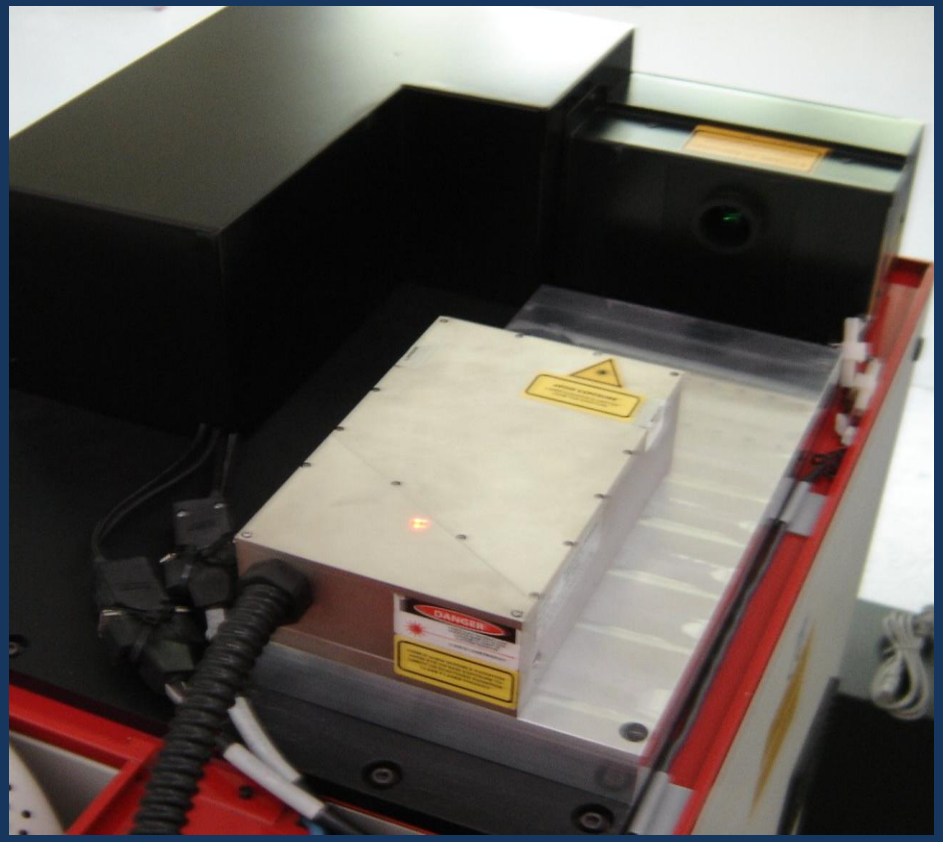
A-WAVE 250 LASER

For SLA 250

April, 2008

A-OPTOWAVE SLA SERIES DESCRIPTION

- Replacement for HeCd laser - **70 mW**
- Integration for SLA 250
- Minimal hardware change Base plate/cables.
- Automated operation
- SL Material proven
- Transparent for the operator
- **Field tested**
- **CE Approved**



A-WAVE SERIES

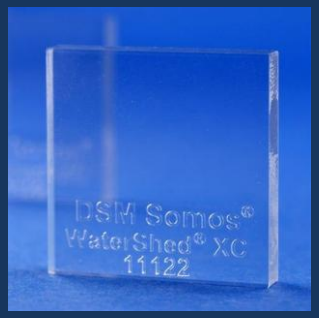
DESIGNED IN 2006 , AVAILABLE SINCE 2007. COMMERCIAL PRODUCT USED IN VARIOUS APPLICATION

Awave UV/355 nm series, are Q-switched TEM00 mode lasers and engineered for the highly demanding 24/7 production environment, consisting of a laser head and a laser controller connected with an umbilical cable. The fiber-coupled pumping diodes are located in the laser controller for easy field-replacement. The laser head is sealed in a clean room to assure long term reliability. Awave UV Series lasers are featured with pulse frequencies ranging from 1-300 kHz (up to 500 kHz is optional), average power covered from 100 mW to 15W and pulse energy in excess of 4 mJ. For over 20W UV lasers

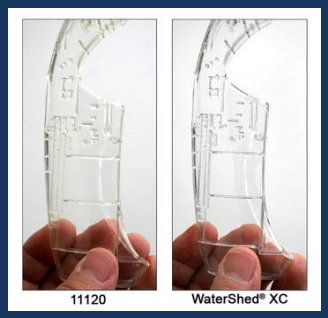
- **<u>Proven data about laser reliability</u>** by large number of installations in different applications worldwide.
  - wafer dicing/scribing, LCD repair, Microelectronic circuits trimming, components marking, memory repair, photolithography, PCB manufacturing and flexible circuitry, Marking and engraving, diamond cutting.

A-WAVE SLA SERIES TECH ADV.

- A-Wave Series aloud use of all latest resins developed for SSL Systems, i.e. Watershed 11122 XC , Protogen , Somos NeXt , NanoTool etc.



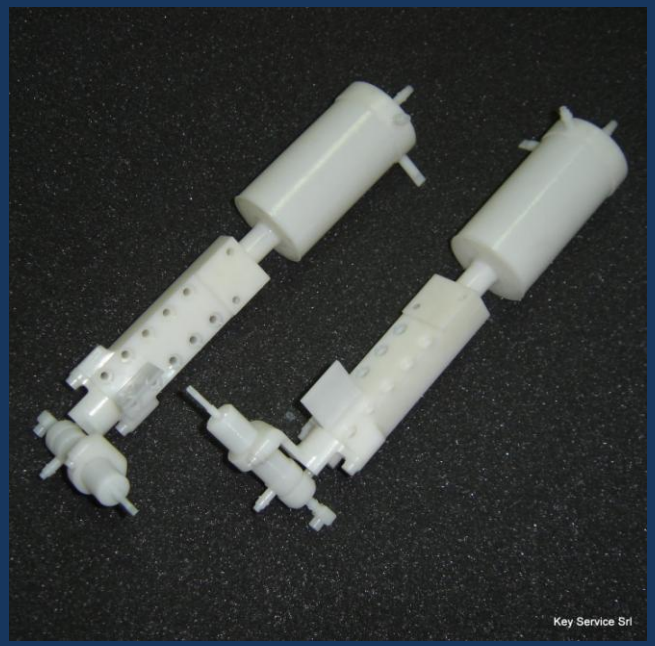


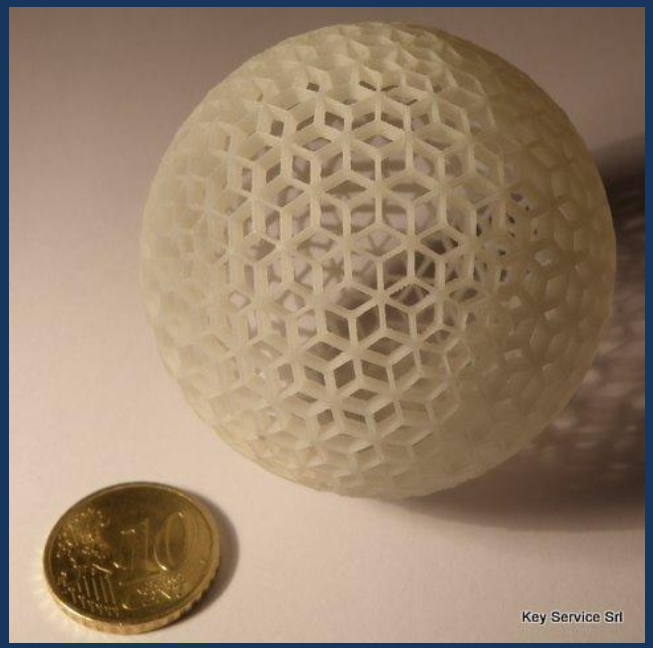



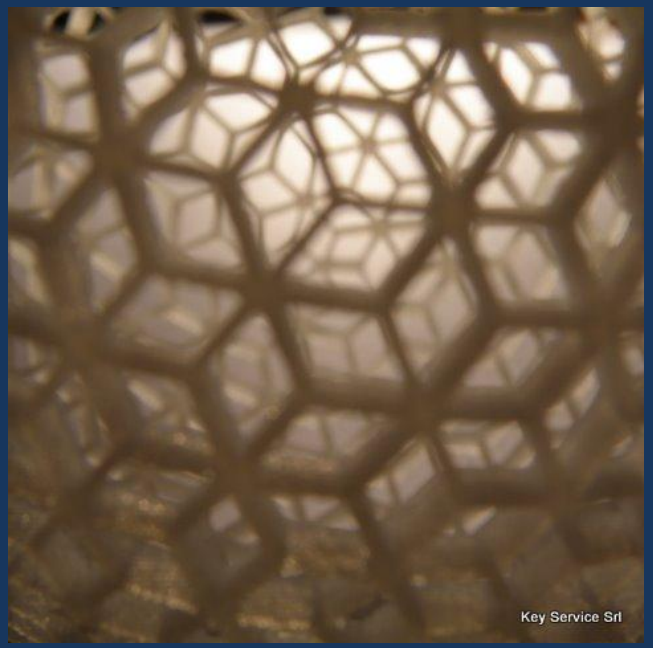
- **<u>Patent pending harmonic conversion technologies</u>**
- **<u>24/7 proven reliability</u>**
- Latest state of the art components
- **<u>Vat power up to 70 mW</u>**, Excellent beam profile
- Beam focus down to 0,10 mm diameter

A-WAVE SLA SERIES TECH ADV.

- **Excellent beam quality, pulse stability and pointing stability for smooth sidewall**







A-WAVE SLA SERIES TECH ADV.

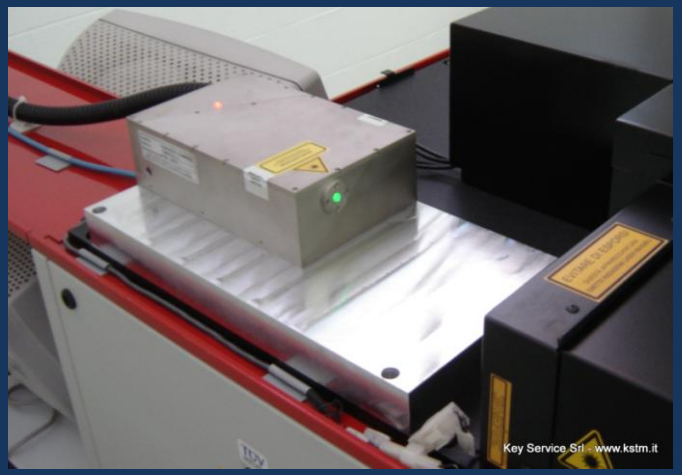
- Compact and versatile design, no chiller needed. Power Supply fit into SLA
- Excellent beam quality for part building
- Operations and working parameters are SW controlled, ON/OFF and VAT Power depending by the material
- Minor Hardware modification (base plate / cables), backward compatible
- Lower Power Consumption, Lower Heat dissipation, Air Cooled, Extended UPS capacity
- New design and latest components
- Easier Maintenance
- Field replaceable Diode

A-WAVE SLA SERIES ECONOMICAL ADVANTAGES

- **Higher throughput** , especially for filled materials requiring high exposure
- **Extended lifetime.** HeCd warranty is 2500 Hrs, typically works for 3000/4000 Hrs.
  A-Wave 250 warranty is 1 Year, unlimited Hrs. Typically works for 10.000 Hrs.
  Extended warranty possible
- Local stock
- **Lower cost of ownership**
- Lower power consumption , Lower requirements for UPS

A-WAVE SLA SERIES INTEGRATION

- **Installation takes one day** (excluding test build) , Fits entirely into SLA 250



- 19” Rack Mount Power Supply , < 10 kg weight
- No need for optics change
- Tested field product
- Backward compatible

- **No need for build style modification**
- Fully tested on materials , **does not alter VAT properties , does not alter part properties**
- First unit operating since > 2 years

WHY A-WAVE ?

!!! All materials for Solid State Laser will be available !!!

DSM Somos®
Better Materials
Make Better Parts

- HeCd Laser will deliver just 40 mW. A-Wave 250 are 70 mW (For SLA 250 laser power is limited by the maximum scan speed. No more than that is required)
- **ALMOST DOUBLE POWER - FASTER BUILD SPEED especially with materials requiring high exposure like filled materials**
- **HeCd technology is out of date , SSL are the standard for industrial UV applications.**

WHY A-WAVE ?

- HeCd laser are prone to misalign resulting in low power and bad emission mode. Every “n” hours re-melt operation is required. **A-Wave 250 is delivering 70mW with long term stability without user intervention or maintenance**
- HeCd replacement lasers are **refurbished units**. A-Wave 250 are **new units**
- HeCd have high cost of ownership , High price, low power, low lifetime. A-Wave brings a lower cost of ownership maximizing speed. ROI is short. HeCd have low efficiency
- Working parameters like Diode temperature are set by display panel
- A-Wave performances for part building are exceeding HeCd. Higher power , excellent beam quality , smallest beam diameter

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