The Vanguard™ UV is an advanced diode-pumped solid state laser that has been specifically designed to produce ultra-low noise, quasi-CW ultraviolet output. It delivers exceptional TEM$_{00}$ mode quality, outstanding long-term stability, and long lifetime. This rugged OEM laser uses cutting edge mode-locking technology to deliver 350 mW or 1000 mW of quasi-CW, UV output at 355 nm.

With a pulse repetition rate of 80 MHz, this quasi-CW, air-cooled laser offers a superior solid-state alternative to replace power hungry CW ion lasers in a number of OEM applications. Delivering ultra-low noise, near diffraction limited TEM$_{00}$ output in a rugged industrial platform, the Vanguard laser is intended for both OEM and research applications.

A single ProLite® series diode module pumps the laser head. As with all Spectra-Physics diode-pumped solid state lasers, the diode is located remotely in the power supply. This makes replacement of the single diode module a simple task requiring no optical alignment of the laser head.

The Vanguard brings solid-state reliability and low cost of ownership to CW applications currently using water-cooled UV ion lasers.
Vanguard UV Laser Specifications

General Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>355 nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength</td>
<td>355 nm</td>
</tr>
<tr>
<td>Power</td>
<td>350 mW or 1000 mW</td>
</tr>
<tr>
<td>Repetition Rate</td>
<td>80 MHz (±2 MHz)</td>
</tr>
<tr>
<td>Pulse Width&lt;sup&gt;*&lt;/sup&gt;</td>
<td>&lt;12 ps</td>
</tr>
</tbody>
</table>

Beam Characteristics

- Mode: TEM<sub>00</sub>
- M<sup>2</sup> < 1.3
- Far Field Divergence, full angle < 1 mrad
- Beam Diameter (1/e<sup>2</sup>) 1.0 mm nominal
- Pointing Stability < 25 μrads / °C
- Beam Ellipticity < 20%
- Average Power Stability<sup>*</sup> < 2%
- Amplitude Noise < 1% rms, 10 Hz–2 MHz
- Polarization Ratio 100:1 vertical

Operating Conditions

- Cold Turn-on Time (AC off to full power) < 30 min.
- Cold Turn-on Time (AC off to full specs) < 1 hr.
- Temperature Range 20–27°C

Utilities

- AC Input 100–240 VAC ±10%, 50–60 Hz
- Power Consumption < 1000 W (500 W typical)

Notes

1. Due to our continuous product improvement, all specifications are subject to change without notice.
2. Interpolated from measurements of the fundamental 1064 nm pulse. A sech<sup>2</sup> (0.65 deconvolution factor) shape is used to determine the 1064 nm pulse width as measured with Spectra-Physics model 409 autocorrelator.
3. Percentage power drift in any two-hour period with less than ±2°C temperature change after a one-hour warm up.

1.43 (36, 3) 115.6 (400, 1) 4.01 (101, 9) 9.51 (241, 6) .55 (14) 20.30 (515, 6) 2.89 (73, 5) 37.04 (940, 9)

[Diagram of Vanguard UV Laser with dimensions and views]

* Applicable to 1000 mW laser only