

61-26 Optilux 501 Polymerization Unit (Project 00-03) (8/00)

The Optilux 501 is Kerr/Demetron's newest entry into the visible light curing market. The Optilux 501 is an attractive, hand-held, corded, visible light polymerization system. It consists of a power unit that can be mounted on a wall or cabinet, or be left portable. The unit is connected to a pistol-style handpiece via a six-foot-long cord. It is equipped with Demetron's 80-watt quartz-halogen Optibulb and features a built-in digital radiometer. Two autoclavable curing tips, a 7-mm turbo-tip and an 11-mm standard tip, are included with the unit. The 501 provides a choice of several curing modes, including continuous high output, ramp, boost, and bleaching. The minimum output is reported to be 850 mW/cm² and, in the high output modes, the output is purported to be in excess of 1000 mW/cm². The ramped mode begins at 100 mW/cm² and increases to 1000 mW/cm² in the first ten seconds; during the final ten seconds, the output is a continuous 1000 mW/cm². An internal voltage regulator is standard and ensures a steady electrical supply that is reported to increase lamp life by eliminating voltage fluctuations to the unit. The cooling fan operation is proportional to the length of time the bulb was activated. The unit is available in both 120V and 220V models and is CSA certified. The Optilux 501 measures 8" H x 6.25" W x 7.5" D and weighs 6 lbs. 6 oz. The pistol handpiece weighs only 10 ounces.



Manufacturer:

Kerr/Demetron
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(203) 748-0030
(203) 791-8284 FAX
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Suggested Retail Price:

\$1500.00 Optilux 501; includes
-12-volt/80-watt Optibulb
-11 mm diameter curved fiberoptic curing tip
-7 mm diameter turbo-tip
-protective light shield
-mounting bracket
-adjusting tool

Government Price:

\$852.15 Optilux 501 (as listed above)

ADVANTAGES:

- + Irradiance values are higher than those of most other units previously tested by DIS.
- + Offers variety of curing modes (continuous, ramp, boost, bleach).
- + Built-in digital radiometer.
- + Wide range of sterilizable curing tips available.
- + Curing tips swivel 360 degrees to facilitate intraoral access.
- + Has internal voltage regulator to ensure steady voltage supply to unit.
- + Light shield is easily positioned.
- + Audible time indicator has adjustable volume and interval settings.
- + Display gives the cumulative time the bulb has been illuminated.
- + Cooling fan operation is proportional to bulb usage.
- + Ergonomically-placed On/Off activation switch.
- + Has continuous-run mode (ie, operator can control duration of light exposure).

- + Easily cleaned or barrier protected.
- + CSA certified.

DISADVANTAGES:

- More expensive than other corded curing lights.
- Radiometer is not as accurate as manufacturer claims.
- Does not adequately cure resin composites using manufacturer's recommended preset times in ramp and boost modes.
- Power cord is easily dislodged from power unit.
- Activation trigger is easy to inadvertently activate when removing handpiece from the unit.
- Manufacturer recommends use of only one specific surface disinfectant on external surfaces.
- Clinical evaluators found the supplied curing tips were too short to easily reach 2nd molars.

SUMMARY AND CONCLUSIONS:

The Demetron Optilux 501 Polymerization Unit is well-designed, easy-to-use, and light-weight. One of the most powerful units evaluated by DIS, it is capable of producing an irradiance that is two to four times the value many researchers consider adequate to cure resin composite. However, DIS testing found that the manufacturer's recommended curing times for the boost (10 seconds) and ramped cure (20 seconds) modes were insufficient to adequately polymerize a 2-mm-thick increment of a microfill resin composite. This is not unique to this light and is in agreement with other DIS testing that ramped polymerization requires longer curing times compared to continuous, full-intensity polymerization. Autoclaving the curing tips resulted in minimal loss of light intensity and no deleterious effects on the physical integrity of the tips. It should be noted that only Cavicide, a Kerr product, is recommended for disinfecting the exterior surfaces of the unit. The manufacturer's instructions specifically prohibit use of denatured alcohol, isopropyl alcohol, Lysol, phenol, ammonia complex, or iodine complex solutions. All clinical evaluators rated the Optilux 501 as either "Excellent" or "Good." The **Demetron Optilux 501** Polymerization Unit is rated **Acceptable** for use by the federal dental services.