English

Owner´s Manual

CE
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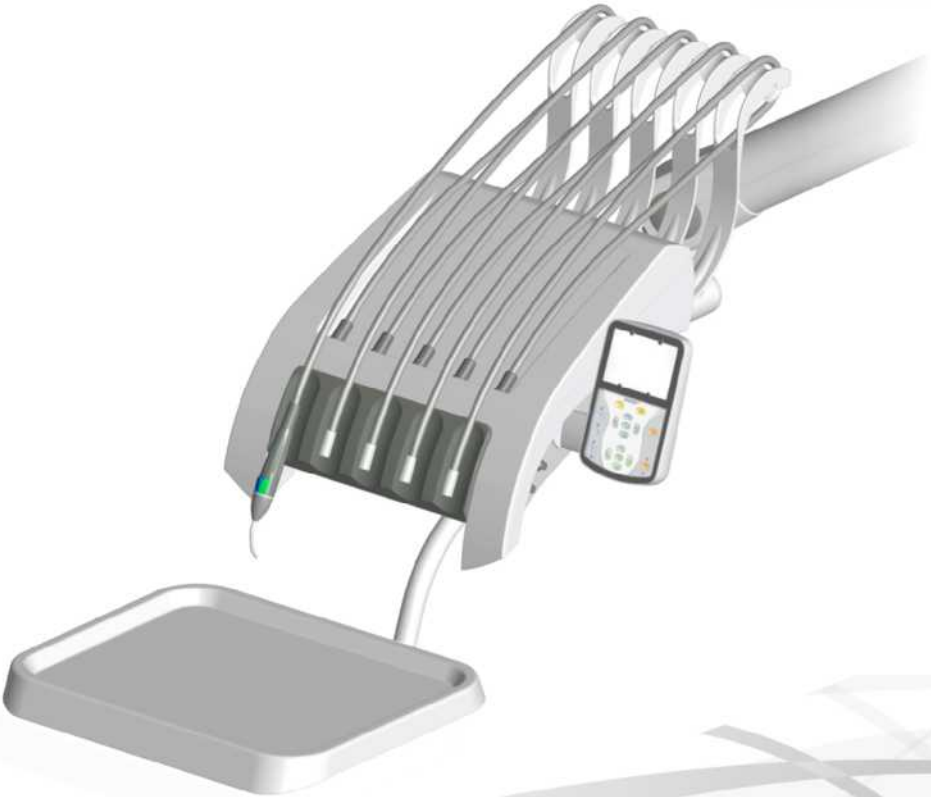

Syncrus G3 H Delivery Unit

Cód. 77000000078 Rev.00

GNATUS

PRESENTATION OF MANUAL

INSTRUCTIONS FOR USE

Technical Name: Dental Delivery Units
Trade Name: Syncrus G3 H Delivery Unit
Brand: GNATUS

Manufacturer/ Distribuitor:
GNATUS - EQUIPAMENTOS MÉDICO-ODONTOLÓGICOS LTDA.
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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

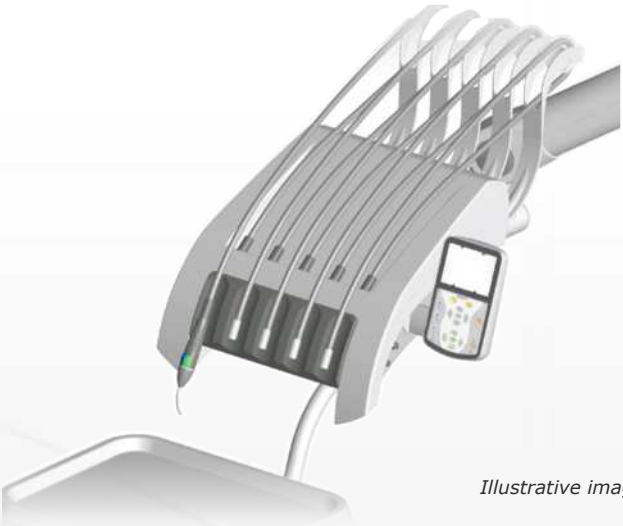
This equipment is for dental use use only. It must be operated and utilized by specialized professional (certified professional, according to the legislation of the country) and following the instructions of the manual. The operation of the equipment required, for the professional, the utilization of 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 bases applied to the functioning of the product

It has hoses with compressed air and connectors for the supply of handpieces (high and low rotation) and a syringe with air and water outlet.

Identification

Technical Name: Dental Delivery Units and Accessories
Trade Name: Syncrus G3 H Delivery Unit
Brand: GNATUS



Illustrative image.

IDENTIFICATION OF EQUIPMENT

Description of Equipment

Dental use equipment, for actuation and control of the syringe, rotary instruments and others, providing the best proximity to the operative field; ambidextrous (serves right and left-handed users).

Set made of steel structure with ABS body injected with anti-UV protection. Flat paint high gloss epoxy-based, cured in an oven at 250 ° C, with phosphate treatment corrosion resistant and cleaning materials.

FLEX type pneumatic Model with stroke limiter stop. Attached to the chair, with wide horizontal and vertical movement, with pneumatic locking, powered by button located under the handle of the equipment, providing smoothness in movements and stop at the desired position.

Movement of tips through retractable rods with lock for relief in the tension of the hose (except from triple syringe Stem), which provides lightness of movements, allowing greater proximity to the operative field

Automatic selection of tips through individual pneumatic valves, allowing lightness in your drive.

Flexible support for hand pieces is removable and autoclavable, protecting them against impact

Smooth Hoses, rounded, light and flexible, without grooves or ridges.

Support for tray attached to the catheter with horizontal movements.

Bilateral handles.

* Equipped with side control panel contains a set of all commands for the chair, equipment functions, water unit and light reflector.

* Bio-System: Disinfection system provided with check valve, which provides the internal cleaning hoses and terminals with bactericidal liquid, preventing risk of cross contamination.

To ensure safe operation of your equipment, use only assembly configurations (Chair, Equipment, Water Unit and Light reflector) provided by Reseller / Gnatus Authorized Service.

ISO 9001 and ISO 13485 Quality system, ensuring that products are manufactured within standard procedures.

Products are manufactured according to the RDC 16/13 - National Health Surveillance Agency – ANVISA resolution.

*** 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 multi-functionality 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

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.

***Ultrasound**
Product Features:

Piezoelectric Ultrasound, frequency of 30,000 Hz.

The transducer with piezoelectric system allows the insert to perform accurate movements and linear and can be used in various dental specialties.

Fine power adjustment, suitable for each type of procedure.

For proceedings with refrigeration provides constant irrigation with flow control. It also allows the execution of dry work (amalgam condensation, cementing inlays / on lays, etc.).

***Digital Control Panel Kit "electric micro motor Bien Air"**
Product Features:

See Owner's Manual - Digital control panel

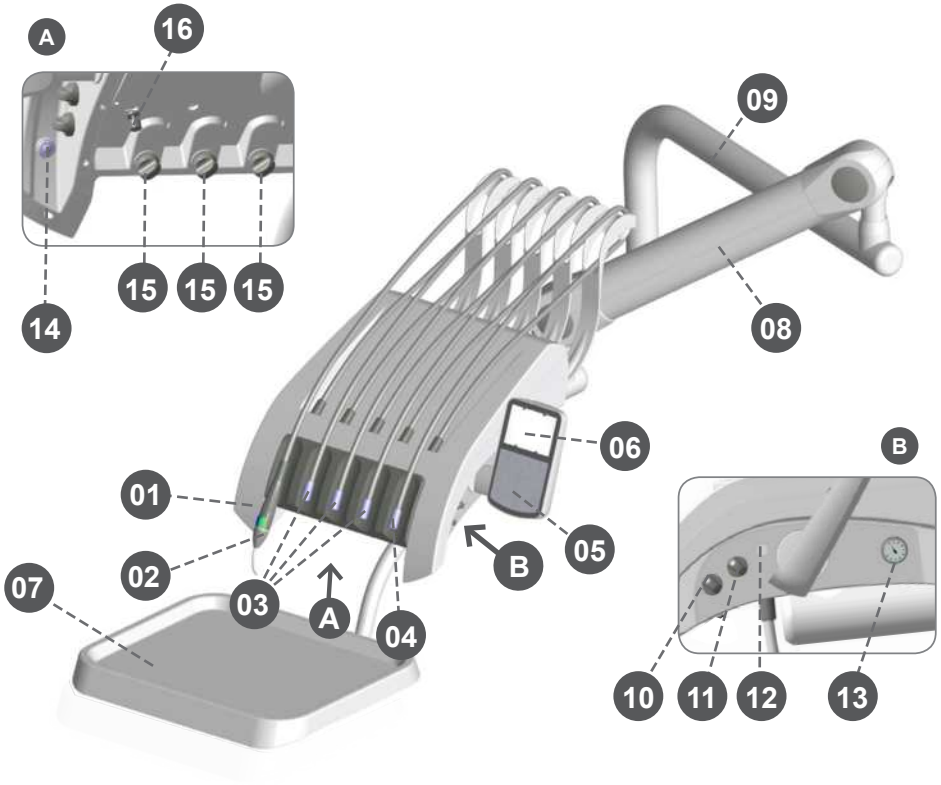
***Bicarbonate jet SET/ Hand Jet**
Product Features:

See Owner's Manual – Hand jet

* Optional

MODULES, ACCESSORIES, OPTIONS AND MATERIALS OF CONSUMPTION

The contents of this page are of an informative nature, the equipment being able to differ from that illustrated. So, upon acquiring the product check the technical compatibilty between equipment, coupling and accessories.



01 - Bilateral Catcher
* 02 - Triple syringe
* 03 - High-speed-motor terminals
* 04 - Micro motor terminal
* 05 - Control panel (PAD)
* 06 - X ray view
07 - Auxiliary tray
08 - Articulated arm
09 - Column arm
* 10 - Power (power ultrasound adjustment)
* 11 - Speed (electric microengine power adjustment)
* 12 - Light (electric microengine brightness adjustment)
* 13 - Manometer
14 - Arm brake valve
* 15 - Water records for FO/MME/Ultrasound
* 16 - Bio-System operation

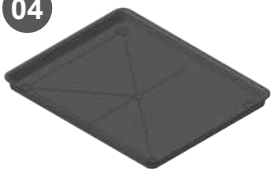
* Optional

MODULES, ACCESSORIES, OPTIONS AND MATERIALS OF CONSUMPTION

01


02


03


04


05


06


07


08


09


10


11


12


13


14


15


MODULES, ACCESSORIES, OPTIONS AND MATERIALS OF CONSUMPTION

The drawings (page 08 and 09) illustrates all optional items; therefore, your equipment will consist only of items selected during your purchase option.

The use of any part, accessory or material not specified or foreseen in these instructions for use is entirely the user's responsibility.

* 01. Terminals:
  Borden terminal **(TB)**
  Midwest Terminal **(TM)**
  Fiber Optic Terminal **(FO)**
  Electric micro motor Terminal **(MME)**
* 02. Curing Light + tip for 3 teeth **(OPTI)**
* 03. Triple syringe with fully metal body or injected thermoplastic handle "optional heater set"
* 04. Auxiliary Tray / instrument support
* 05. Bicarbonate Jet set, Hand **(JET)**
* 06. Progressive pedal with drive / water cut
* 07. Ultrasound set **(SONIC)**
* 08. Digital control panel set MME Bien Air **(FULL)**
* 09. Stainless steel cover
* 10. Control panel with built-in negatoscope **(PAD)**
* 11. Progressive Pedal
* 12. Triple syringe with fully injected thermoplastic body "optional heater set"
* 13. Integrated Pedal "Chip Blower"
* 14. Manometer
* 15. Negatoscope set
* 16. MME Bien Air set **(MME)**

Equipment configuration

Equipment with nomenclature "FULL" may contain some optional in the set, such as: FO / MME / OPTI / SONIC /PAD, etc. ...

* Optional

TECHNICAL SPECIFICATIONS

Technical features of the Delivery Unit and its accessories

General

Model
Syncrus G3 H Delivery Unit
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

Power Supply Voltage (coming from dental chair)
127/220 V~ (Selectable)
Frequency
50/60 Hz
Input fuse (coming from dental chair)
5A Delayed action
Voltage in equipment (coming from dental chair)
12 and 24 V~

Other specifications

Inlet air pressure
60 a 80 PSI ±2
Capacity of reservoir - Water / Bio-System* (coming from water unit)
1000 ml* / 800 ml*
Maximum capacity of load applied to trays
1Kgf
Net weight
26 Kg
Gross weight
31 Kg
Dimensional support tray (mm)
385 x 300

* Optional

TECHNICAL SPECIFICATIONS

Specifications of Curring Light

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

Specifications of Ultrasound

Transducer protective cover, removable and autoclavable.
Autoclavable tool to replace the inserts.
Frequency of Vibrations of Ultrasound
30.000Hz
Consumption of irrigating liquid
28 ml/min
Power consumed
15VA ±10%
Transducer system
Piezoelectric ceramic
Electronic circuit with frequency stabilizer.
Keeps the vibration even when there is network voltage oscillation.

TECHNICAL SPECIFICATIONS

- Pay attention while using this equipment together with other movable equipment, in order to avoid collisions.
- The materials used to produce the equipment are Biocompatible.
- Use of different cables, transducers and accessories from those specified may result in increased emissions or decreased immunity of the equipment.

Electromagnetic Emissions

Eletromagnetic emissions		
The equipment is made to be used in the electromagnetic environments specified below. The client or the user of the equipment 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

Electromagnetic Emissions

Guidelines and manufacturer's declaration - electromagnetic immunity

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

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% *U*t (>95% drop in *U*t) for 0,5 cycle 40% *U*t (60% drop in *U*t) for 5 cycles 70% *U*t (30% drop in *U*t) for 25 cycles < 5%*U*t (>95% drop in *U*t) for 5s	< 5% *U*t (>95% drop in *U*t) for 0,5 cycles 40% *U*t (60% drop in *U*t) for 5 cycles 70% *U*t (30% drop in *U*t) for 25 cycles < 5% *U*t (>95% drop in *U*t) 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 *U*t is the a.c. power supply voltage before the application of the test level

TECHNICAL SPECIFICATIONS

Electromagnetic Emissions

Guidelines and manufacturer's declaration - electromagnetic immunity

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

Immunity test	ABNT test level NBR IEC 60601	Level of compliance	Electromagnetic Environment Directives
RF conducted IEC 61000-4-6 RF radiated IEC 61000-4-3	3 vrms 150 kHz up to 80 MHz 3 V/m 88 MHz up to 2,5 GHz	3 Vrms 3 V/m	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 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: 

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

Recommended distances between portable and mobile RF communication equipments and the equipment

The equipment is made to be used in an electromagnetic environment in which RF disturbances are controlled. The client or the user of the equipment may help preventing electromagnetic interference by keeping a minimal distance between mobile and portable RF communication equipment (transmitters) and the equipment, 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 800 MHz d= 1,2√p	800 kHz to 2,5 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

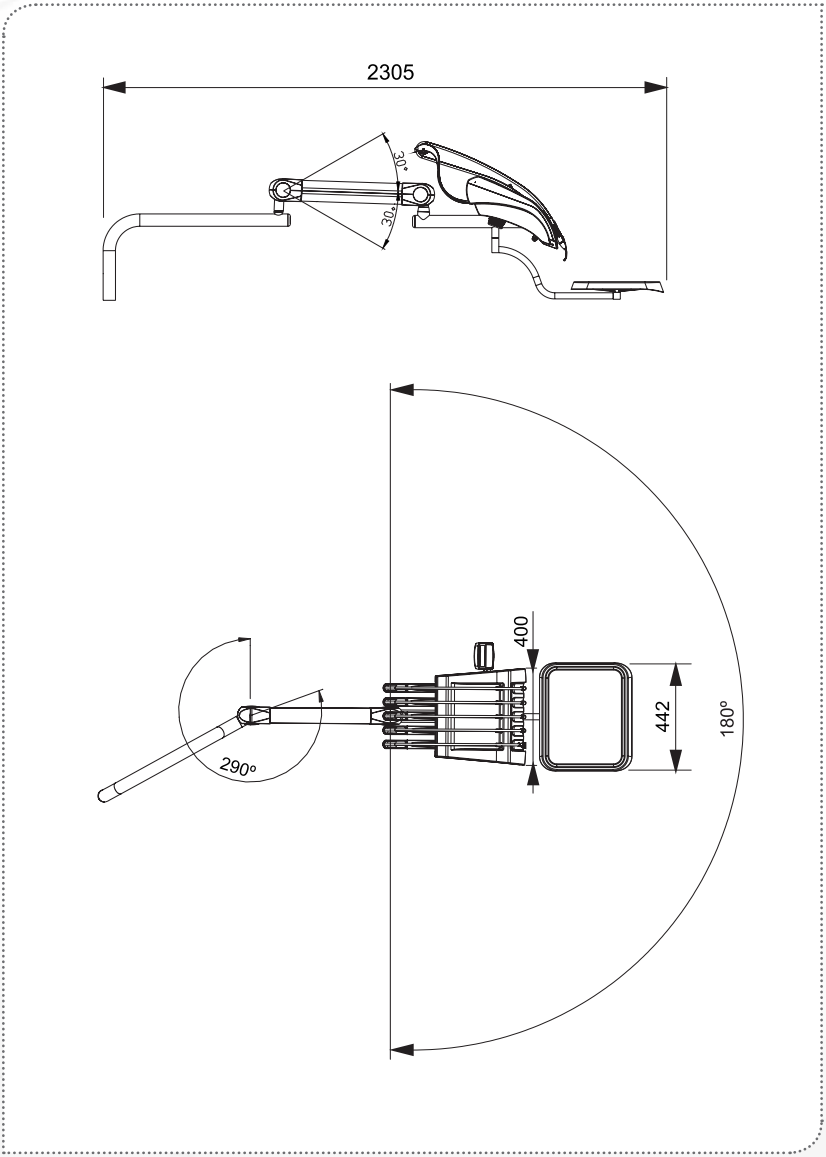
For transmitters with a maximum nominal output power not listed above, the recommended d separation distance in meters (M) can be determined using an equation applicable to the frequency of the transmitter, where P is the transmitter maximum nominal output in watts (W) according to the transmitter manufacturer.

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.

TECHNICAL SPECIFICATIONS

Dimensions (mm)



TECHNICAL SPECIFICATIONS

Packing symbols

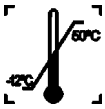
It determines the maximum quantity of boxes which can be stacked during transportation and storage "as per packaging".

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.

It determines to spitting position / last position.

Turned on position

Turned off position

B type equipment

Lift seat.

Lower seat.

Lift backrest.

Lower backrest.

TECHNICAL SPECIFICATIONS

Product symbols


It determines the initial position.

It determines the work position "1".

If determines the work position "3".


Bicarbonate Jet


Warning - Consult the manual


X ray view operation


Dental Light


Curring Light


Cup filling


Bowl's water flow

Authorized representative in the European Community

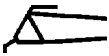
If determines the work position "2".

If determines the work position "4".


Electric low-speed-motor rotation inverter


Bio-System operation


High-speed with FO


Triple syringe


Emergency stop


Electric low-speed-motor

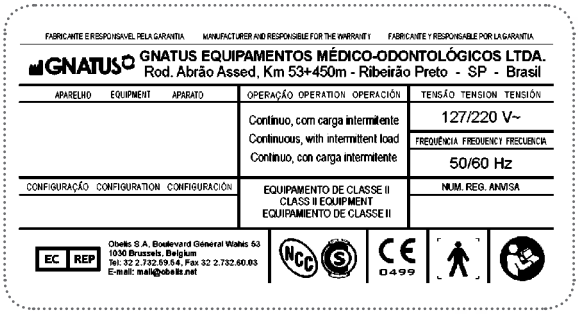

Ultrasound

TECHNICAL SPECIFICATIONS

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.

Content of accessible and non-accessible demarcations



INSTALLATION OF EQUIPMENT

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

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

Turning on / off the dental set

Turn on the main switch of the Dental Chair. All the functions of the equipment will be enabled.

The main switch has an internal LED which goes on when the dental chair is turned on.

OPERATION OF EQUIPMENT

Positioning

The arm has horizontal and vertical movements, with a pneumatic locking device.

Maintaining the button "Arm break valve" pressed "item 12, page 07", place the delivery unit in the desired position holding it by the handle, and release it to fasten it in this position.

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

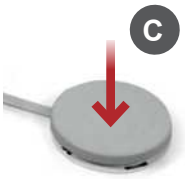


Fig.2

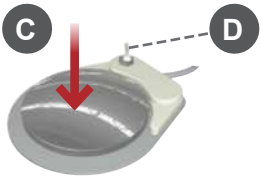
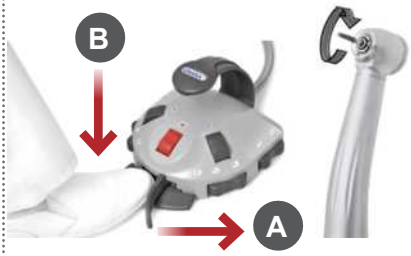


Fig.3



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.

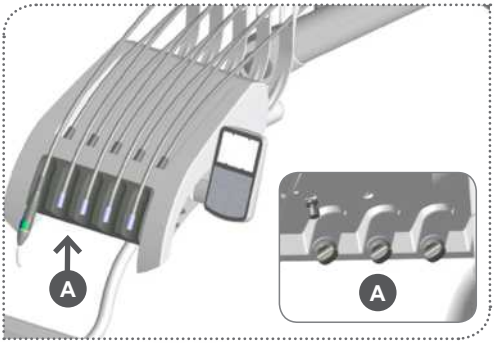
Note: As the "TB" double terminal does not have a spray this adjustment is not required.

* Optional

OPERATION OF EQUIPMENT

Adjustment of Spray of "MME/FO high and low rotation terminals"

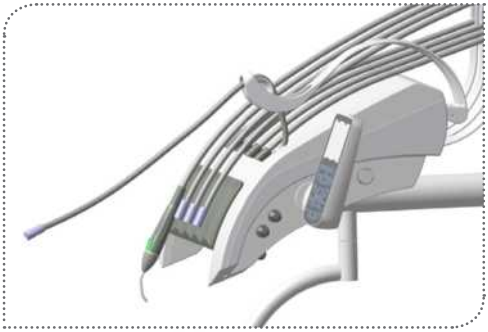
The adjustment is made via the valves positioned under the box of the delivery unit (A). Turn it in a clockwise direction to reduce the spray and in a counterclockwise direction to increase it.



Retractable rods with lock

Pull the rod smoothly until the lock is activated automatically. In order to withdraw the rod, pull it again until the lock is released.

Note: The syringe rod does not have a lock.

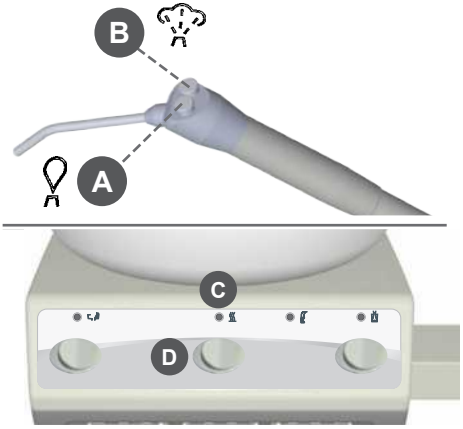


Use of 3-Way Syringe

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

Water Heating*:

When you turn on the key "hot water activation" (D), LED will light (C), starting to heat water from the syringe. Temperature should remain about 40 °C. To turn off the "water heating activation" function, press key (D) again.



(panel located in the water unit)

* Optional

OPERATION OF EQUIPMENT

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.

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.

* Optional

OPERATION OF EQUIPMENT

Ultrasound Activation*

Remove the ultrasound hand piece from the holder;

Choose the appropriate insert for the wanted operation according to "Techniques and Applications";

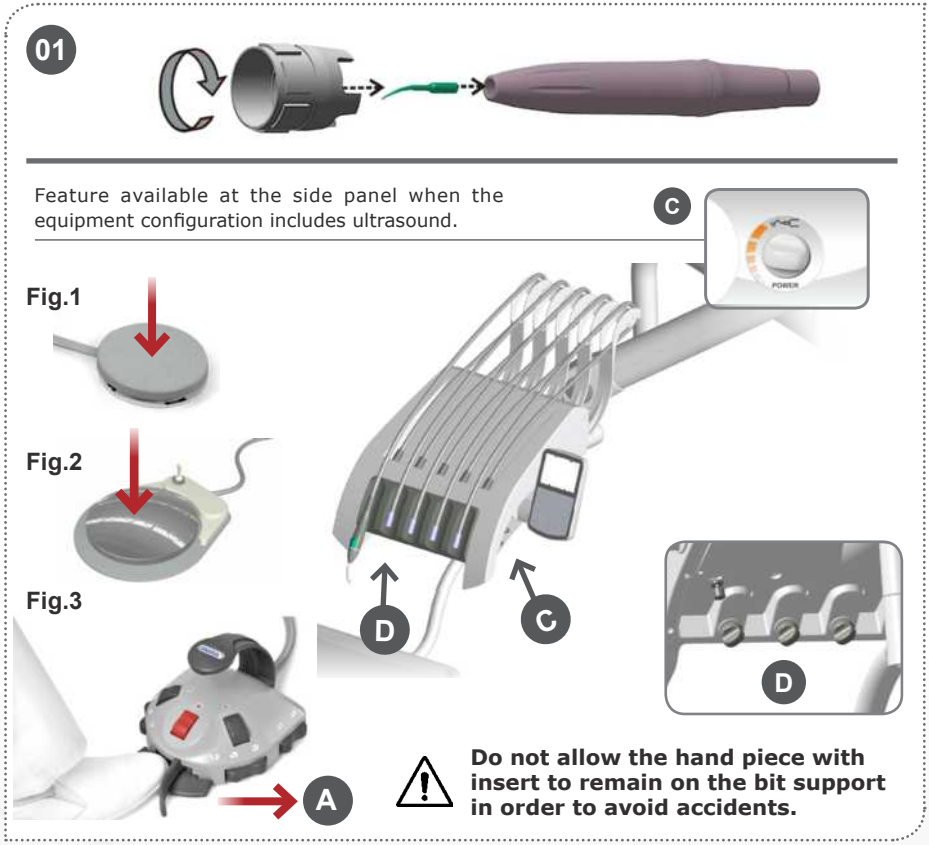
Screw the chosen insert in the hand piece with the aid of clamping key (01) and a small grip;

Actuate one of the pedals, progressive (Figure 1) * with water progressive locking system of the hand pieces (fig.2) * or chip-blower (fig.3) * (models of the pedals can vary according to the product configuration).

Place the selector power (C) in accordance with the sensitivity of operation.

Adjust the water flow through the record (D) located at the inferior part of the equipo.

At the end of the procedure release the lever from the pedal and place the hand piece in the holder.



IMPORTANT RECOMMENDATION

The shape and the weight of each insert are important facts to obtain a maximum performance of the generator of ultrasounds, the operator attention to these two

* Optional

OPERATION OF EQUIPMENT

characteristics, will assure the maintenance of the best performances of the units, however, we recommended that the structure of the insert is not altered (limiting it or twisting it), in the same way the aging of an inserted drives to an alteration of its original characteristic, becoming it ineffective.

Any insert that has been damaged by use or accidental impact should be changed.

Technical and applications

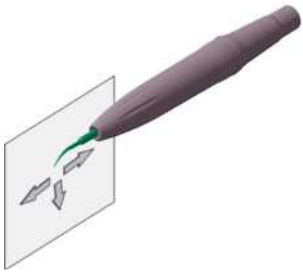
All the inserts of the Ultrasound have the particularity of vibrating in an only plane (front vibrations to back, and in the axis of the insert).

The lateral vibrations common to other destartarizators don't exit, the rectilinear displacement favors more precise approach of the tooth and of the gum.

The enamel and the cement are protected of the inutile shocks.

Inside of this main plane of vibration, the end of each insert is driven by small vibratory movements.

To abtain the maximum performance ot the Ultrasound the operator should pay attention to the specific vibrations regulations of each insert.



Periodontics

Insert Nº G1* "Removal of supragengival calculus" Tip NºG1 is used for lingual, buccal and approximal supragingival scaling. Recommended for the removal of gross calculus. Recommended power setting: 10-50%.	
Insert Nº G2* "Removal of supragengival calculus" Tip Nº G2 is used for lingual and buccal supragingival scaling. Recommended for the removal of gross calculus. Recommended power setting: 10-100%.	
Insert Nº G10P* "Universal" Tip Nº G10-P is used for lingual and buccal supragingival scaling. It's one of the most popular Tips and is recommended for the removal of heavy calculus. Recommended power setting: 10-70%.	

Endodontia

Insert NºG120* "Removal of broken instruments" Tip G-120 is a holder for files and instruments with a diameter of 0.8 mm. It can be used with implant tips and AP tips. A-120 has an angle of 120°. Recommended power setting: 10-50%.	

* Optional

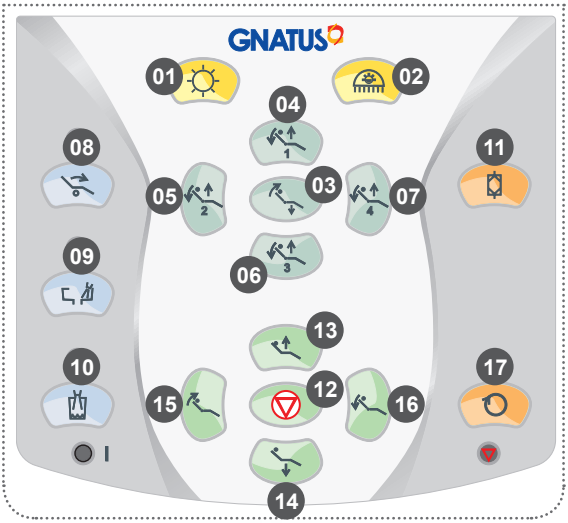
OPERATION OF EQUIPMENT

Equipment activation by the delivery unit panel*

Description:

01 - X ray view operation
02 - Activation of the dental light
03 - Initial position
04 - Work position "1"
05 - Work position "2"
06 - Work position "3"
07 - Work position "4"
08 - Spitting position / last position.
09 - Bowl's water flow
10 - Cup filling
11 - Bio-System operation
12 - Emergency stop
13 - Rise seat
14 - Lower backrest
15 - Rise backrest
16 -Lower backrest
** 17 - Electric low-speed-motor rotation inverter

Control Panel:
The configuration of the equipment without the control panel does not interfere with product operation.



** Feature available at the control panel when the equipment is supplied with electric micro motor in the configuration.

Warning:

To preset the cup filling time, press the "Cup filling" key (10) for 3 seconds (a long beep will be heard and the LED will keep blinking).

When the desired time is reached, press the "Cup filling" key again. The cup filling time is then set.

The filling time of the glass is a consequence of water flow adjustment.

To preset the bowl's water flow, pres the "Bowl water" key (09) for 3 seconds (a long beep will be heard and the LED will keep blinking)

When the desired time is reached, press the "Bowl water" key again. The cup filling time is then set.

The "Cup filling" and "Bowl water" time functions have a limited preset flow time, 1 minute for the cup filling and 1 minute for the bowl's water flow.

When the key "Last position/Spitting position" (08) is pressed, the dental light will go off (if it was on), the bowl will drain (for the preset time, and if it was not programmed yet, for one minutes) and the backrest will go up to the spitting position. When pressed again, the backrest will return to the last position and the dental light will go on (if it was on).

After pressing the "Last position/spitting position" key (08), any other operation will trigger the "Stop", and automatically the backrest current position will be defined as "Last position".

* Optional

OPERATION OF EQUIPMENT

When the "Emergency stop" (12) key is pressed, the LED will be on and all chair movements are interrupted until pressed again (12).

It has 4 programmable working positions. To program, just position the chair and the reflector at the desired intensity and keep the chosen working position key pressed for 3 seconds, the chair will produce a long bip determining that the position was already programmed.

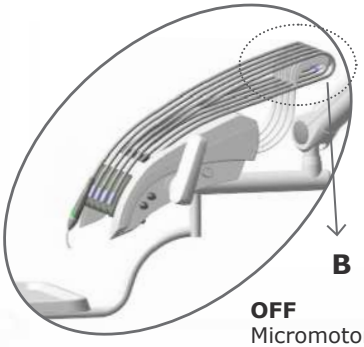
Use and applications (Digital control panel kit*)

To turn on the "Optima MX2", just take out the electric micromotor terminal from the support (A) where it is coupled and chose the operation option:

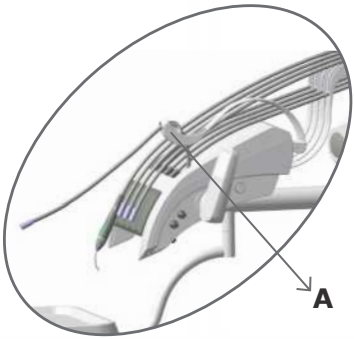
- Operative (contra angle 1:5);

- Endo (contra angle 1:1).

To turn off, put back the terminal to the equipment's support (B).



OFF
Micromotor lever in initial position.



ON
Micromotor lever turned to the front.

- Digital control panel with rotation system;
- High torque micromotor;
- Contra angle 1:1;
- Contra angle 1:5;
- Allows reduction of the number of instruments.
  It is possible to cover most operations with only two contra angles;
- Wide speed range
  (100 to 40.000 rpm with CA 1:1 and 500 to 200.000 rpm with CA 1:5);
- Maintains constant selected speed;
- 40 programs available (20 preset).

* Optional

OPERATION OF EQUIPMENT

How to provision the reservoirs

Water - Syringe / Handpieces

Remove the reservoir (01) 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 (02) uncoiling it on clockwise and make the replacement. Use a chlorinated water solution 1:500

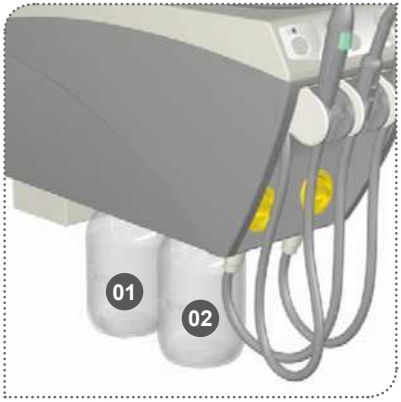
Preparing the solution:

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.



Supply through the Water Unit

Bio-System*

Remove hanpieces from terminals. Take terminals to bowl or water unit's sink.

Open the terminal's spray valves completelly.

Press the Bio-system key, which is located in the command panel, for some seconds, to disinfect the equipment's components internally with disinfectant.

Then, press the command pedal for some seconds to rinse, in order to eliminate the disinfectant residues that could have remained.

IMPORTANT:

Repeat this procedure before working day 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

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.

The equipment must not be used in proximity to, or stacked with other equipment. If the use in proximity or stacking is necessary, the equipment operation should be assessed to verify that it works normally in the configuration in which it will be used.

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.
- Avoid the light conductor terminal touch with the resin to be polymerized.
- While using the Curing Light verify that the output of the light pen has no residues that may obstruct the light beam.

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

Delivery Unit:

- 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, etc.

Curring 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.

Ultrasound:

- After use, remove the insert to avoid damage.
- The part should be packaged duly clean.
- Do not sterilize the transducer in contact with other types of material.
- The inserts should be cleaned beforehand eliminating all the resin residue.
- After removing the insert from the transducer, it should be disinfected with surgical spirit and taken to be sterilized in autoclave.

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:
- This product can also be used for cleaning and disinfection of the water basin unit.
- 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

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.

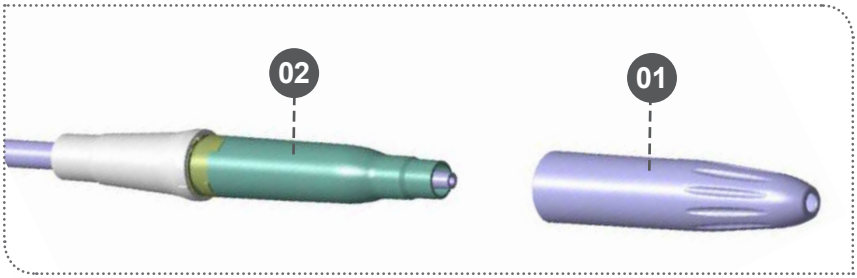
Never immerse the instrument in disinfection baths.

Ultrasound

The device is reusable in unspecified quantities, ie endless, only requiring cleaning and disinfecting.

Cleaning of terminal, transductor cover and hose:
We recommend using a clean cloth, dampened with water and mild soap.

Autoclavable:
Transducer-Cover, inserts and key are autoclavable under the following conditions:
- Maximum temperature of 134 º C.



Transducer cover sterilization:
Remove the insert from the transducer.
Carefully remove the cover (01) from the transducer (02) then take it to autoclaving (packed).

Recommendations for autoclave sterilization:

- The piece must be properly packed clean.
- Do not sterilize the transducer cover in contact with other materials.
- The inserts must be cleaned earlier eliminating all resin residues.
- After removing the insert from the transducer, it should be disinfected with surgical alcohol and taken to autoclave for sterilization.
- The material of the transducer cover was developed to support up to 200 cycles of autoclaving, provided the recommendations are done according to stated above.

CAUTION: Never expose the transducer covers to any type of oil because it can modify the structure of the material compromising it´s useful life.

Bicarbonate Jet "Jet Hand"

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

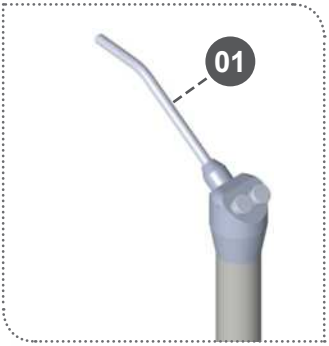
CORRECTIVE AND PREVENTIVE MAINTENANCE AND PRESERVATION

Reservoirs

It's highly recommended the cleaning of the water reservoirs, using chlorinated water solution 1:500.

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.



Tips support

To remove tips support from equipment, just pull it, as shown in figure.
To clean tips support (02) use water and neutral soap. To sterilize in autoclave, use a 134°C cycle. The tips support was designed to stand more than 200 autoclave cycles.

Preventive Maintenance

The equipment must suffer routinely measurements, following the current legislation of the country.

But, never with a period superior to 3 years.

For protecting your equipment, look for a Gnatus' technical assistance for periodic reviews as preventive maintenances.

Corrective Maintenance

Gnatus states that the supplying of the circuits' diagram, Part lists or any other information that permits the technical assistance by the user, can be requested, since previously agreed between the buyer and Gnatus.

⚠ In case of the equipment presents any abnormality; check if the problem is related to some of the listed items under the item Unpredictable (situation, cause and solution). If it's not possible to solve the problem, shutdown the equipment and call 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
Delivery Unit -Handpiece is not working.	-Compressor disconnected.	-Plug the compressor in.
-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.
-No water from syringe.	-Reservoir run out of water. -Compressor disconnected.	-Put filtered water in reservoir. -Plug compressor in.
-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. - Turn off the chair from mains power and request a Technician presence. -Switch main/chair switch on.
- X ray view does not work	-Chair's fuse burned. -Main switch is off.	-Turn off the chair from mains power and request a Technician presence. -Switch the main switch on.
Curring Light -Equipment's not working.	-Power cut. -Chair's fuse burned.	-Check power supply. -Turn off the chair from mains power and request a Technician presence.
-Equipment is not polymerizing resins.	-Resin is not appropriate for LED's photopolymerizer wave length range. - Resin residues in light cable.	-Get the indicated resin for the photopolymerizer's wave length range, one with contains photoinitiators based on camphorquinone. -Clean the light cable.

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
Ultrasound -The equipment doesn't work.	-Chair's fuse burned	-Turn off the chair from mains power and request a Technician presence.
-Lack of power to the ultrasound.	-Deformed insert. -Loosen insert. -Bad utilization (incorrect attack angle).	-Change the insert. -Hold the insert with the key -See item "Technical and applications".
-There is no water in the hand piece.	-Inadequate alimentacion pressure water. -Bad regulating of the water flux.	-Correct the water filter. -Adjust the water flux through the actuator.
Bicarbonate Jet	- For further information, please see the Bicarbonate Jet "Jet Hand" manual which comes with the product.	

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.

EC REP Obelis S.A, Boulevard Général Wahis 53, 1030 Brussels, Belgium,
Tel: +(32) 2 732-59-54 Fax: +(32) 2 732-60-03 E-mail: mail@obelis.net

NUM. REG. ANVISA: 10229030047

Fabricante/ Distribuidor:

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