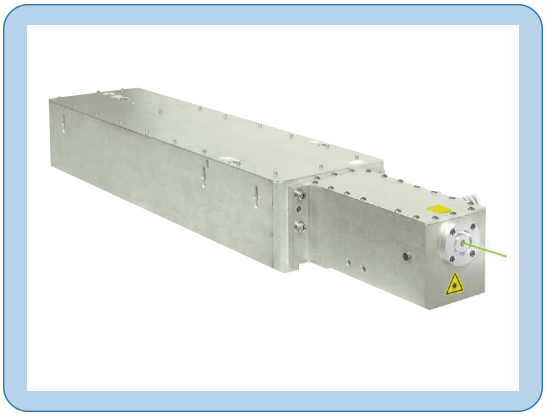
Vanguard™ 532-2000

2 WATTS OF ULTRAFAST OUTPUT AT 532 nm



The Vanguard 532 Advantage

- High power, ultrafast 532 nm output
- Outstanding power stability
- Closed-loop power control
- Ultra-low noise
- Near diffraction limited TEM_{00} output
- Air cooled—no external cooling
- Rugged industrial platform
- Low cost of ownership

The Spectra-Physics® Vanguard™ 532-2000 is an advanced diode pumped solid-state (DPSS) mode-locked laser that is specifically designed to produce an ultrafast pulse train at 532 nm. It delivers exceptional TEM_{00} mode quality, outstanding long-term stability, and ultra-low noise.

The Vanguard lasers were developed for rigorous 24x7 OEM applications, emphasizing consistency and uptime. The Vanguard 532-2000 incorporates these proven characteristics for both scientific and OEM applications. This rugged laser uses state-of the-art passive mode-locking technology to deliver 8-10 picosecond pulses at very stable power and repetition rate (nominally 80 MHz) making it ideal for synchronous pumping of dye lasers as well as other research applications for visible picosecond laser pulses. With 2 W of output power at 532 nm, the Vanguard 532-2000 is also highly suitable for micro-material processing applications.

The system can be remotely controlled via RS232 interface, and incorporates extensive on-board data logging of key parameters. Closed-loop power control in the Vanguard 532-2000 ensures consistent 532 nm output power to less then 2% variation from specified level. Preventative maintenance intervals are increased by design and selection of high grade materials. The laser's 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: SESAM, optical substrates, coatings, power supply and fiber-coupled diodes. Each component was designed in-house and tightly controlled through our supply chain. OEMs requiring high volumes of Vanguard lasers are assured a secure supply chain, long-lasting field service and expert technical support from the global leader in photonics.

The Vanguard 532-2000 laser ensures solid-state reliability to applications for visible picosecond laser pulses.

APPLICATIONS

- Synchronous pumping of dye lasers
- LDSE
- Photovoltaic scribing
- Micro-material processing

Spectra-Physics®
A Newport Corporation Brand

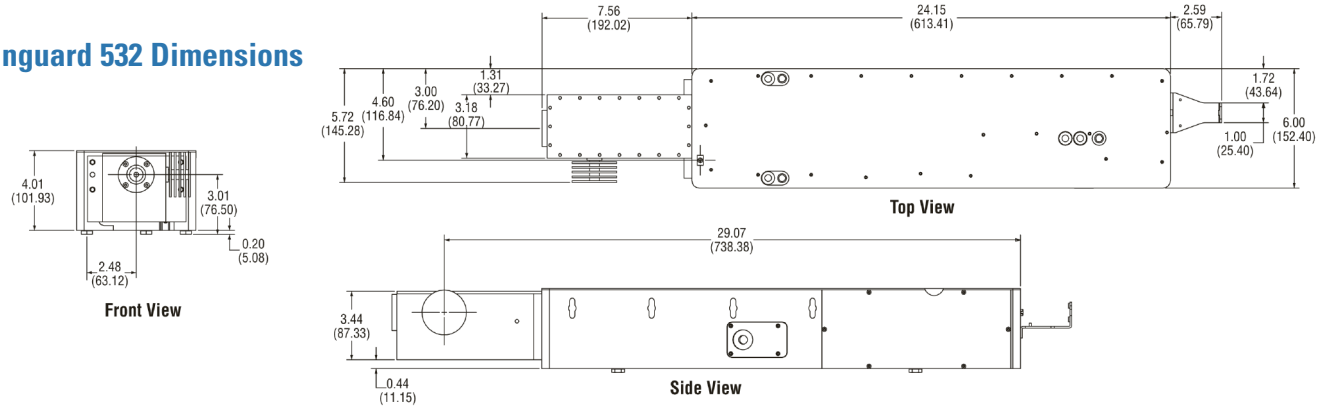
Vanguard™ 532-2000

Specifications

General Characteristics[1]	
Wavelength	532 nm
Power	2 W
Repetition Rate[2]	80 MHz ±2 MHz
Repetition Rate Tolerance	<500 kHz from nominal
Pulse Width[3]	<10 ps
Beam Characteristics	
Spatial Mode	TEM_{00}
M^2	<1.3
Far Field Divergence, full angle	<1 mrad
Beam Diameter ($1/e^2$)	1.4 mm nominal
Beam Pointing Stability	<25 µrads / °C
Beam Beam Ellipticity	<20%
Average Power Stability[4]	<2%
Amplitude Noise	<1% rms, 10 Hz–2 MHz
Polarization Ratio	100:1 veritcal
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)
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 $sech^2$ (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 ±2°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 532 Dimensions



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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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