

English

# OWNER'S MANUAL

Turbines



## PRESENTATION OF MANUAL

### INSTRUCTIONS FOR USE

**Technical Name:** High Rotation Turbine

**Trade Name:** High Rotation Dental Handpiece

**Models:**

- SL 30 PB TB, SL 30 PB TM, SL 30 FG TB, SL 30 FG TM, SL 30 Mini TB, SL 30 Mini TM, SL 30 Mini PB TB, SL 30 Mini PB TM,
- SL 30 PB LED TM, SL 30 PB UV LED TM, SL 30 FG LED TM, SL 30 Mini LED TM, SL 30 Mini PB LED TM, SL 30 Mini PB UV LED TM

**Brand:** Saevo

**Manufacturer/ Distributor:**

Alliage S/A Indústrias Médico Odontológica

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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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## **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 Use**

The Alliage handpieces are intended to remove caries, remove restorations and perform tooth sectioning, as an aid in extracting teeth, and they are for exclusive dental use, and must be handled by trained, qualified and regulated health professionals according to local legislation.

### **Contraindication**

None known.

### DESCRIPTION OF EQUIPMENT

#### General Description

Compact handpiece, ergonomic design, body made of metal with surface treatment, excellent durability for autoclaving.

Turbine supported on rubber bearings, which reduces the vibrations and increases the useful life of the bearings.

- Simple Spray: Available only for mini models.
- Triple Spray: Available for the other models.

Constant cooling in the active part of the bur. Its jet sprays water, providing cooling, allowing cavity preparations with maximum cutting efficiency and minimum heat generation.

The Alliage handpieces have been planned to offer maximum performance in the most severe clinical procedures. With a design which caters for ergonomics, torque, sensitivity and lightness. Produced with technology (MADE IN BRAZIL) and material of the utmost durability.

LED Lighting System (according to model acquired): Allows a perfect view of the teeth and other oral structures during clinical procedures. Located close to the head and turned for the tip of the Turbines Bur, the LED illumination offers a power of light of approximately 25,000 lux.

Ultra-Vision LED Lighting System (according to model acquired): Allows you to highlight any material with different fluorescence of the dental structure, ensuring greater precision removing restorative materials and reducing the occurrence of unnecessary wear to the health dental structure.

To ensure safe operation of your equipment, use only the mounting assembly (chair, equip, water unit and reflector) provided by Alliage Authorized Reseller Service.

#### Application specification

Alliage Dental Handpieces are designed to perform most routine dental procedures in intraoral region treatments.

#### Operation principle

Turbines operates connected to a delivery unit with intermittent operation, uses air and water to drive the turbine and rotate.

#### Significant physical characteristics

Turbines promotes Bur rotations in the magnitude of up to 335,000 revolutions/minute and has a torque of 0.05 to 0.18 N.cm. Under normal operating conditions, the equipment has a compressed air consumption of 32 L/min and a water consumption of 28.15mH<sub>2</sub>O.

#### User profile

Alliage Dental Handpieces can be operated and handled by users of both sexes, with the ability to read and understand images, symbols, icons, western Arabic characters (Arial font), alpha numeric characters, knowing how to distinguish intraoral part of the human body, not being able to present a degree of visual imperfection for reading or seeing and an average degree of impairment of recent memory, not being in a clear capacity to perform the activities and functions of the product in a correct manner to the profession.

The user needs to be a qualified health professional and trained with technical competence in the health and dentistry field.

## DESCRIPTION OF EQUIPMENT

### Models



#### Attention

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.



Fastening system  
(FG) Friction Grip



Fastening system  
(PB) Push Button

### without lighting system



\* Available in BORDEN and MIDWEST versions  
Bur sold separately.

All parts have a ceramic bearing.

- 01 - SL 30 PB
- 02 - SL 30 Mini PB
- 03 - SL 30 PB\*\*
- 04 - SL 30 FG
- 05 - SL 30 Mini

\*\* Anodized finish



Terminal type  
\*BORDEN



Terminal type  
\*MIDWEST

\* Optional

## DESCRIPTION OF EQUIPMENT

### Models



#### Attention

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.



Fastening system  
(FG) Friction Grip



Fastening system  
(PB) Push Button



### With lighting system



\*Available in MIDWEST versions

Bur sold separately.

All parts have a ceramic bearing.

- 01 - SL 30 PB LED / SL 30 PB UV LED
- 02 - SL 30 Mini PB LED / SL 30 Mini PB UV LED
- 03 - SL 30 PB LED / SL 30 PB UV LED\*\*
- 04 - SL 30 FG LED
- 05 - SL 30 Mini LED

\*\* Anodized finish

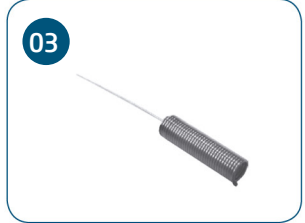


Terminal type  
MIDWEST

\* Optional

## DESCRIPTION OF EQUIPMENT

### Sets and Parts



#### Attention

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

- 01 - Coupling lining (TB/TM)
- 02 - Turbines bur remover
- 03 - Unblocking needle
- 04 - UV protective goggles (Ultra Vision)
- \*05 - Lubricant Lubs

---

\* Optional



### TECHNICAL SPECIFICATIONS

#### General features

##### Handpiece classification

Class 1 - 1:1 - Constant

##### Air and water working pressure (Recommended)

Air: Minimum 220 kpa = 2,2 bar = 32 psi / Maximum 241 kpa = 2,4 bar = 35 psi

Water: Minimum= 28.15mH<sub>2</sub>O (Water column meters)

##### Air and water consumption

Air: 32 l/min

Water: 42 ml/min

##### Rotation

335.000 r/min (maximum rotation)

Torque (stop): 0,05 - 0,18 N.cm

##### Fitting terminal

Borden Type 02 holes / Midwest Type 04 holes / Midwest Type 04 holes + two pins

##### Bur type

FG Standard

##### Sterilization

Autoclavable up to 135°C

##### Power LED / UV

Tension: 3,0V ±0,2

Current: 20mA

Wave-length: 390 - 410 nm

##### Applied part

Type B

#### Bur Specifications

As per ISO 1797.1:2017 and made of steel or hard metal.

Standard Burs

##### Type

Type 3 rod

##### Dimenions of the bur

Diameter: Ø1,59 - 1,60mm

Length of the shank: 9mm

Length of the bur: Minimum 19mm - Maximum 22mm

The maximum diameter of the active tip must be 2mm

## TECHNICAL SPECIFICATIONS

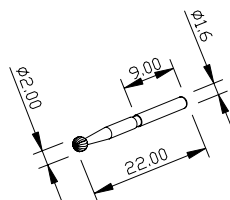
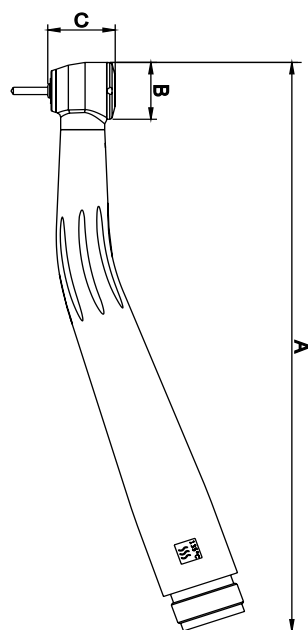
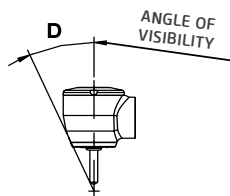
### Weights

Model	Net Weight	Gross Weight
SL 30 PB TB	30g	66g
SL 30 PB TM	36g	72g
SL 30 FG TB	30g	77g
SL 30 FG TM	36g	83g
SL 30 Mini TB	27g	74g
SL 30 Mini TM	32g	79g
SL 30 Mini PB TB	26g	62g
SL 30 Mini PB TM	32g	67g
SL 30 PB LED TM	39g	99g
SL 30 PB UV LED TM	39g	99g
SL 30 FG LED TM	39g	109g
SL 30 Mini LED TM	35g	105g
SL 30 Mini PB LED TM	35g	95g
SL 30 Mini PB UV LED TM	35g	95g

## TECHNICAL SPECIFICATIONS

### Dimensions (mm)

Model	A	B	C	D
SL 30 PB TB	118	∅12,5	14,7	27°
SL 30 PB TM	126	∅12,5	14,7	27°
SL 30 FG TB	118	∅12,5	14	26°
SL 30 FG TM	126	∅12,5	14	26°
SL 30 Mini TB	117	∅11	11,8	18°
SL 30 Mini TM	126	∅11	11,8	18°
SL 30 Mini PB TB	117	∅11	14,8	27°
SL 30 Mini PB TM	126	∅11	14,8	27°
SL 30 PB LED TM	126	∅12,5	14,9	24°
SL 30 PB UV LED TM	126	∅12,5	14,9	24°
SL 30 FG LED TM	126	∅12,5	14,9	24°
SL 30 Mini LED TM	126	∅11	11,8	18°
SL 30 Mini PB LED TM	126	∅11	14,8	27°
SL 30 Mini PB UV LED TM	126	∅11	14,8	27°



Projection with Type 4 test mandrel.

## TECHNICAL SPECIFICATIONS

### Packing symbols



Stacking limit by number



Keep dry



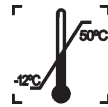
This side Up



Keep out of sunlight



Fragile, handle with care



Temperature limitation

### Product symbols



Sterilizable in a steam sterilizer (autoclave) at the specified temperature



Recyclable



General warning



Indicates that the product must be taken to a special waste collection site at the end of its useful life.



Attention



Handpiece, air turbine, with lighting



Serial number



Model number



Manufacturing date



Manufacturer

## TECHNICAL SPECIFICATIONS

### Product symbols



Borden type Terminal.



Midwest type Terminal.



Midwest type Terminal - Optical Fiber (LED / UV LED lighting).



Type B applied part



Instructions for use

MODEL

Model



Lot

## ABBREVIATIONS

AR - Turbines	FG - Friction Grip
TB - Borden Type	S - Spray
TM - Midwest Type	FO - Optical Fiber
PB - Push Button	UV - Ultra Vision

## OPERATION OF EQUIPMENT



### Warning

Handpieces must be used at a height of up to 1 meter from the ground.

### Terminal Coupling

Ensure that the instrument connection is compatible with that of the equipment (Borden Type or Midwest Type as per figures). Connect and thread the nut of the terminal turning it in a clockwise direction until fastening it.

Before using it for the first time, follow the lubrication procedures.

For the handpiece to function well it is necessary to have a drive pressure of 220 kpa = 2.2 bar = 32 psi.

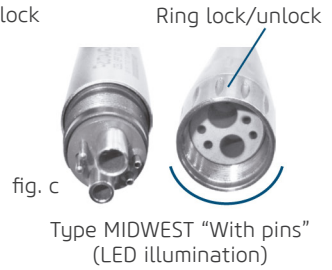
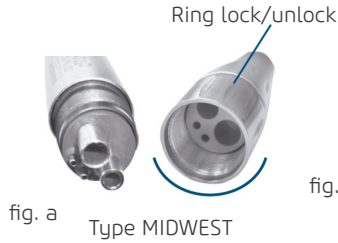
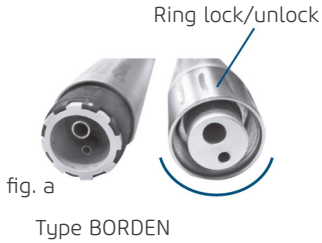


### Warning

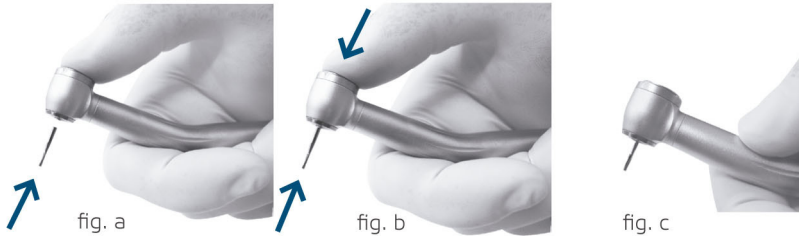
It is indispensable that the driving air is dry, clean and uncontaminated. Dirty and moist air lead to premature wear of the bearings.

## OPERATION OF EQUIPMENT

### Types of terminals



### Fastening of the bur (model PB)



In the PB (Push Button) system, fit the bur in the guide bushing (Fig. a). Then press the button of the head and move the bur (Fig. b) until reaching the bottom of the limiter, releasing the head button (Fig. c).

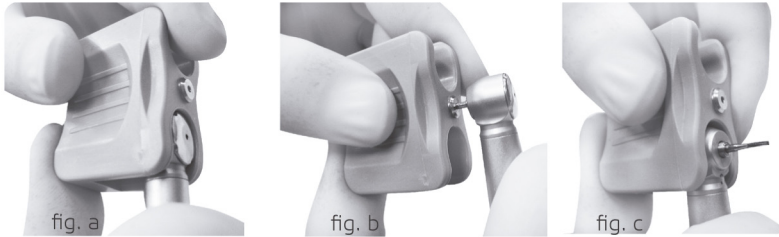


#### Warning

Ensure that the bur is fitted until the bottom for a correct fastening. Use standardized burs of good quality. Burs with a very long shank can produce excessive vibration reducing the useful life of the bearings.

## OPERATION OF EQUIPMENT

### Fastening of the bur (model FG)



In order to place the normal diamond tips and burs use the bur remover (Fig. a).  
When placing the fine and long diamond tips and burs, use the metal fitting to avoid breaking or twisting the bur (Fig. b).  
In order to remove the tips and burs use the bur remover with the pin side (Fig. c).



#### Warning

Ensure that the bur is fitted until the bottom for a correct fastening. Use standardized burs of good quality.  
Burs with a very long shank can produce excessive vibration reducing the useful life of the bearings.

## PRECAUTIONS, RESTRICTIONS AND WARNINGS

### 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 -12°C a +50°C.

Environmental operation condition:

- Room temperature range for functioning +10°C to +40°C.
- Recommended room temperature range +21°C to +26°C.
- 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

- 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 use” of equipment

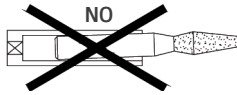
- The equipment should only be operated by duly enabled and trained technicians (Dental Surgeons, Capacitated Professionals).
- Before the first use and/or after long interruptions from work such as vacations, clean and disinfect the equipment.
- If any maintenance should be required, only use services of the Alliage Authorized Technical Assistance.
- Owing to its delicate components, this handpiece must not be dropped or undergo impacts.
- 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.



### PRECAUTIONS, RESTRICTIONS AND WARNINGS

#### Care with the burs:

- Do not use non-standard burs, the shaft diameter must be 1,59 - 1,60mm.
- Do not use diamond burs or tips with a twisted shank, worn unevenly or damaged.
- Always keep the bur very clean, as dirt in the bur shaft, can cause it to dilate in its hole, losing force in the retaining area of the bur, wearing it prematurely.
- The use of pneumatic or electric tools to perform any type of recording on handpieces, could lead to damage to the surface treatment of the product, causing the loss of warranty.
- Do not start the turbine if the bur is not adjusted correctly, as this can cause premature failures in the bearings, due to the unevenness of the bur and leading to vibrations.



The inlet hole can be deformed or fail prematurely.



The bur must touch the limiter for a correct functioning.

- For models of LED Hand parts with disclosing material system (Ultra Vision), we alert that, for the safe use and better visualization of disclosing system, it is necessary to use goggles and magnification of the image.



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

- 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.

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



#### Warning

Do not use the equipment in conditions unsuitable for use.

- 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, contact your representative (Alliage).

## PRECAUTIONS, RESTRICTIONS AND WARNINGS

### 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.

### Precautions for the Reduction of the Environment Impact

Alliage S/A aims to achieve an environmental policy that encourages the environmentally conscious supply of medical products that continuously minimize environmental impact and are more environmentally friendly and human health friendly.

To keep a minimum impact on the environment, observe the following recommendations:

- After installation, forward the recyclable materials for the recycling process.
- During the life circle of the equipment, turn it off when it is not being used.

The biomedical waste comprises nonhigh material susceptible to cause disease or house pathogenic organisms that must be stored in a yellow bag properly labeled with the symbol of biological hazard, or stored in a container resistant to perforation, tight and even collection and incineration.



The packaging consists of cardboard, plastic and expanded polystyrene (EPS) which are 100% recyclable materials.

Dimensions:

Main unit: 0,170 X 0,071 X 0,030 / MASS: About: 0,100 Kg.

### EQUIPMENT REUSE

#### Additional procedures for reuse

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

#### Cleaning and Disinfection

These processes must be used in the Hand Pieces and in the Bur bits.

Uncouple the plug terminal part.

Remove the Bur bit or diamond tip.

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.



For your protection, during the equipment cleaning and disinfection process, use PPE such as disposable gloves and goggles.

The cleaning and disinfection process must be performed at each patient change.

When starting the process, check for visible dirt, such as blood or saliva.

For cleaning use a clean, soft cloth moistened with mild soap and then dry with a clean, soft cloth or paper towel.

For the disinfection process of the High Speed Handpiece, use disinfectant detergent foam without alcohol that has active components based on didecyldimethylammonium chloride.

Apply the disinfectant detergent foam on the surface or on a clean cloth and spread it on the surface to be treated. Respect the antimicrobial contact time specified by the manufacturer.



#### Warning

Never submerge the instrument in a disinfection bath.

Never use product peracetic acid for cleaning, since it is corrosive.

Never use any kind of alcohol or other disinfectant that has acid base, ammonia or chlorine for cleaning and disinfection of handpieces with led lighting.

#### Sterilization

Follow the appliance manufacturer's instructions.

They must be sterilized, handpieces and bur remover.

Sterilize only clean and lubricated Handpieces.

Clean, lubricate and remove excess oil from the instrument as indicated above, place it in surgical-grade paper packaging (not supplied with the product) and sterilize in a steam autoclave for one cycle.

**135°C**



Sterilization time minimum 30 minutes at 121 °C or minimum 3 minutes at 135 °C, and equivalent temperature and time parameters may be used within this range. Maximum sterilization temperature 135 °C.



#### Warning

Sterilize before 1st use, product do not provided sterilized.

Not valid or recommend to the sterilization by ethylene oxide.

Do not sterilize in an oven.

Before sterilization, connect it to the delivery unit and activate it for a few seconds to eliminate the excess of oil.

If the excess of oil is not eliminated, it may cause burnt residue in the bearing.

## EQUIPMENT REUSE

### Spray lubrication

To carry out the lubrication of your equipment, we recommend the use of the Lubs product. Lubrication must be carried out by the posterior hole of Turbines as illustrated in fig. (a). Firmly fit the oil applicator nozzle into the hole indicated in fig. (a) and apply the spray for 1 or 2 seconds (fig. b) by holding the vial in vertical position.

Before of use, activate a handpiece during some seconds to eliminate the excess of oil. Cover the piece with absorbent paper to remove the excess of oil.



#### Attention

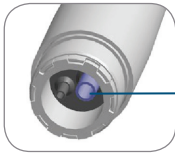
Handpieces no submitted to process of sterilization should be lubricated at least twice a day.



#### Warning

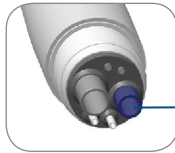
Before lubricating the Handpieces, remove the bit.

Terminal type  
fig. a BORDEN



Channel To  
Lubrication  
(Entry of air)

Terminal type  
MIDWEST



Channel To  
Lubrication  
(Entry of air)



The lubricant doesn't follow the product.



#### Attention:

The non-use of the lubricant will result in the loss of product warranty.

# INSPECTION AND MAINTENANCE

### Periodic Inspection

It is imperative that this equipment is regularly inspected to ensure operational safety and functional reliability.

The manufacturer is exempt from responsibility that the standard results do not conform in cases where the user does not carry out the inspection recommended by the manufacturer.

The inspection must be carried out, documented and maintained with the equipment by the user and is not part of the warranty of the same.

The table below gives a description of the main inspection items and recommended frequency.

Item	Inspection description	Recommended frequency
- Operating noise.	- Audibly, check the equipment for any abnormalities.	Daily
- Coupling.	<b>Bur:</b> - Check that the Bur bit is properly fixed according to fixing instructions. <b>Turbines:</b> - Make sure that Turbines is securely attached to the Delivery Unit terminal.	Daily
- Water leak.	- Check if the spray holes are leaking water.	Monthly
- Clogging.	- Check that the spray holes are not blocked.	Monthly

If problems are detected during the inspection, perform the procedures described in the Corrective Maintenance item.

### Preventive Maintenance

The equipment must be submitted to preventive maintenance with a maximum period of 3 years. For protecting your equipment, look for a Alliage' technical assistance for periodic reviews as preventive maintenances.

### Corrective Maintenance

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

#### 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 Alliage technician from the nearest resale, or ask through the Attendance Service Alliage: + 55 (16) 3512-1212.

## INSPECTION AND MAINTENANCE



### Warning

Handpieces may only be serviced in the field at the points described in the user manual. If they need to be disassembled, they must be taken to the manufacturer.

### Spray Regulation

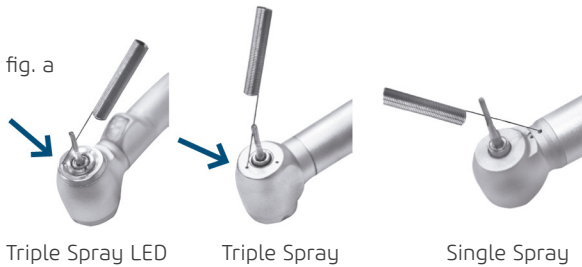
Spray cooling requires at least 50 cm<sup>3</sup>/min of water. An insufficient amount of water can lead to overheating of the tooth. With the terminal register open and the instrument working (with Bur), slowly close the register until the desired spray is achieved.

To prevent the product, check that there is no leakage in the handpiece, according to the method below:

Attach the handpiece to the appropriate hose, connect it with the activated spray. Check for a leak in the connection between the handpiece and the coupler.

### Unblocking of the hole of the spray

If the spray does not function, one of the reasons may be the blocking of the outlet holes, and in this case use the needle as per (a).



### Warning

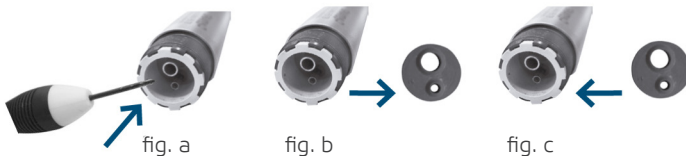
Do not use dental files or an exploratory tip to unblock the holes.

### Maintenance of the BORDEN Type Lining

Insert a screwdriver of 1.2mm in the face of the lining as per (fig. a), using it as a lever until removing it from the hole.

Remove the damaged lining (fig. b).

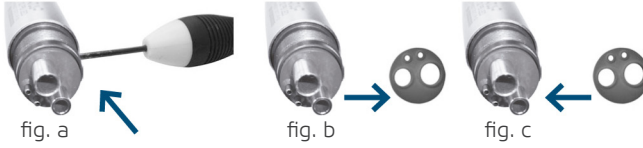
Place the new lining in the hole leaving the holes aligned, and with a screwdriver push the lining carefully downwards (fig. c).



## INSPECTION AND MAINTENANCE

### Maintenance of the MIDWEST with LED Type Lining:

Using the same procedure as BORDEN type.



## INSPECTION AND MAINTENANCE



### Attention

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. Handpieces may be serviced in the field only at the points described below. If they need to be disassembled, they must be taken to the manufacturer.

Problem	Probable cause	Solution
- The number of rotations of the turbine reduces suddenly (perceptible audibly by the change of sound).	- Poor air quality (eater on the lining). - The connection of the instrument / terminal is loose. - The cover of the instrument head is loose. - Reduction of the quantity of air. - Bearing damaged.	- Drain the air filter. - Tighten the connection. - Send to the authorized service. - Check the pressure. - Send to the authorized service.
- The cooling by the spray does not function.	- Terminal valve closed. - The holes of the spray are blocked up.	- Open the terminal valve. - Carefully unblock the hole of the spray with a needle. Note: Do not use dental files or an exploratory tip.
- The bur comes loose when functioning.	- Bur out of measure. - Bur poorly fastened.	- Replace as specified. - Fasten as per instructions.
- The bur does not go in.	- Bur out of measure.	- Replace as specified.

## EQUIPMENT'S WARRANTY

This equipment is covered by the warranty periods, terms and conditions contained in the Warranty Certificate that comes with the product.

## FINAL CONSIDERATIONS

Among the care you have to take with your equipment, the most important is regarding of the spare parts replacement.

To ensure the lifetime of your device, only replace original spare parts from Alliage. 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.









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