

DIAMOND C-70 Series

Low Power CO₂ OEM Lasers for Marking, Engraving, and Cutting Applications

The Coherent C-70 CO₂ laser provides 70 Watts of power with best-in-class reliability and package size, making it well suited for demanding high speed and large area laser marking and engraving systems, as well as many cutting applications. This production-ready, easy-to-integrate laser system enables high performance with low maintenance and operating costs. The C-70 is ideal for laser processing of many materials, including paper, plastics, wood, rubber, leather, cloth and more.

The C-70 is part of the Coherent C-series family of products which offer a full range of power levels – from 20 W to 70 W. Based on a sealed waveguide and integrated RF power supply design, the C-70 boasts outstanding production-proven reliability, while delivering excellent beam quality, power stability and pulse control 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

- Superior beam quality, power stability and reliability
- Industry leading compact size with integrated RF power supply
- Versatile power range and pulse frequency control (CW or PWM)
High speed laser processing on a wide range of materials
- Available in multiple wavelengths (9.3 μm to 10.6 μm) and cooling configurations (air or liquid)

APPLICATIONS

- Marking
- Engraving
- Cutting
- Medical and Dental
- Food, Beverage and Pharmaceutical Packaging
- Microelectronics and Consumer Electronics
- Automotive and Electronic Components

SPECIFICATIONS ¹	DIAMOND C-70A (10.2 μm)	DIAMOND C-70A	DIAMOND C-70L (10.2 μm)	DIAMOND C-70L
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 ¹ (W)	70			
Power Stability ² (%)	±5		±3	
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 200 kHz, 0 to 100% DC			
CONFIGURATION AND FACILITY REQUIREMENTS				
Weight	10.2 kg (22.5 lbs.)		9.7 kg (21.5 lbs.)	
Dimensions (L x W x H)	604.9 x 92.5 x 154.5 mm (23.8 x 3.64 x 6.08 in.)		647.5 x 92.5 x 104.1 mm (25.5 x 3.64 x 4.1 in.)	
Input Power ³	48 VDC, 20A			
Cooling	Air		Liquid	
Heat Dissipation (W)	<1200			
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	7 kg/cm ² (100 psig)			
Max. Pressure Differential (at 1.0 gpm)	3.2 bar (46 psig)			
Coolant Temperature	15 to 30°C (59 to 86°F)			

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

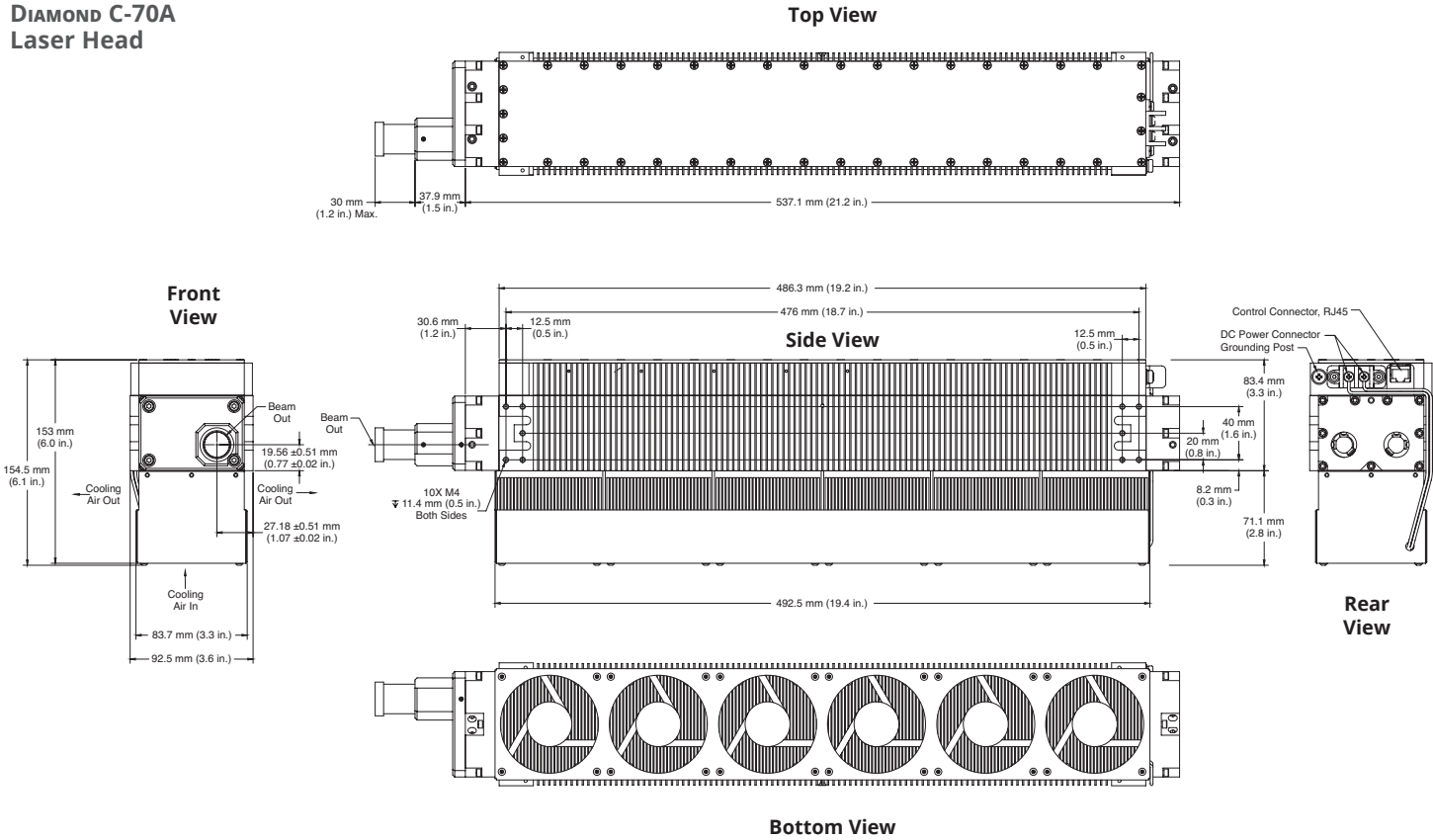
² Power stability based on $\pm(P_{max} - P_{min})/(2 \cdot P_{max})$ average power measurement at constant duty cycle after 10-minute warm-up at operating condition.

³ Optional fans add 1A.

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

MECHANICAL SPECIFICATIONS

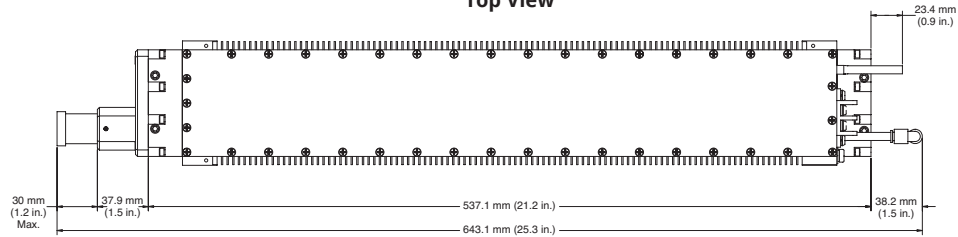
DIAMOND C-70A
Laser Head



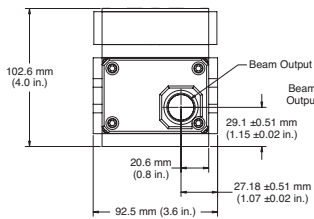
MECHANICAL SPECIFICATIONS

DIAMOND C-70L
Laser Head

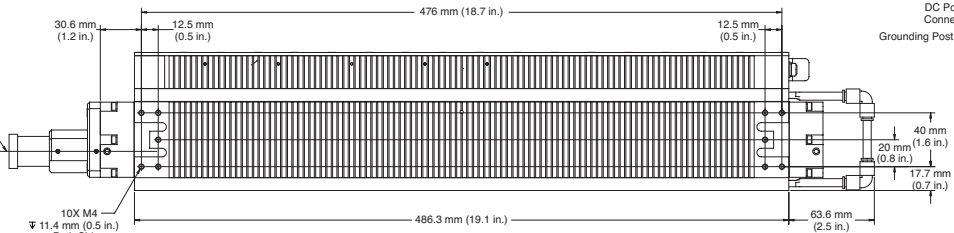
Top View



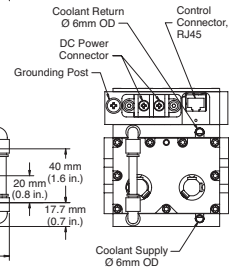
Front View



Side View



Rear View



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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-70 Series 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. MC-034-14-0M1120Rev.D Copyright ©2020 Coherent, Inc.

