

Mephisto MOPA

Ultra-Narrow Linewidth High-Power CW DPSS Laser



Features

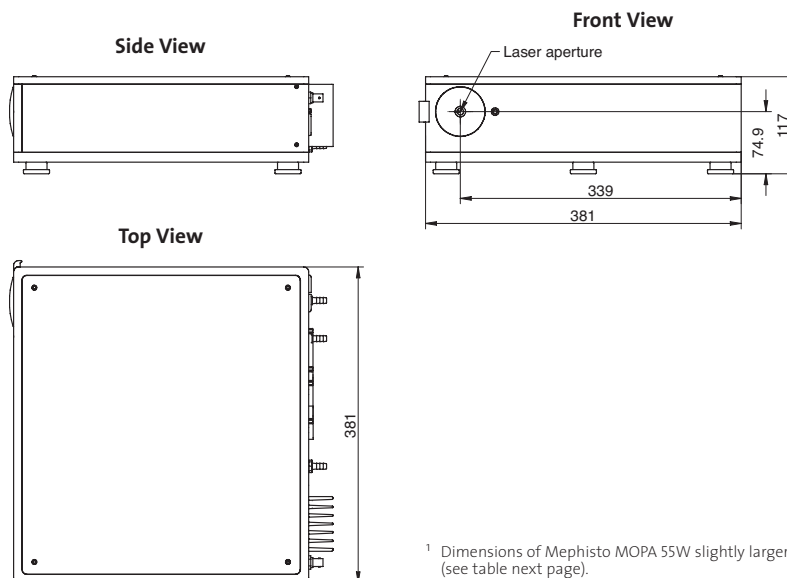
- Master oscillator power amplifier (MOPA) configuration
- Monolithic non-planar ring oscillator (NPRO) seed laser
- Extremely long coherence length
- Active intensity noise reduction (Noise Eater)
- User-installed, turn-key operation
- Low noise control electronics

Applications

- Atom trapping and cooling
- Gravitational wave studies
- Quantum optics and phenomena
- Nonlinear optics pump source (SHG, DFG, OPO)
- Laser-based metrology

Mechanical Specifications¹

(all dimensions in mm)



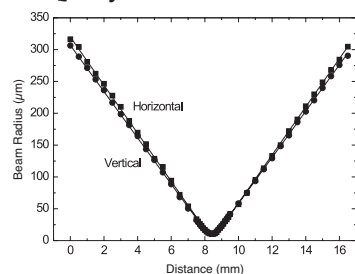
¹ Dimensions of Mephisto MOPA 55W slightly larger (see table next page).

Superior Reliability & Performance

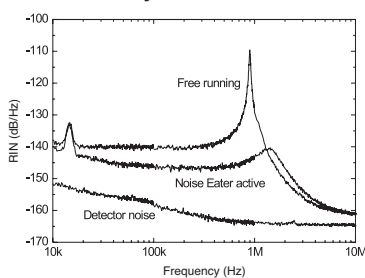
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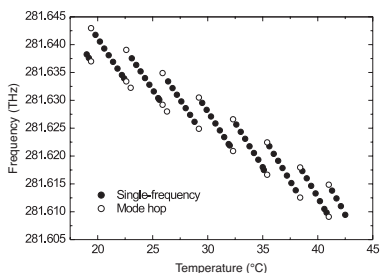
Beam Quality



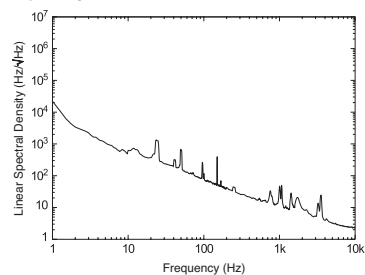
Relative Intensity Noise



Thermal Frequency Tuning



Frequency Noise



Specifications

Specifications	Mephisto MOPA
Laser Power at 1064 nm (W)	8, 25, 42, 55
Operational Mode	Continuous wave
Spatial Mode	TEM ₀₀ (M ² <1.3)
Beam Roundness	<1.1
Thermal Tuning Coefficient (GHz/K)	-3
Thermal Tuning Range (GHz/K)	30
Thermal Response Bandwidth (Hz)	≅1
PZT Tuning Coefficient (MHz/V)	≅1
PZT Tuning Range (MHz)	±65
PZT Response Bandwidth (kHz)	100
Emission Spectrum	Single-frequency
Spectral Linewidth (over 100 ms)(kHz)	≅1
Coherence Length (km)	>1
Frequency Stability ¹ (MHz/min.)	≅1
Relative Intensity Noise (RIN), f >10 kHz (dB/Hz)	<-90
RIN with Noise Eater ² (NE), f >20 kHz (dB/Hz)	<-130
Intensity Noise without NE, 10 Hz to 2 MHz (% rms)	<0.2
Intensity Noise with NE, 10 Hz to 2 MHz (% rms)	<0.06
Laser Head Size (W x H x L) for 8W, 25W and 42W for 55W	381 x 117 x 386 mm (15.0 x 4.6 x 15.2 in.) 461 x 117 x 386 mm (18.1 x 4.6 x 15.2 in.)
Laser Head Weight for 8W, 25W and 42W for 55W	26 kg (57.3 lbs.) 28 kg (61.7 lbs.)
Laser Controller Master Size (W x H x L)	340 x 235 x 90 mm (13.4 x 9.25 x 3.5 in.)
Laser Controller Amplifier Size (W x H x L)	420 x 450 x 135 mm (16.5 x 17.7 x 5.3 in.)
Laser Controller Master Weight	4.2 kg (9.3 lbs.)
Laser Controller Amplifier Weight	11.9 to 13.1 kg ³ (26.2 to 28.9 lbs.)
Laser Head Cooling	Water cooling ⁴
Water Flow Rate	>3 l/min.
Water Pressure at Laser Head	<4 bar
Water Temperature (°C)	25 ⁵
Cooling Power (chiller)(W)	300 to 600 ³

- ¹ Measured at constant room temperature.
- ² Noise Eater is standard with every Mephisto MOPA.
- ³ Depending on model.
- ⁴ Non-deionized water recommended. Water chiller not included.
- ⁵ Operation above dew point required to avoid condensation.

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 Mephisto 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.



www.Coherent.com

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