PRESENTATION OF MANUAL

INSTRUCTIONS FOR USE

Technical Name: Dental Water Unit
Trade Name: Water Unit
Model: Syncrus G4

Manufacturer/ Distribuidor:
Alliage S/A Indústrias Médico Odontológica
C.N.P.J. 55.979.736/0001-45 - Insc. Est. 582.002.897.114
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Technical Duties: Ricardo J. Ravaneli
CREA-SP: 5060714523

Registration ANVISA #: 10069210063

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.
IDENTIFICATION OF EQUIPMENT

Dear Customer
This manual is a general presentation of your product and it will give you important details to help you to solve possible problems.
Please, read it and keep this with you.

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

Purpose of the equipment
For auxiliary working, such as water supply for waste collection and auxiliary treatment instruments triggering of the Surgeon, such as for instance: triple syringe, saliva suction terminals, blood and sweepings, etc.

Principles and fundamentals applied to the product functioning
Auxiliary unit attached to the chair, comprised by suction systems, dental spittoon and triple syringe. Suction system: can be of low, average or high power. Low and average power systems (connected to the air compressor) or of high power (through a vacuum pump).
Syncrus G4 Water Unit

IDENTIFICATION OF EQUIPMENT

Description of Equipment
Water unit for odontological use, for auxiliary work such as water supply for waste collection and spitting and sucking activation.
Attached to the chair, with optical sensor* that activates the functions of water in the bowl and electronic control panel, which activates the functions of water in the bowl, water in the cup holder and *water heating of the triple syringe.
Programmable timer for water trigging in the cup holder and in the spitting bowl by a time interval set by the professional, providing bigger water savings at the Dental Set.
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).
Arm Reach with Front Handle: 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.

*Curing Light
Product Features:
Designed to carry out curing resin material through a curing process. The wavelength of 420nm - 480nm associated with high energy emitted by Curing Light enables the multifunctionality of this device.
It has high power LED with efficient coupling and optical distribution, providing speed and security procedures. Ensures proper photo-activation of materials without wasting light.
The LED system of this machine has long service life, equivalent to 36 million 10-second cycles without loss of power and efficiency in the photo activation.
The reduced weight of the pen and its anatomical design ensure a more comfortable and practical professional work.
Operation control with display and buttons on the pen itself.
Variation of choosing the operation time (5,10,15 and 20 seconds).

* Optional
IDENTIFICATION OF EQUIPMENT

It has 3 application modes: Continuous, Ramp and Pulse:

- **Continuous**: Maximum mode and continuous light intensity (same luminosity from the beginning to the end of the polymerization).
- **Ramp**: Gradual light intensity mode, increases gradually.
- **Pulse**: Pulse mode has cycles that oscillate at a fixed frequency.
  - Shows the elapsed time and the end of the operation.
  - No special optical filters.
  - Low power consumption.
  - Low cost of replacement.

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

- The forced ventilation system, transmitting unpleasant noise is not necessary.
- High strength piece.
- Conductive light removable in fiber optics, removable and autoclavable.
- Swivel eye protection - Ensures full protection without compromising the visual field.

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

- Aspirators' hoses available in smooth and corrugated versions.
- Unit without coupling arm reach "Tips support embedded in the unit"

**MODULES, ACCESSORIES, OPTIONS AND MATERIALS OF CONSUMPTION**

01 - Water conductor cup holder
02 - Cup holder
03 - Water conductor bowl
04 - Bowl
05 - Drain cover
06 - Control Panel
*07 - Vacuum pump suctor
*08 - Venturi type suctor
09 - Suctor Filters
10 - Cabinet body
11 - Bio-System Reservoir
12 - Water Reservoir
13 - Water flux regulating cup holders
14 - Water flux Regulating bowl
*15 - Water selector valve - reservoir/network
*16 - Master valve - releases/block water input
*17 - Arm reach
*18 - Cover reach
*19 - Control Panel Arm reach
20 - Central Catcher
21 - Optical Sensor

* Optional
MODULES, ACCESSORIES, OPTIONS AND MATERIALS OF CONSUMPTION
Terminals:
Borden (TB)
Midwest (TM)
Fiber Optic (FO)
Electric micro motor (MME)

Curing Light

Intra oral Camera set

Bicarbonate jet kit (Jet Hand model)
- Description, application, operation and more information, see the product manual available on the site for viewing and download.

Coupling arm reach for up to 5 tips
- Available in articulated and non-articulated versions

Coupling arm reach for up to 3 tips
- Available in articulated and non-articulated versions

Triple syringe with fully metal body or injected thermoplastic handle

Triple syringe with fully injected thermoplastic body

Suckers with fully metal body or injected thermoplastic:
- Venturi sucker
- High performance Venturi type sucker
- Large ejector for Vacuum Pump
- Small ejector for Vacuum Pump
- Cleaning brush sucker
- Cannula sucker

Water bowl manufactured with injected material

Water selector valve - reservoir / network

Master Valve (system that allows cutting the flow of water and air to the office)

* Optional
MODULES, ACCESSORIES, OPTIONS AND MATERIALS OF CONSUMPTION

*13. Optical sensor to actuate the water supply to the bowl
*14. Integrated pedal "Chip Blower"
*15. Progressive pedal
*16. Progressive pedal with drive / water cut
*17. Heating kit for triple syringe
*18. Control panel with arm reach

Attention
- The drawing illustrates all optional items (page 08 and 09). Therefore, your equipment will consist only of the chosen items selected during your purchase option.
- The use of any part, accessory or material not specified or provided in these instructions is of entire responsibility of the user.

* Optional
## Syncrus G4 Water Unit

### Modules, Accessories, Options and Materials of Consumption

The Water Unit may comprise:

<table>
<thead>
<tr>
<th>Optional</th>
<th>Initials</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 BV sucker</td>
<td>TBV</td>
</tr>
<tr>
<td>1 Venturi sucker</td>
<td>TV</td>
</tr>
<tr>
<td>1 Venturi sucker + 1 BV sucker</td>
<td>2T</td>
</tr>
<tr>
<td>2 Venturi suckers</td>
<td>2TV</td>
</tr>
<tr>
<td>2 BV suckers</td>
<td>2TBV</td>
</tr>
<tr>
<td>1 Syringe + 1 Venturi sucker</td>
<td>S TV</td>
</tr>
<tr>
<td>1 Syringe + 1 BV sucker</td>
<td>STBV</td>
</tr>
<tr>
<td>1 Syringe + 1 Venturi sucker + 1 BV sucker</td>
<td>3T</td>
</tr>
<tr>
<td>1 Syringe + 2 Venturi sucker</td>
<td>3TV</td>
</tr>
<tr>
<td>1 Syringe + 2 BV sucker</td>
<td>3TBV</td>
</tr>
<tr>
<td>1 Syringe + 1 Curing Light + 1 Terminal High Speed + 1 Terminal micro motor + 1 Venturi sucker</td>
<td>5T</td>
</tr>
<tr>
<td>1 Syringe +1 Curing Light + 1 Terminal High Speed + Terminal micro motor + 1 BV sucker</td>
<td>5TBV</td>
</tr>
<tr>
<td>Curing Light</td>
<td>OPTI</td>
</tr>
<tr>
<td>Borden Terminal</td>
<td>TB</td>
</tr>
<tr>
<td>Midwest Terminal</td>
<td>TM</td>
</tr>
<tr>
<td>Fiber Optic Terminal</td>
<td>FO</td>
</tr>
<tr>
<td>Electric micro motor Terminal</td>
<td>MME</td>
</tr>
<tr>
<td>Cup holder</td>
<td>E</td>
</tr>
<tr>
<td>Intra Oral Camera</td>
<td>CAM</td>
</tr>
<tr>
<td>Arm reach</td>
<td>ALC</td>
</tr>
<tr>
<td>Activation by electronic panel</td>
<td>P</td>
</tr>
<tr>
<td>Complete equipment</td>
<td>FULL</td>
</tr>
</tbody>
</table>

Identification label "responsible field to identify the product configuration."
# TECHNICAL SPECIFICATIONS

## Technical features of the Unit and its accessories

### General features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td>Syncrus G4</td>
</tr>
<tr>
<td><strong>Power supply voltage (coming from dental chair)</strong></td>
<td>12V~ and 24 V~</td>
</tr>
<tr>
<td><strong>Protection against Electric Shock</strong></td>
<td>Type B and Class I Equipment</td>
</tr>
<tr>
<td><strong>Operation mode</strong></td>
<td>Continuous</td>
</tr>
<tr>
<td><strong>Air pressure</strong></td>
<td>60 to 80 PSI ±2</td>
</tr>
<tr>
<td><strong>Net weight (with all the options)</strong></td>
<td>15 Kg</td>
</tr>
<tr>
<td><strong>Venturi suction system – Maximum vacuum</strong></td>
<td>220 mm/Hg</td>
</tr>
<tr>
<td><strong>Venturi suction system – Volumetric displacement</strong></td>
<td>30 l/min</td>
</tr>
<tr>
<td><em><em>Capacity of water reservoir (Water / Bio-System</em>)</em>*</td>
<td>1000 ml</td>
</tr>
</tbody>
</table>

### Specifications of Curring Light

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power</strong></td>
<td>5,2VA</td>
</tr>
<tr>
<td><strong>Light source</strong></td>
<td>1 LED</td>
</tr>
<tr>
<td><strong>Active medium</strong></td>
<td>1200 mW/cm² ± 200 mW/cm²</td>
</tr>
<tr>
<td></td>
<td>Semiconductor LED (InGaN)</td>
</tr>
<tr>
<td><strong>Wavelength</strong></td>
<td>420nm - 480nm</td>
</tr>
<tr>
<td><strong>Timer</strong></td>
<td>5,10,15 and 20 seconds</td>
</tr>
</tbody>
</table>

* Optional
TECHNICAL SPECIFICATIONS

Timer alarm
Sound alarm with beep every 05 seconds and 02 beeps at the end of the cycle

Activation
Through the hand-piece button

Light conductor
Optic fiber 100% coherent that ensures the light passage without losses

Weight
0,8kg

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

Attention
The materials used to produce the equipment are Biocompatible.

Electromagnetic Emissions

Electromagnetic Emissions

The Syncrus G4 Water Unit is made to be used in the electromagnetic environments specified below. The client or the user of the Syncrus G4 Water Unit must be sure that it is used in such environment.

<table>
<thead>
<tr>
<th>Emission test</th>
<th>Compliance</th>
<th>Electromagnetic environment - Guide</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF emissions</td>
<td>Group 1</td>
<td>This Syncrus G4 Water Unit 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.</td>
</tr>
<tr>
<td>ABNT NBR IEC CISPR 11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RF emissions</td>
<td>Class B</td>
<td>This Syncrus G4 Water Unit 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.</td>
</tr>
<tr>
<td>ABNT NBR IEC CISPR 11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emissions of harmonics</td>
<td>Class A</td>
<td></td>
</tr>
<tr>
<td>IEC 61000-3-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluctuation of Voltage / Emissions of flicker</td>
<td>As per</td>
<td></td>
</tr>
<tr>
<td>IEC 61000-3-3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**TECHNICAL SPECIFICATIONS**

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

The **Syncrus G4 Water Unit** is made to be used in the electromagnetic environments specified below. The client or the user of the **Syncrus G4 Water Unit** must be sure that it is used in such environment.

<table>
<thead>
<tr>
<th>Immunity test</th>
<th>ABNT Test level NBR IEC 60601</th>
<th>Level of compliance</th>
<th>Electromagnetic environment Directives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrostatic discharge (ESD) IEC 6100-4-2</td>
<td>± 6 kV Contact ± 8 kV Air</td>
<td>± 6 kV Contact ± 8 kV Air</td>
<td>Floors should be wooden, concrete or ceramic. If the floor is covered with synthetic material, the relative humidity should be at least 30%.</td>
</tr>
<tr>
<td>Quick electric transitory phases / train of pulses (&quot;Burst&quot;) IEC 61000-4-4</td>
<td>± 2 kV in power supply lines ± 1 kV in input / output lines</td>
<td>± 2 kV in power supply lines ± 1 kV in input / output lines</td>
<td>It is advisable that the quality of the power supply should be that of hospital or typical commercial environment.</td>
</tr>
<tr>
<td>Surges IEC 61000-4-5</td>
<td>± 1 kV lines (s) to lines (s) ± 2kV lines (s) to ground</td>
<td>± 1 kV lines (s) to lines (s) ± 2kV lines (s) to ground</td>
<td>It is advisable that the quality of the power supply should be that of hospital or typical commercial environment.</td>
</tr>
<tr>
<td>Reduction, interruption and variance of voltage in power supply input lines IEC 61000-4-11</td>
<td>&lt; 5% Ut (&gt;95% drop in Ut) for 0,5 cycle 40% Ut (60% drop in Ut) for 5 cycles 70% Ut (30% drop in Ut) for 25 cycles &lt; 5%Ut (&gt;95% drop in Ut ) for 5s</td>
<td>&lt; 5% Ut (&gt;95% drop in Ut ) for 0,5 cycles 40% Ut (60% drop in Ut) for 5 cycles 70% Ut (30% drop in Ut ) for 25 cycles &lt; 5% Ut (&gt;95% drop in Ut ) for 5s</td>
<td>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 <strong>Syncrus G4 Water Unit</strong> be feed by an uninterruptible power supply or a battery.</td>
</tr>
<tr>
<td>Magnetic field in frequency of power supply (50/60Hz) IEC 61000-4-8</td>
<td>3 A/m</td>
<td>3 A/m</td>
<td>If an image distortion occurs, may be necessary place the equipment far from the supply frequency or to install magnetic armour. The frequency magnetic field shall be measured at the installment place to assure that it is low enough.</td>
</tr>
</tbody>
</table>

**NOTE**: Ut is the a.c. power supply voltage before the application of the test level.
## TECHNICAL SPECIFICATIONS

### Guidelines and manufacturer’s declaration - electromagnetic immunity

The **Syncrus G4 Water Unit** is made to be used in the electromagnetic environments specified below. The client or the user of the **Syncrus G4 Water Unit** must be sure that it is used in such environment.

<table>
<thead>
<tr>
<th>Immunity test</th>
<th>ABNT test level</th>
<th><em>Level of compliance</em></th>
<th>Electromagnetic Environment Directives</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF conducted</td>
<td>IEC 61000-4-6</td>
<td>3 Vrms 150 kHz up to 80 MHz</td>
<td>It is advisable that portable and mobile RF communication equipment is not used near any part of the <strong>Syncrus G4 Water Unit</strong>, including cables, with a separation distance less than the one recommended, calculated from the equation applicable to the frequency of the transmitter.</td>
</tr>
<tr>
<td>RF radiated</td>
<td>IEC 61000-4-3</td>
<td>3 V/m 88 MHz up to 2,5 GHz</td>
<td>Recommended separation distance:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 V/m</td>
<td>$d = 1,2\sqrt{P}$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$d = 1,2\sqrt{P}$ 80 MHz thru 800MHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$d = 2,3\sqrt{P}$ 800 MHz thru 2,5MHz</td>
</tr>
</tbody>
</table>

Where $P$ is the nominal maximum power of output of the transmitter in watts (W), as per the manufacturer of the transmitter, and $d$ is the recommended separation distance in meters (m).

It is advisable that the field intensity from the RF, transmitter as determined by means of electric inspection on-site, is less than the level of compliance in each frequency range.

There may be interference near the equipment marked with the following symbol:

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

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

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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 **Syncrus G4 Water Unit** 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 **Syncrus G4 Water Unit**.

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

Recommended distances between portable and mobile RF communication equipments and the Syncrus G4 Water Unit

The Syncrus G4 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 G4 Water Unit may help preventing electromagnetic interference by keeping a minimal distance between mobile and portable RF communication equipment (transmitters) and the Syncrus G4 Water Unit, as recommended below, in accordance with the maximal voltage output of the communication equipment.

<table>
<thead>
<tr>
<th>Transmitter Maximum Output (W)</th>
<th>Separation distance according to transmitter frequency (M)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>150 kHz to 80 MHz d= 1,2√p</td>
</tr>
<tr>
<td>0,01</td>
<td>0,12</td>
</tr>
<tr>
<td>0,1</td>
<td>0,38</td>
</tr>
<tr>
<td>1</td>
<td>1,2</td>
</tr>
<tr>
<td>10</td>
<td>3,8</td>
</tr>
<tr>
<td>100</td>
<td>12</td>
</tr>
</tbody>
</table>

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

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

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

Dimensions (mm)
TECHNICAL SPECIFICATIONS

Packing symbols

- **It determines the maximum quantity of boxes which can be stacked during transportation and storage “as per packaging”.**
  - **Packing to be transported and/or stored 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

- **Applied part type B.**
  - **Grounding (at several points of the equipment) indicates the condition of being grounded.**
  - **Attention:**
    - Check the working instructions.
  - **Note:**
    - It indicates useful information for operation of the product.
  - **Refer to the instruction manual.**
  - **Authorized representative in the European Community.**
Syncrus G4 Water Unit

TECHNICAL SPECIFICATIONS

Product symbols

- General sign for mandatory action
  General warning: If the instructions are not properly followed, the use can lead to damage to the product, user or patient

- High-speed with FO

- BV ejector

- Bowl water flux regulation

- Ejector type Venturi

- Bicarbonate Jet

- Master valve (key for water cut)

- Curing Light

- Cup filling

- Cup holder water flux regulation

- Water heating activation

- Key switch water supply network/reservoir

- Triple syringe
INFRA-STRUCTURE SPECIFICATION
The perfect functioning and the durability of the dental office are directly linked to the preinstallation, which must be carried out by duly trained professionals according to the instructions contained in the "Pre installation plan" which is found with the Alliage authorized technical representative.

INSTALLATION OF EQUIPMENT
The installation of this equipment requires the necessity of specialized technical assistance (Alliage). Ask for the presence of a Alliage representative technician at the nearest seller, or through the Alliage Service Center: + 55 (16) 3512-1212.

Note
That information are also part of the Installation and Maintenance Manual of the equipment that is found with the Alliage authorized technical representative.
Syncrus G4 Water Unit

EQUIPMENT OPERATION

Control Panel
01 - Water triggering in the Bowl
02 - Water triggering in the cup holder
03 - Water triggering heating syringe*

Attention:
To set the time of water flow in the Bowl (01) / cup holder (02), hold the corresponding key, 3 short beeps will be displayed indicating the programming mode. Release the key after the desired time interval. The flux time is recorded.
The maximum time for programming is 60 seconds, exceeding this limit will beep an error indicating that the time has not been programmed.
When turning the key "triggering heating water syringe" (03), the LED will turn on (a) starting the heating of syringe water. The temperature must remain around 40º C. To turn off the "trigger water heating", press (03) again.

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.

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

Coupling of tube
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.

* Optional
Replacement of the standard of cannula coupling
If there is the necessity of using the cannula (a) in the BV suctor, make the replacement of the cannula coupling, as the procedure below:
Remove the coupling (b) by unscrewing it from. Screw the coupling (c) in the aspirator BV set and attach the coupling tube.

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.

Terminal Drive
Progressive pedal* (fig.1)
For the operation of rotary instruments, remove support the instrument to be used, actuate on the foot control (b).

Progressive pedal with Chip Blower / Water blocking system for hand pieces* (fig.2)
For the operation of rotary instruments, remove support the instrument to be used, actuate on the foot control (b). To actuate the water of hand pieces locking system, turn the key (d) Off to unlock. Return to starting position to block. Pressing the button (e), will trigger air to the tips.

Pedal chip-blower* (fig.3)
For the operation of rotary instruments, remove from the support the instrument to be used, operate the foot control by moving the lever (a) with your feet.

The power (supply air) can be controlled by the operator with more or less pressure on the pedal lever (a). The "chip-blower" system allows air flow release with the turbine stopped (air function). Pressing the button (e), will trigger air to the tips. Pressing the key (e) and moving the lever to the right (a) together, will trigger turbine high speed air and water (spray).

* Optional
EQUIPMENT OPERATION

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 (d), 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.

Bio-System Activation*
Remove hanpieces from terminals. Take terminals to bowl or water unit’s sink. Open the terminal’s spray valves completelly. Press the Bio-system key, which is located in the command panel, for some seconds, to disinfect the equipment’s components internally with disinfectant. Then, press the command pedal for some seconds to rinse, in order to eliminate the disinfectant residues that could have remained.

Warning
Repeat this procedure before working day and after each patient.

Activation through the command panel of the arm reach*
15 - Lift seat.
16 - Lower seat.
17 - Lift backrest.
18 - Lower backrest.

* Optional
EQUIPMENT OPERATION

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 (04), to select the feeding through the reservoir and turn around in the clockwise sense. To select the feeding 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) (03).

How to provision the reservoirs Water/Syringe/Handpieces
Remove the reservoir (b) uncoiling it on clockwise and make the replacement of water. After the replacement put it back coiling on anticlockwise.
Always use filtered water or aseptic products.

Bio-System*
Remove the reservoir (a) uncoiling it on clockwise and make the replacement. Use a chlorinated water solution 1:500 Preparing the solution:
From a solution of hypochlorite of sodium at 1%, a solution of chlorine at 500 p.p.m. is prepared.
How to prepare the solution: Take 25ml of hypochlorite of sodium at 1% and dilute it in 500 ml of water (1 to 20).
Such solution should be prepared daily.

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

* Optional
Curing Light*

a - Before using it, please, sterilize the light conductor, disinfect the handpiece and the wire.

b - Insert the light conductor in the handpiece until you hear a slight click and feel that it was correctly embedded.

c - Insert the ocular protector on the light conductor.

Attention
Keep the light conductor 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.

Press the button to turn on the equipment (01).
- Select the application mode pressing the selection button (02), which variations are:
  - Continuous: Maximum mode and continuous for light intensity (same luminosity from the beginning to the end of the polymerization).
  - Ramp: Gradual mode, light intensity increases gradually.
  - Pulse: Pulse modes are cycles that oscillate at a fixed frequency.
• The chosen application mode will be displayed.
• For setting time, press the button (03) and chose a time between a time from 5 to 20 seconds, which will be seen on the display (04).

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

d - After selecting the application mode and the choice of time, remove the light conductor protection cover and take the handpiece to the patient’s mouth and position the light conductor at a safe distance.

e - For starting the polymerization cycle, press the trigger. Just trigger again to interrupt.

* Optional
Warning
- Never aim the blue light beam towards the eyes;
- Use the eyesight protection;
- The ocular protector has the goal of filtrate only the blue light that operates in the photo polymerization of resins for protecting the sight and still allows that the room light has a path to the operative field.

Automatic shutdown:
The equipment will turn off automatically when not in use for more than 3 minutes. For turning it on again, press the On / Off button.

* Optional
Recommendations for preserving the equipment
Your equipment has been designed and developed according to the standards of modern technology. Similarly to other kinds of equipment, it requires special care, which is many times neglected due to several reasons and circumstances. Therefore, here are some important reminders for your daily routine. Try to follow these simple rules, which will save you a lot of time and will avoid unnecessary expenses once they start making part of your working procedure.

Transportation, storage and operation
This equipment must be transported and stored observing the following directions:
- Avoid falls and impacts;
- Keep it dry, do not expose it to rain, water drops or wet floor;
- Keep it away from water and direct sunlight, and in its original wrapping;
- Don’t move it over irregular surfaces, protect it from rain and observe the maximum stack quantity specified in the packaging;

Environmental condition for transportation or storage:
- Room temperature range for transportation or storage -29ºC to +60ºC.
- Relative humidity range for transportation or storage 20% to 90%.
- Atmospheric pressure range 500hPa to 1060 hPa (375 mmHg to 795 mmHg).

Environmental operation condition:
- Room temperature range for functioning +10ºC to +40ºC.
- Recommended room temperature range +21ºC to +26ºC.
- Relative humidity range for functioning 30% to 75%.
- Atmospheric pressure range 700 hPa to 1060 hPa (525 mmHg to 795 mmHg).
- Operation altitude: ≤2000m.

Attention
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.

Sensibility to predictable environmental conditions in regular use conditions

Warnings
- Syncrus G4 Water Unit requires special care in terms of electromagnetic compatibility and needs to be installed and put into operation according to information on electromagnetic compatibility provided in this manual.
- The communication equipment of mobile and portable RF may affect electric medical equipment.
- The use of a cable, transducer or other accessory different from those specified in this manual, and/or the replacement of inner components of those equipment may result in the increasing of emissions or reduction of the electromagnetic immunity of the equipment.
- It is not convenient that the Syncrus G4 Water Unit be used near to or Piled over other equipment, in case of the use near to or piled over is necessary, it is convenient that the Syncrus G4 Water Unit be observed to check if it is working properly in the configuration to be used.
Precaution and warnings “during the installation” of the equipment
- This equipment can only be unpacked and installed by an Alliage authorized technician, under the penalty of losing the warranty, as only them possess the information, the proper tools and the required training for carrying out this task.
- Manufacturer does not take this responsibility for damage or accidents caused due to a bad installation performed by a technician non-authorized by Alliage.
- Only after the equipment is installed and properly tested by the Alliage authorized technician, it will be ready to start the working operations.
- Install the unit in a place where it will not be damaged by the pressure, temperature, humidity, direct sunlight, dust, salts.
- 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.
- Before the first use and/or after long interruptions from work such as vacations, clean and disinfect the equipment.

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 Alliage Authorized Technical Assistance.
- Although this equipment has been planned in accordance with the standards of electromagnetic compatibility, it can, in very extreme conditions, cause interference with other equipment. Do not use this equipment together with other devices very sensitive to interference or with devices which create high electromagnetic disturbance.
- Do not expose the plastic parts to contact with chemical substances, use in the routines of dental treatment, such as: acids, mercury, acrylic liquids, amalgams, etc.
- Avoid the light conductor terminal touch with the resin to be polymerized.
- While using the Curing Light verify that the output of the light pen has no residues that may obstruct the light beam.
- Use appropriated techniques for minimizing the effects of the contraction of the photo polymerized material and also of the temperature on the applied region; these techniques consist of a proportional detachment from the expected effect, which means that detaching the tip from the activated region, the power and the temperature tends to diminish.

Manufacturer 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.
- When noticing the presence of irremovable stains, cracks or fissures in water reservoirs, Bio-System, light ducts or at the ocular protector, please arrange the replacement of the damaged components.
PRECAUTIONS, RESTRICTIONS AND WARNINGS

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

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:
- When disinfecting the handpiece, remove the light conductor; use neutral soap or alcohol 70% vol. Never use povidone iodine, glutaraldehyde or chlorinated products, which with time can produce superficial attacks over the instrument’s body. Never soak the instrument in disinfection baths.
- The conductor must be clean and sterilized at 135ºC before being used in the next patient.

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 Alliage.

Precautions to be adopted against foreseeable or uncommon risks, related to the deactivation and abandoning of equipment
In order to avoid environmental contamination or undue use of the Equipment after it has become useless, it should be discarded in the suitable place (as per the local legislation of the country). Pay attention to the local legislation of the country for the conditions of installation and disposal of residue.
CORRECTIVE AND PREVENTIVE MAINTENANCE AND PRESERVATION

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

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

- **Attention**
  - In order to prevent risks and damages to equipment, make sure that the liquid does not enter into the equipment.
  - To cleaning the equipment, using the damp cloth with a mild soap. The application of other solvent-based cleaning products or sodium hypochloride isn’t recommended, because they may damage the equipment.

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

- **Warning**
  For preventing contamination, use gloves and other protection systems during disinfection. Even that, during the procedures, gloves are used, after removing gloves the hands must be washed out.

Curing Light*
**Only the light conductor must be sterilized in the following conditions:**
- Maximum temperature of 135ºC.
- The light conductor must be packed properly cleaned.
- Do not sterilize the light conductor in contact with other kinds of material.

- **Warning**
  THIS EQUIPMENT IS NOT SUPPLIED STERIL, IT MUST BE CLEANED AND STERILIZED BEFORE ITS FIRST USE

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

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

---

* Optional
CORRECTIVE AND PREVENTIVE MAINTENANCE AND PRESERVATION

Clearing the suction system

**Warnings**
- 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.

**Using Vacuum Pump**
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 (Fig.a).

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.

**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 Alliage.

**Triple syringe**
Only the syringe tip is autoclavable (b). 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 drain

**Warning**
Always use protection gloves when manipulating filters and drainages. Discard waste and contaminated products in biological waste containers.

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

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**Preventive Maintenance**
The equipment must suffer routinely measurements, following the current legislation of the country. But, never with a period superior to 3 years. For protecting your equipment, look for a Alliage’ technical assistance for periodic reviews as preventive maintenance.

**Corrective Maintenance**
The supplying of the circuits’ diagram, Part lists or any other information that permits the technical assistance by the user, can be requested, since previously agreed.

**Attention**
In case of the equipment presents any abnormality; check if the problem is related to some of the listed items under the item unpredictable (situation, cause and solution). If it’s not possible to solve the problem, shutdown the equipment and demand the presence of a technician from the nearest resale, or ask through the Attendance Service Alliage: + 55 (16) 3512-1212.
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.

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

<table>
<thead>
<tr>
<th>Problem</th>
<th>Probable cause</th>
<th>Solution</th>
</tr>
</thead>
</table>
| - There is no water flow in the bowl when the patient gets closer (optical sensor). | - Damaged-sensor.  
- Distance between the patient to the upper sensor larger than 300mm.  
- Dirt on the lens sensor.  
- Chair fuse is burnt | - Request assistance by Alliage Technician.  
- Get closer to the sensor (less than 300 mm).  
- Clean the sensor lens.  
- Turn off the power supply to the chair and request assistance by the Technician. |
| Curring Light  
- Equipment's not working. | - Power cut.  
- Chair’s fuse burned. | - Check power supply.  
- Turn off the chair from mains power and request a Technician presence. |
| - Equipment is not polymerizing resins. | - Resin is not appropriate for LED’s photopolymerizer wave length range.  
- Resin residues in light cable. | - Get the indicated resin for the photopolymerizer’s wave length range, one with contains photoinitiators based on camphorquinone.  
- Clean the light cable. |
EQUIPMENT’S WARRANTY
This equipment is covered by the warranty terms and norms contained in the Warranty Certificate that accompany the product.

FINAL CONSIDERATIONS
Among the care you have to take with your equipment, the most important is regarding of the spare parts replacement.
To ensure the lifetime of your device, only replace original spare parts. They have the assurance of the standards and technical specifications required by the Alliage representative.
We call your attention to our authorized resellers’ chain. Only this chain will keep your equipment constantly new, because it has trained technical assistant and specific tools for the correct maintenance of your device.
Whenever you need, demand the presence of a Alliage' technician from the nearest resale, or ask through the Attendance Service Alliage: + 55 (16) 3512-1212.