

Diamond Cx-10 Series

Sealed CO₂ Lasers

The Coherent Diamond Cx-10 Series sealed CO₂ lasers enable high quality marking, engraving, and cutting, while also offering low maintenance and operating costs. In addition, the lasers offer the best power–size ratio available, and are designed for high reliability and easy serviceability. The modular design allows a lower cost field replacement of the laser head assembly or RF Module assembly.

Superior processing results are possible because Diamond Cx-10 Series lasers combine excellent beam quality with exceptional power stability and fast pulse fall times. Together, these factors maximize process efficiency, and minimize the heat affected zone (HAZ). Plus, a variety of wavelengths, from 9.3 μm to 10.6 μm , allow laser output to be optimally matched to specific material absorption characteristics.



FEATURES

- 120 W CO₂ laser
- Compact design with the highest power/volume ratio in its class
- Superior beam quality, power stability, and reliability
- Available in four wavelengths: 9.3 μm , 9.6 μm , 10.2 μm , and 10.6 μm
- Field-serviceable modular design
- Global logistics ensure delivery of replacement parts within 48 h in most geographies

APPLICATIONS

- High volume marking, cutting, and engraving
- Film cutting and processing
- Process wide range of materials from acrylics, cardboard, ceramics, glass, polymer films, leather, paper, textiles, wood, and PCBs

Specifications	Diamond Cx-10L (10.6 μm)	Diamond Cx-10L (10.2 μm)	Diamond Cx-10L (9.6 μm)	Diamond Cx-10L (9.3 μm)
Wavelength (μm)	10.6 ±0.03	10.2 ±0.05	9.6 ±0.05	9.3 ±0.05
CW Rated Power ¹ (W)	≥120	≥100	≥80	≥80
Typical Output Power ¹ (W)	>135		>100	
Power Volume ² (mW/cm ²)	≥15.23	≥12.69	≥10.16	≥10.16
Cold Start Power Stability ³ (%)	±4			
Power Stability ⁴ (%)	±2			
Typical Pulse Fall Time ⁵ (μsec)	≤60			
Beam Quality (M ²)	≤1.2			
Beam Diameter (mm)	1.8 ± 0.2			
Beam Divergence (mrad, full angle)	≤8.0			
Beam Ellipticity	≥0.83, ≤1.2			
Pointing Stability (% divergence/actual μrad)	±5/<250			
Polarization ⁶	Linear Horizontal ≥100:1			
Operating Frequency and Duty Cycle	0 to 200 kHz, 2 to 100% DC			
Configuration and Facility Requirements				
Weight	14.5 kg (32 lbs.)			
Dimensions (L x W x H)	563 x 132 x 106 mm (22.2 x 5.2 x 4.2 in.)			
Input Power	48 VDC, 38 A			
Heat Dissipation (W)	<1700			
Maximum Case Temperature	<60°C (140°F)			
Operating Environment Temperature Altitude Humidity	5 to 45°C (41 to 113°F) <2000 m (6500 ft.) Non-condensing			
Shipping/Storage Environment	-10 to 60°C (14 to 140°F), non-condensing			
Coolant Coolant Flow Rate Maximum Coolant Pressure Max. Pressure Differential (at 1.0 gpm) Coolant Temperature	Distilled water with 25 to 35% Dow Frost ⁷ >5.7 lpm (1.5 gpm) 827 kPa (120 psig) <206 kPa (30 psig) 15 to 30°C (59 to 86°F)			

Notes:

1. Power measured at 25°C and derated by $1\%/^\circ\text{C}$ for higher laser head temperature.
2. Power/volume defined as (CW rated power in mW)/(L*W*H in cm³).
3. Power stability based on $\pm(P_{\text{max}}-P_{\text{min}})/(2*P_{\text{max}})$ measured from cold start for 5 minutes at 25 kHz 99% DC.
4. Power stability based on $\pm(P_{\text{max}}-P_{\text{min}})/(2*P_{\text{max}})$ measured for 10 minutes at 25 kHz 99% DC.
5. 10% and 90% of peak power fall points measured at 1.5 kHz PRF, 350 μs pulse width, after 5 minutes.
6. Refer to Mechanical Specifications for beam polarization orientation.
7. * Dow Frost is a trademark of the Dow Chemical Company.

Mechanical Specifications

Diamond Cx-10L Laser Head

