English

Owner´s Manual

CE
0499

ILLUSTRATIVE IMAGE

Artus Delivery Unit

Code. 300052880 Rev. 02

GNATUS

PRESENTATION OF MANUAL

INSTRUCTIONS FOR USE

EQUIPMENT:

Technical Name: Dental Delivery Units and Accessories
Trade Name: Artus Delivery Unit
Brand: GNATUS

Manufacturer/ Distribuitor:
GNATUS - EQUIPAMENTOS MÉDICO-ODONTOLÓGICOS LTDA.
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Technical Duties: Gilberto Henrique Canesin Nomelini
CREA-SP: 0600891412

Registration ANVISA Nº: 10229030047

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

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: Artus Delivery Unit
Brand: GNATUS

DESCRIPTION OF THE EQUIPMENT

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.

Description of Equipment

Delivery unit for dental use, for activation and control of the syringe, rotary instruments, etc., and ambidextrous (can be used by right-handers and left-handers). Removable and autoclavable stainless steel cover (optional item). Body made of high impact polystyrene, with rounded edges.

Structure made of steel, with glossy smooth paint with a base of epoxy, polymerized in an oven at 250ºC, with phosphatized treatment resistant to corrosion and cleaning materials.

Automatic selection of the handpieces, through sensitive pneumatic valves, allowing light activation.

Front, central handle, easy to access, handpiece support made of high impact automotive ABS, both with rounded edges. 4th handpiece "optional". Smooth, rounded hoses, without grooves or slits, light and flexible. Progressive foot control of activation of handpieces.

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.

Connecting box, made of high impact polyethylene and having rounded corners.

Interchangeable coupling system, adaptable as per the requirement of the professional.

Available in the pneumatic FLEX, mechanical FLEX, mechanical FLEX with lock and CART models (optional).

PNEUMATIC FLEX: coupled to the dental chair, with horizontal movements, swivel arm with horizontal and vertical movements, with a pneumatic locking device for the vertical movements, activated by a button located in the body of the delivery unit, and smooth movements due to the bushing system of Teflon with bronze.

MECHANICAL FLEX: coupled to the dental chair, with horizontal movements and adjustment of the vertical position through the snap ring.

MECHANICAL FLEX WITH LOCK: coupled to the dental chair, with horizontal movements and adjustment of the vertical position through the locking ring.

CART: with the base on four casters, made of steel with smooth painting and rounded corners.

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, assuryng the products are manufactured under standart procedures.

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

DESCRIPTION OF THE EQUIPMENT

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.

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.

DESCRIPTION OF THE EQUIPMENT

Ultrasound (optional item) – Features of the product:

Piezoelectric Ultrasound, frequency of 30,000 Hz.

The Transducer with the piezoelectric system allows the insert to make precise and linear movements, being able to be used in widely differing dental specialties.

Fine adjustment of power, suited to each type of procedure.

In the procedures with cooling, it offers constant irrigation with control of flow.

It also allows dry work to be executed (condensation of amalgam, cementing of inlays/onlays etc).

FUNCTIONAL APPLICATIONS

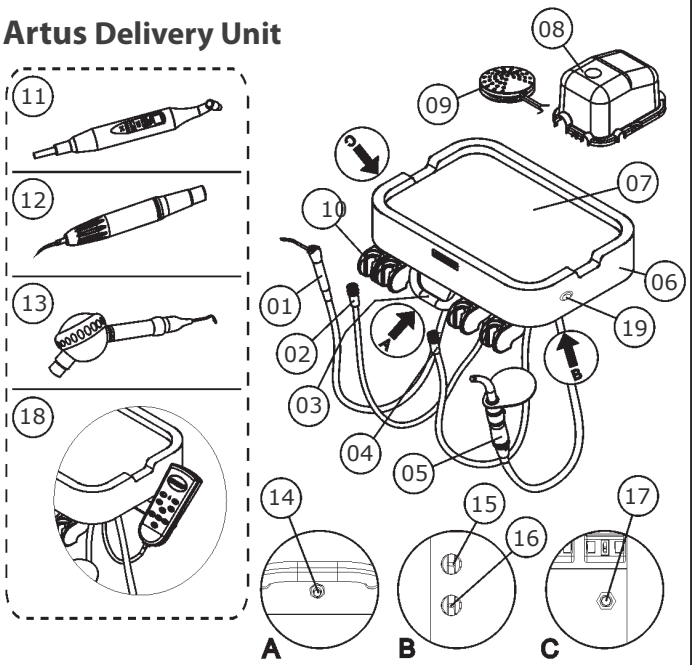
- Periodontics
- Endodontics
- Dentistics and Prosthesis

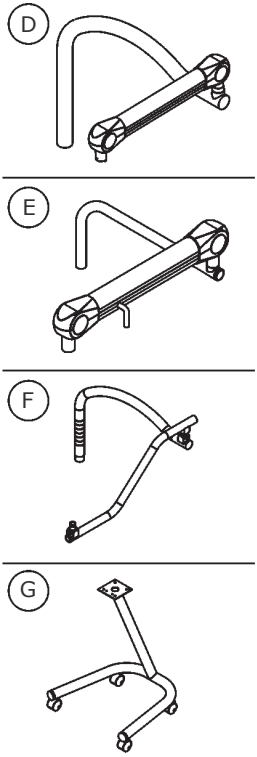
Indication of Equipment

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.

MODULES, ACCESSORIES, OPTIONS AND TYPES OF COUPLING (SUPPORTS)

Artus Delivery Unit





Basic configuration of the product (composed of)
F Coupling: Mechanical Flex, 1-3-Way Syringe, 1- TB high rotation terminals, 1-Terminal for TB micro motor "without spray".

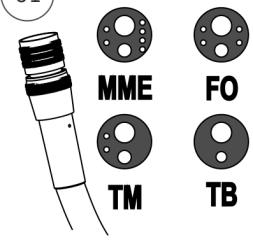
01 - Triple syringe
02 - High-speed-motor terminals (optional)
03 - Centered handle
04 - Low-speed-motor terminal (optional)
05 - Curing Light (optional)
06 - Body
07 - Auxiliary trays (optional)
08 - Connection box
09 - Foot control
10 - Support of tips (4th optional tip)
11 - Kit Laser Hand (optional)
12 - Ultrasound (optional)
13 - Bicarbonate jet "Hand"(optional)
14 - Arm brake valve (optional) "used in the pneumatic Flex couplings"
15 - Water valve for ultrasound/ bicarbonatejet (optional)
16 - Regulator of ultrasonic power (optional)
17 - Activation of the Bio System (optional)
18 - Control Panel Kit (optional)
19 - Key to drive water into the bowl (optional)

Couplings (options upon inquiry)
D - Pneumatic Flex
E - Mechanical Flex with lock
F - Mechanical Flex
G - Cart

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. 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.

MODULES, ACCESSORIES, OPTIONS AND TYPES OF COUPLING (SUPPORTS)

01



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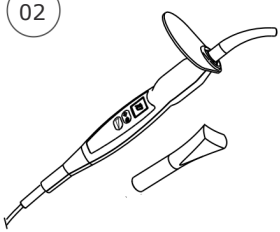

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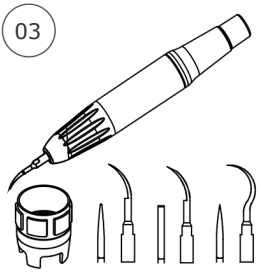

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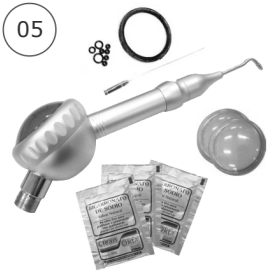

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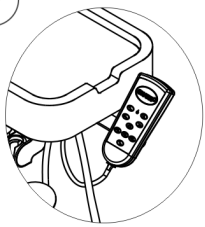

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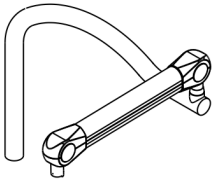

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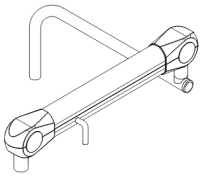

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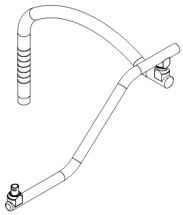

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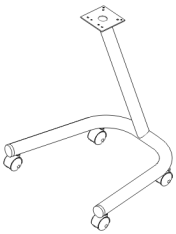


GNATUS

MODULES, ACCESSORIES, OPTIONS AND TYPES OF COUPLING (SUPPORTS)

01 - **Terminals (optional)**
- MME:Electrical micro motor terminal
- FO:Optical fiber terminal
- TM:Midwest terminal
- TB:Borden terminal

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

03 - **Ultrasound kit (optional)**
- Ultrasound
- Tightening wrench
- Inserts "nº 1, 2 and 10P

04 - **Hand Laser kit (optional)**
(Registration # Anvisa 80051420005)
- Laser Hand
- Safety goggles "patient and professional"
- Manuals

05 - **Bicarbonate jet kit "Jet Hand"(optional)**
- Bicarbonate jet
- Opener
- Covers for reservoir
- Rings for sealing
- Sachet of bicarbonate
- Manual

06 - **Bandeja de inox (opcional)**

07 - **Control Panel Kit (optional)**
- Up/down backrest keys
- Up/down seat keys
- Reflector activation key
- Working positions 1, 2 and 3 keys
- Key Return to zero

08 - **Pneumatic FLEX coupling (optional)**
09 - **Pneumatic FLEX coupling with lock (optional)**
10 - **Mechanical FLEX coupling (optional)**
11 - **CART coupling (optional)**

⚠ 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
Artus 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

Power Supply Voltage (coming from dental chair)
127/220 V~ (Selectable)
Frequency
50/60 Hz
phases
Single Phase / Biphasic
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
80 PSI (5,52 BAR)
Inlet air pressure - Syringe
40 PSI (2,76 BAR)
Maximum consumption of air (dental set)
80 l/min

TECHNICAL SPECIFICATIONS

Capacity of water reservoir
800ml
High rotation air consumption
9 l/min
High rotation water consumption
0,02 l/min
Syringe air consumption
17 l/min
Syringe water consumption
0,1 l/min
Delivery unit tray`s maximum load capacity
2Kgf
Net weight of Delivery Unit with "Pneumatic FLEX" coupling (with all the options)
21,5 Kg
Gross weight of Delivery Unit with "Pneumatic FLEX" coupling (with all the options)
26,5 Kg
Net weight of Delivery Unit with "Mechanical FLEX" coupling (with all the options)
16 Kg
Gross weight of Delivery Unit with "Mechanical FLEX" coupling (with all the options)
21 Kg
Net weight of Delivery Unit with "CART" coupling (with all the options)
14,10 Kg
Gross weight of Delivery Unit with "CART" coupling (with all the options)
17,80 Kg

Specifications of Curring Light

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

TECHNICAL SPECIFICATIONS

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

Frequency of Vibrations of Ultrasound
30,000Hz
Consumption of irrigating liquid
28 ml/min
Power consumed
15VA ±10%
Transducer system
Piezoelectric ceramic

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);
Amendment13 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;
EN IEC 60601-1-2001;
CISPR 11, edição 3.1 (1999);
IEC 61000-4-2 (1999);
IEC 61000-4-3 (1998);
IEC 61000-4-4 (1995);
IEC 61000-4-5 (1995);
IEC 61000-4-6 (1996);
IEC 61000-4-11 (1996);

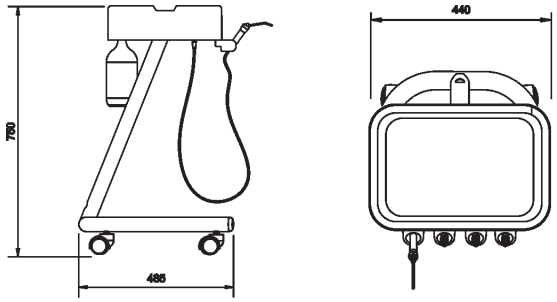
IEC série 60601-1 Equipamento Eletromédico - Parte 1: Prescrições gerais para segurança;
EN ISO 980:2008 (Ed. 2) - Graphical symbols for use in the labelling of medical devices;
EN ISO 14971:2007 - Medical devices - application of risk management medical devices;
NBR ISO 9687: 2005 - Dental equipment - 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 suply 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.

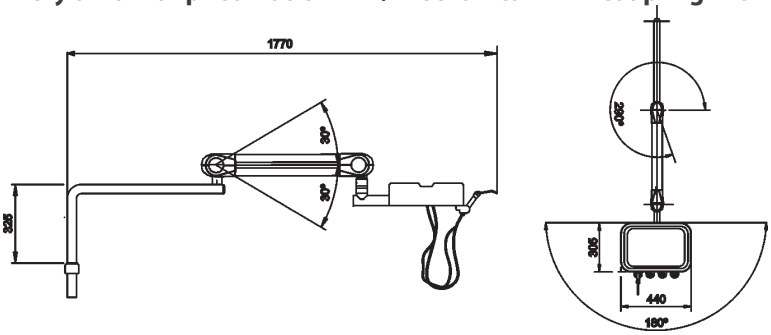
TECHNICAL SPECIFICATIONS

Dimensions (mm)

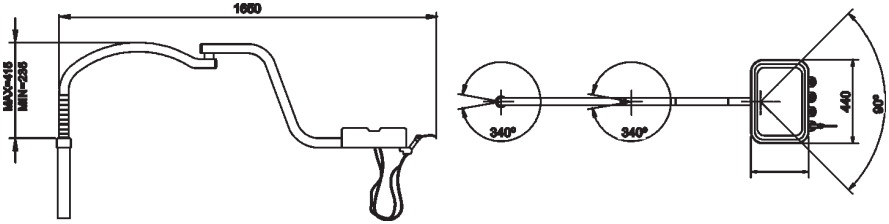
Delivery Unit with CART coupling



Delivery unit with pneumatic FLEX / mechanical FLEX coupling with lock



Delivery unit with mechanical FLEX



TECHNICAL SPECIFICATIONS

Packing symbols

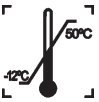
Maximum stacking:
It determines the maximum quantity of boxes which can be stacked during transportation and storage "as per packaging".

Packing to be transported and / or stored 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 indicates an important instruction for the operation of the product. Not following it can cause dangerous malfunctioning.

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

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

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

B type equipment

Bio-System operation

High-speed with FO

Electric low-speed-motor

Curring Light

Triple syringe

Ultrasound

Warning - see the manual

TECHNICAL SPECIFICATIONS

Determines the working position 1

Determines the working position 2

Determines the working position 3

Backrest down

Indication on

Determines the position Return to zero

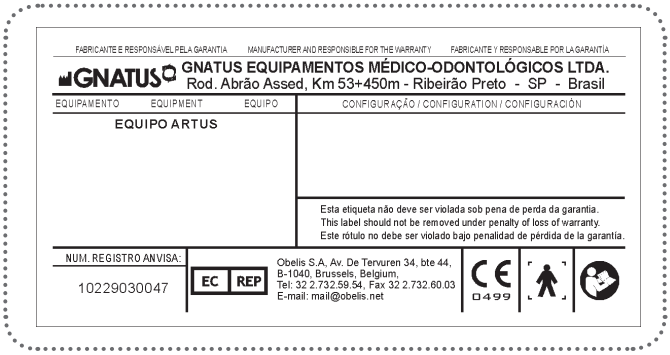
Seat up

Seat down

Backrest up

Reflector actuation

Content of accessible and non-accessible demarcations


FABRICANTE E RESPONSAVEL PELA GARANTIA MANUFACTURER AND RESPONSIBLE FOR THE WARRANTY FABRICANTE Y RESPONSABLE POR LA GARANTÍA

GNATUS GNATUS EQUIPAMENTOS MÉDICO-ODONTOLÓGICOS LTDA.
Rod. Abrão Assed, Km 53+450m - Ribeirão Preto - SP - Brasil

EQUIPAMENTO EQUIPMENT EQUIPO

EQUIPO ARTUS

CONFIGURAÇÃO / CONFIGURATION / CONFIGURACIÓN

Esta etiqueta não deve ser violada sob pena de perda da garantia.
This label should not be removed under penalty of loss of warranty.
Este rótulo no debe ser violado bajo penalidad de pérdida de la garantía.

NUM. REGISTRO ANVISA:
10229030047

EC REP

Obelis S.A, Av. De Tervuren 34, bte 44,
B-1040, Brussels, Belgium,
Tel: 32 2.732.59.54, Fax 32 2.732.60.03
E-mail: mail@obelis.net

CE 0499

INSTALLATION OF EQUIPMENT

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

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

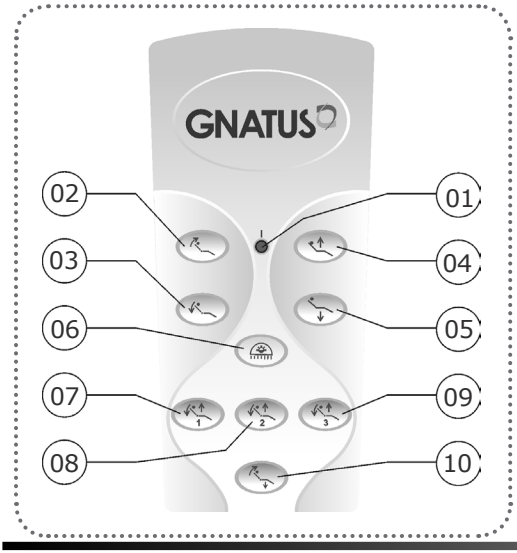
- This equipment shall only be able to be unpacked and installed by a Gnatus authorized technician, under penalty of losing the warranty, as only (s)he has the information, suitable tools and training required to execute this task.
- Gnatus bears no responsibility for damages or accidents caused by poor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

OPERATION OF EQUIPMENT

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.

Drive through the Control Panel Kit (optional)



01 - Indication LED on
02 - Backrest up
03 - Backrest down
04 - Seat up
05 - Seat down
06 - Reflector actuation
07 - Determines the working position 1
08 - Determines the working position 2
09 - Determines the working position 3
10 - Determines the position Return to zero

Control Panel: Setting up the unit without the control panel kit does not interfere with the product operation.

OPERATION OF EQUIPMENT

Working positions

To program the working positions just put the chair into the position and the reflector in the desired intensity and keep it pressed regarding what working position you want to schedule until a beep sounds.

Reflector

To change the brightness, keep the key (06) pressed, the brightness will increase or decrease gradually, according to the reflector specifications (see the reflector manual).

Attention: After activated the "Return to zero" operation (10), any other operation could perform the "Stop".

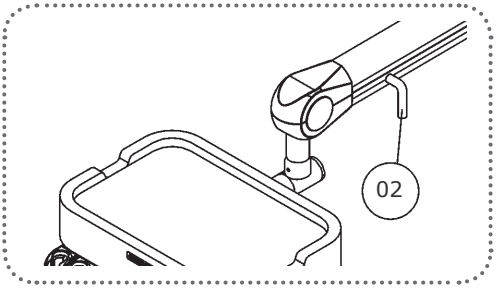
Positioning of "pneumatic FLEX type coupling"

- The FLEX coupling "item D page 08" has horizontal and vertical movements, with pneumatic locking device.

Maintaining the button "Arm brake valve" (item 14, page 08) pressed, place the delivery unit in the position desired, holding it by the handle, and release it to fasten it in this position.

Positioning of "mechanical FLEX type coupling with lock"

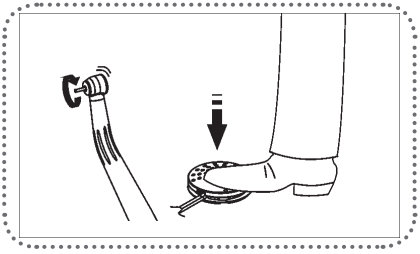
- To adjust the position of the delivery unit arm, use the lock (02).
- To move the arm, turn the device in a counterclockwise direction.
- To fasten it, turn it in a clockwise direction.



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.

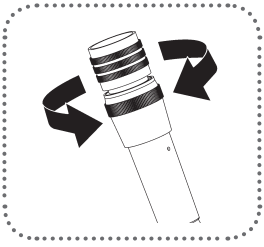
The power (air power supply) can be controlled by the operator with greater or less pressure on the foot control.



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.

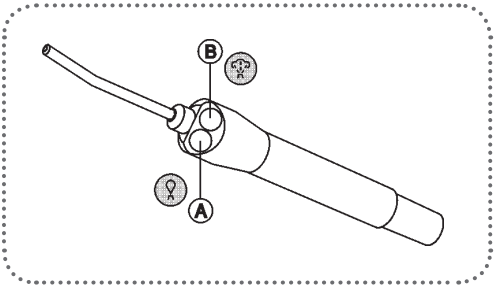
Note: As the "TB" double terminal does not have a spray this adjustment is not required.



OPERATION OF EQUIPMENT

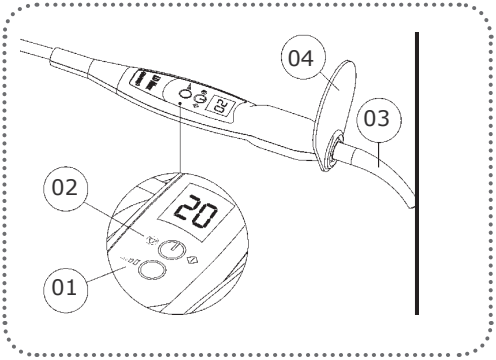
Use of 3-Way Syringe

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

OPERATION OF EQUIPMENT

Laser Hand (optional)

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"

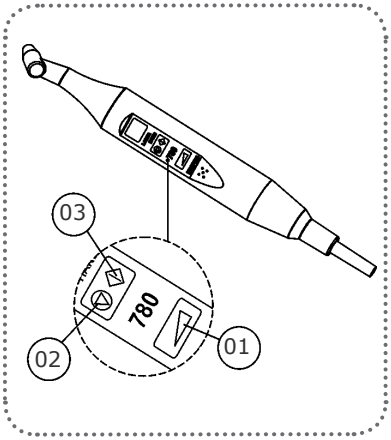
Turn on the main unit power switch, which will automatically turn on the laser.

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

Ultrasound Activation

Remove the scaler handpiece from the support;

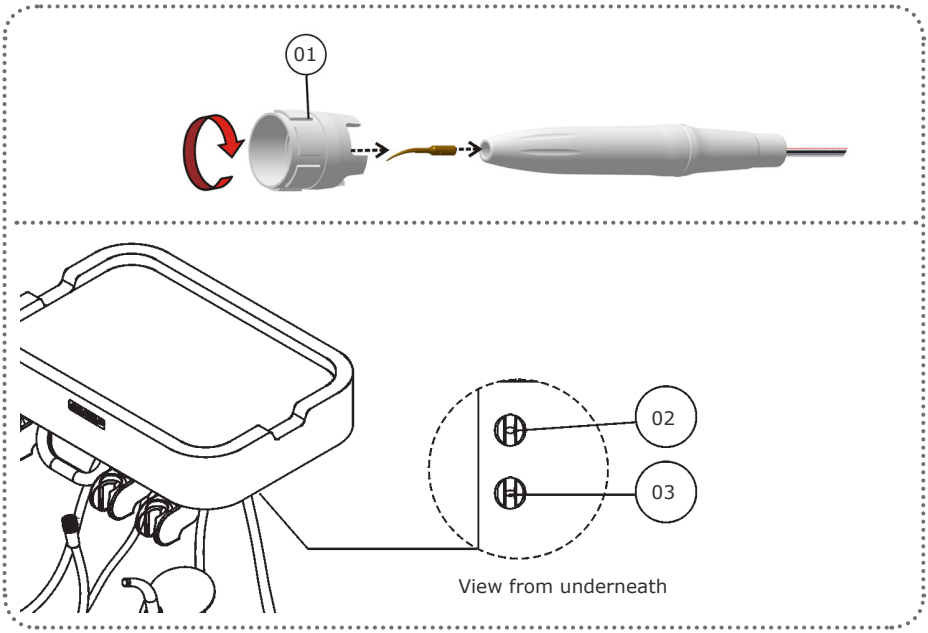
Choose the suitable insert for the operation desired as per "Techniques and Applications";

Thread the insert chosen in the handpiece with the aid of the fastening wrench (01) and a slight tightening;

Activate the foot control and position the selector power (03) as per the sensitivity of the operation;

Adjust the water flow via the valve (02) located in the lower part of the dental unit.

At the end of the procedure release the foot control and place the handpiece in the support.



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 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.

OPERATION OF EQUIPMENT

Technical and applications

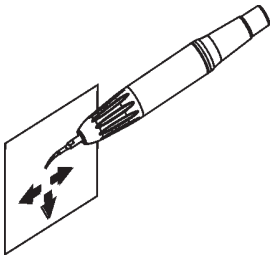
All the inserts of the Ultrasound have the particularity of vibrating in an only plane (front vibrations to back, and in the axis of the insert).

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 1 "Removal of supragengival calculus"

Tip Nº1 is used for lingual, buccal and approximal supragingival scaling. Recommended for the removal of gross calculus.

Recommended power setting: 10-50%.

(it comes with the Ultrasound kit)

Insert Nº 2 "Removal of supragengival calculus"

Tip Nº2 is used for lingual and buccal supragingival scaling. Recommended for the removal of gross calculus.

Recommended power setting: 10-100%.

(it comes with the Ultrasound kit)

Insert Nº 10-P "Universal"

- Tip 10-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%.

(it comes with the Ultrasound kit)

Insert Nº H-3 "Universal"

- Tip H-3 was designed for subgingival scaling and can also be used on furcations.

Recommended power setting: 10-70%.

(optional item)

Endodontia

Insert Nº ET-20 "Preparation of canal"

- Tip ET-20 is used in the pulp chamber for removing pulp stones, dentin and old fillings. Length: 17 mm.

Recommended power setting: 10-25%.

(optional item)

OPERATION OF EQUIPMENT

Technical and applications

Insert Nº ET-40 "Preparation of canal"

- Tip ET-40 is used in the coronal and apical part of root canals. Among other things the tip can be used to remove posts, widen calcified canals and remove hard fillings. Length: 24 mm.

Recommended power setting: 10-15%.

(optional item)

Inserto Nº S-04 "Preparo do canal"

- Tip S-04 is made of titanium and has no diamond coating. Its primary area of use is the isolation and removal of broken instruments. Length: 24 mm.

Recommended power setting: 10-15%.

(optional item)

Insert Nº S12-90 "Apical surgery"

- Tip S12-90 is angled at 110° and is used in combination with the instrument holders A-120 and A-90 With the aid of the instrument holder, the S12-90 can be precisely positioned at the angle needed for the treatment.

Recommended power setting: 10-50%.

(optional item)

Insert Nº P-14 "Apical surgery"

- Tip P-14 is angled at 100° and it's also used in combination with the instrument holders A-120 and A-90. It has a slimmer design and is therefore better suited for small roots.

Recommended power setting: 10-50%.

(optional item)

Insert Nº A-120 "Removal of broken instruments"

- Tip A-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 item)

Insert Nº A-90 "Removal of broken instruments"

- Tip A-90 is a holder for files and instruments with a diameter of 0.8 mm. It can be used with implant tips and AP tips. It has an angle of 90°.

Recommended power setting: 10-50%.

(optional item)

Dentistry and Prosthesis

Insert Nº 5-AE "Removal of posts and crowns"

- Tip 5-AE is used for removing crowns and inlays. Its small diameter enables access to difficult-to-reach areas.

Recommended power setting: 10-100%.

(optional item)

Insert Nº 6-A "Amalgam condensation"

- Tip 6-A is used for amalgam condensation.

Recommended power setting: 10-50%.

(optional item)

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

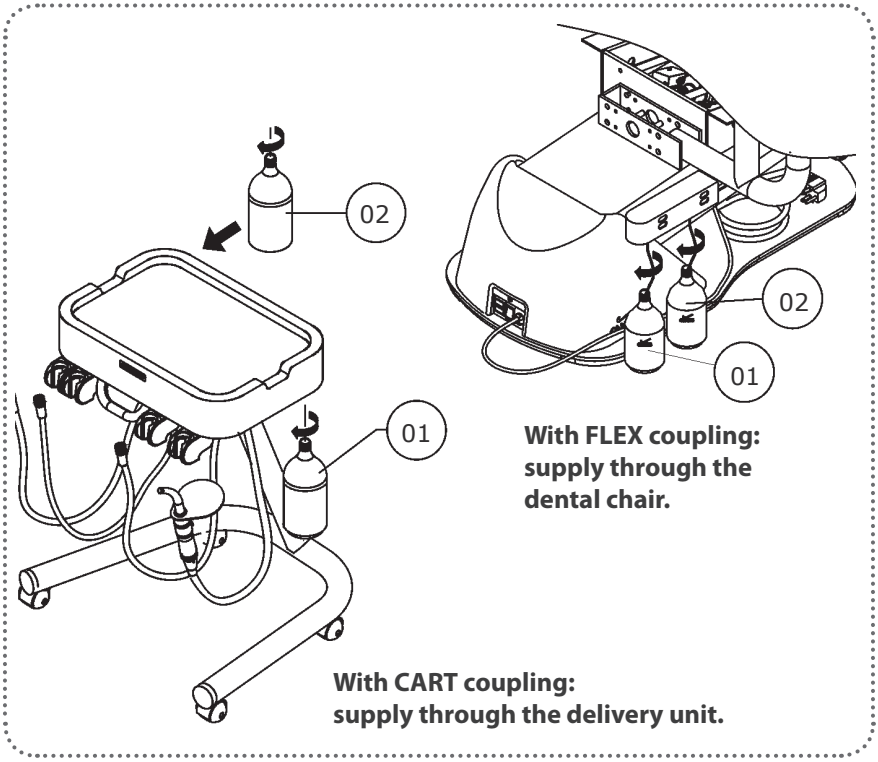
Preparing the solution:

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.



PRECAUTIONS, RESTRICTIONS AND WARNINGS

Transportation and storage

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;
- Transportation and storage relative humidity range: 0°C to 90°C;
- Atmospheric pressure range: 500hPa to 1060hPa (375 mmHg to 795 mmHg).

Operation ambient conditions

- Ambient temperature range: +5°C to +45°C;
- Ambient temperature range recommended by Gnatus: +15°C to +30°C;
- Operation relative humidity range: 30% to 75% (non condensing);
- Atmospheric pressure range: 700 hPa to 1060 hPa (525 mmHg to 795 mmHg).

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 quipment

- 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 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.

Ultrasound:

- The use of the Ultrasound is not advisable for patients and dental surgeons using pacemakers.

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, gasoline 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.
- Avoid the light conductor to terminal to touch the resin to be polymerized.
- When using the Curring Light check if the light conductor output doesn't have residues that might obstruct the light beam.

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.
- Before placing or removing the cover of the transducer, it is advisable first to remove the insert from the transducer, in order to avoid any damage to the cover.
- Never expose the covers of the transducer to any type of oil, as this may modify the structure of the material, jeopardizing its useful life.

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.

Cleaning

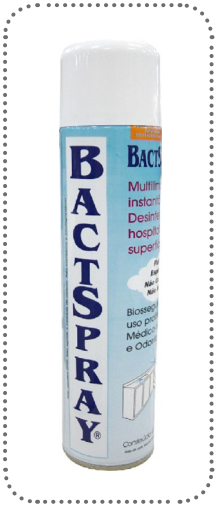
The cleaning procedure below should be executed at the start of the working day and after each patient.
Always turn off the main switch before executing the procedures of daily maintenance.

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

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

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

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



WARNING:

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

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

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.

CORRECTIVE AND PREVENTIVE MAINTENANCE AND PRESERVATION

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.

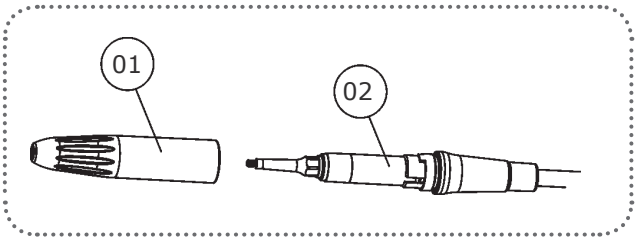
Never immerse the instrument in disinfection baths.

Ultrasound

The equipment is reusable in undetermined, i.e. unlimited, quantities, only requiring cleaning and disinfection.

Cleaning of the terminal, transducer cover and hose:
We recommend using a clean cloth, moistened with water and neutral soap.

Autoclavable:
Transducer cover, inserts and wrench are autoclavable in the following conditions:
- Maximum temperature of 134ºC.



Sterilization of the transducer cover:
Remove the insert from the transducer.
Carefully remove the cover (01) from the transducer (02) and then take it to be sterilized in autoclave (packaged).

Recommendations for sterilization in autoclave:

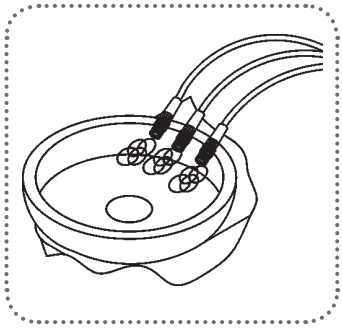
- The piece must be wrapped clean.
- Don't sterilize the transducer cover in contact with other materials.
- The insert should be cleaned before eliminated all the resin residues.
- After removing the insert from the transducer, it should be disinfected with surgical spirit and taken for sterilization in autoclave.
- The material of the transducer's cover was specially developed to resist up to 200 cycles of sterilization by autoclave, provided that recommendations mentioned above were observed.

WARNING: Never expose the transducer's cover to any kind of oil, because it may modify the material's structure, affecting its useful life.

CORRECTIVE AND PREVENTIVE MAINTENANCE AND PRESERVATION

Cleaning

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 (17), 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.

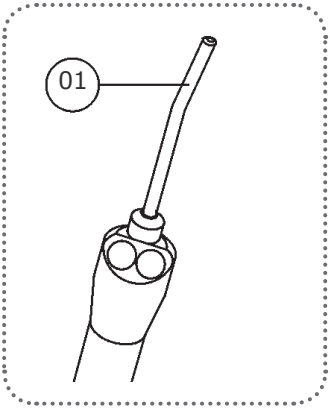
IMPORTANT:

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).

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.

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
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 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. -Replace chair fuse. -Switch main/chair switch on.
- X ray view does not work	-Chair's fuse burned -Main or chair switch is off.	-Replace chair's fuse -Switch main/ chair switch on.
Curring Light -Equipment's not working.	-Power cut. -Chair's fuse burned.	-Check power supply. -Replace chair's fuse.
-Equipment is not polymerizing resins.	-Resin is not appropriate for LED's photopolymerizer wave length range.	-Get the indicated resin for the photopolymerizer's wave length range, one with contains photoinitiators based on camphorquinone.
Ultrasound -The equipment doesn't work.	-Burned fuse.	-Change the plug.
-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.

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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Tel: +(32) 2 732-59-54 Fax: +(32) 2 732-60-03 E-mail: mail@obelis.net

NUM. REG. ANVISA: 10229030047

Manufacturer/ Distribuitor:

GNATUS

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

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