



Mamba IR

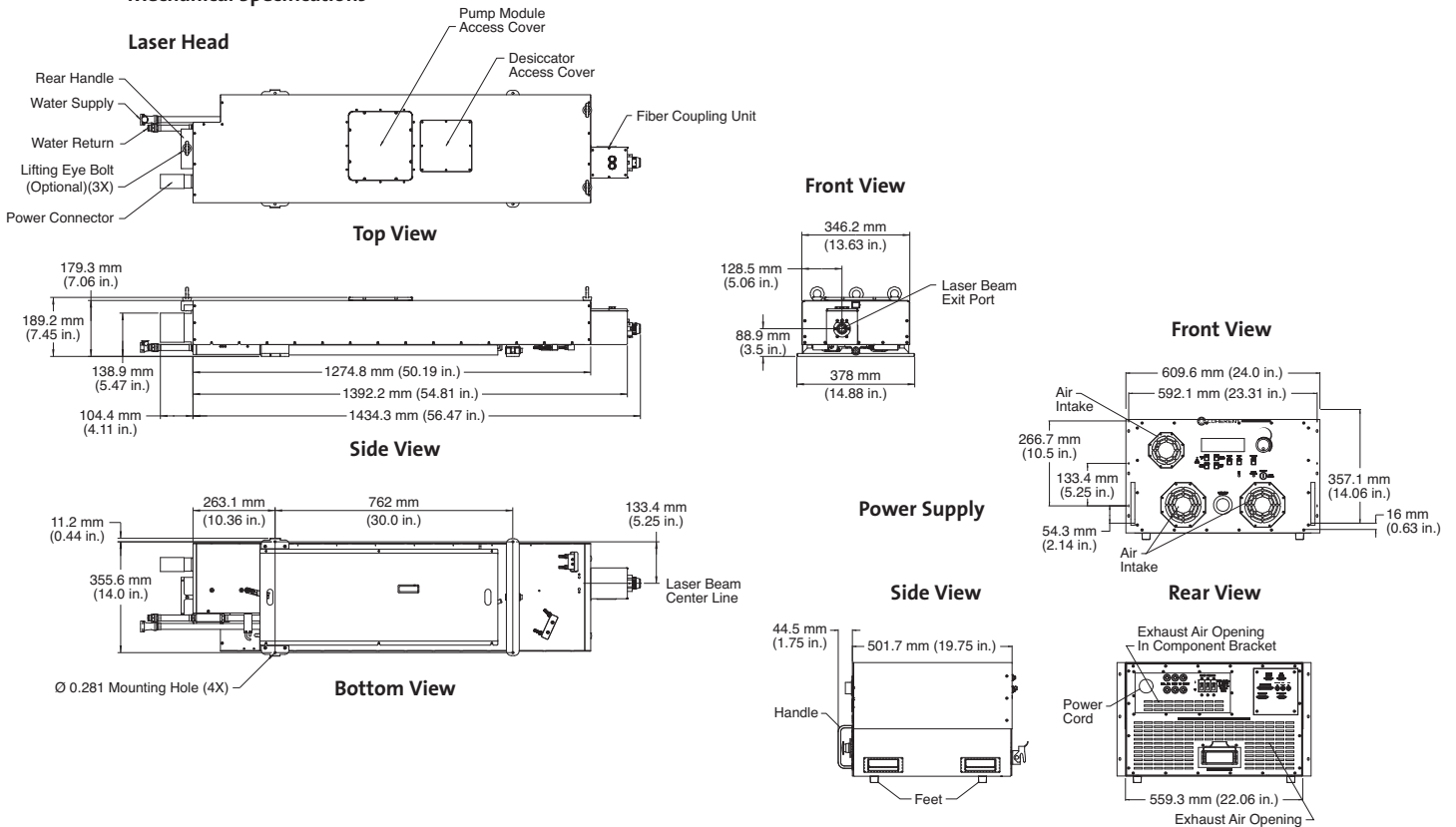
High-Power, Q-Switched, Multimode IR Laser



Features

- >525W at 10 kHz, Q-switched output power
- Burst mode, pulse on demand, ramp suppression, and 1st pulse equalization
- 100% to 1% power adjustment for process development and optimization
- Integrated fiber coupling unit with fiber beam delivery
- PermAlign solder-bonded optics technology
- PulseLife water-cooled, hard soldered horizontal linear arrays with MTTF >100,000 hours
- Field replaceable pump diode modules
- Detachable umbilical cable for easy installation
- No de-ionized water required

Mechanical Specifications



Superior Reliability & Performance

Mamba™ IR

High-Power, Q-Switched, Multimode IR Laser

System Specifications

Wavelength (nm)	1064
Average Output Power (W)	>450 at 6 kHz >525 at 10 kHz >575 at 20 kHz
Repetition Rate Range (kHz)	6 to 50
Pulse Width (ns)	<65 at 6 kHz <90 at 10 kHz <150 at 20 kHz
Spatial Mode	Multimode
M ²	~20
Beam Waist Diameter (mm)	4.75 ±15%
Beam Waist Location (mm)(z _{0x} + z _{0y})/2	-900 mm to -300 mm (inside laser head) w.r.t. front bezel
Beam Divergence Full Angle (mrad)	<5
Beam Circularity (%)	>85
Beam Pointing Stability (μrad/°C)	<100
Polarization Ratio	Unpolarized
Pulse-to-Pulse Energy Stability (rms 1σ)	<1%
Average Power Stability (rms 2σ)	<2% over 8 hours
Lateral Beam Position Accuracy (near-field boresight)	±1 mm w.r.t. mounting position
Angular Beam Position Accuracy (far-field boresight)	±5 mrad w.r.t. to optical centerline as defined on Coherent drawing
Maximum CW Leakage (W)	<5
Pulse On Demand	Yes
1 st Pulse Suppression	Yes
Burst Mode	Yes
Process Shutter	Yes
Power Monitor	Yes

Utility and Environmental Requirements

AC Power	3-phase with ground and no neutral connection 200 to 230 VAC (phase to phase) at 50 to 60 Hz Maximum power input 13 kVA
Chiller	3-phase with ground and no neutral connection 208 to 230 VAC (phase to phase) at 60 Hz 200 to 220 VAC (phase to phase) at 50 Hz Max current 12.2A Required facility water is >2 GPM at 20°C
Ambient Temperature Range	-25°C to +65°C (non-operating temperature) 15°C to 35°C (operating temperature)
Relative Humidity (%)	10 to 80 (non-condensing)
Power Supply	
Size (L x W x H)	510 x 610 x 360 mm (20 x 24 x 14 in.)
Weight	52 kg (114 lbs.)
Laser Head	
Size (L x W x H)	1275 x 378 x 190 mm (50.2 x 14.9 x 7.5 in.)
Weight	~85 kg (187 lbs.)
Chiller	
Size (L x W x H)	706 x 544 x 810 mm (27.8 x 21.4 x 31.9 in.)
Weight	122 kg (270 lbs.)
Umbilical Cable Length (Laser Head to Power Supply)	5m (15 ft.)

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 Mamba 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.



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