

DIAMOND GEM-100L (10.6 μm)

Liquid-Cooled RF-Excited OEM Industrial CO₂ Laser

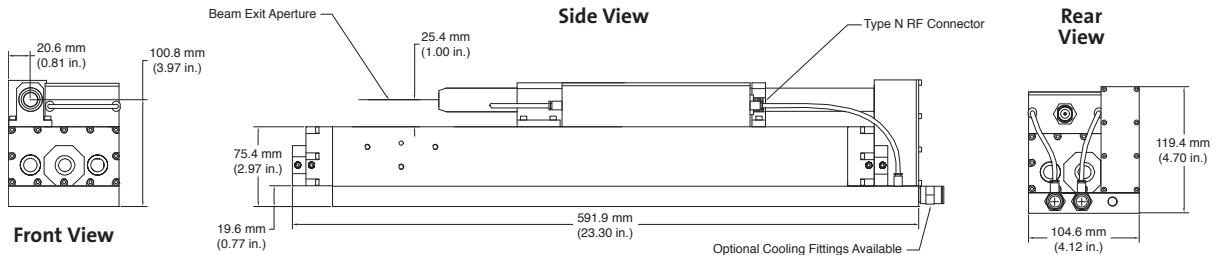
Features

- Outstanding beam quality and stability
- Highly compact and lightweight, two-piece package
- All-metal seals for long life
- Low-cost OEM configuration
- Interchangeable laser heads and RF supplies
- Linear polarization
- Wide operating power range
- Fast rise/fall time
- Up to 100% duty cycle operation

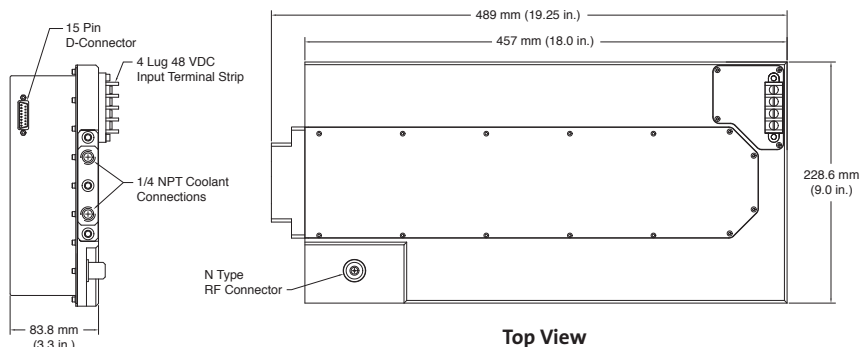


Mechanical Specifications

Laser Head



Power Supply



Superior Reliability & Performance

DIAMOND™ GEM™-100L (10.6 μm)

Liquid-Cooled RF-Excited OEM Industrial CO₂ Laser

System Specifications

Wavelength (μm)(fixed)	10.55 to 10.63
Output Power ¹ (W)	100
Power Stability ² (%)	<±3
Mode Quality	>95% TEM ₀₀ , M ² <1.3
Beam Size (mm)	3.8 ±0.4
Beam Divergence (mrad, full angle)	<5.0 mrad full angle
Polarization (fixed linear)	>100 to 1
Pulse Frequency (kHz)	TTL up to 25
Weight of Head	10.7 kg (23.5 lbs.)
Weight of Power Supply	8.8 kg (19.5 lbs.)
Dimensions	Shown above

Facilities Requirements

Input Power	48 VDC 50A (65A peak for a minimum of 1 msec) ±2% regulation with remote sense
Cooling	
Heat Load	2200W (max.)
Flow Rate	>2 gpm
Temperature	15 to 30°C (59 to 113°F)
Coolant	Water +25% Dow Frost* Coolant
Environmental	
Temperature	15 to 45°C (59 to 113°F)
Altitude	<2000 m (6500 ft.)
Humidity	Non-condensing

¹ Derate power by 1% / °C for laser head temperatures above 25°C.
² Power stability measured at constant duty cycle (15% to 100%) after 10-minute warm-up.
 * Dow Frost is a trademark of the Dow Chemical Company
 Specifications are subject to change without notice.

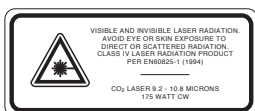
Coherent, Inc. guarantees that the output power of the GEM-100L (10.6 μm) will exceed the rated power for a period of one year, independent of the actual operating time. Coherent, Inc. also warrants to the original purchaser for a period of one year from the date of delivery that the GEM-100L (10.6 μm) is free from defects in material and workmanship. The warranty does not apply to any unit damaged by accident, abuse or operation in a manner inconsistent with the procedures and specifications outlined in the manual supplied with the laser.

The GEM-100L (10.6 μm) is a laser component that does not include all safety features as required by the FDA and the Center for Devices and Radiological Health (CDRH). It is sold solely to qualified manufacturers who in their end product will supply all interlocks and indicators, and will comply fully with CDRH regulations and/or local regulatory agencies.



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U.S. Patent No. 6,192,061
 U.S. Patent No. 6,788,722
 U.S. Patent No. 6,798,816
 U.S. Patent No. 6,999,490
 U.S. Patent No. 7,453,918
 Printed in the U.S.A. MC-034-11-0Mo811
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