English

# Owner´s Manual

CE
0499

**Syncrus G8 Water Unit**

Code. 300054575 Rev.04

# PRESENTATION OF MANUAL

## INSTRUCTIONS FOR USE

**Technical Name:** Odontological cuspidor

**Brand:** Gnatus

**Trade Name:** Syncrus G8 Water Unit

**Manufacturer/ Distribuitor:**
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## ATTENTION

**For greater safety:**

Read and understand all the instructions contained in these instructions for use before installing or operating this equipment.

**Note:** These instructions for use must be read by all the operators of this equipment.

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# INDEX

# IDENTIFICATION OF EQUIPMENT

## Dear Customer

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

Please, read it and keep this with you.

## Identification

**Technical Name:** Odontological cuspidor
**Brand:** Gnatus
**Trade Name:** Syncrus G8 Water Unit

# IDENTIFICATION OF EQUIPMENT

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

Unit for auxiliary work as water supply for waste collection and activation of spitting bowls and aspirator, It has ejectors, with suction activated by a venturi system or vacuum pump with compressed air.

## Description of Equipment

Water unit for dental use, for auxiliary work as cup water supply and waste collection, and activation of aspirators and spitting devices.

Coupled to the chair, with electronic control panel, which activates the functions water in the basin, water in the cup holder, Bio-drive system activation, emergency stop of the chair, *water heater and *reservoirs luminosity.

Programmable timer for water in cup holder and spitting bowl activation for a time interval set by the professional, providing great water savings in the office.

The frame is manufactured with steel structure, ABS injected body with anti-UV protection. Smooth high glossy paint, epoxy-based, cured in an oven at 250° C, with phosphate treatment resistant to rust, corrosion and cleaning chemicals.

Upper part of the unit with suitable location for the best spitting position, 180° foldable bowl providing total patient comfort.

Ceramic bowl spittoon, deep and easily removable for hygiene and asepsis, supplied with strainer drain for solids retention.

Water flux regulating system allowing fine-tuning in the bowl and the cup holder water flux.

Smooth, rounded, light and flexible hoses and with quick release that is easily connected, without the need of tools.

Has a debris filter easy to clean and disinfection.

Ejectors with automatic drive easy to use, they provide an excellent operating performance, allow professionals to work with better visualization of the operative field and reduce the risk of contamination by aerosol and greater patient comfort.

*High power electric Ejectors with individual low voltage drive, provide lightness and accuracy in the drive.

*Triple syringe swivel spout, removable and autoclavable.

*Double system for water supply (network/reservoir).

*Master valve (key for water cut).

*Amalgam separator: A system that consists in separate amalgam secretion particles. Heavy metal extremely harmful to environment.

Arm Reach with Bilateral Catcher: terminal support with wide horizontal movement that enables optimal approach to the surgical field and excellent accessibility to the various resources available. Optimizes work prioritizing the ergonomics and biosafety.

Automatic selection of tips through individual pneumatic valves, allowing light handling.

Translucent water tanks for syringe and spray tips and chlorinated water Bio-System.

*Bio-System: disinfection system, which provides the internal hose and terminals cleaning through liquid bactericide, preventing risk of cross contamination.

**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).

* Optional item

# IDENTIFICATION OF EQUIPMENT

**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.

# IDENTIFICATION OF EQUIPMENT

**Intra-oral camera (optional item) – Features of the product:**

• Allows installation on Television set / Monitor with video / VGA Monitor input;

• Freezing of images performed through key available on the handpiece; allows the operator greater freedom in usage;

• Installation on Computer through USB device; allows storage and management of images through specific software;

• Image selection made through Remote Control; allows selection one by one, or four simultaneous images directly on the television set or monitor;

• Lighting system through white LEDs with cold light, providing an image with a maximum degree of reality;

• Built in protective lens, protects the optic components against small accidents, scratches and dust;

• Handpiece with anatomical format; allows capturing images in any quadrant of the mouth and allows the use of devices for prevention of cross contamination;

• Comes together with handpiece holder with automatic electromagnetic switch; allows positioning in the most diverse locations, such as: LCD Monitors, sides of delivery unit, water unit, cabinets, etc. Provides practicality, time and electrical power savings, turning on/off automatically upon being removed / placed in a different position in the holder.

• Light table module, compact and functional with interfaces for diverse applications; allows connections in VGA monitors, TV and Computer.

• Remote control with programming and image selection functions; allows greater mobility in control and storage of captured images;

• Handpiece communication cable in highly flexible material; allows flexibility and does not have the fragility found in fiber optic cables;

• On/off switch placed on the handpiece, providing ease in activation;

**Bicarbonate Jet Set – Jet Hand (optional item) - Product Features:**

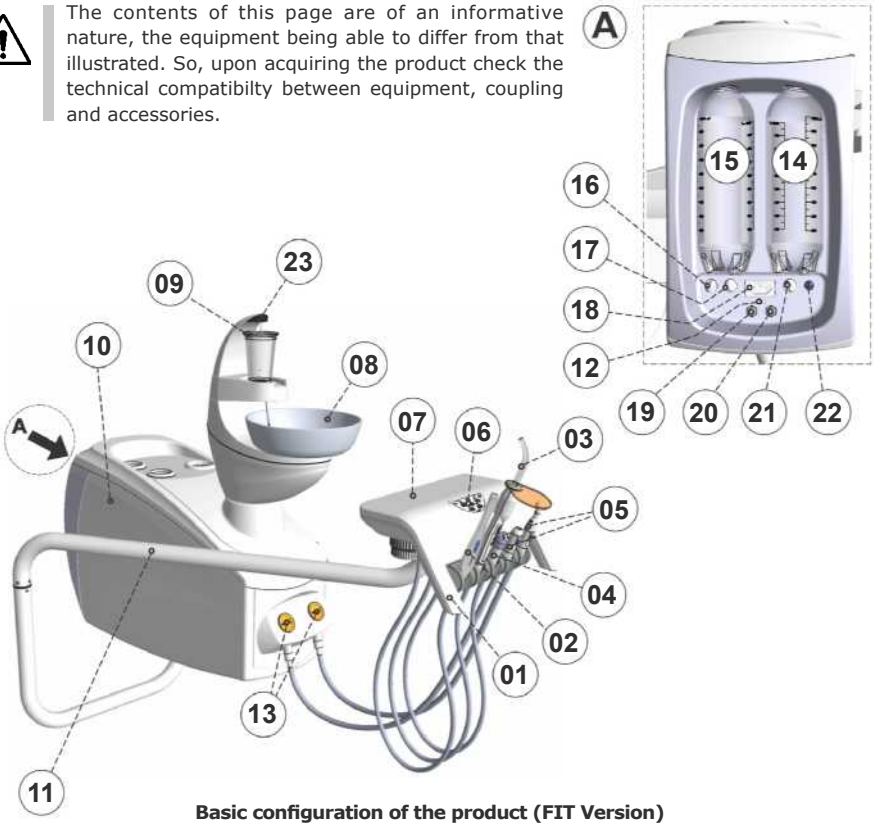
Refer to Owner's Manual of Jet Hand (available for viewing and downloading via www.gnatus.com.br/manuais).

## 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 MATERIALS OF CONSUMPTION

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




**Basic configuration of the product (FIT Version)**

1-BV Ejector, 1-Ejector venturi.

01 - Bilateral Catcher
*02 - Intra oral camera
*03 - Curing Light
*04 - Triple syringe
*05 - Ejectors for Vacuum Pump
06 - Control panel
07 - Alcance lid
08 - Bowl
09 - Cup holder
10 - Cabinet body
11 - Arm Alcance
*12 - USB output
13 - Aspirator(s) filter(s)
14 - Water reservoir
15 - Bio-System reservoir
16 - Cup filling
17 - Cup f Bowl flush
*18 - Power supply
*19 - Air output
*20 - Water output
*21 - Water selector valve - reservoir /net
*22 - Master Valve - releases/blocks water input in the dental set.
*23 - Optical Sensor

**** optional***

# MODULES, ACCESSORIES, OPTIONS AND MATERIALS OF CONSUMPTION

01



02


03


04


05



06


07


08


09


10


11


12


13


14


# MODULES, ACCESSORIES, OPTIONS AND MATERIALS OF CONSUMPTION



* 01. Terminals:
- Borden terminal **(TB)**
- Midwest Terminal **(TM)**
- Fiber Optic Terminal **(FO)**
- Electric micro motor Terminal **(MME)**

* 02. Curing Light + 3 teeth tip

* 03. Amalgam separator

* 04. Bicarbonate jet kit "Jet Hand"

* 05. Rear panel
* a. USB output
* b. Water selector valve - reservoir /net
* c. Master Valve (System which allows cutting the flow of water and air to the dental set)

* 06. Triple syringe with fully metal body or injected thermoplastic handle

* 07. Triple syringe with fully injected thermoplastic body

* 08. Ejectors with fully metal body or injected thermoplastic:
- Venturi ejector
- High performance Venturi type ejector
- Large ejector for Vacuum Pump
- Small ejector for Vacuum Pump
- Cleaning brush ejector
- Cannula ejector

*Aspirators' hoses available in smooth and corrugated versions.

* 09. Water bowl manufactured with injected material

* 10. Kit Chromotherapy (Programmable, multi colored LED lighting system)

* Optional item

# MODULES, ACCESSORIES, OPTIONS AND MATERIALS OF CONSUMPTION

* 11. Intra oral Camera Kit

* 12. Integrated paddle "Chip Blower"

* 13. Progressive paddle

* 14. Progressive paddle with water activation/cut

* 15. Optical sensor to actuate the water supply to the bowl

* 16. Heating kit for triple syringe

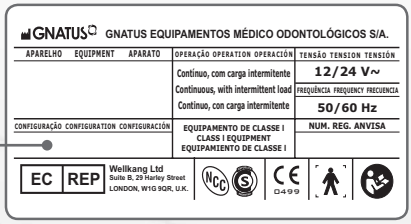
**Warning**
- The drawing illustrates all optional items (page 10 and 11). Therefore, your equipment will consist only of the chosen items selected during your purchase option.
- The use of any part, accessory or material not specified or provided in these instructions is of entire responsibility of the user.

* Optional item

# MODULES, ACCESSORIES, OPTIONS AND MATERIALS OF CONSUMPTION

## Units may be made composed by:

| Optional | Acronyms |
|---|---|
| 1 BV ejector | TBV |
| 1 Venturi ejector | TV |
| 1 Venturi ejector + 1 BV ejector | 2T |
| 2 Venturi ejectors | 2 TV |
| 2 BV ejectors | 2T BV |
| 1 Syringe + 1 Venturi ejector | S TV |
| 1 Syringe + 1 BV ejector | S TBV |
| 1 Syringe + 1 Venturi ejector +1 BV ejector | 3T |
| 1 Syringe + 2 Venturi ejector | 3T V |
| 1 Syringe + 2 BV ejector | 3T BV |
| 1 Syringe + 1 Photo +1 Terminal High Speed + 1 Terminal micro motor + 1 Venturi ejector | 5T |
| 1 Syringe +1 Photo + 1 Terminal High Speed + Terminal micro motor + 1 BV ejector | 5T BV |
| Curing Light | OPTI |
| Cup holder | E |
| Intra Oral Camera | CAM |
| Arm reach | ALC |
| Activation by electronic panel | P |
| Complete equipment | FULL |




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

# TECHNICAL SPECIFICATIONS

## Technical features of the Unit and its accessories

### General

| Model |
|---|
| Syncrus G8 Water 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) |
| Power Supply Voltage |
| 24 V~ |
| Frequency |
| 50/60 Hz |
| Power |
| 50 VA |

### Other specifications

| Capacity of water reservoir |
|---|
| 1000ml |
| High rotation air consumption |
| 9 l/min |
| High rotation water consumption |
| 0,02 l/min |
| Inlet air pressure - Syringe |
| 40 PSI (2,76 BAR) |

# TECHNICAL SPECIFICATIONS

| |
|---|
| Syringe air consumption |
| 17 l/min |
| Syringe water consumption |
| 0,1 l/min |
| Net weight (complete version) |
| 39 Kg |
| Gross weight (complete version) |
| 45 Kg |
| 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 |
| Semicondutor Led (InGaN) |
| Wavelength |
| 440nm - 460nm |
| Timer |
| 90 seconds |
| Timer alarm |
| sound alarm with beep every 10 seconds and 4 beeps at the end of the cycle |

# TECHNICAL SPECIFICATIONS

| |
|---|
| 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 Intra Oral Camera

| |
|---|
| Capture element |
| 1/4" Color CCD |
| Gain control |
| Automatic |
| Power |
| 14VA |
| Video output |
| 1.0Vp-p Composite/75ohm |
| Resolution |
| 480 TV Line |
| Electronic shutter |
| Automatic,1/60(1/50)~ 1/100,000seg |
| Focal Distance |
| 2mm - 40mm |
| Freezing |
| On the handpiece button. 60 blown-up frozen images total or on the "Grids" mode, 240 images. |
| Input/Output |
| Digital 16bits |
| Signal |
| 52Db |
| Power supply of the module |
| DC 5V |
| Digital resolution |
| 8 Bit 256 Grad, 512x1024 pixels |

# TECHNICAL SPECIFICATIONS

| Lighting |
| --- |
| 6 LEDs |
| Handpiece weight |
| 89g |

**The materials used to produce the equipment are Biocompatible.**

## Electromagnetic Emissions

| Eletromagnetic emissions | | |
| --- | --- | --- |
| The Syncrus G8 Water Unit is made to be used in the electromagnetic environments specified below. The client or the user of the Syncrus G8 Water Unit must be sure that it is used in such environment. | | |
| **Emission test** | **Compliance** | **Eletromagnetic environment - Guide** |
| RF emissions<br>ABNT NBR IEC CISPR 11 | Group 1 | This equipment uses RF energy only for internal functions. However, its emissions are too low and it's unlikely to cause any interference in the equipments next to it. |
| RF emissions<br>ABNT NBR IEC CISPR 11 | Class B | This equipment is proper to be used in all establishments; including domestic settings and those directly connect to a public low voltage distribution which feeds domestic buildings. |
| Emissions of harmonics<br>IEC 61000-3-2 | Class A | |
| Fluctuation of Voltage / Emissions of flicker<br><br>IEC 61000-3-3 | As per | |

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

# TECHNICAL SPECIFICATIONS

## Electromagnetic Emissions

**Guidelines and manufacturer's declaration - electromagnetic immunity**

The Syncrus G8 Water Unit is made to be used in the electromagnetic environments specified below. The client or the user of the Syncrus G8 Water Unit must be sure that it is used in such environment.

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

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

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

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

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

# TECHNICAL SPECIFICATIONS

## Electromagnetic Emissions

| Guidelines and manufacturer's declaration - electromagnetic immunity | | | |
|---|---|---|---|
| The Syncrus G8 Water Unit is made to be used in the electromagnetic environments specified below. The client or the user of the Syncrus G8 Water Unit must be sure that it is used in such environment. | | | |
| **Immunity test** | **ABNT Test level NBR IEC 60601** | **Level of compliance** | **Electromagnetic environment Directives** |
| Electrostatic discharge(ESD) IEC 6100-4-2 | ± 6 kV Contact<br>± 8 kV Air | ± 6 kV Contact<br>± 8 kV Air | Floors should be wooden, concrete or ceramic. If the floor is covered with synthetic material, the relative humidity should be at least 30% |
| Quick electric transitory phases / train of pulses ("Burst") IEC 61000-4-4 | ± 2 kV in power supply lines<br>± 1 kV in input / output lines | ± 2 kV in power supply lines<br>± 1 kV in input / output lines | It is advisable that the quality of the power supply should be that of hospital or typical commercial environment |
| Surges IEC 61000-4-5 | ± 1 kV lines (s) to lines (s)<br>± 2kV lines (s) to ground | ± 1 kV lines (s) to lines (s)<br>± 2kV lines (s) to ground | It is advisable that the quality of the power supply should be that of hospital or typical commercial environment |
| Reduction, interruption and variance of voltage in power supply input lines IEC 61000-4-11 | < 5% Ut<br>(>95% drop in Ut)<br>for 0,5 cycle<br>40% Ut<br>(60% drop in Ut)<br>for 5 cycles<br>70% Ut<br>(30% drop in Ut)<br>for 25 cycles<br>< 5%Ut<br>(>95% drop in Ut)<br>for 5s | < 5% Ut<br>(>95% drop in Ut)<br>for 0,5 cycles<br>40% Ut<br>(60% drop in Ut)<br>for 5 cycles<br>70% Ut<br>(30% drop in Ut)<br>for 25 cycles<br>< 5% Ut<br>(>95% drop in Ut)<br>for 5s | The recommended power supply quality is the same as used for commercial or hospital environment. If is required a continuous use during energy supply outages, it is recommended that the equipment be feed by an uninterruptible power supply or a battery. |
| Magnetic field in frequency of power supply (50/60Hz)<br><br>IEC 61000-4-8 | 3 A/m | 0,3 A/m | If an image distortion occurs, may be necessary place the equioment far from the supply frequency or to installa magnetic armour. The frequency magnetic field shall be measured at the installment place to assure that it is low enough. |
| NOTE Ut is the a.c. power supply voltage before the application of the test level | | | |

# TECHNICAL SPECIFICATIONS

## Electromagnetic Emissions

**Recommended distances between portable and mobile RF communication equipments and the Syncrus G8 Water Unit**

The Syncrus G8 Water Unit is made to be used in an electromagnetic environment in which RF disturbances are controlled. The client or the user of the Syncrus G8 Water Unit may help preventing electromagnetic interference by keeping a minimal distance between mobile and portable RF communication equipment (transmitters) and the Syncrus G8 Water Unit, as recommended below, in accordance with the maximal voltage output of the communication equipment.

| Transmitter Maximum Output (W) | Separation distance according to transmitter frequency (M) | | |
|---|---|---|---|
| | 150 kHz to 80 Mhz<br>$d = 1,2\sqrt{p}$ | 80 kHz to 800° Mhz<br>$d = 1,2\sqrt{p}$ | 800 kHz to 2,5° GHz<br>$d = 2,3\sqrt{p}$ |
| 0,01 | 0,12 | 0,12 | 0,23 |
| 0,1 | 0,38 | 0,38 | 0,73 |
| 1 | 1,2 | 1,2 | 2,3 |
| 10 | 3,8 | 3,8 | 7,3 |
| 100 | 12 | 12 | 23 |

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

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

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

## List of pieces and circuit scheme

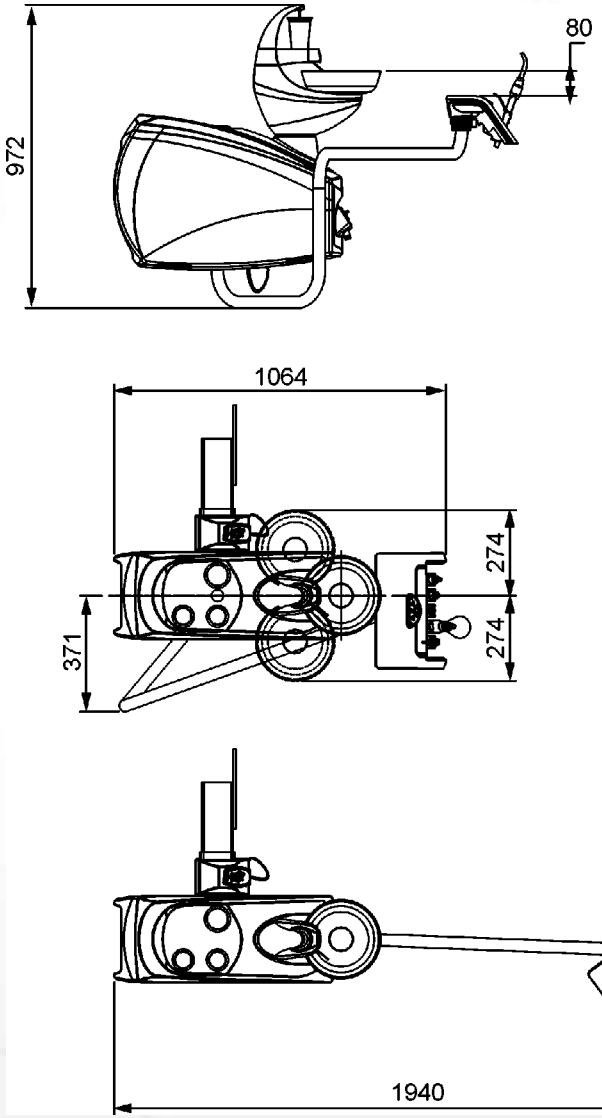
Gnatus Company declares that the supply of the circuit scheme, list of pieces or any other information that propitiate technical attendance for the user, can be request if there is an agreement between the user and Gnatus Company.

## Standards applied:

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

# TECHNICAL SPECIFICATIONS

## Dimensions (mm)



# TECHNICAL SPECIFICATIONS

## Packing symbols

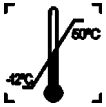
It determines the maximum quantity of boxes which can be stacked during transportation and storage "as per packaging".

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

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

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

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

B type equipment

Bio-System operation

High-speed with FO

Curring Light

Triple syringe

BV ejector

Ejector type Venturi

# TECHNICAL SPECIFICATIONS

## Product symbols


Emergency stop


Cup filling


Bowl's water flow


Bicarbonate Jet


Activation of the reservoirs brightness.


Water heating activation


Active amalgam separator

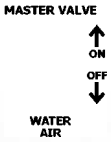

Beep / Audible warning


Power cord disconnected


Amalgam separator – Interrupted function


Warning - Consult the manual

Authorized representative in the European Community



Master valve (key for water cut)

Key switch water supply network/reservoir

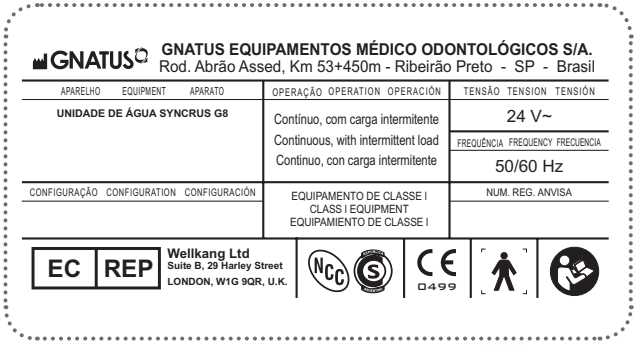

Bowl water flux regulation


Cup holder water flux regulation

USB output / Camera

# TECHNICAL SPECIFICATIONS

## Content of accessible and non-accessible demarcations




# INSTALLATION OF EQUIPMENT

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

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

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

# OPERATION OF EQUIPMENT

## Control panel

01 - Emergency stop
02 - Cup filling
03 - Bio-System operation
04 - Bowl's water flow
* 05 - Water heating activation
* 06 - Activation of the reservoirs brightness.

**** optional***

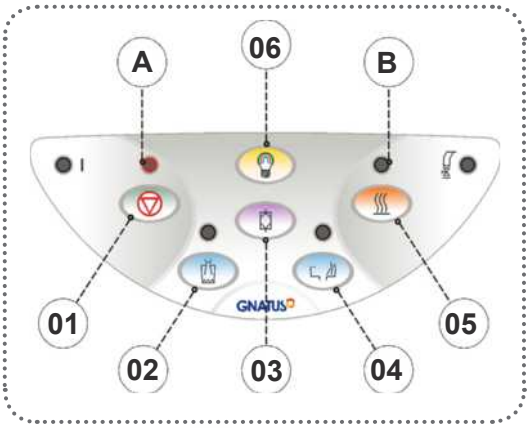
WARNING:

To preset the cup filling time, press the "Cup filling" key (02) for 3 seconds (a long beep will be heard and the LED will keep blinking). When the desired time is reached, press the "Cup filling" key again. The filling time is set

To preset the bowl flush flow, press the "Bowl flush" key (04) for 3 seconds (a long beep will be heard and the LED will keep blinking). When the desired time is reached, press the "Bowl flush" key (04) again. The Bowl flush flow is set

When the "Emergency stop" key (01) is pressed, the LED (A) will be on and all chair movements are interrupted until pressed again (01).

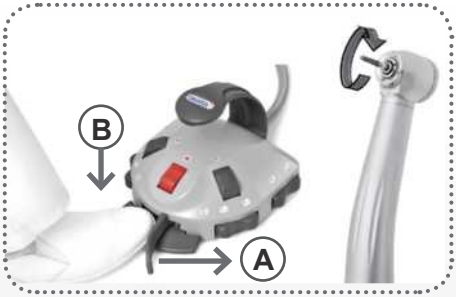
The "Cup filling" and "Bowl flush" time functions have a limited preset flow time, 1 minute for cup filling and 4 minutes for bowl flush.




## Activation of the Terminals

For the functioning of the rotating instruments remove from the support the instrument to be used, trigger the control pedal moving the lever (A) with the feet.

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



# OPERATION OF EQUIPMENT

**Chip Blower System:**

The "chip-blower" system allows the release of the airflow with the stopped turbine (air function). Pressing the (B) key downward, air will trigger on the tips.

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

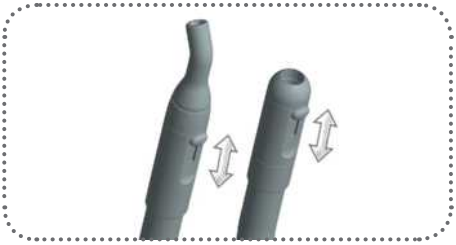
## Adjustment of Spray of "TB/TM high and low rotation terminals"

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

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

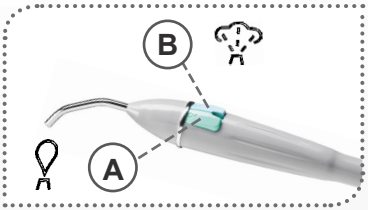
## Ejectors operation

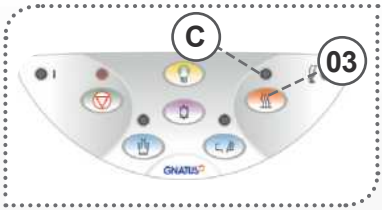
The ejectors (both BV and Venturi) start working automatically when retired from the tips supportThe BV ejectors feature suction flow adjustment , and its regulated moving the lever located at the ejector up or down.



## Use of 3-Way Syringe

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




## Water Heating:

When you turn on the key "hot water activation" (03), LED will light (C), starting to heat water from the syringe. Temperature should remain about 40 °C. To turn off the "water heating activation" function, press key (03) again.

# OPERATION OF EQUIPMENT

## Water supply to the bowl is driven by the "optical sensor *"

Water supply is done automatically through the optical sensor by simply approaching the patient, providing greater convenience in operation.

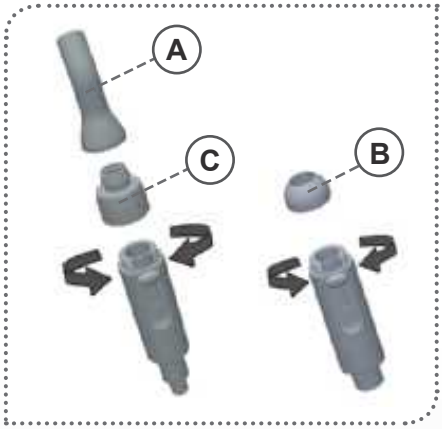
Optical sensor positioning for right or lefthanded.

The water unit is designed in order to meet the left or right hand users, with ease of installation of the "optical sensor set" on both sides, without loss of functionality in any case. At the time of installation by authorized technician from Gnatus, inform desired position (right or left handed). He will make necessary adjustments.

## Replacement of the standard of cannula coupling

If there is the necessity of using the 6.5mm (A) cannula in the BV suctor, make the replacement of the cannula coupling, as the procedure below:

- Remove the coupling of 11 mm (B) by unscrewing it from.
- Screw the coupling of 6.5 mm (C) in the aspirator BV set and attach the coupling tube.




## Coupling of tube of 6.5 mm

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

# OPERATION OF EQUIPMENT

## Curing Light Activation

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

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

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


**IMPORTANT:**

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

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

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

**WARNING**

- Never aim the blue light beam towards the eyes

- Use the eyesight protection (04)

- In order to protect the eyes, the eyesight protection (04) filters only the blue light used for the resins polimerization, and it allows ambient light to pass through.

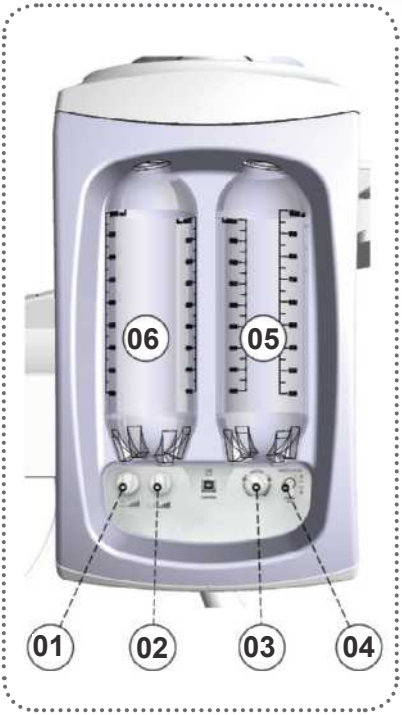
# OPERATION OF EQUIPMENT

## Water flow adjustment

01 - Cup filler adjustment

02 - Bowl flush adjustment

To regulate the bowl flush and cup filling water flow, use the bowl flush adjustment (02) and the cup filler flow adjustment (01), to increase flow, turn it anticlockwise, to decrease, turn in clockwise.




## Regulation of the water selecting valve

To regulate this kind of water feeding, please use the selecting valve (03) to select the feeding through the reservoir and turn around in the clockwise sense. To select the feedign through the net, turn around counter clockwise sense.

## Master Valve

The master valve is a safety device that aims to block / release the entry of water to the dental set. It is of utmost importance to have interrupted the water supply to the dental set in the end of the working day, which can be done through the key (ON/OFF - 04)

## How to provision the reservoirs

## Water - Syringe/Handpieces

Remove the reservoir (05) 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 (06) 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.

## Bicarbonate Jet "Jet Hand"

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

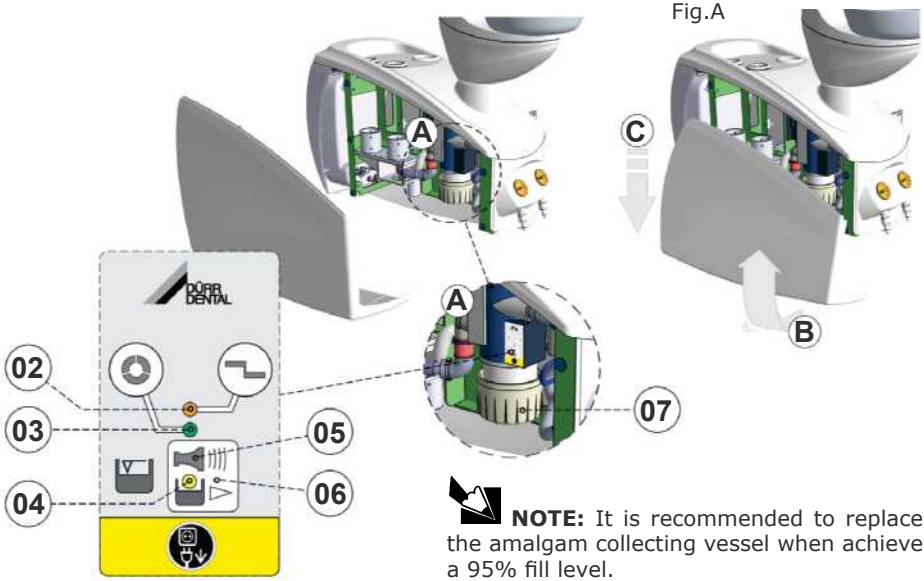
# OPERATION OF EQUIPMENT

## Amalgam separator

Disconnect the equipment from mains power;

Locate the amalgam separator (A) by opening the side cover of the water unit, (Fig.A) - sequence "B e C".

Fig.A




**NOTE:** It is recommended to replace the amalgam collecting vessel when achieve a 95% fill level.

**Operating conditions:**

GREEN Indicative LED access (03) – Amalgam separator functioning.

**Amalgam collecting vessel level reached 95%**

YELLOW Indicative LED (04) on;

GREEN Indicative LED (03) on and emitting beep.

With the 95% of filling level, the beeper can be turned off by pressing the key (06). Then, the "functioning" GREEN indicative LED lights up (03) and aspiration can be performed.

The YELLOW indicative LED (04) will remain lighted up, remembering the need to empty the container.

**Amalgam collecting vessel level reached 100%**

YELLOW Indicative LED (04) on;

ORANGE Indicative LED (02) is intermittent and an audible warning is emitted (beep).

When the level reaches 100% it won't be possible to turn off the audible warning by pressing the key (06). Replace the collecting vessel.

**Collecting vessel not placed**

ORANGE Indicative LED (02) is intermittent and an audible warning is emitted (beep).

To turn off the beep, press the key (06);

Turn off the equipment;

Insert the collecting vessel;

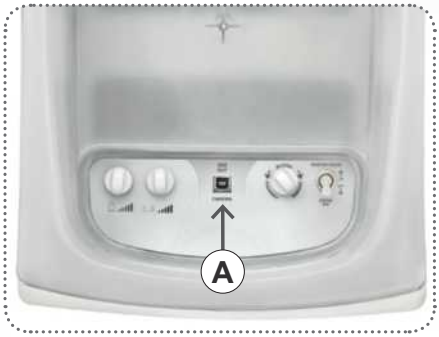
Turn on the equipment again.

# OPERATION OF EQUIPMENT

## Intra Oral camera

The camera can be installed directly to the monitor or to the computer using the software for capturing and storage of images.

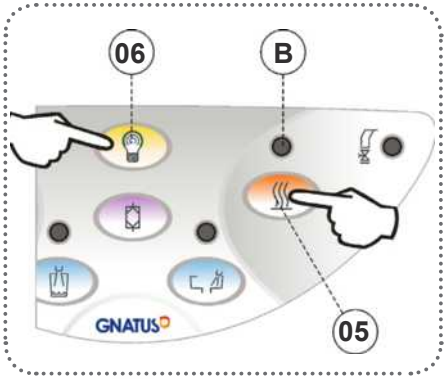
Connect the USB cable (included in the multimedia Kit) into the USB port located at the back of the water unit (A) and the other end into the USB port of your computer.




**We recommend that you use the "2.0" USB device input located in the back of the computer.**

## Water Heating

When you turn on the key "hot water activation" (05), LED will light (B), starting to heat water from the syringe. Temperature should remain about 40 °C. To turn off the "water heating activation" function, press key (05) again.




## Brightness of the reservoirs

Push the color control button (06) to start it. Pressing the same button again, you can select the desired color, among other options. To turn off the control the (6) button must be kept pressed for about 1 second. When restarted, the control must return to the last color option chosen by the user.

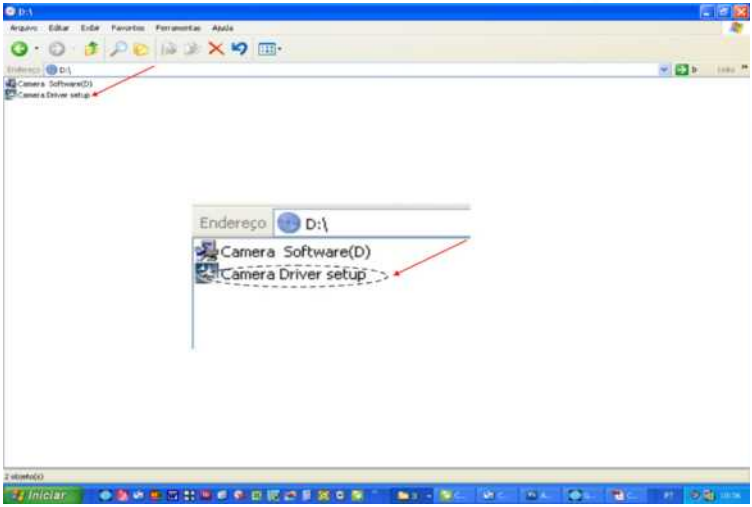
Below is the sequence of colors, programmed in the controller:

01 - High Speed automatic color change.
02 - Medium speed automatic color change.
03 - Low speed automatic color change.
04 - Red.
05 - Green.
06 - Blue.
07 - Red and Green (Next to yellow).
08 - Green and Blue (Next to Cyan).
09 - Red and Blue (Next to Magenta).
10 - White.
11 - Cool White.
12 - Strobe  Effect one color at a time.
13 - Strobe  Effect three colors simultaneously.

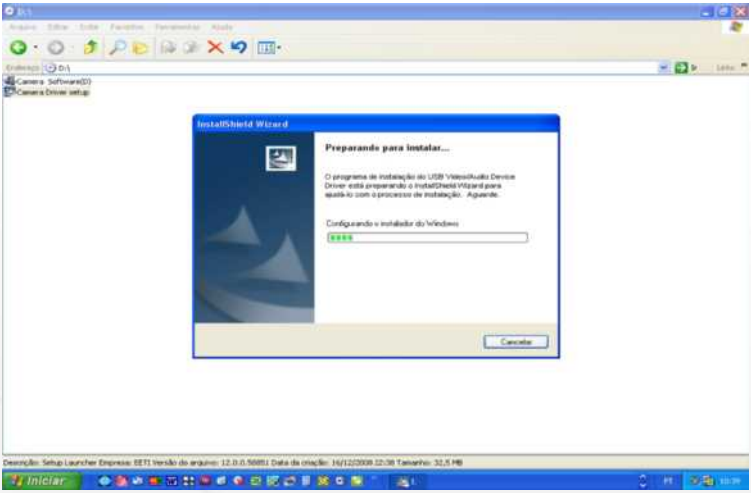
# INSTALLATION

## Installation of the intra-oral camera "Driver"

A) Insert the intra-oral camera installation CD, enter into the "D:" CD driver and click on setup for installation of the driver.



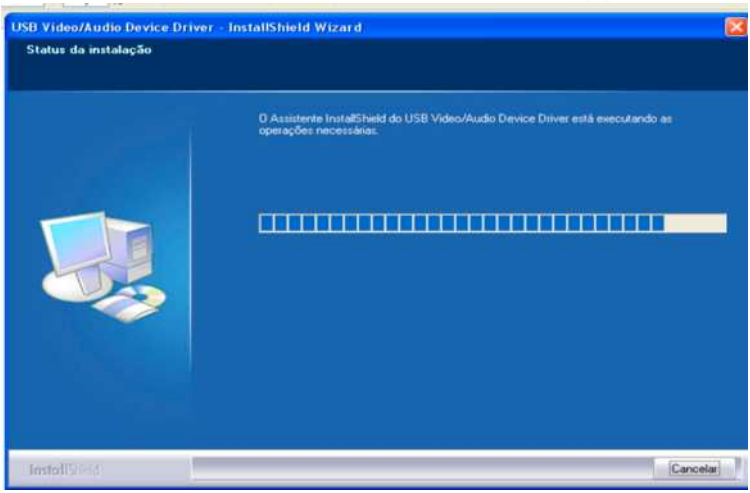

B) Wait for installation of the driver.



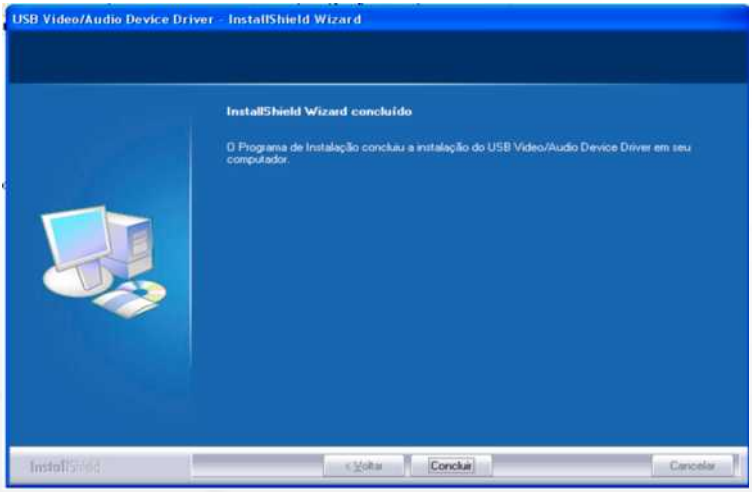
# INSTALLATION

## Installation of the intra-oral camera “Driver”

C) Click on forward.




D) Click on finish.



# INSTALLATION

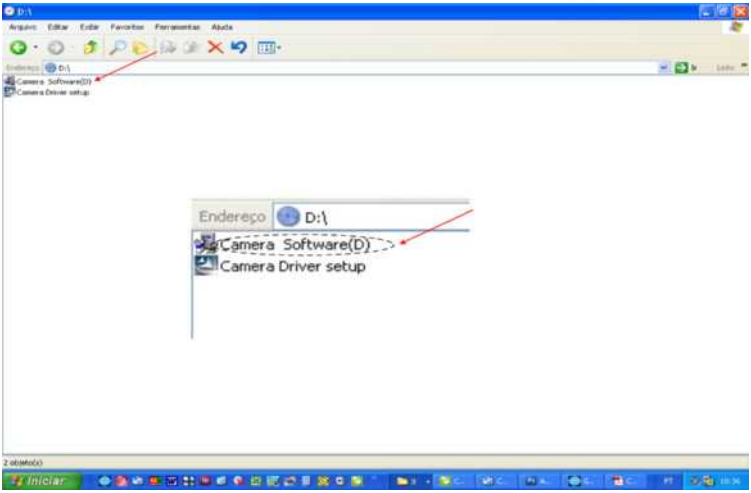
## Installation of the intra-oral camera "Driver"

E) After termination of installation, click on "Yes" to restart the computer and click on finish.

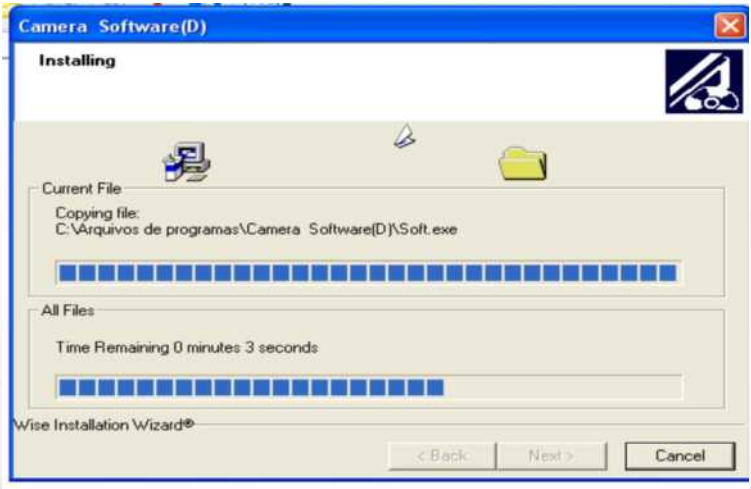
# INSTALLATION

## Installation of the intra-oral camera Software

A) Enter once more in the "D:" CD driver and click on " "Camera Software" for installation of the intra-oral camera software.



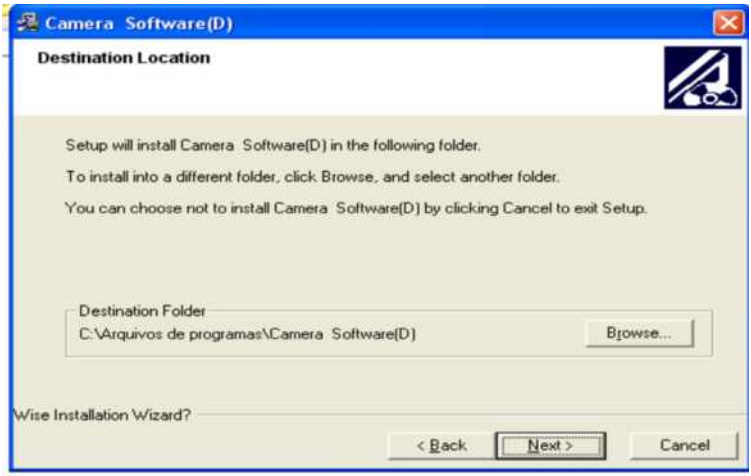

B) Click on "Next>" to continue.



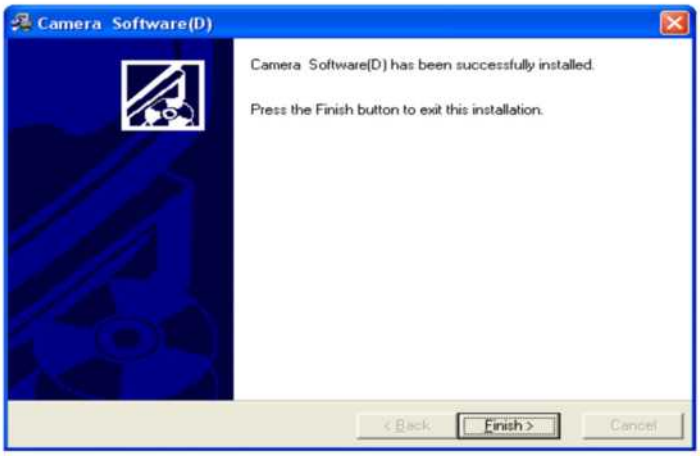
# INSTALLATION

## Installation of the intra-oral camera Software

C) Click on "Next>" to continue.



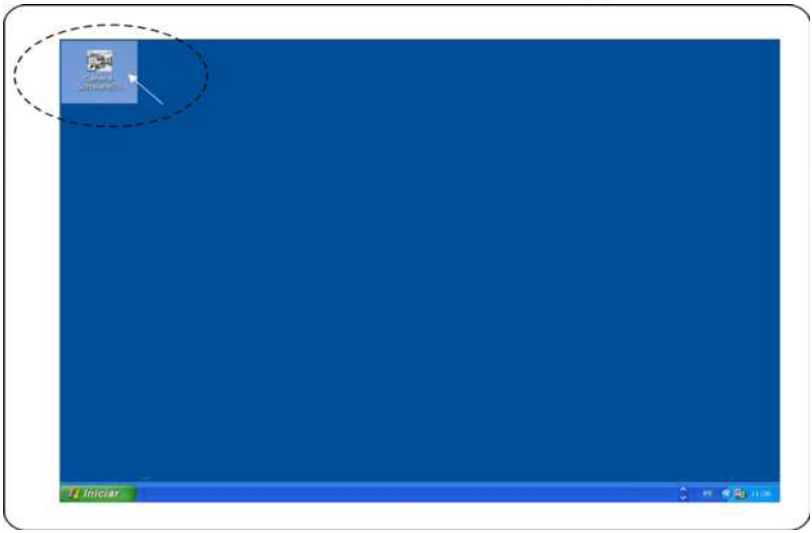

D) Click on "Next>" to continue.



# INSTALLATION

## Installation of the intra-oral camera Software

E) The software icon will appear in the upper corner of the "Desktop".



# OPERATION

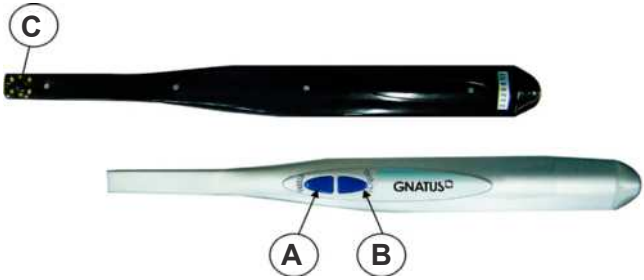
## Using the intra-oral camera

- Turn on the monitor;

By taking out the camera from bracket tips, it will start functioning automatically. Start pressing key (A) according to the picture bellow.

If necessary, perform the monitor auto-adjustment (brightness, contrast and color).

**ATTENTION : In order to use the camera it is indispensable to use the protective cover or film of PVC, avoiding risks of cross-contamination.**




A: On and off button (to disconnect maintain pressed for 3 seconds). Button (A) also has the function freezing and unfreezing the image (FREEZE);

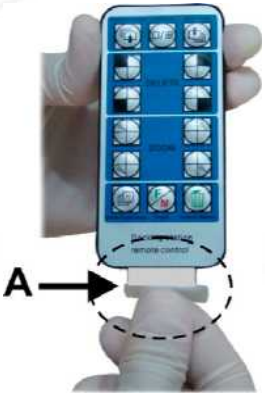
B: (FULL/QUAD) Button has the function of visualization of the image on a full screen or "4 Grids" (4 images per screen).

- Full screen: Captures up to 60 images, there being 1 image per screen.
- "4 Grids" Screen: Captures up to 240 images, there being 4 images per screen.

C: Responsible for illuminating the operating field.

# OPERATION

## Using the intra oral camera control




**ATTENTION: Before using the intra-oral camera remote control remove the battery plastic protection (A).**

**1 - Image viewing mode (Full/Quad Button):**
Allows image viewing in the full screen or "4 Grids" (captures 4 images on a single screen) mode.

**2 - F/M (freeze and unfreeze image):**
Capturing of the image on the monitor.

**3 - Excluding "Grids" mode image:**
In the "4 Grids" mode, it is possible to erase only one image from the quadrant. Press the "Freeze" button to make a new selection.

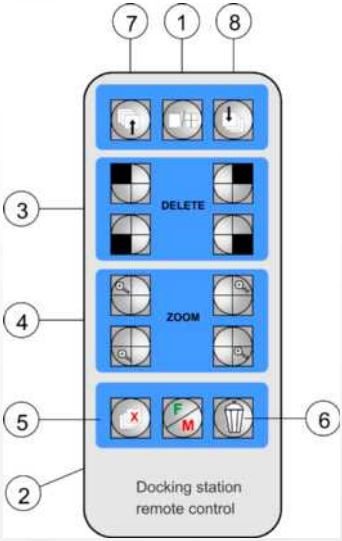
**4 - Zoom:**
In the "4 Grids" mode, it is possible to zoom in on only one image of the quadrant. Press once more to return to the normal size.

**5 - Exclude 1 Image:**
This function will erase a single image that is shown on the screen.

**6 - Erase all images from memory:**
This function will erase all the images stored in the memory (format).

**7 - Navigation of the "Previous" image:**
Allows navigation (visualization of the previous image) stored in the camera memory.

**8 - Navigation of the "Next" image:**
Allows navigation (visualization of the next image) stored in the camera memory.

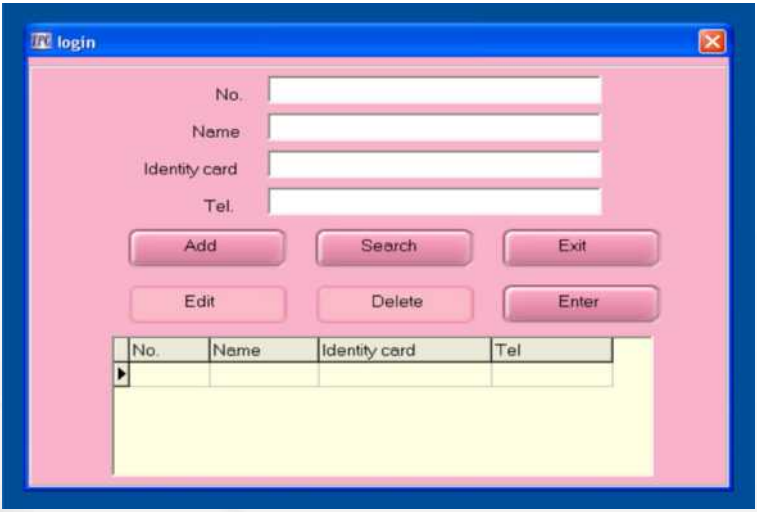


# OPERATION

## Using the image capturing Software.

A) Turn on the module and open the software of image reception that is located in the desktop and click on the image.

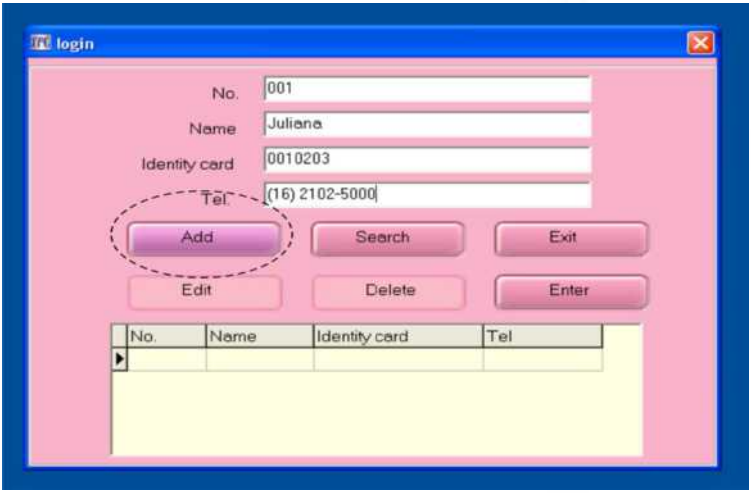

B) Then make patient registration.



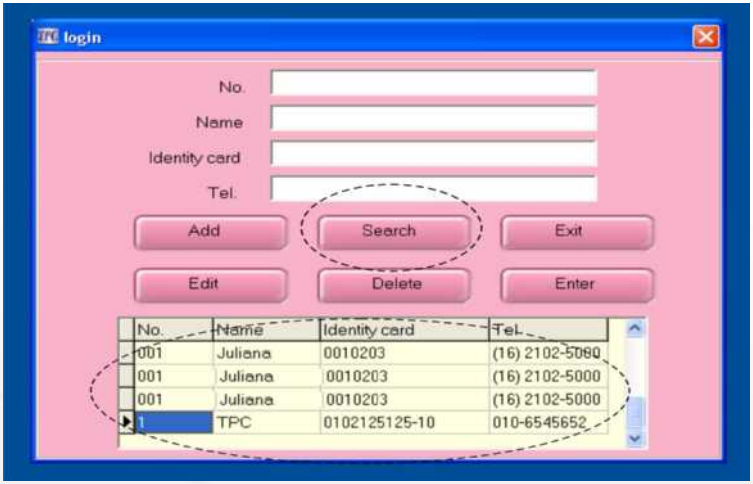
# OPERATION

## Using the image capturing Software.

C) After making registration, click on "Add" to add the patient.



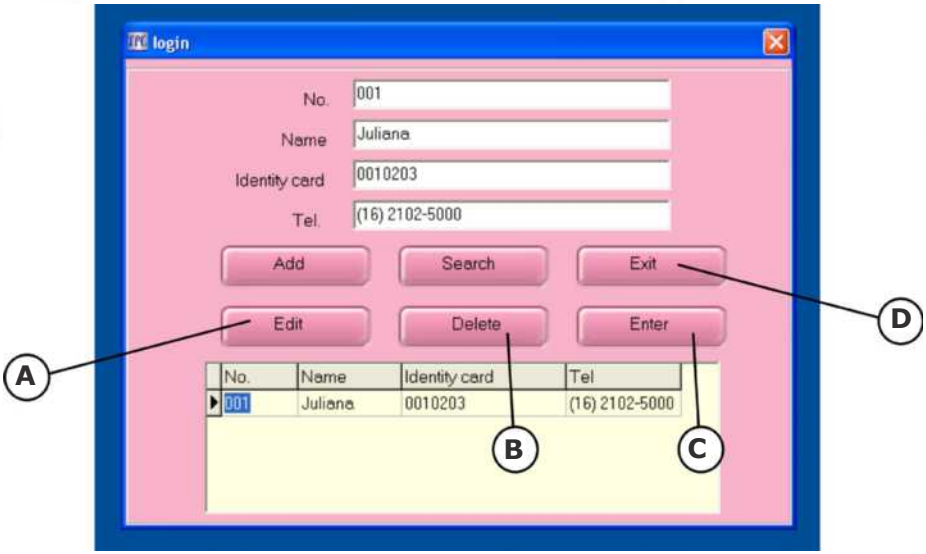

D) The "Search" key has the function of viewing all the patient registrations.



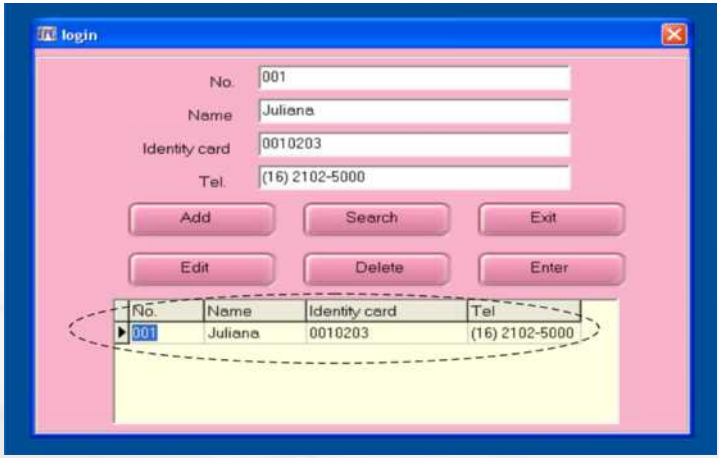
# OPERATION

## Using the image capturing Software.

E) Select the key "Edit" (A) to edit, "delete" (B) to erase a patient registration, "enter" (C) to leave the registration screen and "exit" (D) to close the program.




F) After registration is made or choice of a patient already registered, double click on the name. Then an image capturing screen will open.



# OPERATION

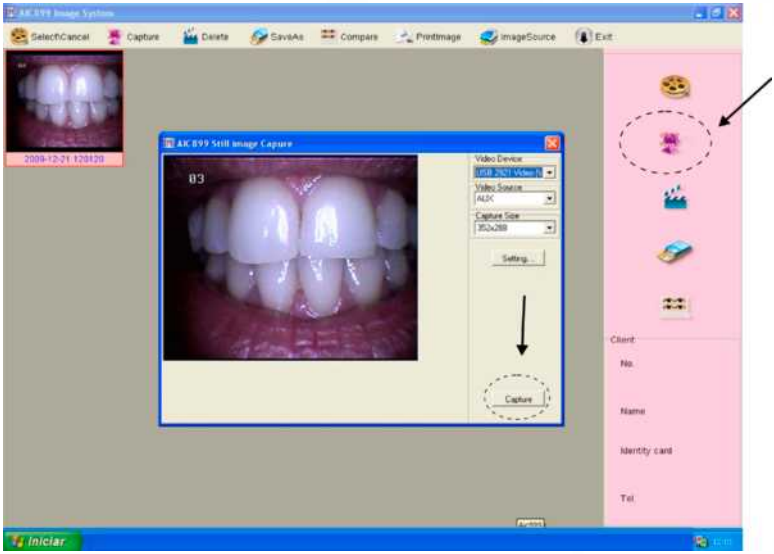
## Using the image capturing Software

### • How to capture images?

- Turn on the camera by pressing button (A).
- Click on the capture icon, which will open the screen for capturing images. Place the camera in the desired location and then the focus will automatically adjust. Press button (A) again to freeze the image. If the image is not good, press once more to unfreeze. After capturing the image, click on "capture" to save the image.

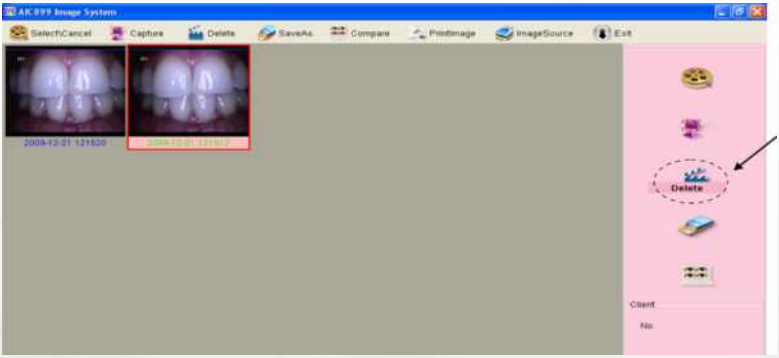
### • How to execute the next capture?

After capturing the image, press button (A) once more to make a new capture.




### • How to delete a captured image?

Select the image that you wish to delete and click on the delete icon.

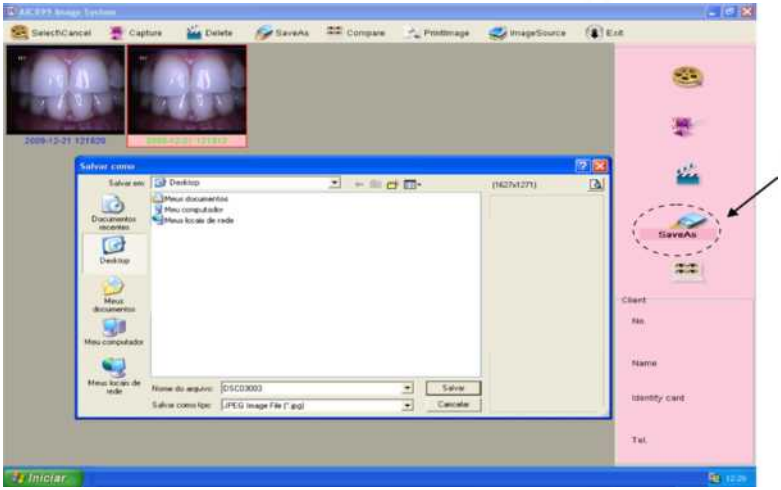


# OPERATION

## Using the image capturing Software

- **How to save an image on the computer hard drive (HD)?**

Select the desired image and click on the icon "SaveAs".




- **How to view the images captured?**

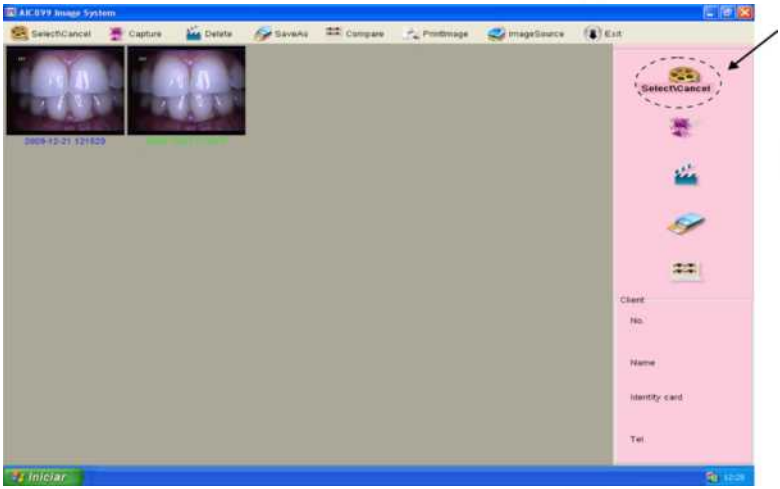
Select the desired image and click on the "Compare" icon to view the blown-up image and or give a double click on the image. To exit, press the "Esc" key on the keyboard.

# OPERATION

## Using the image capturing Software

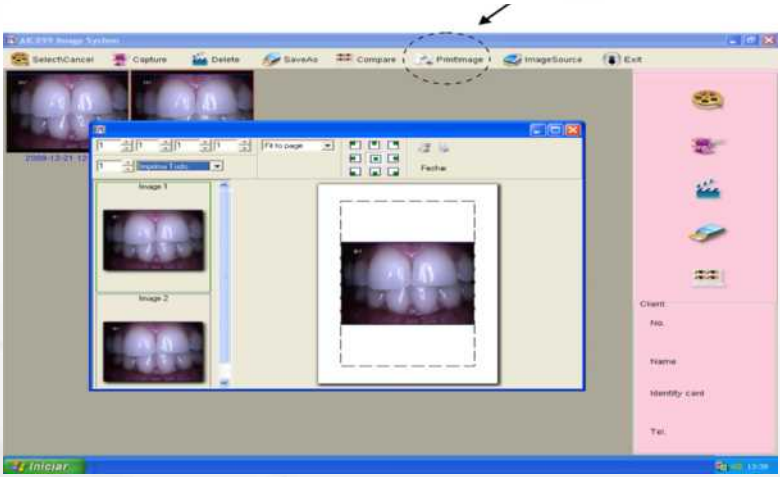
- **How to select and undo image selection?**

To select the desired image, simply click on it, and to undo the selection, click on the "Select/Cancel" icon.




- **How to print captured images?**

Select the desired image and click on the icon "Printimage" to choose the printing options.



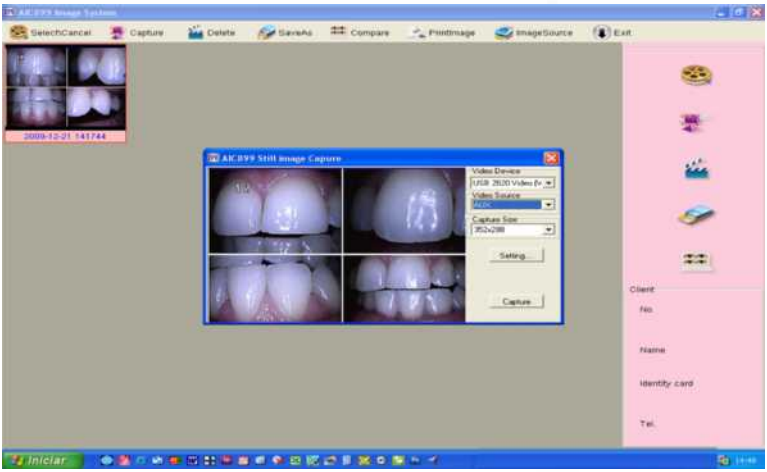
# OPERATION

## Using the image capturing Software

### • How to use the "4 grids" function?

Press button (B) once to activate the "full screen" function, pressing once more will activate the "4 Grids" option. To freeze the image (FREEZE) press button (A) and to unfreeze, press once more.

In the "4 Grids" mode, it is necessary to click with pauses on button (A) to capture the 4 different images on the same screen, in accordance with that below. The fifth click will unfreeze the captured images. After capturing the 4 images, click on "capture". To return to the full screen mode, click once more on button (B).




### • Quantity of images stored

**- Installation of the camera in the "monitor":** The image storage capacity in the full screen mode is 60 images. If the "4 Grids" function is used, up to 240 images (4 images per screen) can be stored.

**- Installation of the camera in the "computer":** The limit of storing images depends on the capacity of the hard disk (HD) of the computer.

## Automatic Turn Off

The equipment has the function of automatic turn off to save energy; simply put the handpiece in the holder fastened on the monitor it will turn on again as soon as it is removed from the holder.

# PRECAUTIONS, RESTRICTIONS AND WARNINGS

## Transportation, storage and operation

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

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

## Sensitivity to environmental conditions in normal situations of use

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

## Precautions and warnings "during the installation" of equipment

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

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

# PRECAUTIONS, RESTRICTIONS AND WARNINGS

## Recommendations for the dental equipment maintenance

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

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

## Precautions and warnings "during the use" of equipment

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

**Bicarbonate Jet:**

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

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

**Intra oral Camera:**

- In order to use the camera it is indispensable to use the protective cover or film of PVC, avoiding risks of cross-contamination.

**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.

# PRECAUTIONS, RESTRICTIONS AND WARNINGS

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

**Unidad:**

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

**Amalgam collecting vessel, filters and drains:**

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

**Curing Light:**

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

**Bicarbonate Jet:**

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

## Precautions in case of alteration in the functioning of equipment

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

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

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

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

# CORRECTIVE AND PREVENTIVE MAINTENANCE AND PRESERVATION

## Additional procedures for reuse

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

## Cleaning and Disinfection

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

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

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

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

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

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


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

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

## Disinfection

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

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

# CORRECTIVE AND PREVENTIVE MAINTENANCE AND PRESERVATION

## Clearing the suction system

### Using Vacuum Pump (BioVac II or IV):


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

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

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

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

• **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

### Using Vacuum Pump (BioVac Sec):

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

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

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

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

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

# CORRECTIVE AND PREVENTIVE MAINTENANCE AND PRESERVATION

## Reservoirs

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

## 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.

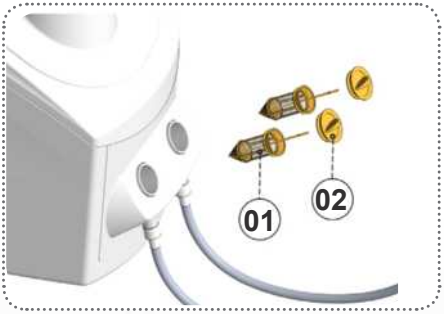
Never immerse the instrument in disinfection baths.


## 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.

## Cleaning of the sucker and filters

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





## Cleaning of the drain

Pull the drain (03) with a tweezer, clean and disinfect it.

**Warning:** Always use protection gloves when manipulating filters and drainages.

Discard waste and contaminated products in biological waste containers.

# CORRECTIVE AND PREVENTIVE MAINTENANCE AND PRESERVATION

## Basin cleaning

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

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

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

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


## 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 (03), see page 21, 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.

# CORRECTIVE AND PREVENTIVE MAINTENANCE AND PRESERVATION

## Amalgam collecting vessel replacement

Disconnect equipment from mains power.

Locate amalgam separator (A) opening the side cover of the water unit (Fig.A) – sequence "B and C". If the collecting vessel (02) is removed without powering off the equipment, the ORANGE indicative LED will light intermittently and will emit an audible warning.

Take out the full vessel (02) twisting it clockwise.

Pour in the full container (02) the disinfectant product provided by manufacturer. Close the "full" collecting vessel (02) through the lid and place it duly sealed in the box to transport. (Fig. D);

Replace of the collecting vessel (02) by screwing the other empty container.

Turn on the equipment.

Fig.A

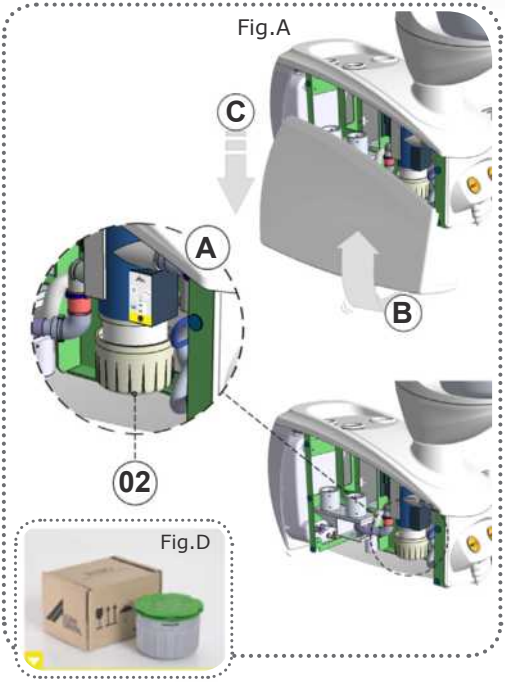



Fig.D



**IMPORTANT:**

- To prevent infection risks, use protective gloves during the amalgam container replacement.

- The disinfectant is caustic. In case of contact with eyes, rinse thoroughly with water and consult a doctor. In case of contact with skin, rinse immediately with soap and water.

## Bicarbonate Jet "Jet Hand"

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

## Preventive Maintenance

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

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

## Corrective Maintenance

If the equipment has any abnormality, check if the problem is related to any of the items listed in the item Unforeseen Events (situation, cause and solution).

If it is not possible to solve the problem, turn off the equipment, and request Gnatus technical assistance.

# UNFORESEEN EVENTS – SOLUTION OF PROBLEMS

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

| Problem | Probable cause | Solution |
|---|---|---|
| **Water Unit**<br>-Ejector without suction. | -Insufficient air pressure from compressor.<br>-Filter clogged with particles.<br>-Filter lid misplaced.<br>- Amalgam collecting vessel 95% partially filled.<br>- Amalgam collecting vessel totally filled. | -Adjust air flow.<br>-Remove and clean filter.<br>-Remove lid and place it correctly.<br>- See (page 27).<br>- Replace the amalgam collecting vessel (See page 50). |
| -Handpiece with low speed. | -Inlet pressure below specified (80 PSI). | -Adjust inlet pressure (80 PSI). |
| -No water from handpiece spray. | -Insufficient air pressure from compressor.<br>-Reservoir run out of water.<br>-Closed terminal. | -Adjust air flow.<br>-Put filtered water in reservoir.<br>-Open terminal. |
| -Handpiece is not working. | -Compressor disconnected. | -Plug the compressor in. |
| -No water from syringe. | -Reservoir run out of water.<br>-Compressor disconnected. | -Put filtered water in reservoir.<br>-Plug compressor in. |
| - Bowl's water flow and cup filling are not operating. | - Lack of water.<br>- Water valve is closed<br>- Power cut<br>- Chair fuse burned.<br>-Chair's main switch is off or terminal box is disconnected. | - Check the water supply.<br>- Open the water valve.<br>- Check the energy supply.<br>- Turn off the chair from mains power and request a Technician presence.<br>- Switch the main switch on or connect the terminal box. |
| - There is no water flow in the tank when the patient gets closer (optical sensor). | - Damaged-sensor.<br>- Distance between the patient to the upper sensor larger than 300mm.<br>- Dirt on the lens sensor.<br>- Chair fuse is burnt. | - Request assistance by GNATUS Technician.<br>- Get closer to the sensor (less than 300 mm).<br>- Clean the sensor lens.<br>- Turn off the power supply to the chair and request asistance by the Technician. |

# 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 |
|---|---|---|
| -When Bio-system is operated no disinfectant come from handpiece terminals. | -Bio-system reservoir run out of water.<br>- Chair fuse burned.<br><br>-Main or chair switch is off | -Put disinfectant in the reservoir.<br>- Turn off the chair from mains power and request a Technician presence.<br>-Switch main/chair switch on. |
| **Curring Light**<br>-Equipment's not working. | -Power cut.<br>-Chair's fuse burned. | -Check power supply.<br>-Turn off the chair from mains power and request a Technician presence. |
| -Equipment is not polymerizing resins. | -Resin is not appropriate for LED's photopolymerizer wave length range. | -Get the indicated resin for the photopolymerizer's wave length range, one with contains photoinitiators based on camphorquinone. |
| **Intra oral Camera**<br>-Equipment's not working. | -Power cut.<br>-Chair's fuse burned.<br><br>-FREEZE key (A) of the camera disconnected. | -Check power supply.<br>-Turn off the chair from mains power and request a Technician presence.<br>- Press button (A) to connect the camera. |
| - The camera goes on, but there is no image on the screen. | -Monitor disconnected.<br>-Poor connection of the cables (back panel of the module or monitor).<br>-Video input not selected.<br>-Cable USB disconnected.<br>-Software of the camera installed wrong. | -Turn on the monitor.<br>-Reconnect the cable of the back panel of the module or monitor.<br>-Select the video input.<br>-Connect cable.<br>-Install the software correctly. |
| **Bicarbonate Jet** | - Refer to Owner's Manual of Jet Hand (available for viewing and downloading via www.gnatus.com.br/manuais). | |

# WARRANTY OF EQUIPMENT

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

# 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.

EC REP

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