



# DIAMOND C-40 Series

## Low Power CO<sub>2</sub> OEM Lasers for Marking and Engraving Applications

The Coherent C-40 CO<sub>2</sub> laser provides 40 Watts of power with best-in-class reliability and package size, making it the OEM laser of choice for high performance laser marking and engraving systems. This production-ready, easy-to-integrate laser system enables high quality laser marking with low maintenance and operating costs. The C-40 is ideal for laser processing of many materials, including paper, plastics, wood, leather, cloth and more.

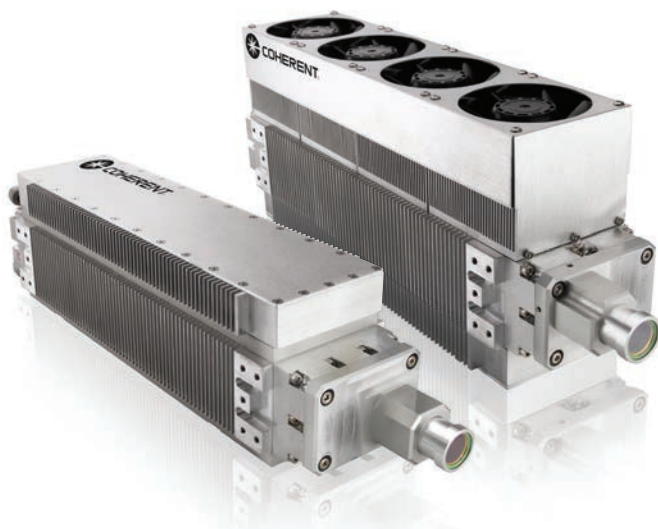
The C-40 is part of the Coherent C-Series family of products which offer a full range of power levels – from 20W to 70W. Based on a sealed waveguide and inte-grated RF power supply design, the C-40 boasts outstanding production-proven reliability (lifetime >50,000 hours), while delivering superior beam quality and power stability in a compact, flexible and integrated package. The modular platform design provides cost-effective optimization of operating wavelength (from 9.3 to 10.6 μm) and cooling configuration (air/liquid), enabling rapid adaptability to changing applications and market needs.

### FEATURES & BENEFITS

- Versatile power range with high stability and reliability
- Industry leading compact size with integrated RF power supply
- High quality laser processing on a wide range of materials
- Wide power range with constant wave (CW) or pulse width modulation (PWM) control
- Available in multiple wavelength and cooling configurations (air or liquid)

### APPLICATIONS

- Marking
- Engraving
- Cutting



| SPECIFICATIONS <sup>1</sup>             | DIAMOND C-40A (10.2 μm)                               | DIAMOND C-40A  | DIAMOND C-40L (10.2 μm)  | DIAMOND C-40L  |
|---|---|----------------|--|----------------|
| Wavelength (μm)                         | 10.11 to 10.31  | 10.55 to 10.63 | 10.11 to 10.31   | 10.55 to 10.63 |
| Optical Output Power <sup>1</sup> (W)   | 40  |                |  |                |
| Power Stability <sup>2</sup> (%)        | ±5  |                |  |                |
| Mode Quality (M <sup>2</sup> )          | <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 200 kHz, 0 to 100% DC                            |                |  |                |
| CONFIGURATION AND FACILITY REQUIREMENTS |   |                |  |                |
| Weight                                  | 6.8 kg (15.0 lbs.)                                    |                | 6.4 kg (14.0 lbs.)   |                |
| Dimensions (L x W x H)                  | 425.0 x 92.5 x 154.5 mm<br>(16.73 x 3.64 x 6.08 in.)  |                | 460.8 x 92.5 x 104.1 mm<br>(18.15 x 3.64 x 4.1 in.) <sup>3</sup> |                |
| Input Power <sup>4</sup>                | 48 VDC, 13A   |                |  |                |
| Cooling                                 | Air   |                | Liquid   |                |
| Heat Dissipation (W)                    | <675  |                |  |                |
| 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             |                |  |                |
| 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 (at 1.0 gpm) | 1.5 bar (22 psig)                                     |                |  |                |
| Coolant Temperature                     | 15 to 30°C (59 to 86°F)                               |                |  |                |

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

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

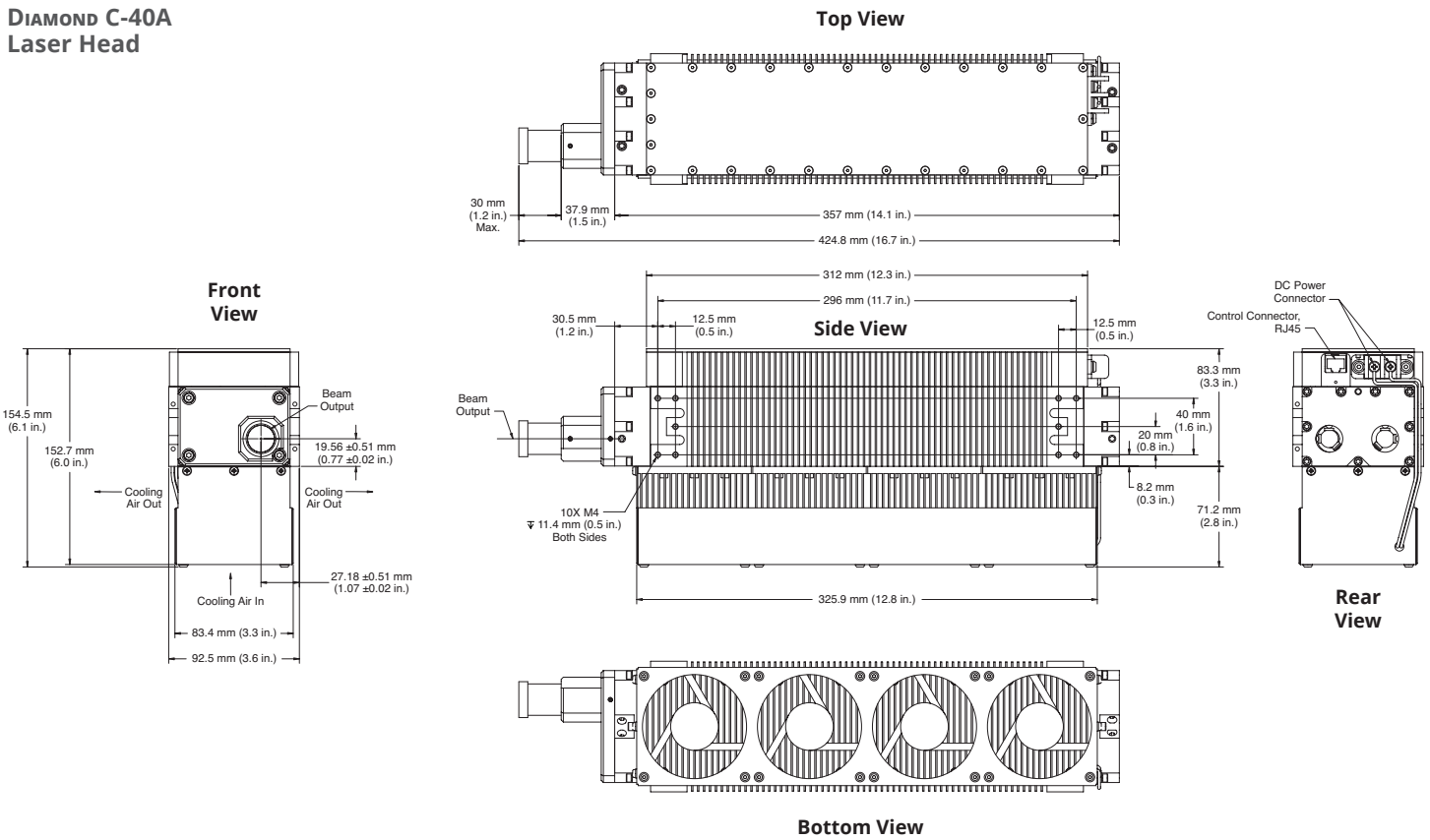
<sup>3</sup> The overall height dimension is taller for the Dual Chillplate version of this item.

<sup>4</sup> Optional fans add 1A.

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

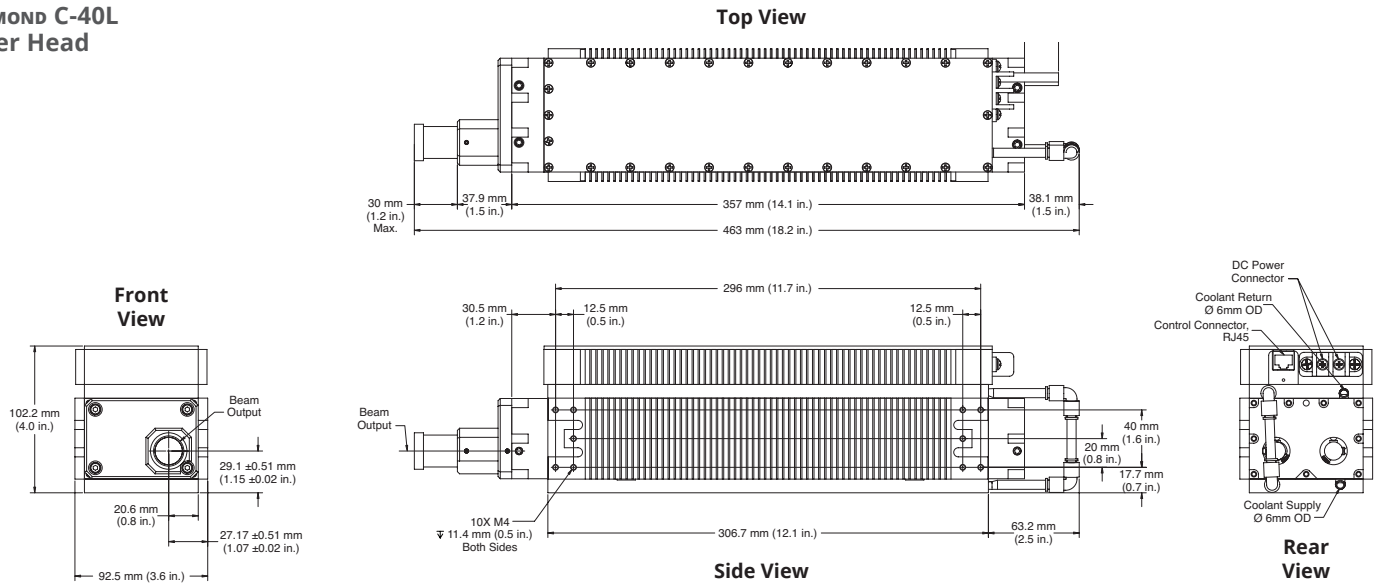
## MECHANICAL SPECIFICATIONS

### DIAMOND C-40A Laser Head



## MECHANICAL SPECIFICATIONS

### DIAMOND C-40L Laser Head



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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 DIAMOND C-40 Series Lasers. For full details of this warranty coverage, please refer to the Service section at [www.coherent.com](http://www.coherent.com) or contact your local Sales or Service Representative. MC-032-14-0M1220Rev.C Copyright ©2020 Coherent, Inc.

