



DIAMOND C-40L (10.2 μm)

Liquid-Cooled RF-Excited OEM Industrial CO₂ Laser

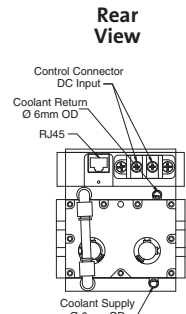
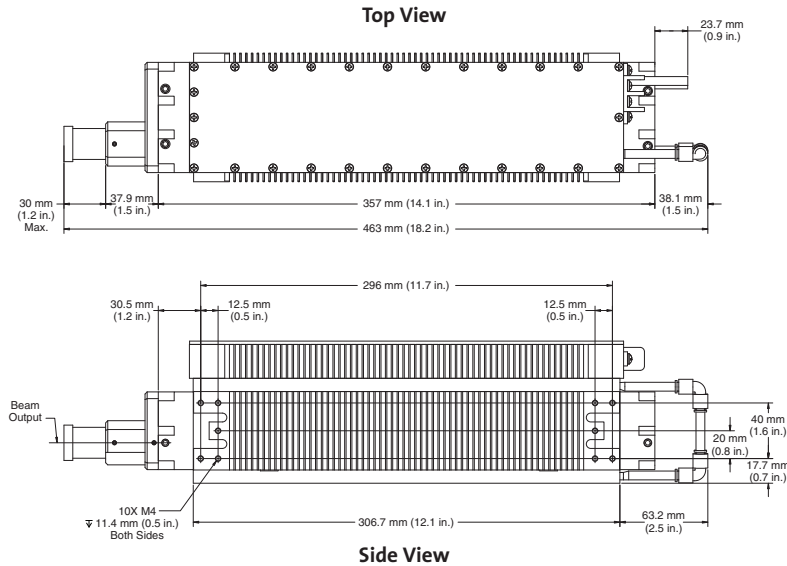
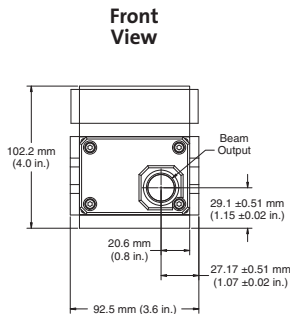


Features

- Ultra-compact
- Circular beam
- Outstanding beam quality
- Excellent power stability
- Single, integrated package
- Linear polarization
- Low-cost OEM configuration
- Fast rise/fall time
- All-metal seals for long life
- Wide operating power range
- CW or modulated up to 25 kHz

Mechanical Specifications

Laser Head



Superior Reliability & Performance

DIAMOND™ C-40L (10.2 μm)

Liquid-Cooled RF-Excited OEM Industrial CO₂ Laser

System Specifications

Wavelength (μm)	10.11 to 10.31
Optical Output Power ¹ (W)	40
Power Stability ² (%)	±5
Mode Quality (M ²)	<1.3
Beam Size (mm)	3.6 ±0.5 at output aperture
Beam Divergence (mrad, full angle)	<5
Polarization	>100 to 1 (fixed linear, parallel to width dimension)
Operating Frequency and Duty Cycle	0 to 25 kHz, 0 to 100% DC

Configuration and Facility Requirements

Weight	6.4 kg (14.0 lbs)
Dimensions ³ (L x W x H)	460.8 x 92.5 x 104.1 mm (18.15 x 3.64 x 4.1 in.)
Input Power	48VDC ±2% regulation, <±1% P-P noise/ripple, 14A max. avg., with 20A peak for 1 msec. minimum, measured at input terminals
Heat Dissipation (W)	<675
Coolant	Distilled water with 25 to 35% Dow Frost*
Coolant Flow Rate	>3.8 lpm (1.0 gpm)
Maximum Coolant Pressure	6.9 bar (100 psig)
Max. Pressure Differential (@ 1.0 gpm)	1.5 bar (22 psig)
Coolant Temperature	15 to 30°C (59 to 86°F)
Maximum Case Temperature	<60°C (140°F)
Operating Environment	
Temperature	5 to 40°C (41 to 113°F)
Altitude	<2000 m (6500 ft.)
Humidity	Non-condensing
Shipping/Storage Environment	-10 to 60°C (14 to 140°F), non-condensing

¹ Power measured at 25°C and derated by 1%/C for higher laser head temperatures.

² Power stability based on $\pm(P_{max} - P_{min}) / (2 \cdot P_{max})$ average power measurement at constant duty cycle after 10-minute warmup at operating condition.

³ The overall height dimension is taller for the Dual Chillplate version of this item.

* Dow Frost is a trademark of the Dow Chemical Company.

Coherent, Inc. guarantees that the output power of the C-40L will exceed the rated power for a period of 24 months, independent of the actual operating time. Coherent, Inc. also warrants to the original purchaser for a period of 24 months from the date of delivery that the C-40L 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 C-40L 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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