

DIAMOND C-20 Series

Low Power CO₂ OEM Lasers for Marking and Engraving Applications

The Coherent C-20 CO₂ laser provides 20 Watts of power with best-in-class reliability and package size, making it the OEM laser of choice for cost-effective and compact laser marking and coding systems. This production-ready, easy-to-integrate air-cooled laser enables high quality laser marking and coding with low maintenance and operating costs. The C-20 is ideal for laser processing of many materials, including paper, plastics, wood, rubber, leather, cloth and more.

The C-20 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 integrated RF power supply design, the C-20 boasts outstanding production-proven reliability (lifetime >50,000 hours), while delivering superior beam quality and power stability in a compact, economical and flexible package. The modular platform design provides cost-effective optimization of operating wavelength (from 9.3 to 10.6 μm), enabling rapid adaptability to changing applications and market needs.



Superior Reliability & Performance

DIAMOND C-20 Series Features:

- **Superior beam quality and power stability**
- **Low maintenance air-cooled design with rugged reliability**
- **Flexible, extremely compact and easy to install**
- **Economical, high quality laser processing on a wide range of materials**
- **Optimized performance at multiple wavelengths (9.3 μm or 10.6 μm)**

DIAMOND C-20 Series Applications:

- **Marking**
- **Engraving**

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System Specifications¹

	C-20A (9.3 μm)	C-20A
Wavelength (μm)	9.24 to 9.35	10.55 to 10.63
Optical Output Power ¹ (W)	10	20
Power Stability ² (%)	±10	±8
Mode Quality (M ²)	<1.2	
Beam Size (mm)		1.8 ±0.2
Beam Divergence (mrad, full angle)		7.5 ±0.5
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	6.6 kg (14.5 lbs.)
Dimensions (L x W x H)	357 x 92.5 x 154.5 mm (14.1 x 3.64 x 6.08 in.)
Input Power ³	48 VDC, 11.5A
Cooling	Air
Heat Dissipation (W)	<575
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 $\pm(P_{\max} - P_{\min}) / (2 * P_{\max})$ average power measurement at constant duty cycle after 10-minute warm-up at operating condition.

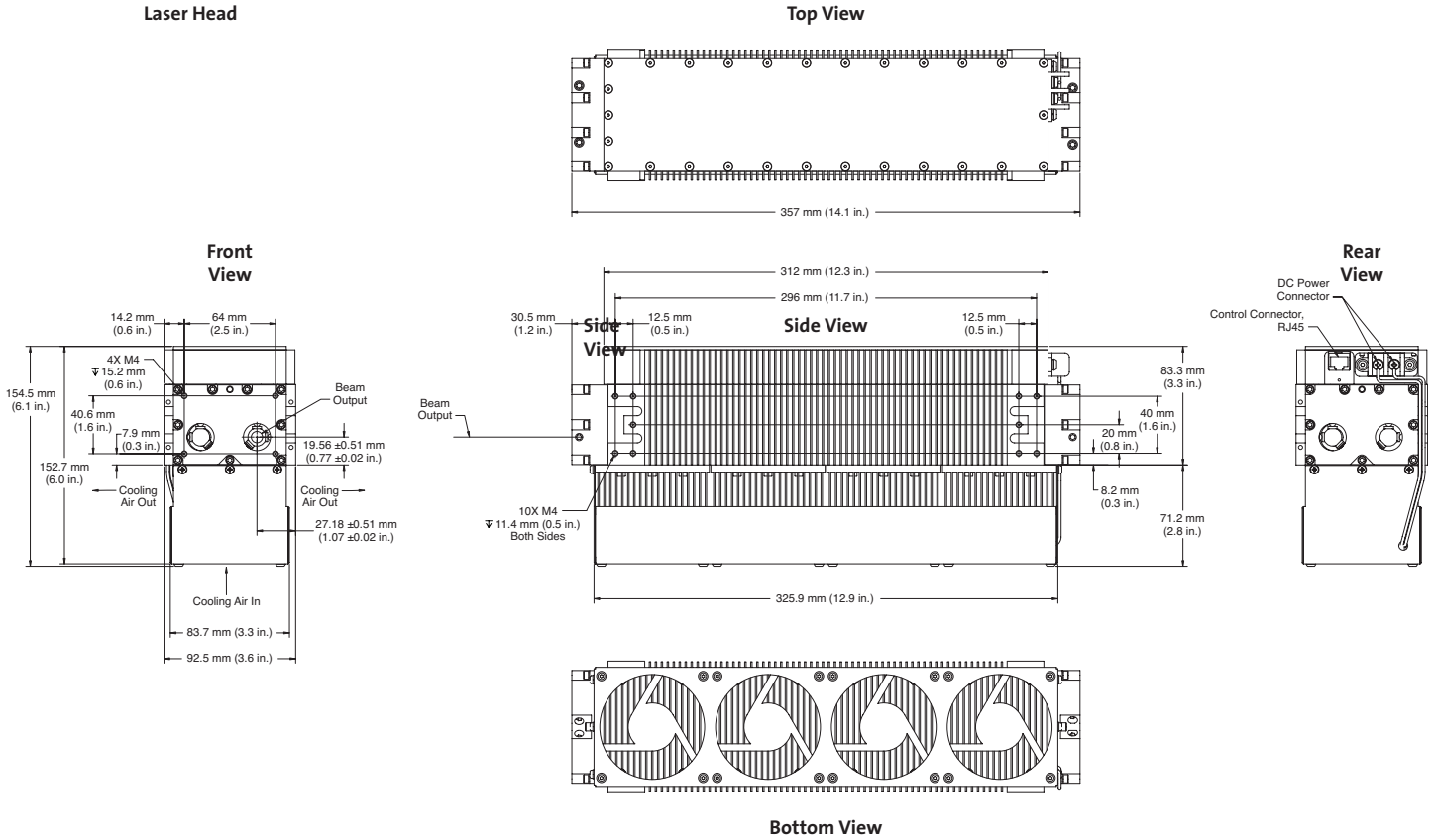
³ Optional fans add 1A.

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Mechanical Specifications

Laser Head



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Coherent, Inc. guarantees that the output power of the C-20 Series 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-20 Series 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-20 Series 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.

