Instructions For Use

Swivel Highspeed Handpiece

Manufactured by:
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1 Product Description
Highspeed Handpiece, Swivel, Push Button

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. The handpiece is intended for the following uses: Removal of carious material, cavities and crown preparations, removal of fillings, processing of tooth and restoration surfaces.
• A medical device according to relevant national statutory regulations.

Indications for Use:
The Lares Research 557 and 757 handpieces are intended to be used by a licensed dental professional 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 licensed dental professional. 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.

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**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.

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**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.
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.

**WARNING**

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

**CAUTION**

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

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

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.

⚠️ WARNING
Indicates a hazardous situation that can cause death or serious injury.

⚠️ CAUTION
Indicates a hazardous situation that can cause damage to property or mild to moderate injuries.
3.2 Safety instructions

**DANGER**

Indicates a hazardous situation that can directly cause death or serious injury.

**WARNING**

Hazards 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 handpiece.

- Do not use further and have handpiece serviced.

**DANGER**

Indicates a hazardous situation that can directly cause death or serious injury.

**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 with instruments operated by compressed air must be discontinued when soft tissue is damaged in the oral cavity.
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**
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 handpiece properly in the handpiece nest, without the bur.

**CAUTION**
Burning hazard from hot handpiece head and instruments 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.
For safety reasons, we recommend that the push button chuck system be checked before each use.

Note:

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

CAUTION

WARNING

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

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. Lares Research recommends specifying a service interval to clean, service and check the functioning of the handpiece. This service interval depends on the frequency of use and should be adjusted accordingly.
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 Attach the Lares MX swivel coupler.

*Screw the Lares MX swivel/MaxPower LED coupler onto the dental unit hose and tighten with the wrench.*

*Rotate the spray ring on the Lares MX swivel/MaxPower LED coupler (some models) in order to regulate the amount of water.*

4.2 Check the amount of water that flows from the handpiece.

**CAUTION**

Overheating of the tooth due to insufficient amount of cooling water.
Insufficient cooling of tooth structure during restoration can lead to dental nerve necrosis and tooth loss.

*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).

4.3 Check the supply pressures

<table>
<thead>
<tr>
<th>CAUTION</th>
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<tbody>
<tr>
<td>Compressed air connections on device.</td>
</tr>
<tr>
<td>Dirty and moist compressed air causes premature bearing wear.</td>
</tr>
<tr>
<td>Ensure dry, clean and uncontaminated compressed air according to ISO 7494-2.</td>
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</table>

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. 10062) to the Lares MX swivel/MaxPower LED coupler 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)
Accelerated materials in unanticipated directions. The rotation of the handpiece has the potential to accelerate materials at high velocities in unanticipated directions that could affect the eye. The materials can be hard and sharp with the potential to damage unprotected eye. Use proper eye protection for the practitioner, staff and patient.

WARNING

4.4 Check the swivel coupler O-rings

CAUTION

Missing or damaged O-rings. Malfunctions and premature failure. Make sure that all O-rings on the coupling are undamaged.

Number of available O-rings: 5
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 for an additional 20-30 seconds.

Transportation and storage conditions

⚠️ CAUTION

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).

5.1 Attach the handpiece

⚠️ WARNING


A handpiece that is not properly locked in place can release from the Lares MX swivel/MaxPower LED coupler during treatment.

Before each use, check if the handpiece is securely locked onto the Lares MX swivel/MaxPower LED coupler by pulling on it.
Damage from incomplete coupling. 
Incomplete coupling (especially during the afterglow period) can damage the high-pressure lamp or the LED of a Lares MX swivel/MaxPower LED coupler or reduce its service life.

- Check the seat of the handpiece on the coupling by pulling on it.

Mount the handpiece completely on the Lares MX swivel/MaxPower LED coupler and push it backward until the coupler audibly locks in the handpiece.
- Pull on it to make sure that the handpiece is securely affixed to the coupler.

CAUTION
Premature wear due to leaving handpiece connected to coupler for extended periods.
Leaving handpiece attached to coupler for extended periods may cause water deposits and corrosion, which may reduce its service life.
- Detach handpiece from swivel coupler at the end of each day.

5.2 Remove the handpiece from coupler.
- Hold the coupling tight, pull the handpiece off while twisting slightly.
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).

Only use burs that do not have visible identifying grooves on the shank. (see figure previous page)
Never use carbide shank burs.
Never use burs or tools with speed limit below maximum handpiece speed.

> Use of impermissible burs.
Injury to the patient or damage to the handpiece.
Observe the instructions for use, and use the burs properly.

> Only use burs that do not have visible identifying grooves on the shank.
(see figure previous page)
> Never use carbide shank burs.
> Never use burs or tools with speed limit below maximum handpiece speed.
### 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!

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

5.4 Removing the carbide or diamond bur
5.4 Removing the carbide or diamond bur

⚠️ CAUTION

- Hazard from push button getting hot.
- Burns to patient tissue and damage to chucking system.
- Never press button while the bur is rotating.

- 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.

6 Preprocessing (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 high-speed handpiece inspected and serviced after 300 uses or once per year, whichever occurs first.

Note
Definition of Preprocessing - 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.

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

**CAUTION**

Malfunctioning from using a disinfectant bath or disinfectant containing chlorine. Handpiece damage may result.

Never disinfect in a thermo-disinfector or manually.

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

吹 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

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 handpiece. 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.
The Lares Research handpiece has a maximum temperature resistance up to 135 °C (275 °F).

Autoclave with gravitation process for at least 15 minutes at 132 °C ± 1 °C (270 °F ± 1.8 °F).

Drying time: 15 minutes minimum.

When autoclaving multiple handpieces in one autoclave cycle ensure that the autoclave’s maximum load is not exceeded. Follow the autoclave manufacturer’s instructions for Use.

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 practitioners 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.

**WARNING**

Cross Infection Hazard,

Do not deviate from specified cleaning, autoclaving and storage procedures or patient and staff illness may occur.
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 Water Leak at Swivel Coupler Connection
Replacing the O-rings on the swivel coupling.

Note
The O-ring on the coupling may only be lubricated with Lares One-Step Handpiece Conditioner spray.
- Press the O-ring between your fingers to form a loop.
- Push the O-ring to the front, and remove it.
- Repeat until all o-rings are removed.
- Insert new O-rings into the grooves.

CAUTION
Hazard from improper care of the O-rings.
Malfunctions or complete failure of the handpiece.
- Do not use Vaseline or other grease or oil on O-rings.
7.2 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.

7.3 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.

7.4 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 handpiece repaired.

7.5 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.
7.6 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.

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.
7.7 Handpiece fails to turn freely or engage easily on swivel coupler.
Swivel coupler contaminated with debris or other foreign matter.
- Clean swivel coupler with alcohol. Dry thoroughly and re-lubricate with Lares One-Step Handpiece Conditioner.
Lack of lubrication
- Lubricate with Lares One-Step Handpiece Conditioner.
Dented or bent swivel coupler
- Replace swivel coupler.
Damaged swivel coupler O-rings.
- Replace O-rings and lubricate coupler.

7.8 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 lamp output discolored due to low intensity setting.
- Replace source lamp or increase source intensity setting.
Light source beyond service life.
- Replace light source bulb or lamp.

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.
Limited Warranty terms and conditions

The following warranty conditions apply to this Lares Research highspeed 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.

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. The serial number must be clearly visible on the product. For warranty repairs outside the USA, contact your local authorized Lares distributor.
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.

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

### 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.