



# DIAMOND GEM-100L (9.6 $\mu\text{m}$ )

Liquid-Cooled RF-Excited OEM Industrial CO<sub>2</sub> Laser

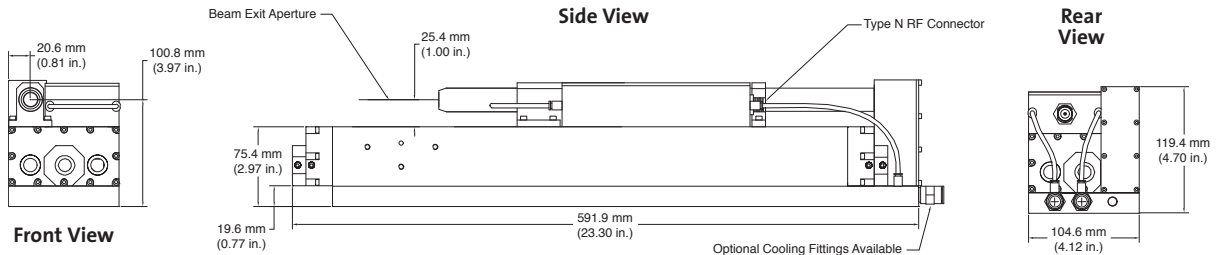
## Features

- 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 modulation response, rise/fall time
- Up to 100% duty cycle operation

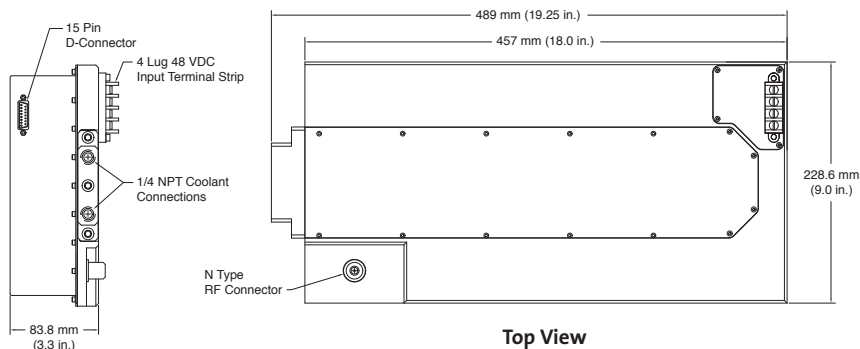


## Mechanical Specifications

### Laser Head



### Power Supply



Superior Reliability & Performance

# DIAMOND™ GEM™-100L (9.6 μm)

## Liquid-Cooled RF-Excited OEM Industrial CO<sub>2</sub> Laser

### System Specifications

|                                    |  |
|------------------------------------|--|
| Wavelength (μm)(fixed)             | 9.5 to 9.7                                   |
| Output Power <sup>1</sup> (W)      | 80   |
| Power Stability <sup>2</sup> (%)   | <±3  |
| Mode Quality                       | >95% TEM <sub>00</sub> , M <sup>2</sup> <1.3 |
| Beam Size (mm)                     | 3.75 ±0.25                                   |
| Beam Divergence (mrad, full angle) | <4.5 mrad full angle                         |
| Polarization (fixed linear)        | >100 to 1                                    |
| Pulse Frequency (kHz)              | Up to 25                                     |
| Weight of Head                     | 10.7 kg (23.5 lbs.)                          |
| Weight of Power Supply             | 8.8 kg (19.5 lbs.)                           |
| Dimensions                         | See front side                               |

### Facilities Requirements

|                     |   |
|---------------------|---|
| Input Power         | 48 VDC 50A (65A peak for a minimum of 1 msec)<br>±2% regulation with remote sense |
| Cooling             |   |
| Heat Load (W)(max.) | 2200  |
| Flow Rate (gpm)     | >2  |
| Temperature         | 15 to 30°C (59 to 86°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  |

<sup>1</sup> Derate power by 1% / °C for laser head temperatures above 25°C.  
<sup>2</sup> 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 (9.6 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 (9.6 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 (9.6 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.



[www.Coherent.com](http://www.Coherent.com)

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 U.S. Patent No. 6,788,722  
 U.S. Patent No. 6,798,816  
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