

# Elipar™ S10

## LED Curing Light



## Technical Data Sheet

### Introduction

A complete cure of adhesives, filling materials and cements is essential to the long-term success of restorations. However, curing can be challenging in some situations. An inadequate cure may result in decreased strength and stability of the final result, as well as restoration failure.

### **The Elipar™ S10 LED Curing Light from 3M ESPE is designed to give you confidence during any curing procedure.**

3M ESPE's more than 30 years of experience in developing curing light technology, along with its scientific expertise in curing dental materials, has culminated in a new curing light that:

- Uses latest high-power LED technology to provide 1200 mW/cm<sup>2</sup> intensity—up to double the optical power of other market-leading devices tested.
- Features a wider 10 mm light guide that illuminates up to 80% more curing surface than traditional LED lights tested, and a 3 mm light guide for easy access and curing in more confined areas.
- Offers up to 3 times more intensity with the 10 mm light guide at the clinically relevant distance of 7 mm compared to leading devices tested using similar light guides.
- Cures compatible materials in half the manufacturer's recommended cure time.

### **Like no other... inside and out.**

In addition to powerful and efficient performance, the Elipar S10 light has an outstanding design, too. With its one-piece stainless steel body, it sets new standards for durability and hygiene.

- The stainless steel exterior is virtually unbreakable, and sealed, so your investment can last even longer.
- It offers a sleek, high-tech look and ergonomic design.
- Unmatched features add convenience and versatility in use.

**3M ESPE**

# Redefining depth-of-cure

The best curing technique requires positioning the light guide as close as possible to the dental material in order to maximize light intensity. In some clinical situations — like curing the bottom layer in a deep cavity — close positioning is not possible. In that case, a typical distance between light guide and material may be about 7 mm.

## By design, the Elipar™ S10 LED Curing Light compensates for clinically relevant distances.

A high intensity output is maintained, even at a distance, for improved depth of cure in hard-to-reach clinical situations.

**Here's how:** Curing light beams do not come out straight, but fanned with a certain angle of beam spread. With increasing distance from tip, the same amount of light is spread over a larger surface, and as a result, the intensity drops (Fig. 1).

The optics of the Elipar S10 light are optimized to deliver a more focused light output.

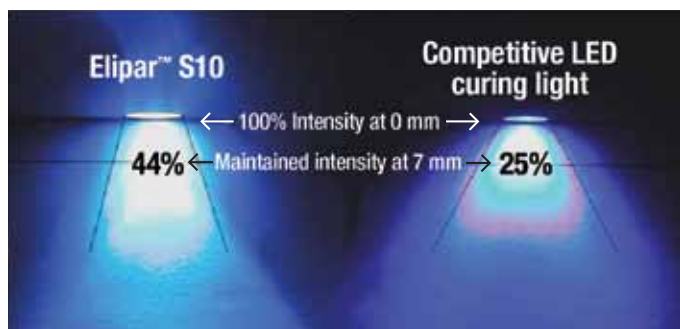


Fig. 1: Photograph of the streak light on paper of the output beams of the Elipar™ S10 LED Curing Light and a competitive LED curing light (8 mm light guide). The beam from the Elipar S10 light has a smaller angle of beam spread resulting in a higher maintained intensity at a distance.

Source: 3M ESPE internal data

## The more focused light output results in a higher intensity at clinically relevant distances.

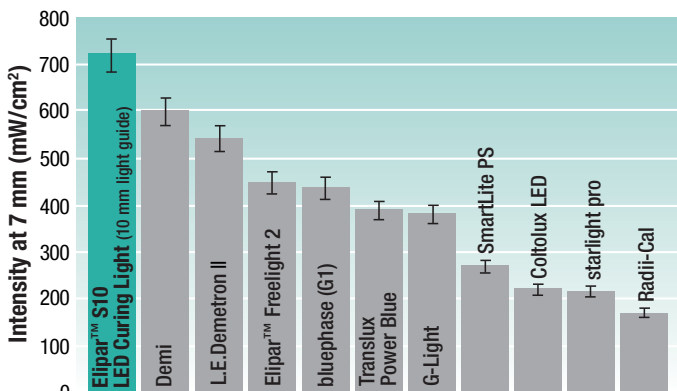


Fig. 2: The Elipar™ S10 LED Curing Light offers more intensity at the clinically relevant distance of 7 mm compared to leading devices tested. Measured with a spectrally resolving radiometer equipped with an integrating sphere (aperture 4 mm).

Source: 3M ESPE internal data

## The higher intensity at clinically relevant distances directly translates into a significantly improved depth of cure.

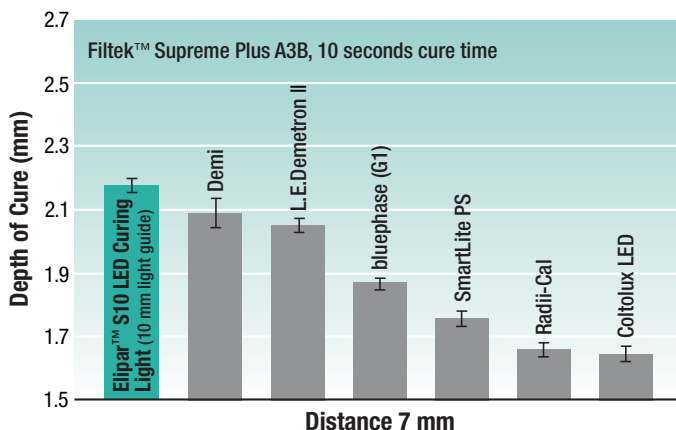


Fig. 3: Due to its more focused light output, the Elipar™ S10 LED Curing Light offers improved depth of cure when curing from a clinically relevant distance of 7 mm.

Source: 3M ESPE internal data

## The Elipar S10 LED Curing Light delivers consistently high hardness throughout the filling.

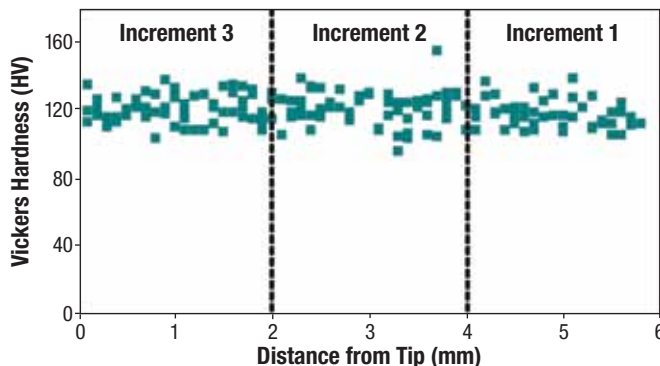


Fig. 4: Following the standard filling composite placement protocol, three consecutive 2 mm increments of Filtek™ Z250 Universal Restorative, A3, were cured for 10 seconds each using the 10 mm light guide. The specimen was hemisectioned and Vickers Hardness was determined with a micro indenter. The Elipar™ S10 LED Curing Light delivered consistently high hardness throughout the filling.

# Redefining ease of use

The philosophy behind the Elipar S10 LED Curing Light is to offer high quality, sophisticated technology in a tool that is simple to use.

## Designed for maximum efficiency

To maximize operator efficiency, the Elipar S10 light provides all of the features you want — without complicating it by adding ones you might never use.

- Small, cordless wand-style light.
- Well-balanced weight of the handpiece is 250 g — which is significantly lower in weight compared to G-Light and L.E.Demetron II.
- Unique, ergonomic V-shape allows a comfortable grip from various angles to accommodate different techniques and indications.
- Two light guides (10 mm and 3 mm) for larger and confined surface areas. Unique magnetic light guide mount makes it easy to switch from one to the other.
- Light guide rotates 360° to help reach all areas of the mouth. Light guide geometry allows for easy intra-oral handling.
- Innovative design eliminates need for noisy fan and includes a switch-off option for beep signals for completely silent operation.
- Smooth, vent-free stainless steel exterior allows fast disinfection between patients.
- Large buttons with touch response.
- Eye shield rotates 360° to accommodate different techniques and indications; it also serves as a flat surface rest.

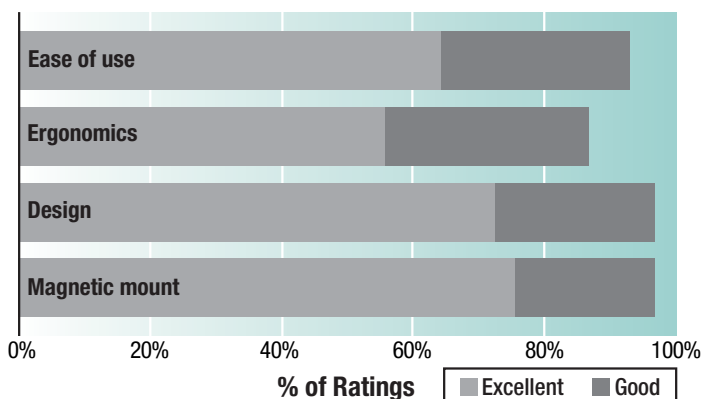
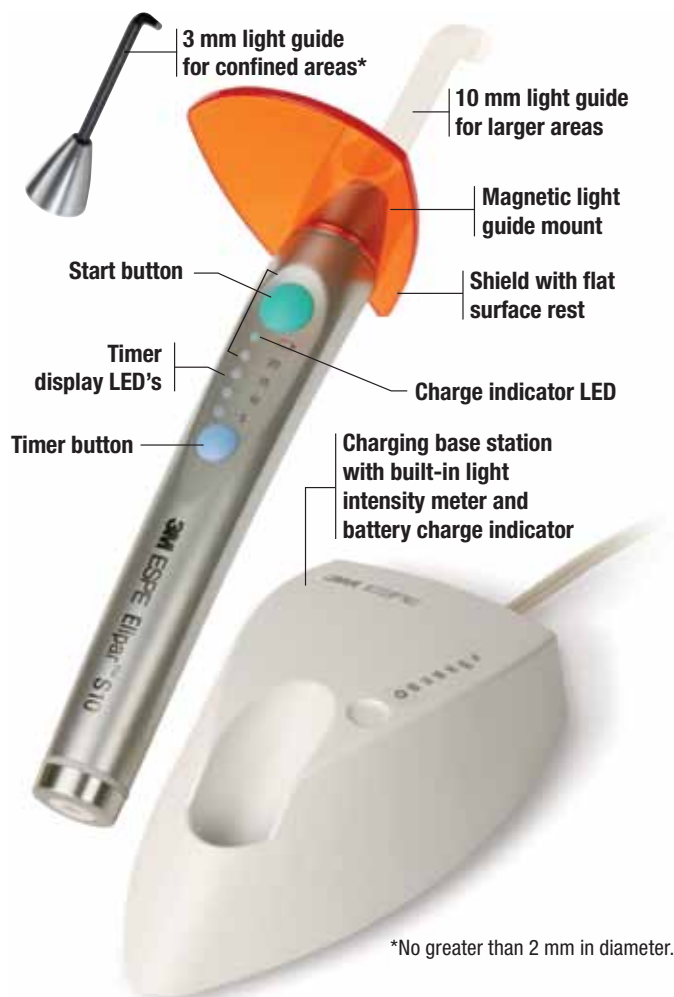


Fig. 8: In a 3M ESPE hands-on test, the Elipar™ S10 LED Curing Light received very good ratings by dentists from the U.S., Germany, Italy and Poland.

Source: 3M ESPE internal data



## Simple, intuitive operation

There really is no “learning curve” with the Elipar S10 light. It is designed for maximum simplicity — which is the key to intuitive operation.

- **Simple two-button operation** with one cure mode that covers all indications.
- Unique, **multiple-setting light timer** features easy push-button control to set timing intervals of 5, 10, 15 and 20 seconds, a continuous 120-second mode, and tack-cure mode.
- A unique tack-cure function allows **predictable curing** with a reproducible short light output produced by simply keeping the start button pressed. In comparison, the unpredictable light flashes produced by manually turning a light on and off can result in a longer, harder cure than desired.
- The tack-cure function **makes removal of light-curing cement like RelyX™ Unicem Self-Adhesive Universal Resin Cement excesses easier and more predictable**. For easier removal, excess is tack-cured to gel state. The tack-cure mode of the Elipar S10 light is ideal for use with 3M™ ESPE™ Protemp™ Crown Temporization Material.

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## Redefining strength, durability and hygiene

The Elipar S10 LED Curing Light was designed with the high quality standards you expect from dental instruments. Once you experience its seamless, stainless steel body, you'll understand the advantages it has over the curing lights with a vented plastic body.

### Hydroformed from stainless steel for unique performance advantages

The Elipar S10 LED light is different by design. It's created from a manufacturing process called hydroforming—a technology popular with the high-end automotive and sporting goods industries. Hydroforming is key to both its unique ergonomic shape, its one-piece design that is strong and sealed, and its sleek and high-tech look.

### Virtually unbreakable and sealed

The one-piece, stainless steel exterior offers extraordinary strength. And because the surface has no seams or vents where liquid can seep in, the internal components are protected from contamination.

### Hygiene control on a new level

Cleaning instruments can be time-consuming, and some chemicals can damage the appearance of the equipment. The Elipar S10 light even makes cleaning easier.

- Smooth, stainless steel surface is resistant to discoloration and staining from disinfectants and dental materials.
- Seamless and vent-free housing makes device easy to clean.
- Autoclavable fiber optic light guide.



### Long-life, high-performance Li-ion battery technology

The advanced Li-ion battery provides mobile, cordless operation.

- A new fully-charged battery provides 60 minutes of cure time (or 360 10-second cures).
- Indicator LED shows level of battery's charge.
- Battery can be fully recharged in 90 minutes.
- Easy tool-free battery exchange.

# Elipar™ S10

## LED Curing Light

### The latest LED technology

#### ... for effective and efficient curing

The top-of-the-line optical power of the Elipar S10 light delivers key advantages:

- **High intensity 1200 mW/cm<sup>2</sup>** provides a fast, complete cure.
- **Two light guide choices** — 10 mm for larger surface areas and 3 mm for confined areas no greater than 2 mm in diameter.
- **Light output remains consistent** throughout the battery charge, and does not weaken during prolonged curing procedures.
- **Light meter built into the charger station** allows an in-office test of intensity using the 10 mm light guide.

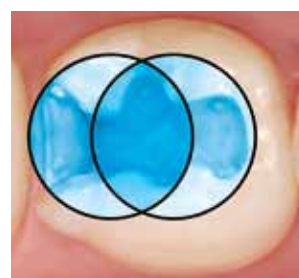


#### ... for one-shot, large-surface curing

The wide 10 mm light guide offers up to 80% more illumination surface compared to leading devices tested. That makes it possible to cure larger restoration surfaces on the first shot.



Large 10 mm tip ~ 0.61 cm<sup>2</sup>



Typical 8 mm tip ~ 0.40 cm<sup>2</sup>

Fig. 6: Illustration of a clinical situation: Curing of a large Class II restoration in a typical lower molar. The Elipar™ S10 LED Curing Light offers more illumination surface, allowing the full cavity surface to be cured in one shot.

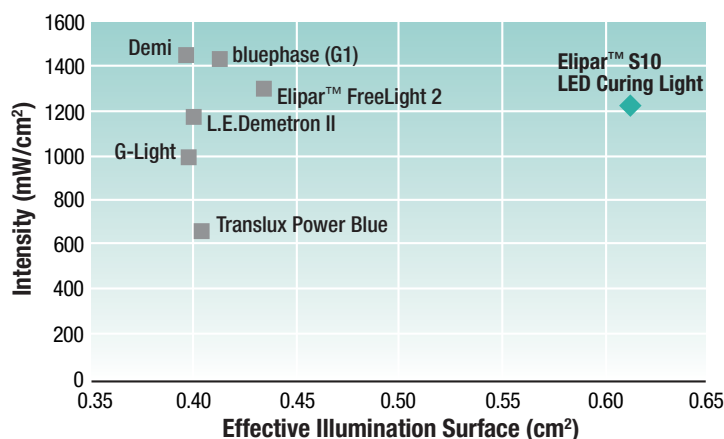


Fig. 5: Intensity is optical power divided by effective tip surface. The optical power of the Elipar™ S10 LED Curing Light allows keeping intensity high, and offering a large effective surface at the same time.

Source: 3M ESPE internal data

#### ... for a fast cure

With such high intensity, the Elipar S10 light enables polymerization of compatible, light-cured dental materials in half the manufacturer's recommended curing time.\*

\*In comparison with a conventional halogen light (with the light intensity typically ranging from 600-800 mW/cm<sup>2</sup>).

#### ... for a complete cure

The spectrum of the Elipar S10 light matches the absorption spectrum of the most commonly used initiator camphorquinone, so the Elipar S10 light cures the vast majority of light-cured dental materials. The well-balanced intensity of 1200 mW/cm<sup>2</sup> is high enough for a fast, complete cure—yet in a pulp-friendly range.

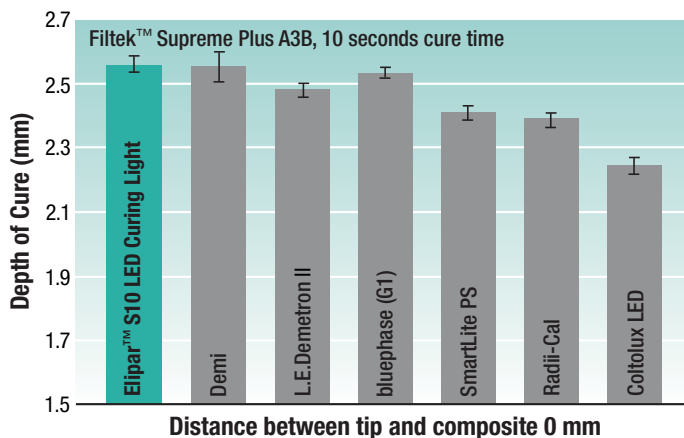


Fig. 7: The Elipar™ S10 LED Curing Light offers a high depth of cure compared to leading devices tested. Measured according to ISO 4049:2000.

Source: 3M ESPE internal data



# Elipar™ S10 LED Curing Light

## Technical Data

### Charger

|                   |                                                                                     |
|-------------------|-------------------------------------------------------------------------------------|
| Operating voltage | 100–127 V 50/60 Hz or 230 V 50/60 Hz<br>(See rating plate for factory-set voltage.) |
| Power input       | 15 W                                                                                |
| Dimensions        | Length 170 mm (6.69 in), Width 95 mm (3.74 in), Height 50 mm (1.96 in)              |
| Weight            | 660 g (1.45 lb)                                                                     |

### Handpiece

|                                                  |                                                                        |
|--------------------------------------------------|------------------------------------------------------------------------|
| Power supply                                     | Lithium-ion battery                                                    |
| Utilizable wavelength range                      | 430–480 nm                                                             |
| Wavelength peak                                  | 455 nm +/- 10 nm                                                       |
| Light intensity (between 400 and 515 nm)         | 1200 mW/cm <sup>2</sup> –10%/+20% (independent of battery power level) |
| Optically active light emission area             | 60–65 mm <sup>2</sup>                                                  |
| Timer settings                                   | 5, 10, 15, 20 seconds, continuous mode (120 sec) and tack-cure mode    |
| Total exposure time (new, fully charged battery) | typically 60 min                                                       |
| Charging time empty battery                      | approximately 1.5 hr                                                   |
| Dimensions                                       | Diameter 28 mm (1.10 in), Length 270 mm (10.63 in)                     |
| Weight                                           | 250 g (incl. light guide)                                              |

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