

TopWave 257

TopWave 257

Industrial Continuous-Wave UV Laser

Toptica expands its series of industrial UV lasers with the TopWave 257. The system is based on the well-established TopWave DUV platform and deliver 15 mW of CW output power at a wavelength of 257 nm.

Matching the wavelength of legacy, frequency-doubled Argon Ion lasers, the TopWave 257 is an exciting new choice for deep UV applications in semicon inspection and optics testing, where only lower optical output power is required, or even appreciated.

The future-proof concept of the TopWave 257 is far ahead of the outdated gas laser systems in terms of environmental friendliness and operating costs. It does not require massive water-cooling and generates far less than 1% of the electricity costs.

Designed for easy integration the compact TopWave 257 is a turnkey system which the user can control either via a touch panel at the control unit or using a PC GUI. Comfortable, hands-off operation is ensured by fully automated optimization routines for the internal opto-mechanics.

In order to provide best reliability and consistent, diffraction limited beam quality ($M^2 < 1.3$), the complete UV beam path, is enclosed in a specially sealed compartment. In combination with a fully automated optics shifter it enables typical lifetimes of 10,000 hours, which is key for the use in any industrial application.



Applications

- Optics Testing
- Semicon Inspection
- Lithography
- Fiber Bragg Grating

Key Features

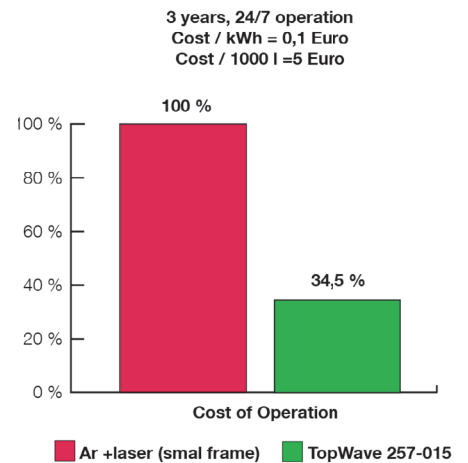
- 15 mW at 257 nm
- Highest wall-plug efficiency => Low CoO
- Ultra-stable, low noise CW operation
- Excellent lifetime (typ. > 10,000 h)
- Consistent beam quality ($M^2 < 1.3$) over full lifetime, due to sealed doubling cavity (SUV) with automatic optics shifter
- Narrow linewidth, long coherence length (>100 m)
- User-friendly turnkey system



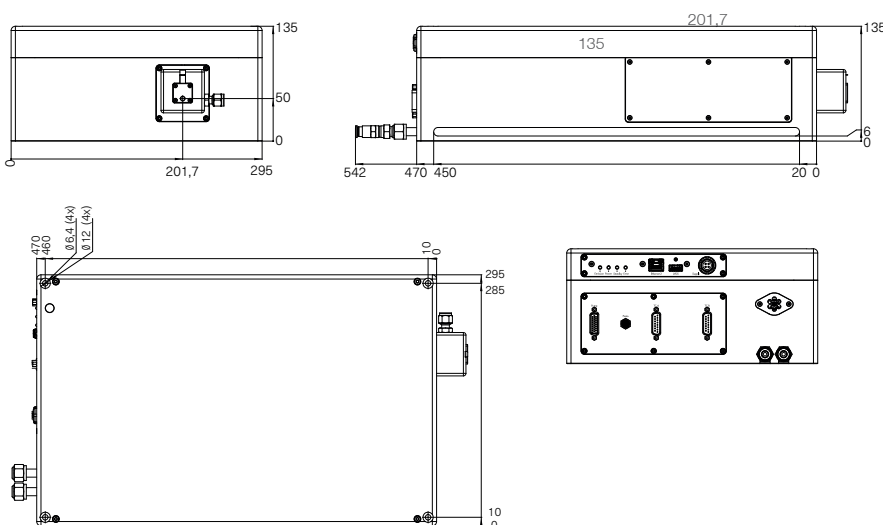
Lasers Specifications	TopWave 257-015
Output power	15 mW
Wavelength	257 nm 0.5 nm
Linewidth	< 1 MHz
Beam waist diameter @ 1m (1/e ²)	0.4 mm ± 0.2 mm
Beam divergence (full-angle)	< 1.2 mrad
Ellipticity	0.9 - 1.1
Beam pointing stability ⁽¹⁾	< ± 5 μrad
Transverse Mode	TEM ₀₀
M ²	M ² x < 1.3, M ² y < 1.3
Polarization	linear, vertical < ± 3°
Polarization extinction ratio	> 200 : 1
Power stability	< 2 % over 8 h
RMS noise	< 1 % (10 Hz - 10 MHz)
Lifetime ⁽²⁾ (min. / typ.)	3,000 h / 10,000 h

Utility and Environmental Specifications	
Laser head dimensions	135 x 295 x 470 mm ³ (H x W x D)
Control unit dimensions	154 x 378 x 448 mm ³ (H x W x D)
Umbilical length	2 m
Temperature range	
Operating	20 °C to 30 °C, stabilized to ± 1 °C, non-condensing
Storage & shipping	-10 to + 50 °C, non-condensing
Cooling requirements	
Laser head	Conduction ⁽³⁾
Control unit	Convection
Line voltage	AC 100-240 V 50 / 60 Hz
Power consumption	< 250 W (typ. < 120 W)
Communication interface	Ethernet, USB

⁽¹⁾ Rms over 8h @ ambient temperature drift less than ± 1 k * Subject to change without notice
⁽²⁾ With optics shifts ⁽³⁾ Sufficient heat sink has to be provided. Optional cooling plate with closed loop chiller available upon request



TopWave laser head



All dimensions given in mm.

TopWave controller

