

English

# Owner's Manual

CE  
0499



**Mini Delivery Unit**

Code. 300052885 Rev.01

**GNATUS**

# PRESENTATION OF MANUAL

## INSTRUCTIONS FOR USE

### EQUIPMENT:

**Technical Name:** Dental Delivery Units and Accessories

**Trade Name:** Mini Delivery Unit

**Brand:** GNATUS

### Manufacturer/ Distributor:

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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.

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## **DESCRIPTION OF THE 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.

### **Identification**

Technical Name: Dental Delivery Units and Accessories

Trade Name: Mini Delivery Unit

Brand: GNATUS



## DESCRIPTION OF THE EQUIPMENT

### Principles and bases applied to the functioning of the product

Posee mangueras con aire comprimido y conectores para la alimentación de las piezas de mano (alta y baja rotación) y jeringa con salida de agua y aire.

It has ejectors, with suction activated by a venturi system or vacuum pump with compressed air.

### Description of Equipment

MINI DELIVERY UNIT is a portable unit with great fastening versatility. (E.g. tables, cabinets, benches, etc).

Body made of high impact polystyrene.

Activation and control of the syringe, rotary instruments etc., providing greater proximity in the work field.

Saliva/blood ejector with intermediary filter easy to access.

Automatic selection of the handpieces through sensitive pneumatic valves.

Unique foot control of activation of the handpieces, which can be activated in any position.

Smooth, rounded hoses, without grooves or rifling.

It has translucent reservoirs easy to access with automatic pressurization of water for syringe/spray of the handpieces and chlorinated water for the "optional" Bio-System. The Bio-System is a disinfection system, which provides internal cleaning of the hoses and terminals via bactericidal liquid, preventing risks of cross contamination.

To guarantee the safe functioning of your equipment, use only the assemble configurations (Dental Chair, Dental and Water Units and Dental Light) supplied by Gnatus authorized Dealers / Technical Assistance.

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

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

#### **Laser Hand Kit (optional item) – Features of the product:**

See the Owner's Manual - Laser Hand

#### **Curing light (optional item) – Features of the product:**

The Curing Light belongs to the newest generation of **LED** photo-activation devices. This abbreviation stands for **Light Emitting Diode**, a totally different type of light emission, if compared to conventional halogen equipment.

Unlike traditional devices, which generate wide-spectrum light and heat, this technology uses a cold light of the precise wave length needed to activate various dental products.

LED technology, which was recently introduced in Dentistry, brought about several useful features to those light-curing devices used in composite resin restoration. Besides being more durable, LED technology turned devices more compact, ergonomic and easier to install and transport. The emission of cold light within a precise wave length range ensures the safe cure of camphorquinone-activated composites, preventing dental heating, pulp damage or discomfort for both patient and dentist. Although being relatively new, this technology is nowadays in its second generation. LED safety and efficiency, now allied to high-energy emission, are available to all clinic procedures which require light-curing power, including bleaching treatments.

# DESCRIPTION OF THE EQUIPMENT

The light of 440nm-460nm wave length, allied to the high energy emitted by Curing Light, makes possible the multi-functionality of this device:

- **Direct restoration procedures:** composite resins, ionomers and adhesives.
- **Indirect restorations:** adhesive cementation of laminates, inlays, esthetic pins and metal-free crowns.
- **Dental Bleaching:** activation of bleaching gel and polymerization of gingival barriers. Compatible with 35% hydrogen peroxide-based bleaching gels.
- Attachment of braces and orthodontic accessories.
- **Activation of light-cure materials,** such as sealants, surgical cements and covering bases.

Designed and built with cutting-edge technology, it meets the highest standards specified by world's dental authorities.

Operation control display in handpiece, sound alarm with beep every 10 seconds and 4 beeps at the end of the cycle.

Advantages offered by Curing Light:

- More spectrally-selective light than conventional lamps.\*
- Cold light, it doesn't heat up the resin nor the tooth\*\*
- Light compact equipment that provides handling comfort.
- Low power consumption.
- Longer useful life of the light emitting diode (equivalent to 36.000.000 cycles of 10 seconds).
- It does not use optical filter.
- It does not require forced ventilation, thus avoiding noise emission.

We noted that the light emitted by the Curing Light is completely contained within the absorption interval of the photo starter, therefore it's 100% used, whereas the conventional equipment running on halogen lamps has non-used wave-length regions.

The Curing Light doesn't generate heat since it uses light emitting diodes.

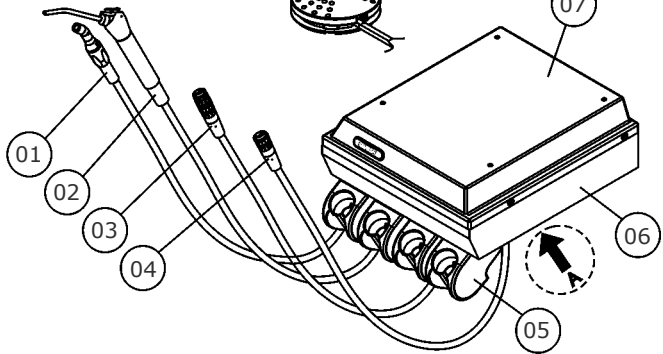
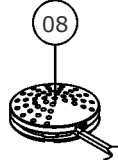
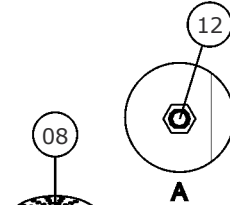
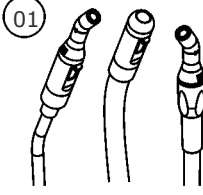
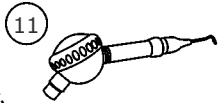
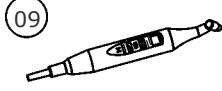
The light conductor is removable, made out of high resistance polymer and of easy maintenance.

## Indication of Equipment

This equipment is for dental 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 be in perfect conditions of the use, and to protect the professional, the patients and others, in the eventual danger situation.

## MODULES, ACCESSORIES, OPTIONS AND MATERIALS OF CONSUMPTION

### Delivery Unit Mini



The Drawing illustrates the equipment with all the optional items. Your delivery unit will only be composed of the items chosen during your purchase option.

#### Basic configuration of the product (composed of)

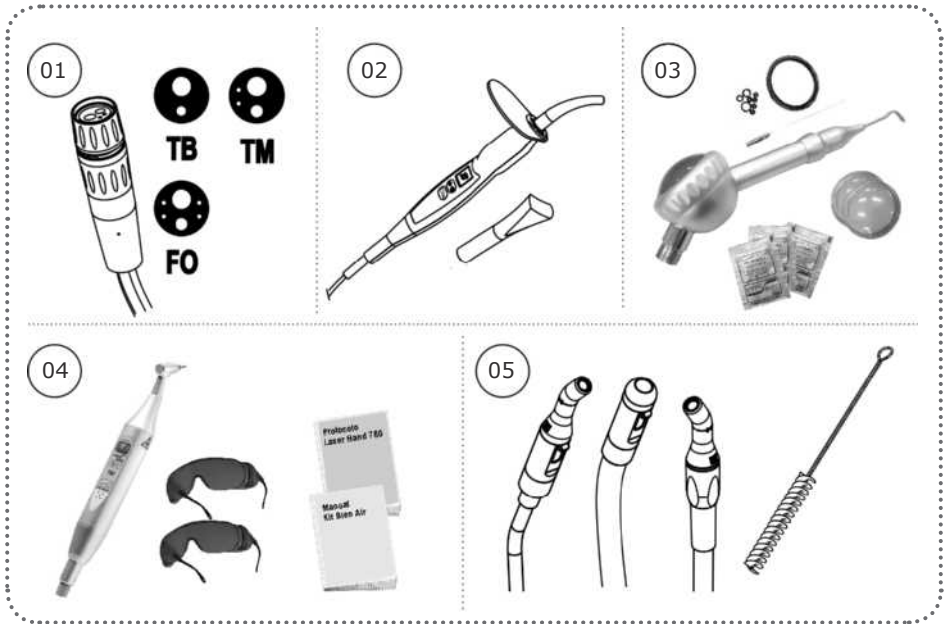
1-Triple syringe, 1-High-speed-motor terminal TB, 1-Low-speed-motor terminal (without spray).

- 01 - "Venturi or vacuum pump" ejector (optional)
- 02 - Triple syringe
- 03 - High-speed-motor terminals (optional)
- 04 - Low-speed-motor terminal (optional)
- 05 - Support of the Points (optional Point four)
- 06 - Bod
- 07 - Delivery unit cover
- 08 - Foot control
- 09 - Kit Laser Hand (optional)
- 10 - Curing Light (optional)
- 11 - Bicarbonate jet "Hand"(optional)
- 12 - Bio-System activation (optional)  
"available in the delivery units configured with Bio-System"



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 compatibility between equipment, coupling and accessories.

# MODULES, ACCESSORIES, OPTIONS AND MATERIALS OF CONSUMPTION



**01 - Terminals (optional)**

- FO:Optical fiber terminal
- TM:Midwest terminal
- TB:Borden terminal

**02 - Curing light + tip for 3 teeth (optional)**

**03 - Bicarbonate jet kit "Jet Hand"(optional)**

- Bicarbonate jet
- Opener
- Covers for reservoir
- Rings for sealing

- Sachet of bicarbonate
- Manual

**04 - Hand Laser kit (optional)**

(Nº Registration Anvisa 80051420005)

- Laser Hand
- Safety goggles "patient and professional"
- Manuals

**05 - Ejectors (optional)**

- Venturi Ejector
- Larger ejector for Vacuum Pump
- Smaller ejector for Vacuum Pump
- Brush for cleaning the ejector



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



The accessories described above shall never be able to be sold separately from the product.



# TECHNICAL SPECIFICATIONS

## Technical features of the Delivery Unit and its accessories

### General

Model
Mini 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)
Degree of safety of application in presence:
Equipment not suited to an anesthetic mixture inflammable with air, oxygen or nitrous oxide.
Mode of Operation
Continuous operation with intermittent load

### Power Supply

Inlet air pressure
80 PSI (5,52 BAR)

### Other specifications

Capacity of water reservoir
800ml
High rotation air consumption
9 l/min
High rotation water consumption
0,02 l/min
Inlet air pressure - Syringe
40 PSI (2,76 BAR)
Syringe air consumption
17 l/min
Syringe water consumption
0,1 l/min
Net weight (with all the options)
2.55 Kg
Gross weight (with all the options)
3.20 Kg

## TECHNICAL SPECIFICATIONS

Venturi suction system – Maximum vacuum
220 mm/Hg
Venturi suction system – Volumetric displacement
30 l/min
“Bio Vac II Vacuum Pump” suction system – Maximum vacuum
400 mm/Hg
“Bio Vac II Vacuum Pump” suction system – Volumetric displacement
120 l/min
“Bio Vac IV Vacuum Pump” suction system – Maximum vacuum
550 mm/Hg
“Bio Vac IV Vacuum Pump” suction system – Volumetric displacement
350 l/min

### Specifications of Curring Light

Power
5,2VA
Light source
1 LED
Active medium
Semiconductor 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

# TECHNICAL SPECIFICATIONS

## Standards applied:

### This product was tested and approved as per the standards:

EN 60601-1 (1990);  
Amendment 1 EN 60601-1 (1992);  
Amendment 2 EN 60601-1 (1995);  
Amendment 13 EN 60601-1 (1995);  
EN 60601-1-3 (2001);  
EN 60601-2-7 (2001);  
EN 60601-2-28 (2001);  
EN 60601-2-32 (2001);  
Emenda 1 IEC 601-1;

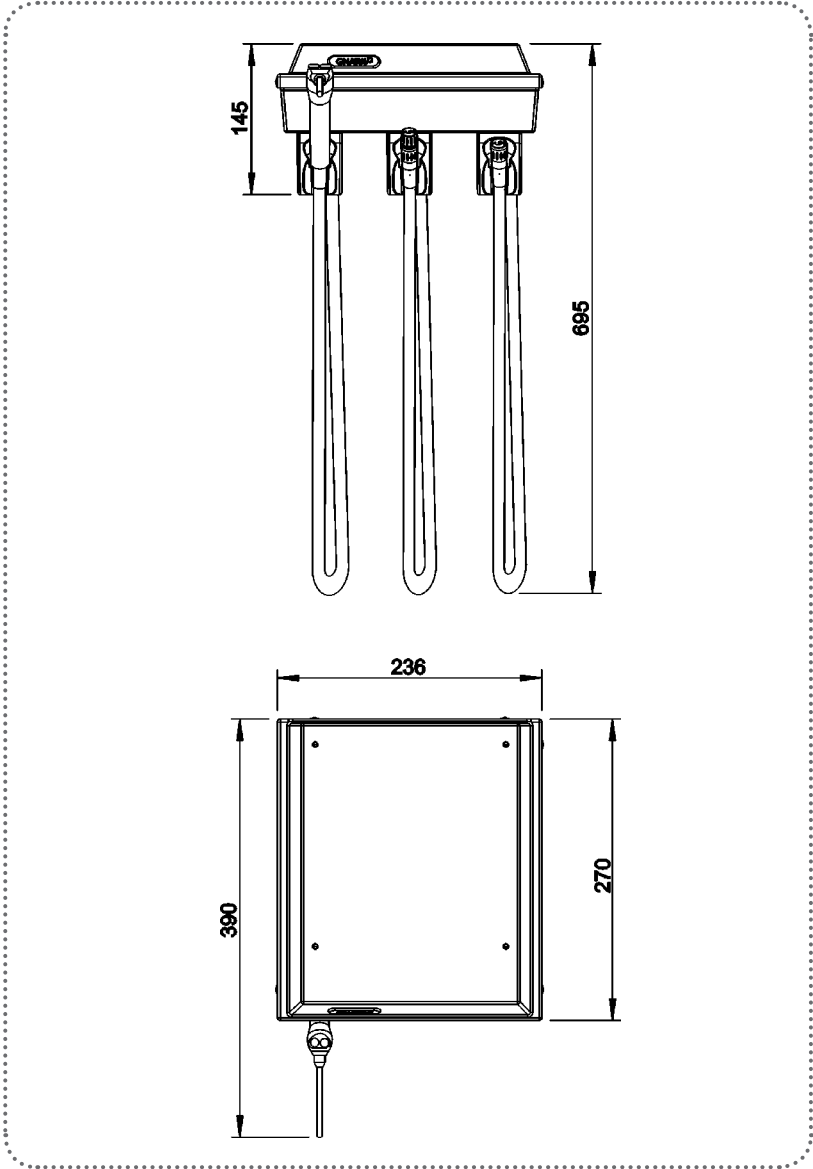
IEC série 60601-1 Equipamento Eletromédico - Parte 1: Prescrições gerais para segurança;  
EN ISO 980:2008 (Ed. 2) - Graphical symbols for use in the labelling of medical devices;  
EN ISO 14971:2007 - Medical devices - application of risk management medical devices;  
NBR ISO 9687: 2005 - Dental equipment - graphical symbols;  
ISO 7494:2004 - Norma dental units;  
EN ISO 13485-2003 - Quality systems - medical devices;  
ISO 780:1997 - Packaging - pictorial marking for handling goods;  
ISO 11144:1995 - Norma dental equipment - connections for supply and waste lines.



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

# TECHNICAL SPECIFICATIONS

## Dimensions (mm)



## TECHNICAL SPECIFICATIONS

### Packing symbols



Maximum stacking:  
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 avoiding humidity, rains and wet floor.



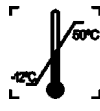
Packing to be transported and / or stored with the harrows up.



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



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



Temperature limit for the packing to be stored or transported.

### Product symbols



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



Bio-System operation



**Note:** It indicates useful information for operation of the product.



High-speed with FO



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



Curring Light



Triple syringe



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



BV ejector



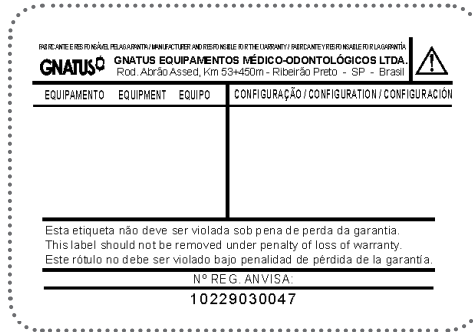
B type equipment



Ejector type Venturi

# TECHNICAL SPECIFICATIONS

## Content of accessible and non-accessible demarcations



# INSTALLATION OF EQUIPMENT



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



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

- This equipment shall only be able to be unpacked and installed by a Gnatús authorized technician, under penalty of losing the warranty, as only (s)he has the information, suitable tools and training required to execute this task.

- Gnatús bears no responsibility for damages or accidents caused by poor installation executed by a technician not authorized by Gnatús.

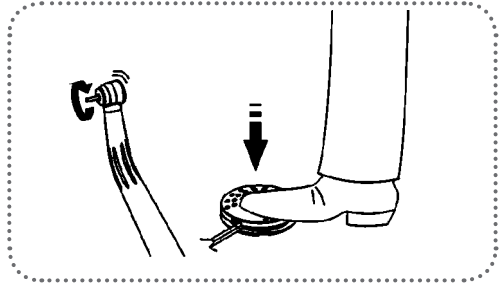
- Only after the equipment has been installed and duly tested by the authorized technician representing Gnatús, will it be ready to start work operations.

## OPERATION OF EQUIPMENT

### Activation of the Terminals

- For the functioning of the rotary instruments, remove the instrument to be used from the support, activate the foot control pressing it with your feet.

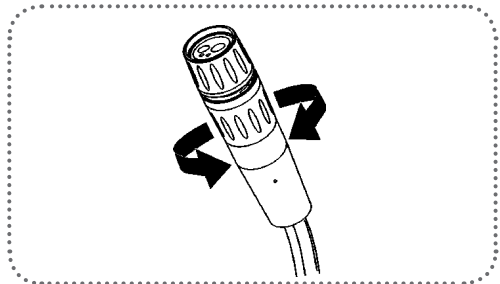
**!** The power (air power supply) can be controlled by the operator with greater or less pressure on the foot control.



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

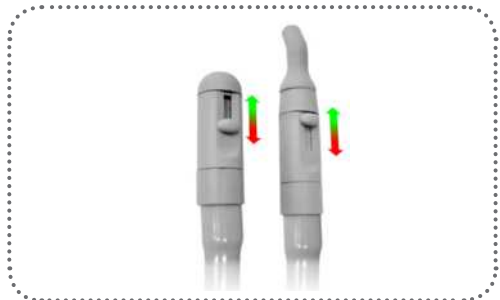
- The adjustment is made via a valve positioned in the terminal. Turn it in a clockwise direction to reduce the spray and in a counter-clockwise direction to increase it.

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



### Ejectors operation

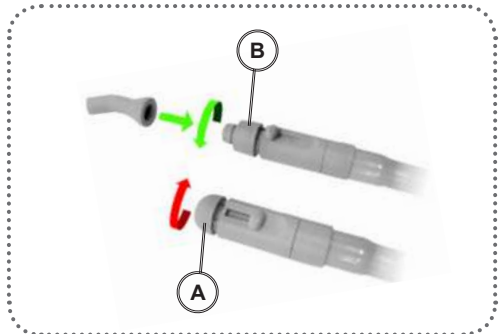
The ejectors (both BV and Venturi) start working automatically when retired from the tips support. The BV ejectors feature suction flow adjustment, and its regulated moving the lever located at the ejector up or down.



### Substituição do padrão de acoplamento da cânula

Caso haja necessidade de utilização da cânula de 6,5 mm no suctor BV, faça a substituição do acoplamento da cânula conforme procedimento abaixo:

- Retire o acoplamento de 11 mm (A) desenroscando-o do conjunto suctor BV.
- Enrosque o acoplamento de 6,5 mm (B) no conjunto suctor BV e encaixe o engate para cânula.



## OPERATION OF EQUIPMENT

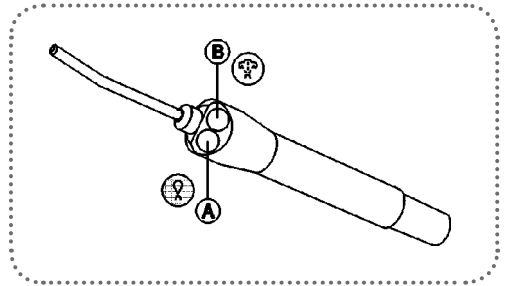
### Engate da cânula de 6,5mm

A curva do engate da cânula foi projetada para uma melhor a manipulação, mas também pode ser cortada no local indicado com auxílio de um estilete.



### 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.

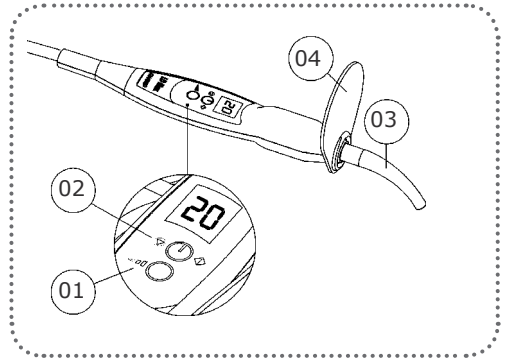


### Curing Light Activation

- 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 polymerization, and it allows ambient light to pass through.



# OPERATION OF EQUIPMENT

## Laser Hand

The "Laser Hand Kit" is low intensity (780nm) and provides relief of acute and chronic pain, and speeds repair of damaged tissue by means of biostimulation effects of radiation. Eminently analgesic, anti-inflammatory and biomodulation effect.

### ! Applications:

- Inflammations;
- Oral mucous lesions;
- Dental hypersensitivity;
- Analgesia;
- Paresthesia;
- Alveolitis and pericoronitis;
- Acceleration of post surgical and injury cicatrisation;
- Decrease of edemas, bruising and scabbing;
- Distension, muscular spraining and articular pain;
- Acupuncture (optional).

## Activation of the "Laser Hand"

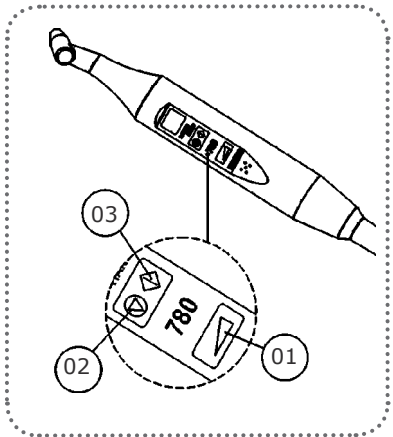
Turn on the main unit power switch, which will automatically turn on the laser.

To select application time, press the time selection button (01) with variations of: 01s to 90s. Maintain pressure on the key until desired time selection, which can be at 1-second intervals (1s, 2s, 3s, 4s, 5s, 6s, 7s...) or 10-second intervals (10s, 20s, 30s, 40s, 50s..).

To start, press timer activation button (01). A single beep will be heard, followed by 5 beeps at each conclusion.

The laser will remain active with a 10-minute program. After 10 minutes, a beep will inform that the laser is in standby mode.

To restart the cycle, press the key (02) which will sound 2 beeps and the last programmed selection will appear on the screen. To interrupt the cycle, press button (03).



**Note:** For a new program, in case desired time is less than the previous program, press (01) until the start of time "00".



**WARNING:** Never direct the red light towards eyes;

# OPERATION OF EQUIPMENT

## How to provision the reservoirs

### Water - Syringe / Handpieces

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

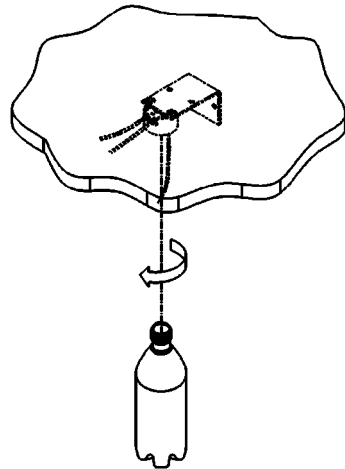
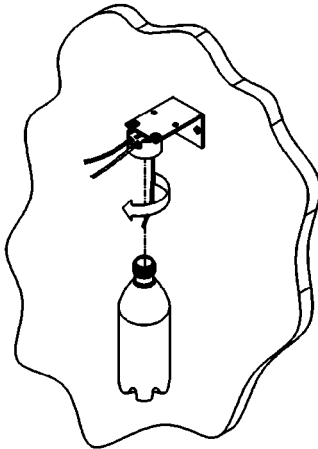
#### Preparing the solution:

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.



Supports fastened at the side of or under tables, cabinets, benches, etc...



Bearing in mind that:  
The equipment should only be installed by Gnatus authorized technical assistance or technicians.

# 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 its 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.

## 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.
  - Check that the socket in which the device will be connected has a ground connection. According to the ABNT standard, this is essential for the safe operation of the system;
  - 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.
  - Check the voltage of the equipment at the moment of executing the electrical installation.
    - The equipment must be grounded correctly.
    - 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 technology. Similarly to other kinds of equipment, it requires special care, which is many times neglected due to several reasons and circumstances.

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.

### **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:**

- 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.

### **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 Curing Light check if the light conductor output doesn't have residues that might obstruct the light beam.

### **Hand Laser:**

For further information, please see the Hand Laser manual which comes with the product.

## **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.

## **Disinfection**

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

# CORRECTIVE AND PREVENTIVE MAINTENANCE AND PRESERVATION

## Cleaning



**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 n° 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.



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



**Attention: Do not use any disinfectant spray, as the vapor may be inflammable, or it may cause injury.**

## Cleaning

### 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.

# CORRECTIVE AND PREVENTIVE MAINTENANCE AND PRESERVATION

## Bio-System

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

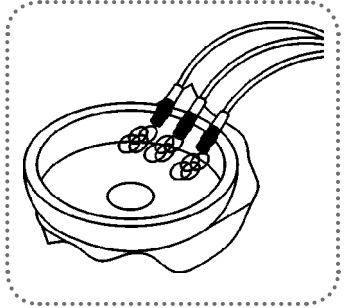
Open the terminal's spray valves completely.

Press the Bio-system key (12) see pag 07, 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.



## Reservoirs

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

## Cleaning

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.

- **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.



Fig.A

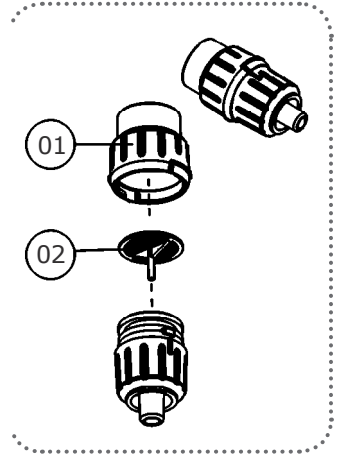


# CORRECTIVE AND PREVENTIVE MAINTENANCE AND PRESERVATION

## Cleaning

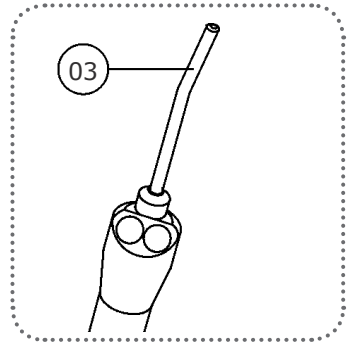
### Sucker filters

After the suction of the solution through the suctor, take the lid (01) and the filter (02) and wash them in running water.



### Triple syringe

Only the syringe tip is autoclavable (03). The other pieces must be cleaned using a piece of cotton wool and alcohol 70% vol. Never use a hot air sterilizer.



## 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

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
<b>Delivery Unit</b> -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 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.	-Put disinfectant in the reservoir.
- Ejector without suction.	-Insufficient air pressure from compressor. -Filter clogged with particles. -Filter lid misplaced. -Main or vacuum pump switch is off.	-Adjust air flow. -Remove and clean filter. -Remove lid and place it correctly. -Switch main/ vacuum pump switch on.
<b>Curing Light</b> -Equipment's not working.	-Power cut.	-Check power supply.
-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.

## WARRANTY OF EQUIPMENT

This equipment is covered by the warranty terms counting from the date of installation, as specified below; provided that the defect has occurred in normal conditions of use and that the equipment has not remained stored for more than 06 months counting from the issue date of the sales document until the date of the actual installation.

- WARRANTY TERMS: 24 months;
- LOSS OF THE WARRANTY:
  - A) Attempt to repair using an inadequate tool or by unauthorized technicians;
  - B) Installation of the equipment by an unauthorized technician;
  - C) Damage arising from inappropriate storage or signs of infringement;
  - D) Incorrect use of the equipment;
  - E) Use of a cleaning product not indicated by the factory;
  - F) Falls or blows which the equipment may undergo or lack of observation of an compliance with the guidelines of the Owner`s Manual, which was delivered with the present document, together with the equipment. Repair or replacement of parts during the warranty period shall not extend the validity term of their warranty.
- This warranty doe snot exempt the customer from paying the service charge for the visit and the travel expenses of the technician, except when the customer sends the equipment to execute the maintenance inside the establishment of the technical assistance.

“Consumer Defense Code - art. 50, unique paragraph”.
- The Warranty Certificate comes with the product and must be filled in upon the date of installation by the Gnatus Authorized Technician.
- Queries and information: GNATUS Help Desk (+55) 16 2102-5000.
- Check the warranty term attached to this manual.

## FINAL CONSIDERATIONS

The most important aspect related to equipment care is that concerning spare parts. To guarantee the life span of your equipment, use only **original Gnatus spare parts**. They are sure to follow the technical specifications and standards required by Gnatus. We must also point out to you our chain of authorized dealers. Only dealers that make part of this chain will be able to keep your equipment constantly new for they count on technical assistants who have been trained and on spedific tools for the correct maintenance of your equipment.

Doubts and information: GNATUS Call center (55-16) 2102-5000.



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