



*M*ini L.E.D.™





Until now halogen-type lamps could only polymerize by producing a great deal of heat for a few efficient wavelengths (on average 500mW/cm² in the utilizable wavelength).

The maximum emitting spectrum of halogen lamps (over 480nm) is not relevant to the optimal absorption zone of the photo-initiators used in dentistry (approx. 430 to 470nm).

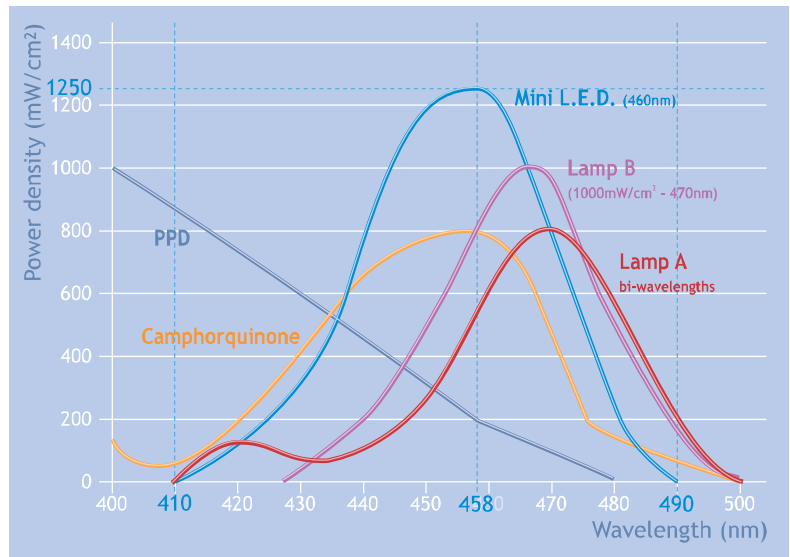
The latest generation L.E.D. (Light Emitting Diode) curing lights offer all that is expected of this new technology and the most recent design developed by Satelec® combines power, efficiency and speed:

- its power (1,250mW/cm²) is greatly superior to that of most other lamps and nearly as efficient as plasma lamps, with no rise of temperature;
- it emits light in **the most efficient part of the spectrum**, suiting most composites currently available: camphorquinone (470nm), PPD or PAB (430nm);
- it takes only **6 to 12 seconds** to polymerize a 2 to 3mm thickness of any composite !

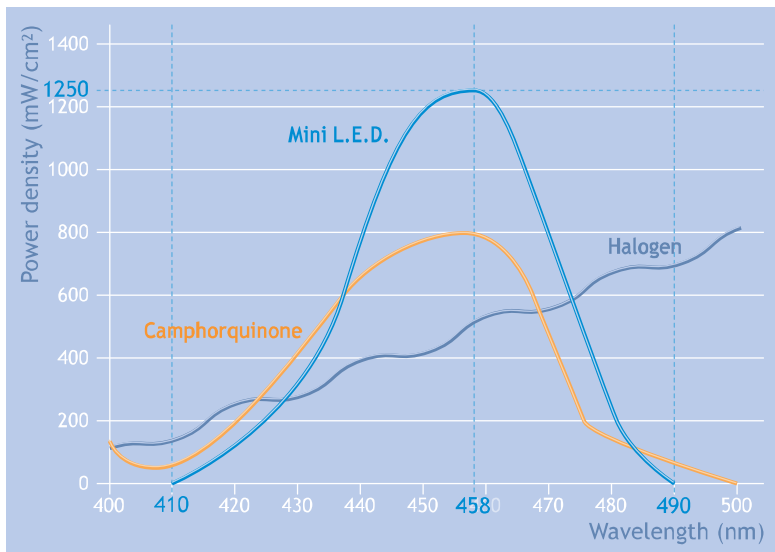
**Design by Prof. François Duret, DDS DSO-PhD, MS, MD-PhD, inventor of the CAD-CAM and the Apollo plasma lamp.*

Power and emitting spectrum

Mini L.E.D.'s power of $1,250\text{mW/cm}^2$ and the central position of its emitting spectrum make this lamp much more effective than most of the others on the market, whether the comparison is with those that emit at two wavelengths (420 and 480nm) or with those that emit at only one (470nm). It is therefore suitable for activating any of the composite photoinitiators on the market: camphorquinone (at 470nm) and also PPD and the PABs (at 430nm).



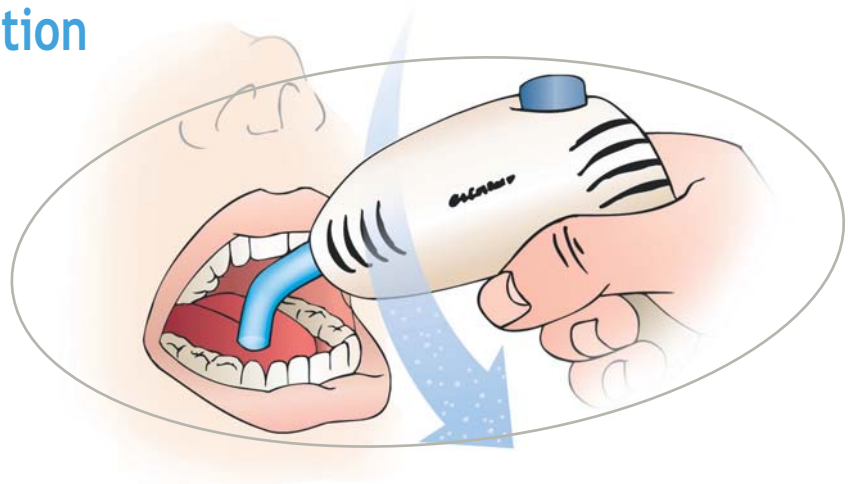
Effectiveness and cold light



Mini L.E.D. emits a spectrum of blue light ideally suited to all the photosensitive compounds that facilitate hardening of composites. Unlike halogen lamps, which use only 20% of the energy produced - the rest being lost as heat - **100%** of **Mini L.E.D.**'s energy will be used to cure the dental composite.

Hygiene and protection

Mini L.E.D., because there is no cooling* and no opening (for a fan), it avoids the development of a stagnant environment and microorganisms that could produce cross-infection between patients and the dental care team. It acts as an everyday link in the aseptic chain of meticulous and vigilant protection against the risk of nosocomial infection.



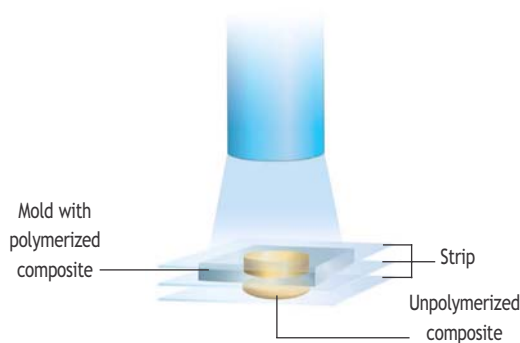
* Satelec Worldwide Patent.

Light diffusion at the heart of the composite

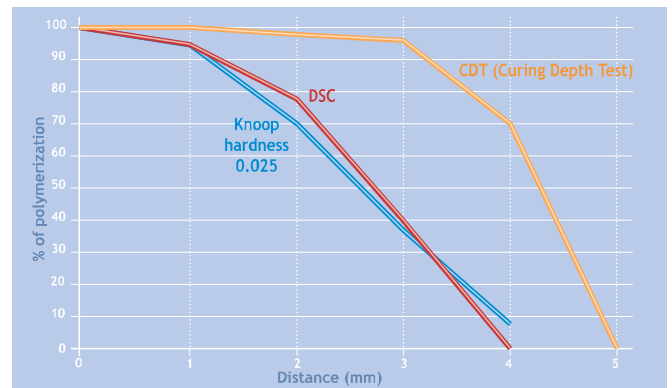
Differential Scanning Colorimetry (DSC) method

There are a number of methods commonly used to ascertain the effectiveness of a lamp: power density, depth of curing, hardness (Knoop, Vickers or Barcol), and analytical measurement using differential scanning colorimetry (DSC). Today, DSC is the best scientific method, and the most reliable for ascertaining whether a lamp is effective in polymerizing (curing) dental composites.

DSC is simple in principle, but implementing it is very complex. When a dental composite is burnt, the measured (or residual) heat released by the composite is proportional to the quantity not polymerized. It is 100% if there has been no polymerization and around 30% if there has been complete polymerization. If this residual heat is no more than 35%, we consider the polymerization to have been properly carried out, and therefore that the lamp is effective (taking account, in the value, of post-polymerization).

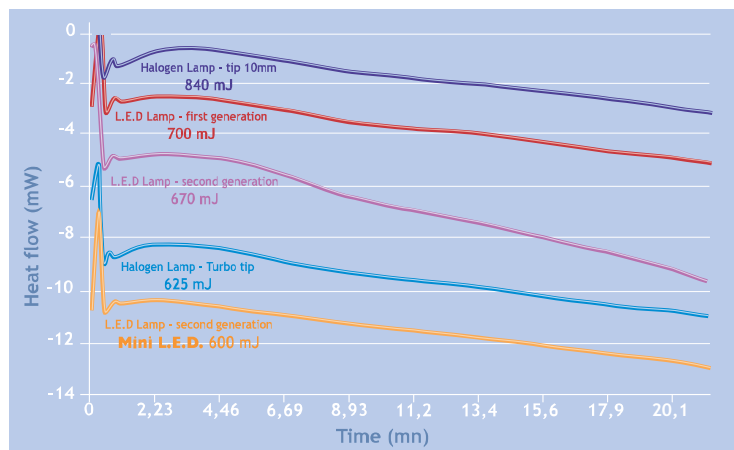


A small piece of unpolymerized composite is placed under various thicknesses of completely polymerized composites, in order to study the influence of thickness on the lamp's effectiveness. Measurements are made on the unpolymerized composite.



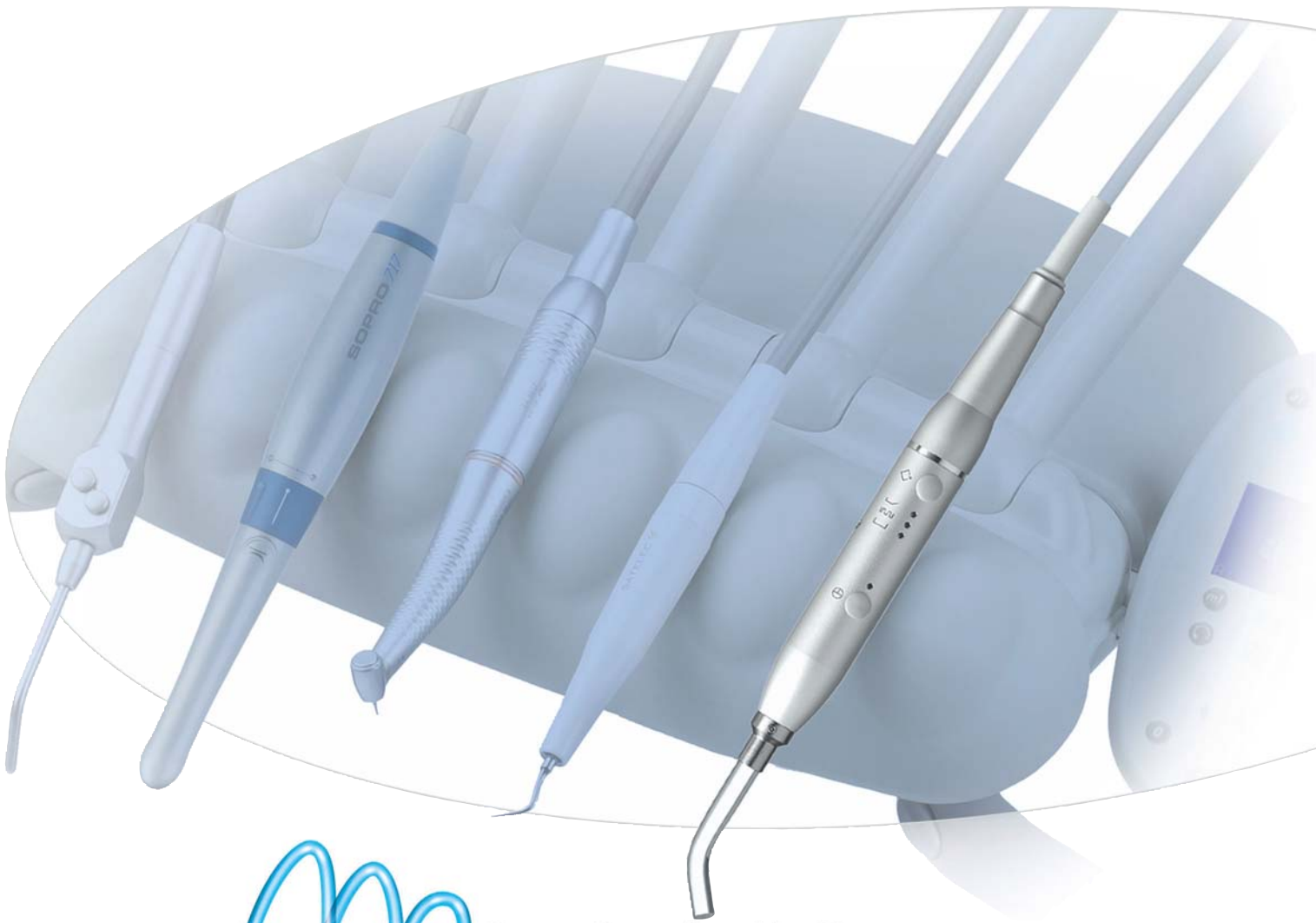
We measure the depth of curing, hardness (Knoop 0.025 or Vickers) and residual heat (using DSC) at various depths (every 500µm), for 10, 20 or 30 seconds, with each of the three Mini L.E.D. menus. The measurements show that 10 seconds suffice for the Mini L.E.D. to polymerize virtually all of the composite to a depth of 2.5mm.

Important! Depth of curing (using the CDT) is a poor indicator, as it can make you think that a lamp is polymerizing to a depth of 5mm within 10 seconds, which is in fact impossible.



This graph, representing four experiments, provides visual and scientific evidence of the indisputable effectiveness of Mini L.E.D.. As can be seen from these DSC data, when compared with most of the lamps available on the dental market (halogen lamps and other LED lamps), Mini L.E.D. is the one that leaves the smallest amount of unpolymerized composite to burn: 600 millijoules (mJ).

Mini L.E.D. cures dental composites much more effectively, both at the surface and at the heart of the reconstitution material, and thus proves to be greatly superior to most other lamps after only 10 seconds' exposure.



Mini L.E.D. OEM

The built-in performance

For perfect control of your unit, *Mini L.E.D.* is also available in a version that can be integrated with or without a module. This version has the same features as the table-top device.



- **Three modes** : Fast - Pulse - Ramping
- Power of **1,250 mW/cm²**
- Polymerization of all types of composite (2 to 3mm) in **6 to 12 seconds.**





Mini L.E.D.TM SP

Ultrasound in its true light

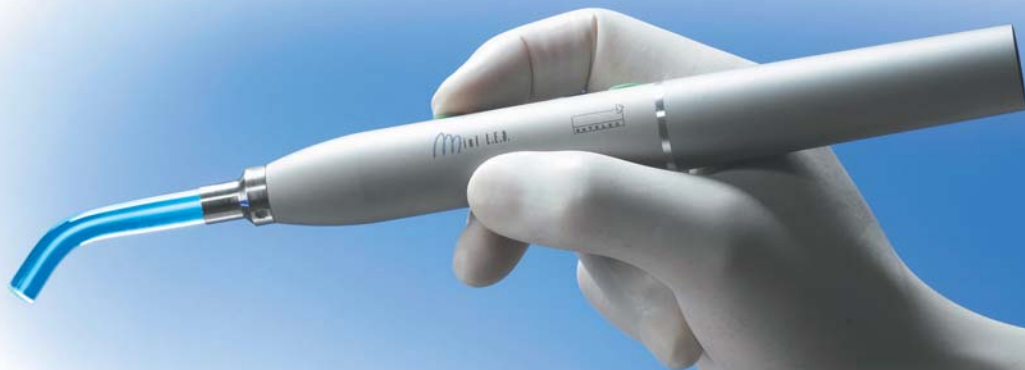
Mini L.E.D.TM SP is compatible with all Satelec ultrasonic generators driven by the SP4055 and SP Newtron modules (table-top or built-in devices).

Mini L.E.D.TM SP is equipped with an adapter to connect it (exclusive license under the patent by Mectron S.r.l.) to Satelec generators instead of the scaler handpiece:

- Full power mode only of 1,100 mW/cm².
- Light source is activated by simply pressing the generator foot switch.

The clinical applications of the Mini L.E.D. SP are identical to those of the standard Mini L.E.D. table top device.





New



Opalescent multi-fibered 7.5

45° curve

Power and working depth:

1250mW/cm² over a surface of approx. $\frac{1}{2}$ cm² at 4mm distance



Opalescent multi-fibered 5.5

45° curve

Maintains power without the slightest dazzle:

2000mW/cm² over an area of about $\frac{1}{4}$ cm²



Amber multi-fibered 3.5

90° curve

Concentrated, localized power:

1100mW/cm² over approx. 0.1cm² area

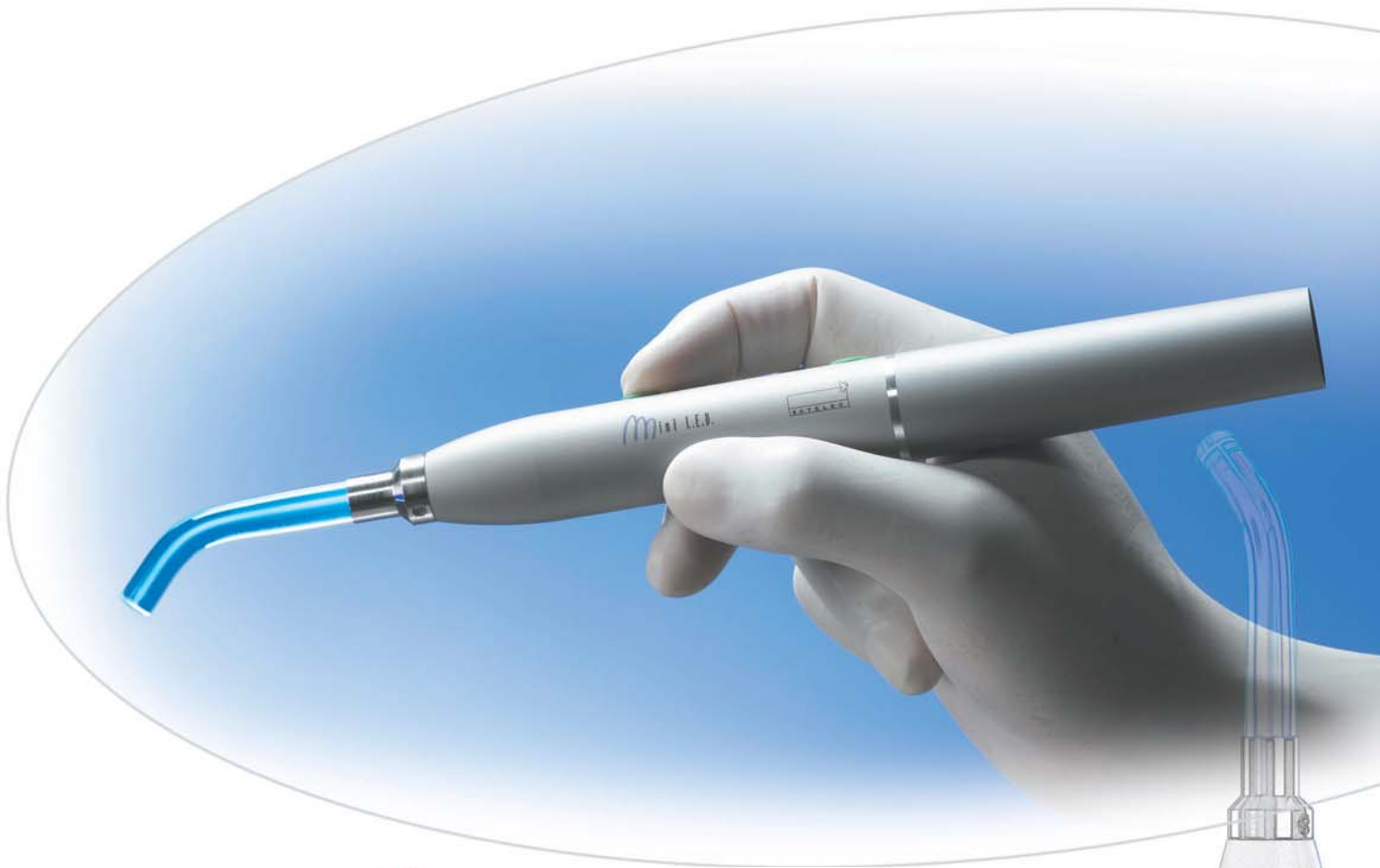
Best quality materials

- Mono-fibered and multi-fibered glass light guides in different diameters for various applications.
- Anodized aluminum handpiece.
- Latest generation of SMD electronics.
- Very high-quality single LED built into a patented optic module.
- Li-Ion battery with no memory effect means 350 successive cycles before needing to recharge (a capacity of at least one week's work).*

Design and ergonomics

- Rounded surfaces allow for easy and comfortable manipulation.
- Compact, lightweight (160g) and well-balanced.*
- Silent and hygienic : no fan.
- Light guide rotates through 360°.
- Base-charger can be turned in all directions and features stand-by indicator and low battery warning.*
- Built-in radiometer (efficiency tester).*

*Valid for the table top version (Mini L.E.D. and Mini L.E.D. ORTHO).



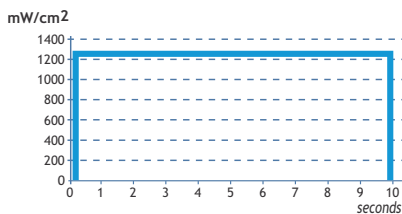
Mini L.E.D.

1,250mW/cm²

CORDLESS - NOISELESS - LIGHTWEIGHT

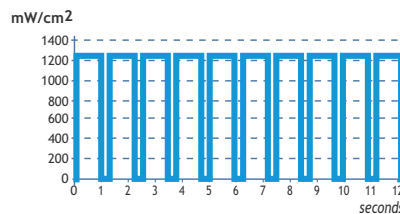
Three modes

for optimal curing of all types of composites:



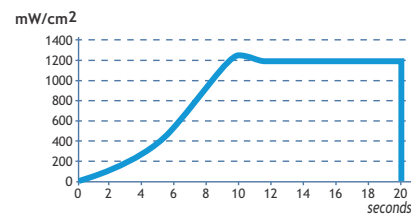
Fast mode

Emits at full power for 10 seconds (audible signal after five seconds).



Pulse mode

Emits 10 successive one-second flashes at full power (audible signal after five flashes).



Ramping mode

Emits 20 seconds progressively up to full power (audible signal every five seconds).



Polymerization of all types of composites (2 to 3mm) in just **6 to 12 seconds!**



Mini L.E.D.[™] ORTHO

You have the power !

Amplifying light guide ø5.5

for fast, powerful and accurate curing at:

2,000mW/cm²

Three exposure times

for optimal curing :

12 sec. / 8 sec. / 4 sec.

With **Mini L.E.D.[™] ORTHO** you can select the right time for the different types of material you wish to cure, their speed of reaction, and the clinical protocol you are following.



Mini L.E.D.

Specifications and accessories



Technical specifications

Mini L.E.D. and Mini L.E.D. ORTHO

Unit	
Size:	Ø 23 x 200mm
Weight:	160g
Classification:	Class II, type B,
Operating conditions:	Continuous service IPXO

Mains transformer (EEC)*

Supply voltage:	100 - 240 V AC
Frequency:	47 - 63 Hz
Output voltage:	12 V DC
Output current:	0.6 A
Classification:	Class II, IP 40

Charging base

Voltage:	12 V DC
Protection:	Fuse 2 AT
Operating conditions:	Continuous service IPXO

Battery

Type:	Lithium-Ion
Size:	Ø 23 x 90mm
Capacity:	2,000 mAh

Mini L.E.D. OEM

Size:	Ø 23 x 180mm
Weight:	95g
Classification:	Class I, type B
Operating conditions:	Continuous service IPXO

Mini L.E.D. SP

Size:	Ø 23 x 180mm
Weight:	130g
Classification:	Class I, type BF
Operating conditions:	Continuous service IPXO

Optical specifications

Wavelength:	420-480nm
Power (±10%):	
Mini L.E.D., Mini L.E.D. ORTHO, Mini L.E.D. OEM:	
Ø 7.5mm opalescent light guide	1,250mW/cm ²
Ø 5.5mm opalescent light guide	2,000mW/cm ²
Mini L.E.D. SP:	
Ø 7.5mm opalescent light guide	1,100mW/cm ²
Ø 5.5mm opalescent light guide	1,850mW/cm ²

Accessories

Ø 7.5mm opalescent light guide	Ref.: F 02648
Ø 5.5mm opalescent light guide	Ref.: F 02652
Amber Ø 3.5mm light guide	Ref.: F 02651
Protective light shield	Ref.: F 02555
Transformer (EEC)*	Ref.: F 02543
Battery	Ref.: F 02520
Handpiece holder	Ref.: F 02463

*available in other voltages: please contact your local dealer or satelec@acteongroup.com for details.

This equipment is manufactured according to current regulations and standard (IEC 60601-1) and according to the EN ISO 13485 quality control certification systems.

