FINESSE CONTINUOUS WAVE LASER SERIES

ULTRA LOW NOISE AND HIGH SPECIFICATION LASERS

Novanta develops photonics solutions specializing in cutting-edge components and sub-systems for laser-based diagnostic, analytical, micromachining and fine material processing applications. Powerful lasers, coupled with advanced beam steering and intelligent sub-systems incorporating software and controls, deliver extreme precision and performance, tailored to our customers' demanding applications.

DESIGNED FOR SPECIFICATION

The finesse range of lasers offer top of the range performance at a high-power output of up to 16W. A novel cavity design and clever integrated electronics deliver exceptional power stability and ultra-low noise making this product ideal for the highly demanding Ti:S pumping applications whilst ensuring consistent and repeatable results for the Semiconductor inspection industry. Unique features in the form of CEP stabilization makes the finesse a perfect fit for Carrier Envelope Phase locking applications.

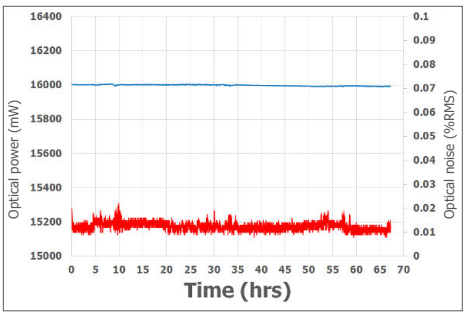


Fig. 1 Typical power and noise stability of the finesse pure laser. Power stability (blue) <0.05 % and the noise (red) ~0.01 % shown over a 70 hour period.

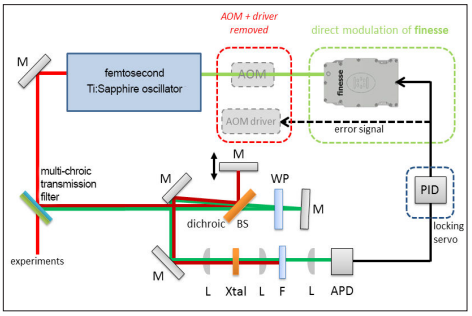


Fig. 2 finesse pure CEP removes the need for an AOM, offering simpler setup design and lower integrated CEP phase noise.

The finesse laser uses pure™ technology producing <0.02 % noise

UNIQUE FEATURES

Exceptional power stability and ultralow noise ensure consistent and accurate results.

- Novel cavity design fundamentally enabling exceptionally stable power output.
- Noise cancellation electronics actively work to deliver ultralow noise.

High power and exceptional wall plug efficiency enables applications.

- Up to 16W of continuous wave 532nm delivers high power on sample/target
- Exceptional wall plug efficiency results in low heat dissipation and reduces thermal management requirements

Reduce cost and complexity.

- CEP feedback loop allows for direct modulation of output using f2f interferometer signal; removing cost and complexity from system design

FINESSE CONTINUOUS WAVE LASER SERIES

Specification*	finesse 532	finesse 532 pure	finesse 532 pure CEP
Wavelength	532 nm		
Power	14 - 16 W		
Beam Diameter[1]	2.25 mm ± 0.25 mm		
Spatial Mode	TEM_{00}		
Ellipticity	<1:1.15		
Bandwidth	50 GHz		
Divergence	<0.4 mrad		
M-Squared	<1.1		
Modulation Depth	N/A	N/A	± 1%
Modulation Behaviour	N/A	N/A	<1 MHz
Phase Behaviour	N/A	N/A	~90° for 750 kHz
Power Stability (RMS)[2]	<0.10%	<0.100 % (<10 W) <0.050 % (10 W+)	<0.100 % (<10 W) <0.050 % (10 W+)
Noise (RMS)[3]	<0.1%	<0.030 % (<10 W) <0.020 % (10 W+)	<0.030 % (<10 W) <0.020 % (10 W+)
Noise Bandwidth	10 Hz - 100 MHz		
Beam Pointing Stability	<2 µrad/°C		
Polarization Ratio	>100:1		
Polarization Direction[4]	Horizontal		
Coherence Length	6 mm		
Beam Angle[5]	<1 mrad		
Operating Temperature	20 - 40 °C		

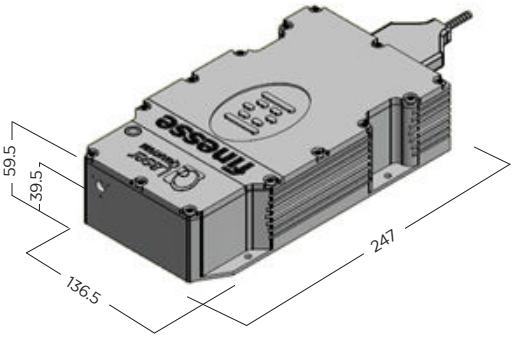
** Laser Quantum operates a continuous improvement programme which can result in specifications being improved without notice.*
[1] Beam diameter defined as the average of major and minor $1/e^2$ beam size measured at 25 cm from exit port, at specified power.
[2] Test duration >100 hrs at constant temperature.
[3] Measured at specified power.
[4] Vertical polarization is available upon request.
[5] Tolerance relative to head orientation.

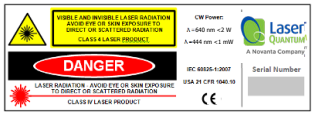
Novanta

www.novanta.com

FINESSE CONTINUOUS WAVE LASER SERIES

DIMENSIONS (MM)





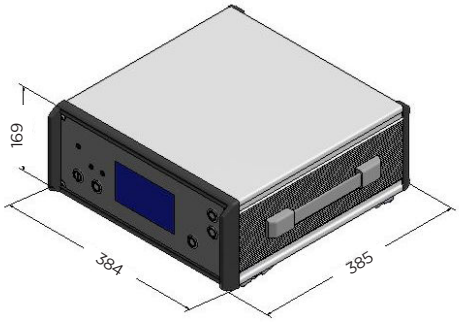
Drawings are for illustrative purposes only, please contact us for complete engineer's drawings

FLEXIBLE DESIGN

Customizable options available for your laser to optimize your application.

- **Field Replacements:** The finesse range benefits from pump diodes situated in the intelligent power controller to facilitate heat management and allows field replacement.
- **CEPLoQTM Technology:** directly modulates the pump power to maintain phase stabilisation without the use of an AOM; faster and more stable responses than the traditional method.
- **Intelligent control unit:** Allows easy setting and monitoring of the laser parameters. Incorporating PowerLoQ™ technology, the gem lasers show extreme power stability over long periods of use.
- **1200 g drop-test:** (Fig. 2) All gem lasers undergo a drop test to check that all components are correctly fitted prior to its extended 300 hour test period. This rigorous testing regime ensures long operational lifetimes.
- **RemoteApp™:** Works with software that allows the laser to be controlled locally, over the internet and connected directly to our support team for monitoring laser performance,

POWER SUPPLY UNIT



ADDITIONAL

- Weight: 3 kg
- Umbilical length: 2 m
- Vertical polarization is available on request
- Capable of pumping an commercial Ti:Sapphire oscillator
- Fiber coupling available
- LabView drivers available
- 5 years/15,000 hours (PSU 'on' time) warranty for scientific users

CONTACT US

Americas & Asia Pacific
Novanta Headquarters
Bedford, USA
P +1-781-266-5700

Europe, Middle East, Africa
Novanta Europe GmbH
Wackersdorf, Germany
P +49-9431-7984-0

Milan, Italy
P +39-039-793-710

China
Novanta Sales & Service Office
Shenzhen, China
P +86-755-8280-538

Suzhou, China
P +86-512-6283-7080

Photonics.China@Novanta.com

Japan
Novanta Service & Sales Office
Tokyo, Japan
P +81-3-5753-2460

Photonics.Japan@Novanta.com

Novanta

www.novanta.com