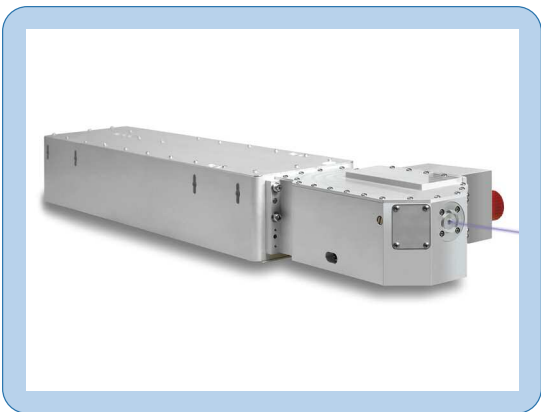


Vanguard™ 355-350

QUASI-CW DPSS 350 mW UV LASER



The Vanguard 350 mW Advantage

- Rugged industrial platform
- Outstanding beam performance and power stability
- Closed-loop power control
- Near diffraction limited TEM₀₀ output
- RS 232 interface for system control and diagnostics
- On-board data log of all key functional parameters
- Air cooled for ease of integration
- Low maintenance power supply
- Extreme long-life diode
- Dependable supply chain and local worldwide service support

The Spectra-Physics® Vanguard™ 355-350 is a state-of-the-art DPSS laser specifically designed to produce exceptionally reliable quasi-CW UV output. This rugged OEM laser uses advanced mode-locking technology to deliver 350 mW of picosecond pulses at 355 nm with low noise and excellent TEM₀₀ mode quality.

The Vanguard 355-350 laser features high stability beam characteristics and low cost of ownership necessary for a variety of OEM applications, plus the integration convenience of an air-cooled chassis. Designed for the stringent demands of semiconductor wafer processing, the Vanguard 355-350 is also ideal as a UV laser source for cell flow cytometry and micro-material processing applications.

The Vanguard series of lasers are field proven with over 1,000 systems in tough 24/7 operations. Every feature on the Vanguard 355-350 laser is designed for these conditions. The system can be remotely controlled via RS 232 interface, and incorporates extensive on-board data logging of key parameters. Closed-loop power control ensures consistent UV output power to less than 2% variation from specified level. Preventative maintenance adjustment of the THG crystal and Saturable Absorber Mirror (SAM) optimizes performance and extends the Vanguard laser's operational life. The diode module is a proprietary design for exceptionally long life, and is located remotely in the power supply, enabling easy replacement without laser head alignment.

Newport and Spectra-Physics control the production of all key elements: SAM, optical substrates, coatings, power supply and fiber-coupled diodes. Each component has been designed in-house and tightly controlled through our supply chain. In addition, OEMs requiring high uptime and consistent performance over a long life have the assurance of the Spectra-Physics Vanguard 355-350. World-class field service and expert technical support come standard from the global leader in photonics.

APPLICATIONS

- Wafer inspection
- Cell sorting
- Polyimide cutting and drilling
- Various micro-material processing



Vanguard UV Laser Specifications

General Characteristics¹

Wavelength	355 nm
Power	350 mW
Repetition Rate ²	80 MHz \pm 2 MHz
Pulse Width ³	<12 ps

Beam Characteristics

Spatial Mode	TEM ₀₀
M ²	<1.2
Beam Diameter (1/e ²)	1.0 mm nominal
Beam Pointing Stability	<25 μ rad/ $^{\circ}$ C
Beam Ellipticity	<20% far field
Average Power Stability ⁴	<2%
Amplitude Noise	<1% rms, 10 Hz–2 MHz
Polarization Ratio	>100:1 vertical

Operating Conditions

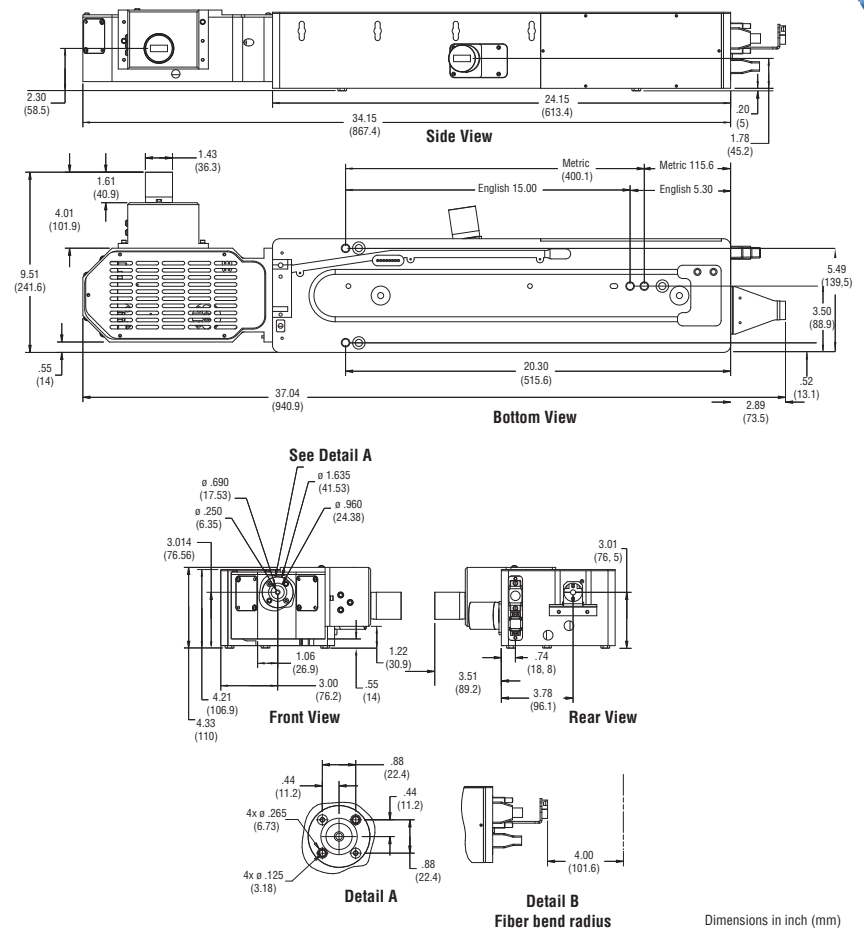
Cold Turn-on Time (AC off to full power)	<30 min
Cold Turn-on Time (AC off to full specs)	<1 hr
Temperature Range	20–27 $^{\circ}$ C

Utilities

AC Input	100–240 VAC \pm 10%, 50–60 Hz
Power Consumption	<1000 W (500 W typical)
Cooling Requirements ⁵	Ambient air cooled (conditions apply)

1. Due to our continuous product improvement, all specifications are subject to change without notice.
2. Contact Spectra-Physics for other repetition rates.
3. Interpolated from measurements of the fundamental 1064 nm pulse. A sech² (0.65 deconvolution factor) shape is used to determine the 1064 nm pulse width as measured with Spectra-Physics model 409 autocorrelator.
4. Percentage power drift in any two-hour period with less than $\pm 2^{\circ}$ C temperature change after a one-hour warm up.
5. Recirculated chiller water can tighten pulse repetition rate tolerance (contact Spectra-Physics for further guidance.)

Vanguard 355-350 Dimensions



A Newport Corporation Brand

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Newport Corporation, Irvine and Santa Clara, California and Franklin, Massachusetts; Evry and Beaune-La-Rolande, France; Stahnsdorf, Germany and Wuxi, China have all been certified compliant with ISO 9001 by the British Standards Institution.

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