust, salts, or sulfur compounds.
- The unit should not be submitted to inclination, excessive vibrations, or blows (including during transportation and handling).
- This equipment was not planned for use in an environment where vapors, anesthetic mixtures inflammable with air, or oxygen and nitrous oxide can be detected.
- Before the first use and/or after long interruptions from work such as vacations, clean and disinfect the equipment; eliminate air and water deposited in the internal hoses.

These information also make part of the Manual of Installation and Maintenance of the equipment that can be found with the authorized Gnatus technician.

PRECAUTIONS, RESTRICTIONS AND WARNINGS

Recommendations for the dental equipment maintenance

Your Gnatus equipment has been designed and developed according to the standards of modern techology. Similarly to other kinds of equipment, it requires special care, which is many times neglected due to several reasons and circunstances.

Therefore, here are some important reminders for your daily routine. Try to follow these simple rules, which will save you a lot of time and will avoid unnecessary expenses once they start making part of your working procedure.

Precautions and warnings "during the use" of equipment

- The equipment should only be operated by duly enabled and trained technicians (Dental Surgeons, Capacitated Professionals)
- If any maintenance should be required, only use services of the Gnatus Authorized Technical Assistance.
- The equipment has been manufactured to handle both continuous and intermittent operation; so follow the cycles described in these Instructions for Use.
- Although this equipment has been planned in accordance with the standards of electromagnetic compatibility, it can, in very extreme conditions, cause interference with other equipment. Do not use this equipment together with other devices very sensitive to interference or with devices which create high electromagnetic disturbance.
- Do not expose the plastic parts to contact with chemical substances, use in the routines of dental treatment, such as: acids, mercury, acrylic liquids, amalgams, etc.

Bicarbonate Jet:

- It is not advisable to use this equipment in patients who have serious renal or respiratory alterations, or who undergo hemodialysis. These cases should be followed be followed by a doctor.
- We recommend the use of a mask and goggles for applying the bicarbonate jet.
- Avoid leaving sodium bicarbonate in the container for long periods without use.

The effect of residual humidity in the air may alter the properties of the powder and cause blocking.

Gnatus shall not be responsible for:

- Use of the equipment differing from that for which it is intended.
- Damages caused to the equipment, the professional and/or the patient by the incorrect installation and erroneous procedures of maintenance, differing from those described in these Instructions for use which come with the equipment or by the incorrect operation of it.

Precautions and warnings "after" the use of equipment

- Turn off the main switch of the dental set when it is not in use for an extended period of time.
- Always maintain the equipment clean for the next operation.
- Do not modify any part of the equipment. Do not disconnect the cable or other connections without need.
- After using the equipment, clean and disinfect all the parts which may be in contact with the patient.
- Upon noticing irremovable stains, splits or cracks in the light conductor or in the eye protector, replace the damaged components.

PRECAUTIONS, RESTRICTIONS AND WARNINGS

Precautions and warnings during the "cleaning and disinfection" of equipment

Unidad:

- Before cleaning the equipment, turn off the main switch.
- Avoid spilling water, even accidentally, or other liquids inside the equipment, which could cause short circuits.
- Do not use microabrasive material or steel wool when cleaning, or employ organic solvents or detergents which contain solvents such as ether, stain remover, gasoline etc.

Filters and drains:

- To prevent infection risks, use protective gloves when handling filters and drains. Dispose wastes and contaminated products in biological waste.

Curing Light:

- The equipment and the light conductor cannot be placed in the oven or autoclaves.
- The conductor can't be immersed in solvents or substances that contain acetone in its composition.
- Avoid the light conductor to terminal to touch the resin to be polymerized.
- When using the Curring Light check if the light conductor output doesn't have residues that might obstruct the light beam.

Bicarbonate Jet:

Refer to Owner's Manual of Jet Hand (available for viewing and downloading via www.gnatus.com.br/manuais)

Precautions in case of alteration in the functioning of equipment

- If the equipment has any abnormality, check if the problem is related to any item listed in the topic of unforeseen events (failures, causes and solutions). If it is not possible to resolve the problem, turn off the equipment, remove the power supply cable from the socket and contact your representative (Gnatus).

Precautions to be adopted against foreseeable or uncommon risks, related to the deactivation and abandoning of equipment

In order to avoid environmental contamination or undue use of the Equipment after it has become useless, it should be discarded in the suitable place (as per the local legislation of the country).

- Pay attention to the local legislation of the country for the conditions of installation and disposal of residue.

CORRECTIVE AND PREVENTIVE MAINTENANCE AND PRESERVATION

Additional procedures for reuse

The equipment can be reused in undetermined, i.e. unlimited, quantities, only needing to be cleaned and disinfected.

Cleaning

Important: In order to execute cleaning or any type of maintenance, ensure that the equipment is disconnected from the electrical network.

The cleaning procedure below should be executed at the start of the working day and after each patient.
Always turn off the main switch before executing the procedures of daily maintenance.

To clean the equipment, we recommend the use of "BactSpray **(Reg nº MS: 3.2079.0041.001-5)** or any other similar product:

Active component: Benzalkonium chloride (tri-quaternary ammonium)
Solution 50%..... 0.329%

Chemical composition: Butyl Glycol, Decyl polyglucose, Sodium Benzoate, Sodium Nitrate, Essence, Deodorized Propane / Butane, demineralized Water.

For more information concerning cleaning procedures, see manufacturer's instructions.

WARNING:
- In order to prevent risks and damages to equipment, make sure that the liquid does not enter into the unit.
- The application of other solvent-based cleaning products or sodium hypochloride isn't recommended, because they may damage the equipment.

NOTE: The registration at the Ministry of Health of the "BactSpray" is executed separately from the product described in this manual, as the "BactSpray" is not manufactured by Gnatus.

Disinfection

Use clean and soft cloth dampened in alcohol 70% to disinfection of the equipment. Never use corrosive disinfectants or solvents.

Note: Use gloves and other systems of protection, during the disinfection.

CORRECTIVE AND PREVENTIVE MAINTENANCE AND PRESERVATION

Clearing the suction system

Using Vacuum Pump (BioVac II or IV):

Gnatus suggests performing a daily suction of the clearance and disinfectant solution, avoiding the risk of cross contamination and increasing equipment service life. To perform the disinfection of your equipment we recommend the use of the "Sugclean" (MS Reg. No.: 31.080.003-2) product.

• **Indication:** It is indicated for clearance of sucker and hose suction system. It is important to perform the suction solution in all suction terminals, which it is also important to be open. Then, remove suckers from hose for asepsis.

• **Preparing the Solution:** Add "Sugclean" 30mL in 1 liter of water. Aspirate the solution with maximum power of the suckers, and also put the liquid in the water unit bowl.

In the first use of "Sugclean" product, we suggest adding 60mL of concentrated product in 1 liter of water during the first 5 days in order to remove accumulated residues.

Fig.A

• **Composition:**
• Active Drug: Phosphoric Acid 13.6%
• Excipients: Isopropyl Alcohol, Acidulant, Dye and Thickener.

Warning: do not use foaming product.

NOTE: The registration at the Ministry of Health of the "Sugclean" is executed separately from the product described in this manual, as the "Sugclean" is not manufactured by Gnatus.

Using Vacuum Pump (BioVac Sec):

CAUTION: For internal cleaning of Suction pipelines of the Pump Vacuum BioVac Sec, the use of "Sugclean" product or any similar product is not allowed; use only the recommended mixture below:

• After each patient leaves, perform the suction of 250 ml of clean water in each totally open suctor;

• At the end of the working Day, perform the suction of the 250 ml mixture of bleach mixed with 250 ml of clean water (proportionally divided in each used suctor); Then, remove suckers from hose for asepsis.

WARNING:

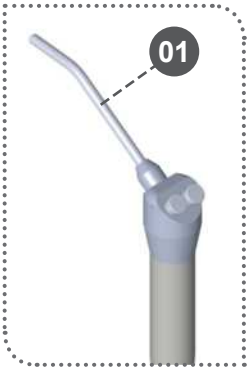
• Never use foamy products in the suction (deep cleaner, detergents, floaters, etc), this procedure may damage the internal parts of the dry vacuum pump's engine;

• Never use the bleach solution for external cleaning of any equipment, because this mixture is highly corrosive and may damage metal parts.

CORRECTIVE AND PREVENTIVE MAINTENANCE AND PRESERVATION

Triple syringe

Only the syringe tip is autoclavable (01). The other pieces must be cleaned using a piece of cotton wool and alcohol 70% vol. Never use a hot air sterilizer.



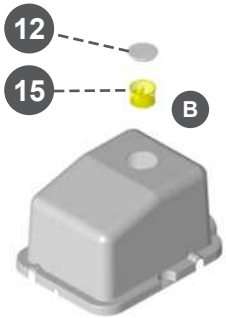
Reservoirs

It's highly recommended the cleaning of the water reservoirs, using chlorinated water solution 1:500 (as described previously).

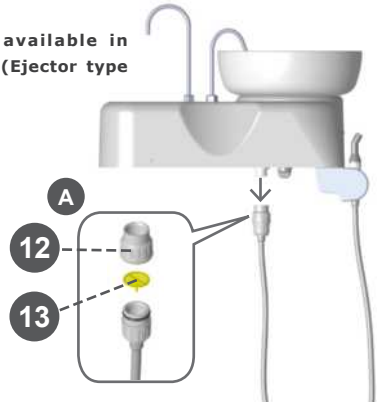
Cleaning of the sucker and filters

After the suction of the solution through the suctor, take the lid (12) and the filter (13 or 15) and wash them in running water.

Filter (B) available in all models with (Ejector for vacuum pump)



Filter (A) available in all models (Ejector type Venturi)



Cleaning of the drain

Pull the drain (14) with a tweezer, clean.

WARNING: Always use protection gloves when manipulating filters and drainages.

Discard waste and contaminated products in biological waste containers.

CORRECTIVE AND PREVENTIVE MAINTENANCE AND PRESERVATION

Basin cleaning

In order to obtain better results in the clean the bowl in your water unit, we strong recommedn the use of the product **"Easy-Off Bang"** or similar, nº Reg. MS: 3.00227-0.

Chemical composition: Glycolic Acid, Maleic Anhydride, Citric Acid, Ethoxyled Fatty Alcohol, Essence and Water.

Apply the **"Easy-Off Bang"** in the water unit bowl along with a smooth cloth up to clean it.

If you want additional information regarding cleaness, please look at the instructions from the product.

Curring Light

The light conductor cleaning and the optical protector must be done using only neutral soap and cotton. To the exterior of the pen use neutral soap or alcohol 70% vol.

Never use any other chemical based product than previous mentioned, because along the time these products attack the surface of the instrument.

Never immerse the instrument in disinfection baths.

Bicarbonate Jet "Jet Hand"

Refer to Owner's Manual of Jet Hand (available for viewing and downloading via www.gnatus.com.br/manuais)

Preventive Maintenance

The equipment should be calibrated routinely, as per the legislation in force in the country. But never with a period exceeding 3 years.

In order to protect your equipment, seek Gnatus technical assistance for periodic revisions of preventive maintenance.

Corrective Maintenance

Gnatus Company declares that the supply of the circuit scheme, list of pieces or any other information that propitiate technical attendance for the user, can be request if there is an agreement between the user and Gnatus Company.

If the equipment has any abnormality, check if the problem is related to any of the items listed in the item Unforeseen Events (situation, cause and solution). If it is not possible to solve the problem, turn off the equipment, and request Gnatus technical assistance.

UNFORESEEN EVENTS – SOLUTION OF PROBLEMS

⚠ Upon coming across any problem in operation, follow the instructions below to check and repair the problem, and/or get in touch with your representative.

Problem	Probable cause	Solution
Water Unit -Ejector without suction.	-Insufficient air pressure from compressor. -Vacuum pump is turned off. -Filter clogged with particles. -Filter lid misplaced. -Chair fuse burned. -Chair's main switch is turn off.	-Adjust air flow. -Turn on the vacuum pump. -Remove and clean filter. -Remove lid and place it correctly. -Replace the chair's fuse. -Turn on chair's switch.
-Handpiece with low speed.	-Inlet pressure below specified (80 PSI).	-Adjust inlet pressure (80 PSI).
-No water from handpiece spray.	-Insufficient air pressure from compressor. -Reservoir run out of water. -Closed terminal.	-Adjust air flow. -Put filtered water in reservoir. -Open terminal.
-Handpiece is not working.	-Compressor disconnected.	-Plug the compressor in.
-No water from syringe.	-Reservoir run out of water. -Compressor disconnected.	-Put filtered water in reservoir. -Plug compressor in.
-Bowl's water flow and cup filling are not operating.	-Lack of water. -Water valve is closed. -Power cut. -Chair fuse burned. -Chair's main switch is off or terminal box is disconnected.	-Check the water supply. -Open the water valve. -Check the energy supply. -Replace the chair's fuse. -Switch the main switch on or connect the terminal box.
-When Bio-system is operated no disinfectant come from handpiece terminals.	-Bio-system reservoir run out of water. -Chair fuse burned. -Main or chair switch is off.	-Put disinfectant in the reservoir. -Replace the chair's fuse. -Switch main/chair switch on.

UNFORESEEN EVENTS – SOLUTION OF PROBLEMS

Problem	Probable cause	Solution
Curring Light -Equipment's not working.	-Power cut. -Chair's fuse burned.	-Check power supply. -Replace the chair's fuse.
-Equipment is not polymerizing resins.	-Resin is not appropriate for LED's photopolymerizer wave length range.	-Get the indicated resin for the photopolymerizer's wave length range, one with contains photoinitiators based on camphorquinone.
Bicarbonate Jet	- Refer to Owner's Manual of Jet Hand (available for viewing and downloading via www.gnatus.com.br/manuais)	

EQUIPMENT'S WARRANTY

This equipment is covered by the warranty terms and norms contained in the Warranty Certificate that accompany the product.

FINAL CONSIDERATIONS

Among the care you have to take with your equipment, the most important is regarding of the spare parts replacement.

To ensure the lifetime of your device, only replace original spare parts from Gnatus. They have the assurance of the standards and technical specifications required by the Gnatus representative.

We call your attention to our authorized resellers' chain. Only this chain will keep your equipment constantly new, because it has trained technical assistant and specific tools for the correct maintenance of your device.

Whenever you need, demand the presence of a Gnatus' technician from the nearest resale, or ask through the Attendance Service GNATUS: + 55 (16) 2102-5000 / SAC: 0800-7015-054.

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NUM. REG. ANVISA: 10229030062

Manufacturer / Distribuitor:

GNATUS

Technical Duties:
Gilberto Henrique Canesin Nomelini – CREA-SP: 0600891412

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