

# Vanguard™ One™

## Mode-Locked Quasi-CW Lasers



The Spectra-Physics Vanguard One UV125 is a compact, all-in-one, quasi-CW laser delivering >125 mW of UV power. The new laser operates air-cooled with low noise of <1% rms and delivers a long-operating life and low cost of ownership. Vanguard One is ideal for applications in bio-instrumentation, including flow cytometry, microscopy, cell sorting, and semiconductor wafer inspection.

Based on the highly successful Vanguard laser family, Vanguard One UV125 is an all-in-one laser, combining electronics, laser cavity, and cooling in a single housing for easy integration and bench-top tools. The quasi-CW

operation ensures high fluorescence signal-to-noise ratio while preventing cell damage in bio-instrumentation. The laser firmware enables closed-loop power control, ensuring long-term stability with less than 2% power variation for consistent measurement results. Vanguard One lasers pass extensive environmental qualification testing to deliver high reliability and low cost-of-ownership needed for bio-instrumentation and demanding industrial applications.

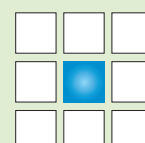
### The Vanguard One Advantage

- Low noise quasi-cw output of <1% rms
- Air-cooled design with <100 W heat dissipation
- Excellent beam quality  $M^2 < 1.2$
- Durable, reliable, and rugged
- Compact all-in-one design
- Closed-loop power control



### Applications

- Flow Cytometry
- Cell Sorting
- Wafer Inspection
- Electron Microscopy
- Confocal Microscopy
- Laser-induced Fluorescence



It's in the Box™

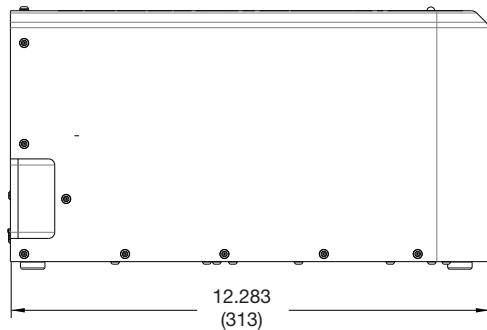
## Vanguard One Specifications<sup>1, 2</sup>

	Vanguard One UV125
<b>Output Characteristics</b>	
Wavelength	355 ± 1 nm
Power	125 mW
Repetition Rate	80 ± 2 MHz
Average Power Stability	<2%
Pulse Energy Noise	<1% rms
Beam Pointing Stability	<25 µrad/°C
Polarization Ratio	>100:1
<b>Beam Parameter</b>	
Beam Quality (M <sup>2</sup> )	<1.2 TEM <sub>00</sub>
Circularity	0.8-1.2
Beam Diameter (1/e <sup>2</sup> )	1 ± 0.2 mm
Beam Divergence	<1 mrad
<b>Dimensions</b>	
Laser Head (L x W x H)	313 x 259 x 169 mm
<b>Cooling</b>	
Ambient Temperature	20-27°C
Cooling	Air
Heat Dissipation Maximum	160 W (typical 100 W)

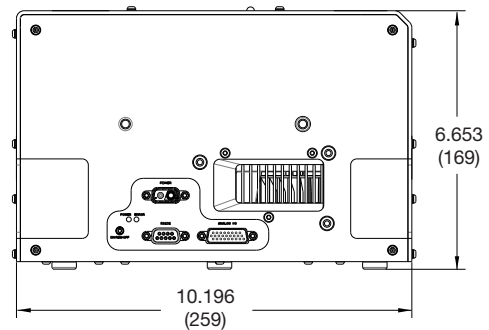
1. Due to our continuous product improvement program, specifications may change without notice.

2. Vanguard One is a Class IV - High-Power Laser, whose beam is, by definition, a safety and fire hazard. Take precautions to prevent exposure to the direct and reflected beams. Diffuse as well as specular reflections can cause severe skin or eye damage.

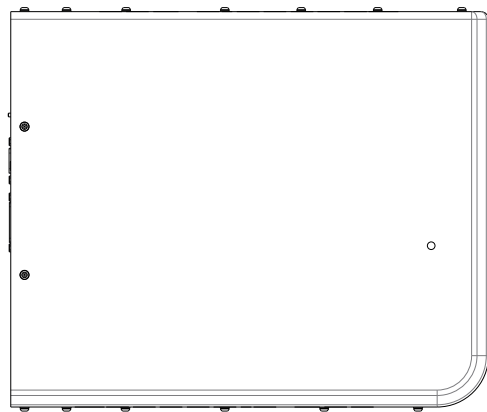
## Vanguard One Dimensional Drawing



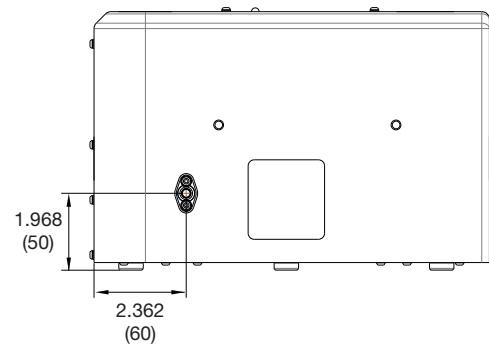
Side View



Back View



Top View



Front View

Dimensions in inch (mm)

## Vanguard One Laser Dimensions