



DIAMOND E-150

Liquid-Cooled, RF-Excited OEM Industrial CO₂ Laser

Features

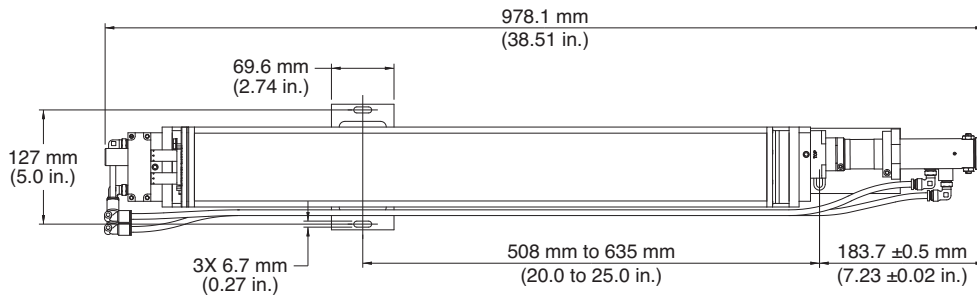
- High peak power
- Wide operating power range
- Pulse frequency from single shot to 100 kHz
- Fast rise/fall time
- Outstanding beam quality
- Excellent power stability
- Low-cost OEM configuration
- Integrated RF power supply
- Compact design



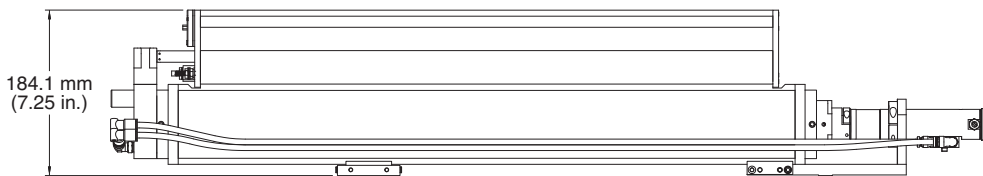
Mechanical Specifications

E-150 Laser Head with Spatial Filter

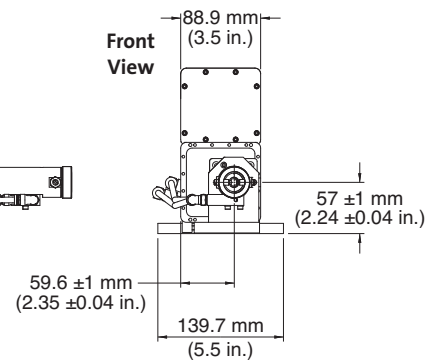
Top View



Side View



Front View



Superior Reliability & Performance

DIAMOND™ E-150

Liquid-Cooled, RF-Excited OEM Industrial CO₂ Laser

System Specifications	Output Power ¹ (W)	150
	Power Range (W)	10 to 150
	Pulse Frequency (kHz)	Single-shot to 100
Typical Performance	Peak Effective Power (W)	375
	Pulse Energy Range (mJ)	5 to 315
	Pulse Rise/Fall Time (μsec)	<70
	Power Stability ² (%)	±7
	Beam-Pointing Stability ³ (μrad)	200
	Beam Ellipticity	1.2:1
	Beam Diameter (1/e ²)(mm ⁴)	2.2 ±0.6
	Beam Divergence (Full-Angle)(mrad ⁴)	<9.0
	M ²	<1.2 (K >0.83)
	Wavelength ⁵ (μm)	10.2 to 10.8
Polarization (Parallel to Narrow)	Linear >100:1	
Electrical Requirements	DC Input Voltage (VDC)	48 ±1%
	Max. DC Current (A)	50 rms, 100 peak
	Electrical input requirements for DC supply	
	Single Phase Voltage (V)	200 to 240
Single Phase Current (A)	15, 50 to 60 Hz, Power-factor corrected	
Water	Cooling Water Flow Rate	1.5 gal/min., 5.7 l/min.
	Cooling Water Temperature Range	10 to 35°C (50 to 95°F)
	Water Hardness (equiv. CaCO ₃)	<250 mg/l
	Water Pressure	344 to 520 kPa (50 to 75 psi)
Environmental Conditions	Ambient Temperature	5 to 40°C (41 to 104°F)
	Relative Humidity	<95%, non-condensing ⁶
	Altitude	<2000 m (<6600 ft.)
Weight	Laser	16.3 kg (36 lbs.)

¹ Guaranteed at 600 μs pulse width at 60% duty cycle at inlet water temperature of 25°C. Allow a 1%/°C power derating for inlet cooling-water temperatures up to 35°C.

² Measured as $\pm(P_{\max} - P_{\min})/2P_{\max}$ from cold start at 25°C.

³ Full-angle with a ±5°C water temperature change.

⁴ With standard beam shaper assembly.

⁵ Call about special isotope versions.

⁶ Do not operate at or below dew point.

All specifications subject to change without notice. Coherent, Inc. warrants to the original purchaser for a period of two years from the date of shipment that the DIAMOND E-150 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 DIAMOND E-150 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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