

Vanguard™

Mode-Locked Quasi-CW Lasers



Spectra-Physics® Vanguard lasers are DPSS lasers specifically designed to produce exceptionally reliable quasi-CW output at 355 nm. This family of rugged OEM lasers uses advanced mode-locking technology to deliver picosecond pulses with low noise and excellent TEM₀₀ mode quality. Vanguard lasers are available with 350 mW at 355 nm and 2.5 W at 355 nm, each providing ultrafast pulse trains with outstanding long-term stability.

Vanguard lasers were developed for demanding 24x7 OEM applications, emphasizing consistency and uptime, low cost of ownership, and ease of integration. Designed for the stringent requirements of semiconductor wafer processing, they have found ready acceptance in cell-sorting flow cytometry, synchronous dye-laser pumping, and micro-material processing applications where their superb reliability and dependability are similarly appreciated.

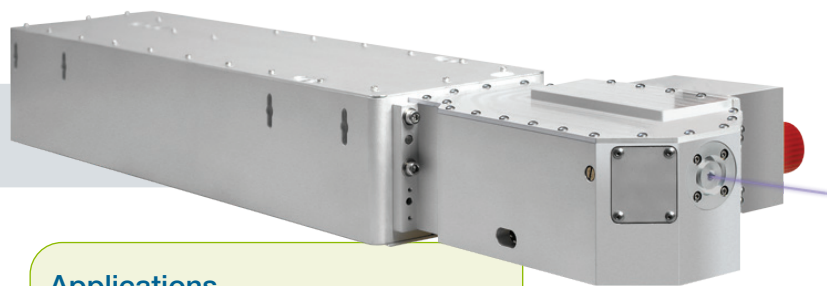
The Vanguard series of lasers are field proven with over 1,000 systems installed. Every feature of the Vanguard is designed for continuous and consistent operation for in demanding applications. The system can be remotely controlled via an RS-232 interface, and incorporates extensive on-board data logging of key parameters. Closed-loop power control ensures consistent output power to less than 2% variation from the specified level.

The Vanguard Advantage

- Rugged industrial platform
- Outstanding beam characteristics and power stability
- Near diffraction-limited TEM₀₀ output
- Closed-loop power control
- Extremely long-lived diodes with low cost of ownership

Applications

- Wafer inspection
- LED processing
- Photovoltaic scribing
- Cell sorting
- Laser direct imaging
- Micro-material processing
- Solar cell processing
- Polyimide cutting and drilling



Vanguard

Designed for convenient preventative maintenance, adjustment of the THG crystal (for the UV systems) and the Saturable Absorber Mirror (SAM) optimizes performance and extends the Vanguard laser's operational life. The diode module has demonstrated exceptionally long life, and being remotely located in the power supply enables easy replacement without impacting the laser head alignment.

Spectra-Physics' patented technology establishes the system reliability. Our proprietary manufacturing technology ensures product quality. Our tightly controlled supply chain makes for consistency. World-class service and expert technical support are provided as standard from the global leader in photonics.

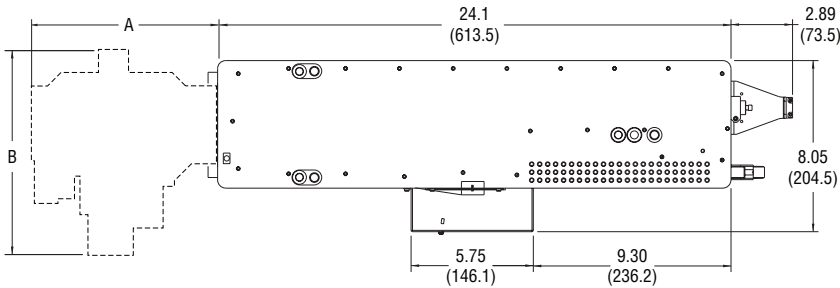
Vanguard Specifications^{1,2}

	Vanguard 355-2500	Vanguard 355-350
Output Characteristics		
Wavelength	355 nm	355 nm
Power	2.5 W	350 mW
Repetition Rate	80 MHz \pm 2 MHz	
Spatial Mode	TEM ₀₀	
M ²	<1.2	<1.2
Far Field Divergence, full angle	<1 mrad	
Beam Diameter (1/e ²)	1.0 mm nominal	1.0 mm nominal
Beam Pointing Stability	<25 μ rad/°C	
Beam Ellipticity	<20% far field	
Average Power Stability	<2%	
Amplitude Noise	<1% rms, 10 Hz to 2 MHz	
Polarization Ratio	>100:1 vertical	
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	
Laser Head Cooling	Water cooled	Air cooled

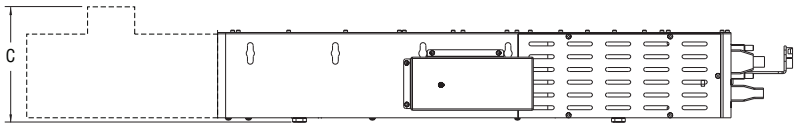
1. Due to our continuous product improvement program, specifications are subject to change without notice.

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

Vanguard



Top View



Side View

Dimensions in inch (mm)

	Vanguard 355-350	Vanguard 355-2500
A Length	10 in (254 mm)	10.35 in (262.9 mm)
B Width	9.51 in (241.6 mm)	9.6 in (243.8 mm)
C Height	4.33 in (109.9 mm)	6.33 in (160.7 mm)

Vanguard Dimensions



www.spectra-physics.com

1565 Barber Lane, Milpitas, CA 95035 USA					
PHONE: 1-800-775-5273 1-408-980-4300 FAX: 1-408-980-6921 EMAIL: sales@spectra-physics.com					
Belgium	+32-(0)800-11 257	belgium@newport.com	Korea	+82-31-8021-1600	korea@spectra-physics.com
China	+86-10-6267-0065	info@spectra-physics.com.cn	Netherlands	+31-(0)30 6592111	netherlands@newport.com
France	+33-(0)1-60-91-68-68	france@newport.com	Singapore	+65-6664-0040	sales.sg@newport.com
Germany / Austria / Switzerland	+49-(0)6151-708-0	germany@newport.com	Taiwan	+886-3-575-3040	sales@newport.com.tw
Japan	+81-3-3556-2705	spectra-physics.jp@mksinst.com	United Kingdom	+44-1235-432-710	uk@newport.com