



Verdi G-Series

High-Power Pumps for Ti:Sapphire Lasers and Amplifiers

The Verdi G is a high performance CW laser providing up to 20W at 532 nm, ideal for pumping Ti:Sapphire lasers and amplifiers, for applications including ultrafast spectroscopy, multiphoton microscopy, terahertz imaging, and optical coherence tomography (OCT).

Based on Coherent's unique Optically Pumped Semiconductor Laser (OPSL) technology, the Verdi G produces a diffraction limited, power-invariant beam with extremely low noise and high stability for optimal pumping performance.

High reliability and robustness is ensured by the use of ultra-long life AAA™ pump diodes and Coherent's patented PermAlign™ technology, providing optimal alignment and high quality solder-bonding of the optics.

And as an easy-to-use, CDRH-compliant, fully turnkey system, the Verdi G enables you to get started right away.

Featuring superior performance and reliability in a user-friendly package, the Verdi G is the ideal solution for your demanding Ti:Sapphire pumping needs.

FEATURES

- Up to 20W output power at 532 nm
- Superior mode quality
- Power-invariant beam properties
- Extremely low noise
- PermAlign™ solder-bonded optics technology
- AAA™ ultra-long life pump diodes

APPLICATIONS

- Ti:Sapphire Pumping



SPECIFICATIONS ¹	Verdi			
	G2	G5/G7/G8	G10	G12/G15/G18/G20
Wavelength (nm)	532 ±2			
Pulse Format	CW			
Spectral Purity (%)	>99			
Output Power (W)	2	5, 7, 8 ²	10 ²	12, 15, 18, 20 ²
Spatial Mode	TEM ₀₀			
Beam Quality	<1.1			
Beam Circularity ³	1.0 ±0.1			
Beam Waist Diameter (mm) (FW, 1/e ²)	2.25 ±10%			
Beam Divergence (mrad) (FW, 1/e ²)	<0.5			
Beam Waist Location ⁴ (m)	±0.5			
Beam Pointing Stability ⁵ (μrad/°C)	<2			
Horizontal Beam Position Tolerance ⁶ (mm)	±<1.0			
Vertical Beam Position Tolerance ⁶ (mm)	±<1.0			
Polarization Ratio	Linear, >100:1			
Polarization Direction	Vertical, ±5°			
Noise (% rms) (10 Hz to 100 MHz)	<0.03	<0.02	<0.02	<0.02
Power Stability ⁷ (%) (pk-pk)	±<1			
Warm-up Time (minutes)	<10			
CDRH Compliant	Yes			
UTILITY REQUIREMENTS				
Operating Voltage (VAC)	100 to 240			
Frequency (Hz)	50 to 60			
Power Consumption (W)	500 (2W, 5W), 600 (7W, 8W)		700	1000 (12W), 1250 (15W), 1500 (18W, 20W)
Cooling Requirements	Heat sink required e.g. Genesis CX Water-Cooled Riser		Direct water-cooling of laser head required	
ENVIRONMENTAL CONDITIONS				
Ambient Temperature (°C)				
Operating	10 to 40			
Non-Operating	-10 to 60			
Relative Humidity (%)	5 to 95 ⁸			
MECHANICAL SPECIFICATIONS				
CE Marking	IEC 61010-1/EN 61010-1			
Dimensions (L x W x H)				
Laser Head ⁹	281 x 156 x 85 mm (11.06 x 6.14 x 3.35 in.)		214 x 98 x 68 mm (8.43 x 3.86 x 2.68 in.)	
Benchtop Power Supply	361 x 229 x 160 mm (14.22 x 9.01 x 6.29 in.)		406 x 236 x 171 mm (16.0 x 9.3 x 6.75 in.)	
Cables (laser head to controller)	3m (10 ft.)			
Weight				
Laser Head (including cables)	7.1 kg (15.6 lbs)	7.1 kg (15.6 lbs)	8.6 kg (18.9 lbs)	6.0 kg (13.2 lbs)
Benchtop Power Supply	6.0 kg (13.2 lbs.)	6.0 kg (13.2 lbs.)	6.0 kg (13.2 lbs.)	10.0 kg (22.0 lbs.)

¹ Optical parameters measured at the output plane of the laser head, unless noted all parameters valid at the nominal output power and for the lifetime of the unit.

² This product is offered in several output power versions. The output power can be adjusted down to 250 mW (G2-G10) and 750 mW (G12-G20).

³ Circularity defined as vertical diameter divided by horizontal diameter.

⁴ Negative value corresponds to a location inside head.

⁵ After 2-hour warm-up.

⁶ Measured at the output window.

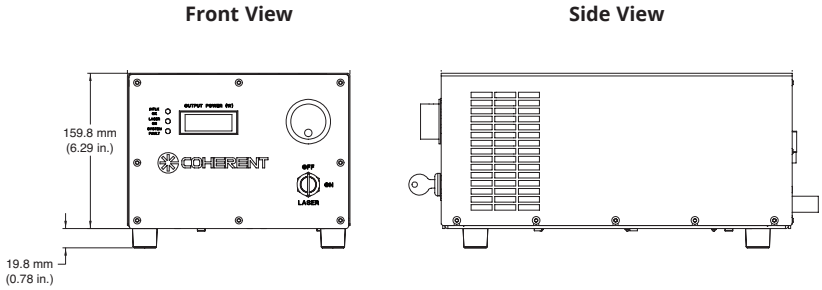
⁷ Measured over 8 hrs.

⁸ Non-condensing.

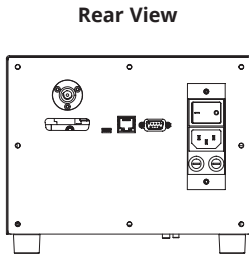
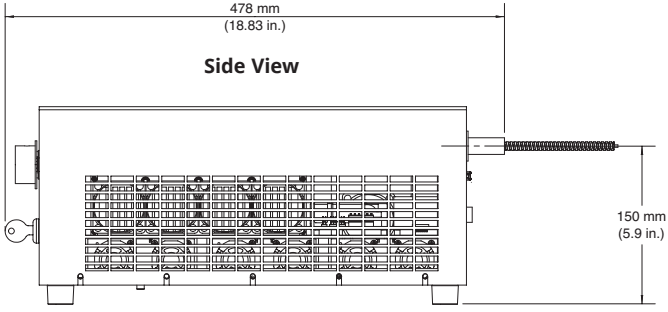
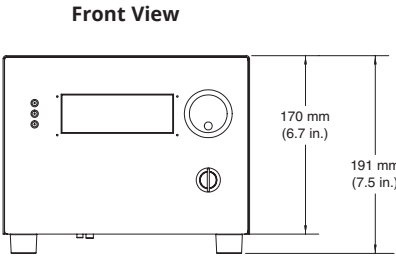
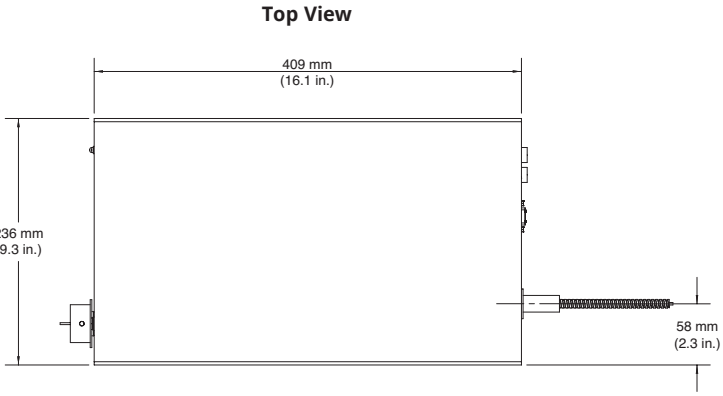
⁹ Back connector not included in laser head length dimension.

MECHANICAL SPECIFICATIONS

**Verdi G2/G5/G7/G8/G10
Benchtop Power Supply**

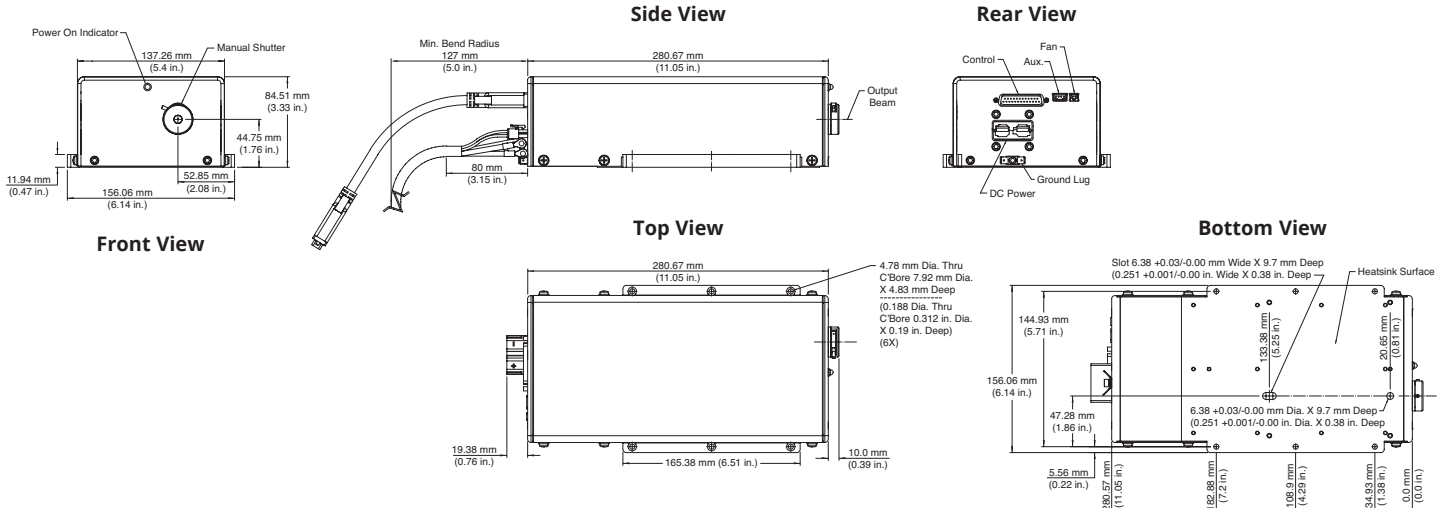


**Verdi G12/G15/G18/G20
Benchtop Power Supply**

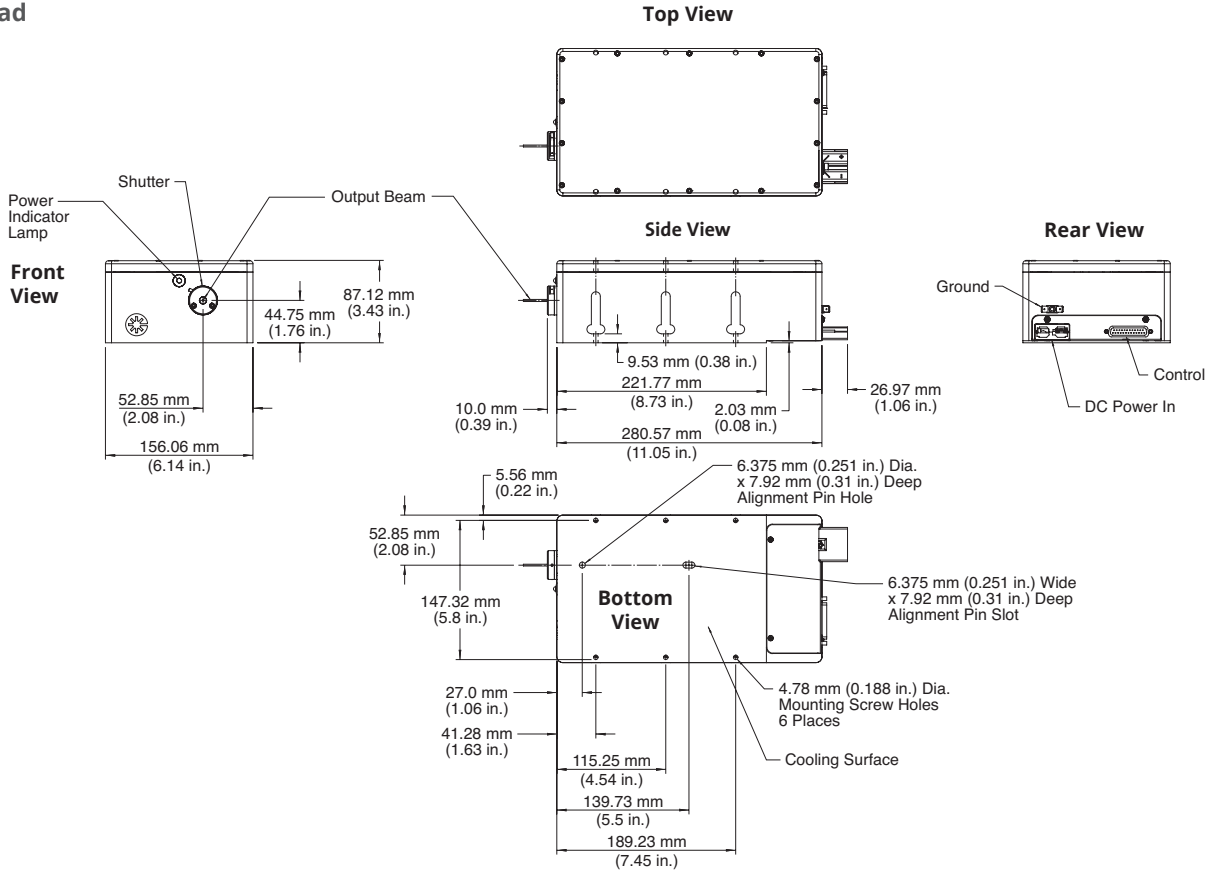


MECHANICAL SPECIFICATIONS

Verdi G2/G5/G7/G8 Laser Head

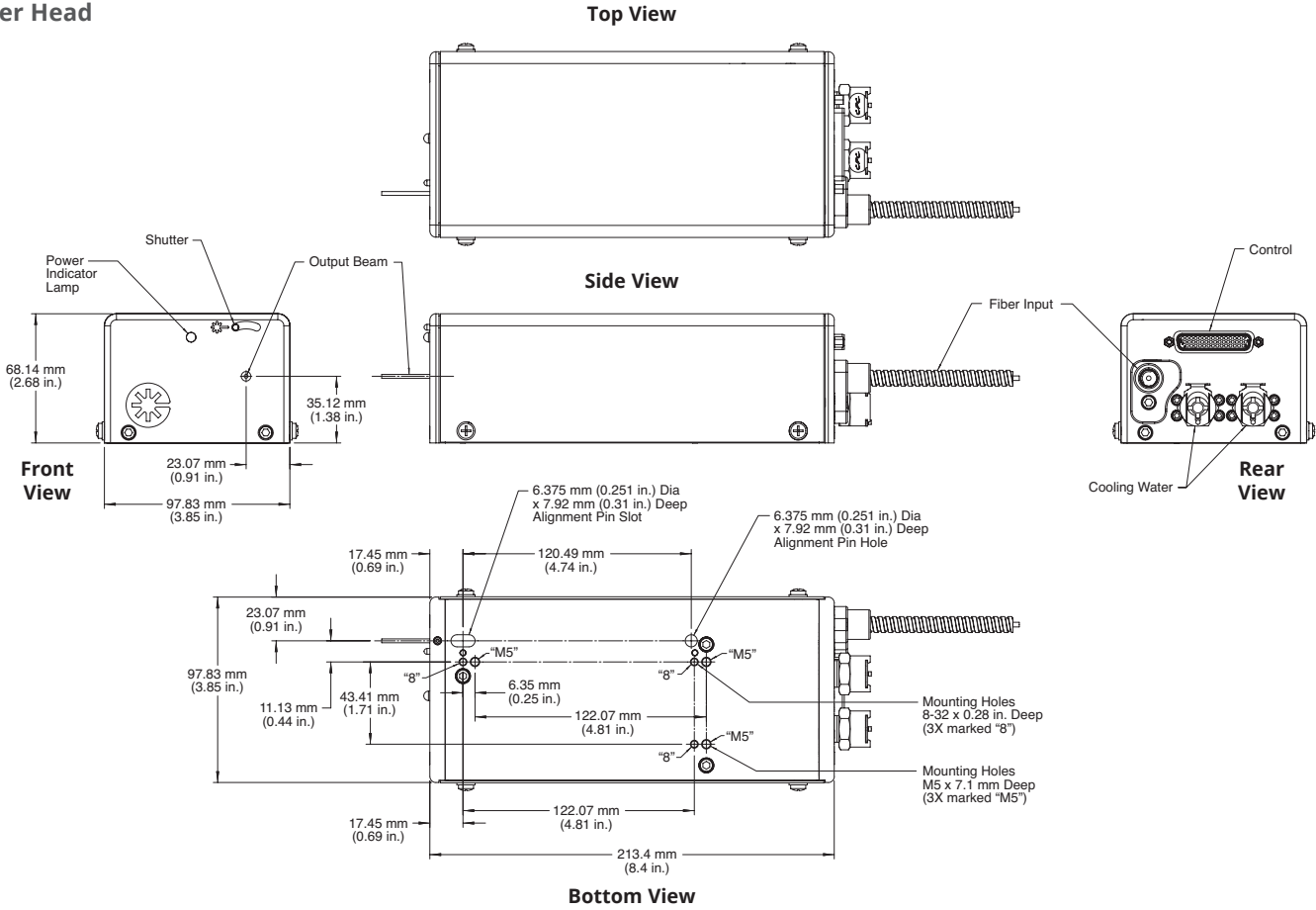


Verdi G10 Laser Head



MECHANICAL SPECIFICATIONS

**Verdi G12/G15/G18/G20
Laser Head**



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U.S. Patent No. 5,991,318
U.S. Patent No. 6,167,068
U.S. Patent No. 6,285,702
U.S. Patent No. 6,438,153
U.S. Patent No. 6,683,901
U.S. Patent No. 7,180,928



Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice. Coherent's scientific and industrial lasers are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by the Center for Devices and Radiological Health on all systems ordered for shipment after August 2, 1976.

Coherent offers a limited warranty for all Verdi G-Series lasers. For full details of this warranty coverage, please refer to the Service section at www.Coherent.com or contact your local Sales or Service Representative. Printed in the U.S.A. MC-029-09-0M0118Rev.F Copyright ©2018 Coherent, Inc.

