

# 3M ESPE

## Elipar™ 2500

Halogen Curing Light

- ⓕ Lampe de photopolymérisation à halogène
- ⓔ Lámpara de fotopolimerizado de luz halógena
- Ⓟ Luz halógena de polimerização
- Ⓚ 할로겐 큐어링 라이트
- ⓇC 鹵素光機
- Ⓣ เครื่องฉายแสง

Instructions for Use for M 5560

Directives d'utilisation du modèle M5560

Instrucciones para uso del M 5560

Instruções de Uso - Modelo 5560

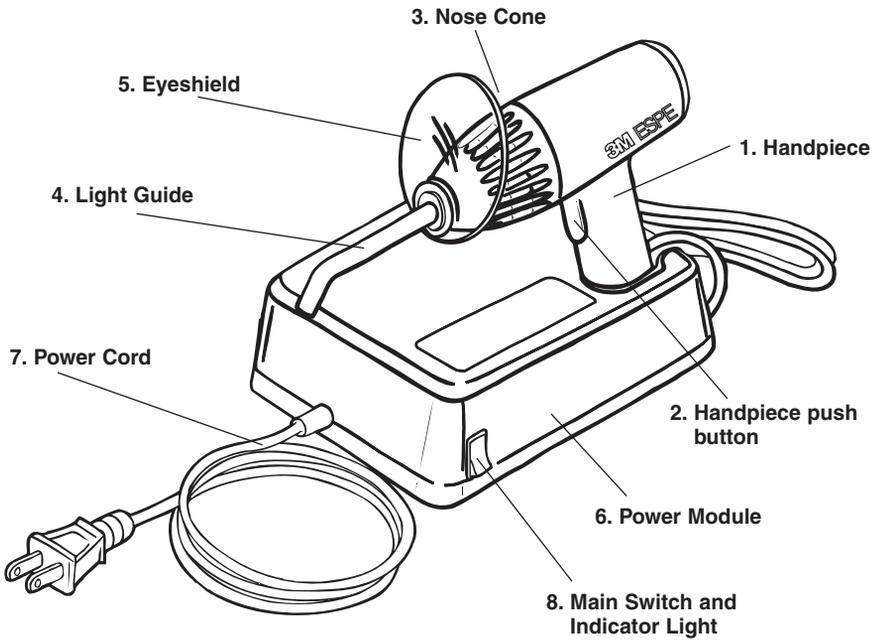
**M5560** 사용 설명서

M 5560 使用說明

ขั้นตอนการใช้งาน M 5560

## TABLE OF CONTENTS

	<b>Page</b>
Safety Information .....	3
Diagram of Light .....	3
Glossary of Symbols .....	3
Intended Use .....	4
Caution Statements .....	4
Assembly .....	4
Operating Instructions .....	4
Cleaning Instructions .....	5
Bulb Replacement .....	6
Light Guide Replacement .....	6
Troubleshooting .....	7
Curing Performance Test .....	7
Repair Information .....	7
Accessories and Spare Parts .....	7
Technical Details .....	7
Warranty .....	8



Read and understand all safety information before operating

### Glossary of Symbols



Attention, Consult Accompanying Documents



Alternating Current.



OFF (Power: Disconnection from the Main).



ON (Power: Connection to the Main. Green indicator light for ON position).



Type BF Equipment



Class II Equipment - double insulated



Dangerous Voltage



Fuse

## Intended Use:

The Elipar 2500, manufactured for 3M ESPE, is a high intensity source of blue light (400-500 nm) designed and tested for polymerizing visible light-cure dental materials such as Z100™ Restorative, Single Bond and Vitremer™ Core Buildup/Restorative, manufactured by 3M ESPE. It consists of a power module with handpiece holder, a handpiece that contains the light source, and a fused glass fiber optic light guide. It has been designed for table top use or wall mount. Consult any restorative manufacturer's instructions for proper technique and curing times. If not using 3M ESPE products, perform a curing performance test as outlined on page 7 of this instruction booklet.

**(Note: For mounting, follow the instructions included with the mounting kit.)**

### CAUTION

- **The fiber optic light guide is provided in a nonsterile condition and must be sterilized prior to use. Refer to Cleaning Instructions.**
- **Do not immerse unit in water. Refer to Cleaning Instructions.**
- **Prolonged exposure may cause retinal damage.**
- **Prolonged exposure to an area may cause oral tissue trauma.**
- **The use of an eyeshield or protective glasses that effectively block light below 500 nm wavelength is recommended for dental staff.**
- **Do not look directly at the light guide and do not stare at light reflected from tooth surface.**
- **Do not expose light to persons with extreme brightness sensitivity caused by cataract surgery or photosensitizing drugs.**
- **Avoid close or prolonged viewing of the curing process.**
- **This product has not been designed for use with flammable anesthetics or in other explosive environments.**
- **If it is necessary to change the line plug to fit your outlet type, contact a qualified service person in your area.**
- **Handpiece bulb, fuse, light guide and eyeshield are the only user serviceable components.**
- **The power module has dangerous internal voltage. It can only be serviced by an authorized service center.**
- **Do not turn off the main power switch until the fan has stopped in order to allow the unit to cool down.**
- **Allow the light guide to cool to room temperature before handling to avoid risk of burn.**
- **Before attempting bulb replacement, make sure the cooling fan has completed the cooling cycle and has stopped rotating to avoid risk of burn from bulb. Turn off the main switch. Disconnect the power cord from the wall outlet.**
- **Do not attempt to replace any cracked or scratched optical filter or heat filter. It is important that the heat filter be properly placed to avoid any tissue trauma. Send curing light to a qualified service center.**
- **Do not operate the unit without the optical filter and heat filter.**

## Assembly

1. Slide the eyeshield onto the light guide.
2. Insert the straight end of the light guide into the chuck mechanism in the front cover of the handpiece until it stops solidly. The light guide may be rotated to any convenient position by rotating the nose cone.
3. Connect the power cord into the correct supply outlet; refer to the specification label on the power module.
4. Place the handpiece in the handpiece holder.

## Operating Instructions

### CAUTION

**Consult the restorative manufacturer's instructions for proper technique and curing times.**

## Operation:

1. Press the power (green) switch on the side of the base unit to the "I" position. The green indicator light will glow, and the unit is now ready for use.
2. Rotate the nose cone to optimize the position of the light guide and hold the light guide no further than 2 mm from the dental material.

**NOTE: When a colorless transparent matrix is used to provide anatomical form,** the light guide may be placed directly against the matrix a few seconds after polymerization has begun to avoid movement of material.

3. Depress the handpiece push-button to activate the bulb. A single audible tone will be heard every 10 seconds. Depressing the handpiece push-button a second time will immediately deactivate the bulb.

**NOTE: The handpiece cooling fan will automatically start at the beginning of,** and continue throughout, the curing time cycle. It will continue running until the unit has cooled sufficiently.

4. When the curing operation is complete, return the handpiece to the holder.
5. To turn the base unit off, depress the power (green) switch on the side of the base unit to the "0" position. The green indicator light will turn off.

## ROUTINE CARE



### CAUTION

**Allow the light guide to cool to room temperature before handling to avoid risk of burn.**

## Plastic

**Cleaning/Disinfecting** - Turn off the main power (green) switch and unplug the unit before cleaning. The base unit and handpiece may be cleaned by wiping with a soft cloth moistened slightly with alcohol or disinfectant. Be careful to prevent entry of liquid into components. Always wipe off any excess alcohol or disinfectant.

**NOTE: Disinfectants with basic glutaraldehyde as an active ingredient are not recommended.**

**Alcohol should be less than 30% concentration.**

## Light Guide

1. Carefully handle the light guide to avoid damaging the polished ends.
2. Periodically examine both ends of the light guide. If they are dull or white, check the cure performance using the Curing Performance Test described in this manual.
3. Do not contaminate the light guide with unpolymerized restorative material to avoid diminished light transmission.
4. The light guide and eyeshield should be disinfected after each use to prevent transfer of microorganisms between patients.

**Cold Sterilization** - Soak the light guide in an alkaline glutaraldehyde type of cold sterilizing solution. Follow manufacturer's instructions regarding dilution and recommended exposure times. Use of other types of solutions (e.g., phenolics) may cause decreased output intensity.

**Autoclave** - Follow manufacturer's instructions regarding exposure times. Generally a minimum of 15 minutes at 121° C (252° F). 15 psi (1000hPa) is recommended. Do not autoclave the light guide at temperatures above 136° C.

**Eyeshield** - Disassemble the rubber O-ring from the shield. Clean any debris off the surface with a dull instrument. Soak shield in an alkaline glutaraldehyde type of cold sterilizing solution for the minimum amount of time recommended per manufacturer.

## Bulb Replacement



### CAUTION

To avoid risk of burn, make sure the cooling fan has completed the cooling cycle and has stopped rotating. Turn off the main switch. Disconnect the power cord from the wall outlet.

Do not attempt to replace any filters. Improper placement or missing a heat filter could lead to tissue burn. Send curing light to an authorized service center.

1. Remove the nose cone by placing the thumb on a textured snap-in tab located between two slits and the forefinger on the other textured snap-in tab located between two slits. Gently squeeze the tabs while pulling downward at an angle to separate the nose cone from the handpiece.
2. Grasp the outside rim of the reflector and pull it forward, separating the bulb pins from the socket. The bulb and integral reflector are changed as a unit.

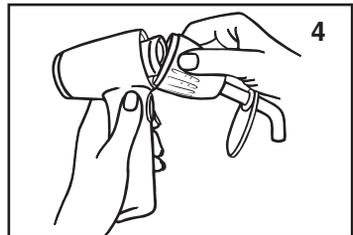
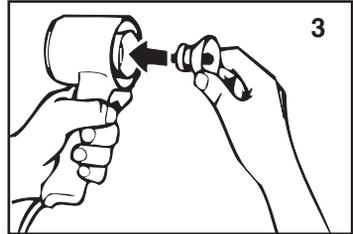
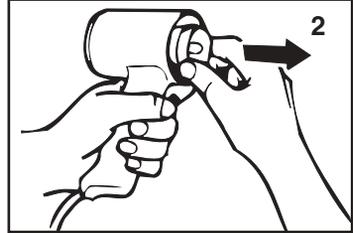
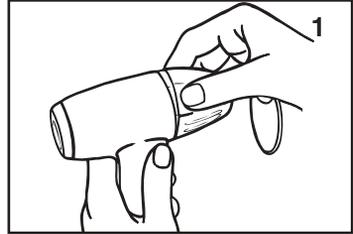
**Note: Inspect the optical filter in the nose cone.**

**Remove dust or other contaminants with a soft cotton swab. A chipped or cracked filter should be replaced immediately by an authorized service center.**

3. Hold the new bulb/reflector unit by the reflector rim. Align the bulb pins and push the unit securely into the socket. To ensure expected performance and safety, replace bulb with 3M ESPE part number 78-8131-1662-7 only.

**Note: Fingerprints on the inside of the reflector or the bulb can adversely affect performance. Remove fingerprints with a cotton swab moistened slightly with alcohol.**

4. Replace the nose cone by holding it at a slight angle to the handpiece. Insert the side opposite the snap-in tabs into the groove of the handpiece. While gently squeezing the tabs, rotate the nose cone to align it into the handpiece until it is fully seated and snaps into position.
5. Release the snap-in tabs and rotate the nose cone on the handpiece to assure it is correctly positioned and rotates freely.



## Light Guide Replacement:



### CAUTION

Allow unit to cool sufficiently before replacing the light guide. The metal sleeve of light guide could still be very hot.

1. Hold the handpiece by placing one hand firmly around the nose cone area.
2. Grasp the light guide firmly with the other hand.
3. Pull light guide straight out of nose cone receptacle.
4. Push replacement light guide firmly into nose cone receptacle.

## Troubleshooting:

### Condition

Main indicator light inoperative

Curing bulb inoperative

No time signal tone

Reduced curing performance

Handpiece turns on, immediately hear

5 beeps and handpiece shuts off

Unit overheats. Five consecutive beeps, bulb shuts off during curing cycle

### Remedy

1. Check electrical supply.
2. Send unit to an authorized service center.
1. Replace bulb.
2. Send unit to an authorized service center.
1. Send unit to an authorized service center.
1. Check intensity with hand held radiometer.
2. Clean light guide exit tip. Consult cleaning instructions.
3. Clean optical filter in nose cone with a soft cotton swab.
4. Check intensity output.
5. Check optical filter in nose cone for chips or cracks. If chips or cracks are present on optical filter, send unit to an authorized service center.
6. Replace light guide.
7. Replace bulb.
8. Check intensity output.
9. Send unit to an authorized service center.
1. Fan possibly blocked, therefore send unit to an authorized service center.
1. Let unit cool down for 10 minutes. Restart bulb. If, after a few minutes the bulb shuts off again after 5-beep signal, or if the bulb will not restart, send the unit to an authorized service center.

## Curing Performance Test

Lay a clean polyester matrix band on white paper and place a clear or white plastic form on the band. The form should be a cylindrical hole 3-6 mm diameter through material 2.0-2.5 mm thick. Pack restorative material into the form, cover with polyester and press flat. Direct the curing light at the top surface (from less than 2 mm) of the sample and cure for the recommended time. Remove the polyester strips and examine the condition of cure. The bottom surface should appear glassy and resist scratching by a sharp explorer, indicating adequate cure. (Consult manufacturer's instructions for other criteria for correct cure).

If the surface is soft or dull, repeat the test procedure using incrementally longer curing times until adequate cure is attained, and adjust curing time accordingly. If the adjusted time exceeds 200% of normal, verify that the restorative material has not degenerated, or correct curing light problems as directed in the Troubleshooting table.

## Repair

Obtain qualified repair service only from 3M ESPE authorized service facilities.

Contact:

3M Health Care Service Center  
Suite 200 Bldg. 502  
3350 Granada Ave. North  
Oakdale, MN 55128  
(800) 292-6298

**Replacement Parts and Accessories** - Can be purchased from authorized dealer

Item	3M ESPE Stock Number
Bulb/12V, 75W	78-8131-1662-7
Light guide - 8 mm diameter	78-8131-1657-7
Light guide - 13 mm diameter	78-8131-1658-5
Mounting Kit	78-8131-1663-5
Eyeshield - 8 mm	78-8131-1660-1
Eyeshield - 13mm	78-8131-1661-9

## Specifications

**Note:** This manual is used for all versions of the 3M ESPE Elipar 2500, M5560.

### Operation of equipment - Continuous Duty

- Unit will operate continuously for 5 minutes before automatic shutoff, at which time the unit may be restarted immediately

**Light Source:**

- 75 watt tungsten/halogen bulb. Average life 4000 cycles at 20 seconds each.
- Optically filtered light output for peak power in 400-500 nm band.
- Fused fiber-optic light guide.
- 13 mm and 8 mm diameter optional light guide aperture

**Electrical:**

- Electronically regulated bulb voltage
- 106 VA input power
- Fuse: See product name plate for correct rating. 
- Model versions for worldwide electrical supply characteristics. See product nameplate for correct supply voltage.

Electrical versions available: 50/60 Hz  
240V; 230V; 220V; 120V; 110V; 100V

**Note: Be sure your unit is correctly rated for your specific electrical supply**

- Unit is double insulated and uses plug configurations according to individual primary country specifications.

**Protective features:**

- Thermal overload protector in handpiece.
- Optical filter blocks light outside peak curing band.
- Protection against electrical shock (Type BF) 
- Double insulated power supply 
- Low voltage handpiece circuit.
- Protection against ingress of water: ordinary

**Transport and Storage Conditions:**

- Ambient temperature range -40° C to +70° C
- Relative humidity range of 10% to 80%, excluding condensation
- Atmospheric pressure of 500 hPa to 1060 hPa

**Dimensions:**

- Power module: 2.7 in. x 6.8 in. x 5.5 in. (69 mm x 173 mm x 141 mm) (2.7kg)
- Handpiece: 6.6 in. x 2.1 in. x 5.5 in. (167 mm x 53 mm x 139 mm) (0.3kg)

**Safety Regulations:**

M5560 fulfills the following standards:

- UL Standard 2601-1 /CSA C22.2 No. 601.1/EN60601-1
- Other country specific deviations to IEC601-1 through CB certification.

**Electro Magnetical Compatibility**

M5560 complies with IEC 601-1-2 Draft 2

No person is authorized to provide any information which deviates from the information provided in this instruction sheet.

**Warranty**

3M ESPE warrants this product will be free from defects in material and manufacture for a period of two years from date of purchase. 3M ESPE MAKES NO OTHER WARRANTIES INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. User is responsible for determining the suitability of the product for user's application. If this product is defective within the warranty period, your exclusive remedy and 3M ESPE's sole obligation shall be repair or replacement of the unit if the unit was new when it was purchased and it is promptly returned to the following address:

3M Health Care Service Center  
Suite 200, Bldg. 502  
3350 Granada Ave. North  
Oakdale, MN 55128  
800 292 -6298

**This warranty does not cover lamps and fiber optic light guides.**

**Limitation of Liability**

Except where prohibited by law, 3M ESPE will not be liable for any loss or damage arising from this product, whether direct, indirect, special, incidental or consequential, regardless of the theory asserted, including warranty, contract, negligence or strict liability.