Non-Swivel Highspeed Handpiece

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Instructions For Use

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Technical Specifications

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1 Product Description
HighSpeed dental air driven Handpiece, 4-Hole connection, Push Button bur changing.

1.1 Purpose – Proper use

Purpose:
This highspeed handpiece is
• Only intended for dental treatment. Any other type of use or alteration to the product is impermissible and can be hazardous.
• A medical device according to relevant national statutory regulations.

Indications for use:
• The Lares Research 557 and 757 highspeed handpieces are intended to be used by licensed dental professionals to reduce hard tooth structure, carry out cavity preparations and perform restorative dentistry.

Proper use:
According to these regulations, this handpiece may only be used for the described application by a knowledgeable user. The following must be observed:
• The applicable health and safety regulations,
• The applicable accident prevention regulations,
• These instructions for use.

According to these regulations, it is the responsibility of the user to:
• Only use equipment that is operating correctly,
• Use the equipment for the proper purpose,
• Protect him or herself, the patient and third parties from danger, and
• Avoid contamination from the product.
Introduction

Dear User,

Congratulations on purchasing this Lares Research quality handpiece. You are now the owner of the most advanced highspeed handpiece available. By following these instructions you will be able to work smoothly, economically and safely.

For professional use only. This product is intended for use only by licensed dental professionals. Before operating handpiece, carefully read and follow these instructions.

Observe all cautions and warnings during use.

WARNING

SYMBOLS

Refer to the Chapter on Safety/Warning symbol.

Important information for users and service technicians

Action request

Can be sterilized with steam up to 135 °C (275 °F)
This document is intended for dentists and their assistants. The section on starting up is also intended for service technicians.

**CAUTION**

United States federal law restricts this device to sale by or on the order of a dentist. (21 CFR 801.109)

**WARNING**

For professional use only. This product is intended for use only by licensed dental professionals. Before operating handpiece, carefully read and follow these instructions. Observe all cautions and warnings during use.

### 3 Safety

#### 3.1 Description of safety instructions

<table>
<thead>
<tr>
<th>WARNING SYMBOL</th>
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<tr>
<td><img src="danger.png" alt="Danger Symbol" /></td>
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</table>

**Structure**

**DANGER**

The introduction describes the type and source of the hazard. This section describes the potential consequences of non-observance. The optional step includes necessary measures for hazard prevention.

Description of hazard levels

The safety instructions listed here, together with the three levels of danger, will help avert damage and injury.
3.2 Safety instructions

**WARNING**
Hazard for the care provider and the patient.
In the case of damage, irregular running noise, excessive vibration, unusual warming or when the bur cannot be held securely by the Push Button Chuck.

Do not use further and have handpiece serviced.
Premature wear and malfunctioning from improper storage during long periods of nonuse.

Reduced product life.

The handpiece should be cleaned, serviced and stored in a dry location, according to instructions, before long periods of nonuse.

**CAUTION**

**WARNING**

Hazard from contraindication.

If the soft tissue in the oral cavity is injured, the compressed air may enable septic substances to enter the tissue. Using the handpiece in the presence of an open wound may result in subcutaneous emphysema and accompanying serious patient health hazards, including permanent disability or death.

- Treatment must be discontinued with instruments operated by compressed air when soft tissue is damaged in the oral cavity.

**CAUTION**

Risk due to incorrectly stored handpiece.

Injury and infection caused by inadvertent bur contact.

Damage to chucking system from dropping the handpiece.

- After treatment, place the instrument properly in the handpiece nest, without the bur.

**WARNING**

S A F E T Y
CAUTION

Burning hazard from hot handpiece head and instrument’s head cap.
If the handpiece overheats, burns may arise in the oral area.
▶ Never contact soft tissue with the handpiece head.
▶ Do not use handpiece head as a cheek retractor.

CAUTION

Hazard from use as a light probe.
Do not use the device as a light probe since the rotating bur can cause injury.

Note:
For safety reasons, we recommend that the push button chuck system be checked before each use.
The following individuals are authorized to repair and service Lares Research products:

- Technicians at Lares Research
- Technicians specially trained by Lares Research

To ensure proper function, the highspeed handpiece must be set up according to the reprocessing (maintenance) methods described in this Lares Research Instructions for Use, and the care products and care systems described therein must be used.

**WARNING**

Service may only be carried out by Lares Research-trained repair technicians using original Lares Research replacement parts.

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**4 First Use**

**WARNING**

- Hazard from non-sterile handpieces.
- Infection danger to the care provider and patient.
  - Before first use and after each use, prepare and sterilize the handpiece.

**CAUTION**

- Damage from soiled and moist cooling air.
- Contaminated and moist cooling air can cause malfunctions and lead to premature bearing wear.
  - Make sure that the supply of cooling air is dry, clean and uncontaminated according to ISO 7494-2.
4.1 Check the amount of water that flows from the handpiece

**CAUTION**

Overheating of the tooth due to insufficient amount of cooling water. Insufficient spray water can cause the handpiece to overheat and damage the pulp and tooth.

- Adjust the water amount for the spray cooling to a minimum of 50 cm³/min (3.1 inch³/min).
- Check spray water ports and if necessary clean spray nozzles with the spray port cleaning tool (Cat No. 10541).

Drive pressure of 2.2 to 2.8 bar (32 to 40 psi) is required to operate the handpiece. The air consumption is 49 to 55 Nl/min (1.3 to 1.8 cfm). Drive air pressure of 2.2 bar (32 psi) is recommended.

- Attach the air gauge (cat. no. 10012) to the dental unit instrument supply tubing and check the pressure:
  - Drive air: 2.2 to 2.8 bar (32 to 40 psi) (minimum: 2.2 (32 bar psi))
  - Ensure the dental unit water pressure is set.
  - Water: 0.8 to 2.5 bar (11 to 36 psi)
  - Ensure that (if applicable) chip air pressure is set.
  - Chip air: 1.0 to 2.2 bar (14 to 32 psi)
5 Operation

Note: At the beginning of each workday, the water-conducting systems should be flushed for at least 2 minutes without the instrument being attached; due to the risk of contamination from reflux or back suction. Then attach the handpiece and flush an additional 20 to 30 seconds.

Transportation and storage conditions

5.1 Attach the Handpiece

WARNING

Release of the handpiece during treatment.
A handpiece that is not properly attached can release dental tubing during treatment.

Before each use, check if the handpiece is securely onto to the dental supply tubing by pulling on it.

CAUTION

If it is hazardous to start up the handpiece after it has been stored in a refrigerated environment. This can cause the handpiece to malfunction.

Prior to start-up, very cold products must be heated to a temperature of 20°C to 25°C (68°F to 77°F).

Align the supply tubes on the back of the handpiece with the holes in the dental supply tubing and turn the threaded sleeve on the dental supply tubing clockwise until sleeve is tight.
5.2 Remove the handpiece from dental supply tubing
- Hold the handpiece and turn the dental tubing sleeve counter clockwise until handpiece is released.

5.3 Insert the burs (carbides or diamonds)

**Note**
Only use carbide or diamond burs that correspond to ISO 1797-1 type 3 that are made of steel or hard metal and meet the following criteria:
- Shaft diameter: 1.59 to 1.60 mm (0.0626 to 0.0630 inches)
- Shaft clamping length: 11 mm
- Working part diameter: maximum 2 mm (0.080 inches)
- Do not use burs or diamonds with grooves on the shank.

(see figure 1)

**WARNING**
Use of impermissible burs.
Injury to the patient or damage to the handpiece.
- Only use burs that do not have visible identifying grooves on the shank.
(see figure 1 previous page)
- Never use carbide shank burs.
- Never use burs or tools with speed limit below maximum handpiece speed.

Observe the instructions for use, and use the burs properly.
WARNING

Injury from using worn drill bits or burs.
Burs could fall out during treatment and injure the patient.
▶ Never use burs with worn shanks.
▶ Never use burs with visible markings or damage on the shanks.

CAUTION

Danger of injury from burs (carbides or diamonds),
Infections or cuts.
▶ Wear gloves when handling burs.

WARNING

Hazard from worn or damaged push button chuck system.
The bur could fall out and cause injury.
▶ Pull on the bur to check that the chucking system is retaining the bur securely, use gloves or finger cots to prevent an injury or infection.
▶ Insert the bur gently into handpiece until it stops.
▶ Forcefully press the push button with your thumb.
▶ Push the bur all the way in until fully seated.
▶ Check that the bur is seated by pulling on it.
▶ Fully seat all burs completely into the chuck before use.
WARNING
Do not extend burs.
The bur could fall out and cause injury.

NOTE: Long fingernails may make bur changing difficult!

WARNING
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The bur could fall out and cause injury.

NOTE: Long fingernails may make bur changing difficult!

CAUTION
Hazard from rotating bur.
Lacerations.
Do not touch rotating bur!

5.4 Removing the carbide or diamond bur

CAUTION
Hazard from rotating bur.
Lacerations.
Do not touch rotating bur!

- Remove the bur from the handpiece after treatment to avoid injury or infection while storing it.
- After the bur has stopped rotating, press the push-button with your thumb and simultaneously pull out the bur.

NOTE:
Long fingernails may make bur changing difficult!
6 Reprocessing (Maintenance)

Limitations on Reprocessing
Repeated processing has minimal effect on these instruments. End of life is normally determined by wear and damage due to use. Have the highspeed handpiece inspected and serviced after 300 uses or once per year, whichever occurs first.

Note
Definition of Reprocessing - all necessary steps that must be completed between uses.
6.1 Maintenance at the site of use (chair side)

**WARNING**

Hazard from non-sterile products. There is a risk of infection from contaminated handpieces.

- Take suitable personal protective measures (i.e. exam gloves, eye protection, 5 µm particulate filter mask).

- Remove all residual cement, composite or blood without delay.
- Clean and maintain the handpiece as soon as possible after treatment.
- Remove the bur from the handpiece.
- The handpiece must be dry when transported for cleaning and sterilizing.
- Do not submerge or place it in a solution or similar.

6.2 Cleaning

**CAUTION**

Malfunctions from cleaning in the ultrasonic unit. Ultrasonic cleaning may cause severe damage to the product.

- Only clean manually.

6.2.1 Cleaning: Manual cleaning - external

Accessories required:

- Warm tap water 40 °C ± 5 °C (104 °F ± 10 °F)
- Brush, e.g. medium-hard toothbrush or comparable nylon-bristled dental instrument cleaning brush.
Manual cleaning process:
Handpiece disassembly not required.
- Rinse product under warm flowing tap water to remove gross soil.
- Brush off and rinse under flowing warm tap water to remove all visible soil.
- Use filtered pressurized air to completely dry handpiece. If soil is still visible when dry, repeat the initial cleaning steps.
- Apply Lares One-Step Handpiece Conditioner using the appropriate nozzle by attaching it to the handpiece and applying the conditioner for two seconds over a towel or sink.
- Install a test bar in handpiece and operate the handpiece for 45 seconds at full speed to expel excess lubricant.
- Remove excess conditioner from the exterior of handpiece with a towel.
- Remove the test bar from the handpiece.
- Cover the product with clean towel.

6.2.2 Cleaning: Automated external cleaning
Not applicable.

6.2.3 Cleaning: Manual cleaning of the inside
Not applicable.

6.2.4 Cleaning: Automated internal cleaning
Not applicable.
6.3 Disinfection

6.3.1 Disinfection: Manual disinfection - external
Not Applicable

6.3.2 Disinfection: Manual disinfection - internal
Not Applicable

6.3.3 Disinfection: Machine disinfection - external and internal
Not Applicable

6.4 Drying
Manual Drying
- Blow off the outside and inside with compressed air until water drops are no longer visible.

Automatic Drying
Not Applicable
6.5 Care products and systems - Servicing

⚠️ CAUTION ⚠️

Sharp burs in the handpiece.
Risk of injury from sharp or pointed burs.
► Remove bur before servicing.

⚠️ CAUTION ⚠️

Premature wear and malfunctions from improper servicing and care.
Reduced product life.
► Perform proper care regularly!

Note
Lares Research only guarantees that its products will function properly when the care products used are those listed as accessories, as they were tested for proper use on our products.

6.5.1 Care products and systems - Servicing:
Care with Lares One-Step Handpiece Conditioner

Lares Research recommends applying handpiece conditioner after each time it is used, i.e. after each cleaning and before each sterilization.
► Remove bur.
► Use the appropriate nozzle attached to the handpiece conditioner.
► Insert the nozzle into the back of the handpiece and apply conditioner for two seconds while holding handpiece over a towel or sink.
► Insert a test bar in handpiece.
► Operate the handpiece for 45 seconds at full speed to expel excess lubricant.
6.5.1 Care products and systems - Servicing: (Continued)
- Remove excess conditioner from the exterior of handpiece with a towel.
- Remove the test bar from the handpiece.
- Cover the product with clean towel.

6.5.2 Inspection and Function Testing:
All handpieces: Visually inspect for damage and wear. Have serviced or discard damaged handpieces.

6.6 Packaging Prior to Autoclaving
Note
The autoclave bag must be large enough for the handpiece so that the bag is not stretched.
The quality and use of the autoclave bag must satisfy applicable standards, be cleared to market and be suitable for the autoclave procedure!
- Seal each handpiece individually in an autoclave bag!
6.7 Autoclaving
Process handpieces in an autoclave in accordance with EN 13060/ISO 17665-1

**CAUTION**
Premature wear and malfunctions from improper servicing and care.
Reduced product life.
- Before each autoclave cycle, service the handpiece with Lares One-Step Handpiece Conditioner.

Contact corrosion due to moisture.
Leaving handpiece in autoclave after cycle has finished may damage the product.
- Immediately remove the handpiece from the autoclave after the sterilization cycle to reduce condensation!

Do not use Flash Sterilization Techniques. These techniques are not validated for efficacy and damage to the handpiece may result.

**CAUTION**

Prior to each autoclave cycle, service the handpiece with Lares One-Step Handpiece Conditioner.

Contact corrosion due to moisture.
Leaving handpiece in autoclave after cycle has finished may damage the product.
- Immediately remove the handpiece from the autoclave after the sterilization cycle to reduce condensation!

Do not use Flash Sterilization Techniques. These techniques are not validated for efficacy and damage to the handpiece may result.
6.8 Storage After Autoclaving

Cleaned and autoclaved handpieces should be stored protected from dust with minimum exposure to germs in a dry and cool space.

**Note**

The instructions provided above have been validated by Lares Research as being CAPABLE of preparing a handpiece for re-use. It remains the responsibility of the practitioner to ensure that the processing was actually performed using equipment, materials and personnel in the practitioner’s facility to achieve the desired result. This requires validation and routine monitoring of the process, as specified by the autoclave manufacturer.

Use only FDA cleared equipment and materials for autoclaving and routine monitoring.
7 Troubleshooting

The inconvenience of handpiece downtime can often be avoided by following the common sense problem diagnosis and corrective action procedures that follow. If the problem cannot be corrected using these procedures, return the handpiece directly to Lares Research. (Outside U.S.A. return to your authorized Lares distributor). Do not attempt to perform procedures other than those described.
7.1 Excessively loud or shrill operating noise or high vibration, chatter.
Bent or damaged bur; replace bur with new one and operate handpiece.

**CAUTION**

Hazard from bent, rusted or oversize bur.
Using bent, rusted or oversize burs may cause loud noise or vibration and also may cause bur to be expelled by handpiece.
- Replace bur if loud noise or vibrations continue during operation.
- Discard damaged or defective bur.

7.2 Dry bearings due to lack of lubrication.
- Lubricate handpiece with Lares One-Step Handpiece Conditioner.
- Hose kinked, twisted or blocked slowing turbine speed.
- Straighten hose or replace if blocked.
- Worn or damaged bearings.
- Replace turbine.

7.3 Bur slips/walks out of chuck during operation.
Using incompatible burs with undersize shank diameters (at or worn below ISO 1.59-1.60mm); visual inspect for wear or damage.
- Discard worn burs. Purchase burs with compliant shank diameters.
Using incompatible burs with carbide shank.
- Discontinue use of carbide shank burs. Purchase burs with steel shank materials.

Using incompatible burs with identifying grooves on the shank.
- Discontinue use of grooved burs. Purchase burs without identifying grooves.

Chuck is worn from long use.
- Purchase replacement push button chuck and install at chair-side or have handpieces repaired.

7.4 Low rpm and poor cutting power.
- Hose kinked, twisted or leaking air; inspect entire length of hose.
- Straighten hose or replace if leaking.

Insufficient air pressure at handpiece; check air pressure at end of coupler using Lares air pressure gage.
- Adjust drive air pressure to 32-40 psi (220 - 275 kPa) at the end of handpiece tubing.

Dry bearings due to lack of lubrication.
- Lubricate with Lares One-Step Handpiece Conditioner.

Worn or damaged bur or diamond; Replace bur of diamond and test cutting power.
- Discard worn or defective bur.

Turbine contaminated with debris due to dirty air supply; flush repeatedly with Lares One-Step Handpiece Conditioner.
- Inspect air system dryers & filters for contamination; install air system filtration if not present.
7.5 Intermittent or spitting spray, insufficient spray pattern or poor water atomization.

- Insufficient water flow.
  - Adjust water flow valve to increase water flow.
- Clogged water or air ports.
  - Clean out water spray ports or diffuser with spray port cleaning tool (cat. no. 10541) included with the handpiece.
- Clogged dental unit water or air filters or screens.
  - Inspect and clean or replace clogged filters or screens.
- Hose kinked, twisted or leaking.
  - Straighten hose or replace if leaking.

**CAUTION**

Hazard from insufficient spray water.
Overheating of the medical device and damage to the tooth.
- Check the spray water channels and clean the spray nozzles with the spray port cleaning tool (cat. no. 10541) if necessary.
- Do not cut tooth without water spray.
7.6 Water leak at dental supply tubing connection.  
Loose dental supply tubing connection.  
▶ Make sure dental supply tubing sleeve is securely tightened on handpiece.  
Damaged handpiece gasket.  
▶ Replace handpiece gasket.

7.10 Light output not sufficiently white (bright)  
Optic light guide output obscured by contamination.  
▶ Clean optic light element at front and rear of handpiece and end of swivel coupler with alcohol and cotton swab.  
Light source bulb output discolored due to low intensity setting.  
▶ Replace source bulb or increase source intensity setting.

7.7 Light output not sufficiently white (bright)  
Optic light guide output obscured by contamination.  
▶ Clean optic light element at front and rear of handpiece and end of tubing optic with alcohol and cotton swab.  
Light source bulb output discolored due to low intensity setting.  
▶ Replace source bulb or increase source intensity setting.

REPAIR SERVICE  
For factory repair, send your handpiece directly to Lares Research, Attention: Technical Services Department, shipping prepaid (in USA only). For repair outside the USA, send your handpieces to your authorized Lares distributor.
Use of replacement or repair parts not manufactured by Lares Research may void this warranty. No liability is assumed when defects or their consequences are derived from manipulations or changes to the product by the customer or a third party.

Service warranty claims will only be accepted when product is submitted directly to Lares Research, attention: Technical service department, shipping prepaid (in USA only). The serial number must be clearly visible on the product. For warranty repairs outside the USA, contact your local authorized Lares distributor.

Limited Warranty terms and conditions

The following warranty conditions apply to this Lares Research high-speed handpiece: Lares provides the end customer with a warranty of proper function and guarantees zero defects in respect of material and processing for a period of 12 months from date of purchase, subject to the following conditions: In case of justified complaints, Lares will honor its warranty with a free replacement or repair performed by trained Lares technicians. Other claims of any nature whatsoever, in particular with respect to compensation, are excluded. In the event of default, gross negligence or intent, this shall only apply in the absence of mandatory legal regulations to the contrary. Lares will not warranty and cannot be held liable for defects and their consequences that have arisen or may arise from natural wear, improper handling, cleaning or maintenance, non-compliance with operating, maintenance or connection instructions, mineral deposits or corrosion, contaminated air or water supplies or chemical or electrical factors deemed abnormal or impermissible in accordance with Lares’ instructions for use or other manufacturer’s instructions.
The Lares handpiece you purchased is a highly calibrated product, designed to function properly only with genuine parts manufactured by Lares. Use of parts not manufactured by Lares is strictly prohibited.

**WARNING**

Hazard from non-Lares replacement parts.

Use of non-genuine parts not manufactured by Lares will void the Lares Limited Warranty, and their use may cause malfunction that could lead to serious patient injury.

- This handpiece performs properly when maintenance and repair are performed with genuine Lares parts installed in accordance with the instructions accompanying the parts.

Please contact Lares or your authorized distributor for all maintenance and repair questions.