

DIAMOND E-150

Liquid-Cooled, RF-Excited OEM Industrial CO₂ Laser

Features

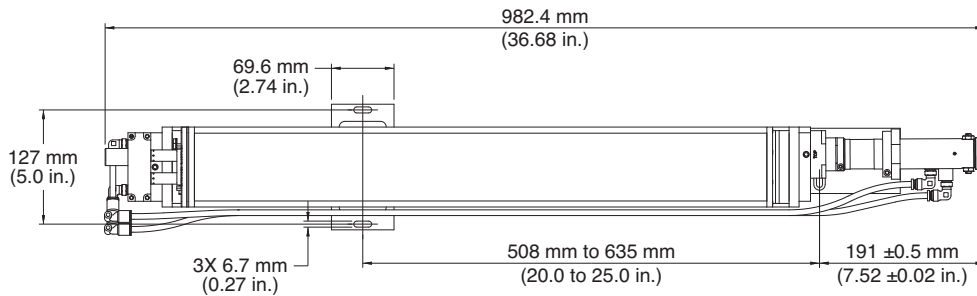
- High peak power
- Wide operating power range
- Pulse frequency from single-shot to 100 kHz
- Fast rise/fall time
- Outstanding beam quality
- Excellent power stability
- Low-cost OEM configuration
- Integrated RF power supply
- Compact design



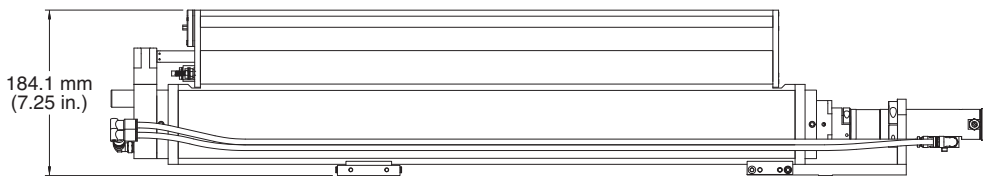
Mechanical Specifications

E-150 Laser Head with Spatial Filter

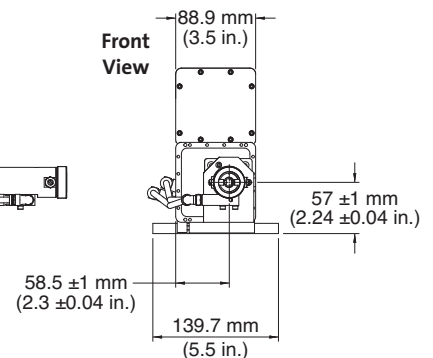
Top View



Side View



Front View



Superior Reliability & Performance

DIAMOND™ E-150

Liquid-Cooled, RF-Excited OEM Industrial CO₂ Laser

System Specifications

Wavelength (um)	10.2 to 10.8
Output Power ¹ (W)	150
Power Range ² (W)	20 to 150
Peak Effective Power (W)	375
Pulse Energy Range (mJ)	5 to 315
Pulse Rise/Fall Time ³ (usec)	50 typical
Power Stability ⁴ (%)	≤±7%
Mode Quality ⁵ (M ²)	≤1.2
Beam Waist Diameter ⁶ (1/e ²)(mm)	2.2 typical
Beam Diameter at 60 cm ⁶ (mm)	4.6 ±1
Beam Divergence (Full-angle)(mrad)	6.6 typical
Beam Divergence Ellipticity	1:1.2
Polarization (Parallel to baseplate)	Linear >100:1
Pulse Frequency (kHz)	Single-shot to 100
Weight	16.3 kg (36 lbs.)

Electrical Power Requirements

DC Input Voltage (VDC)	48 ±1%
Max. DC Current (A)	55 average, 100 peak

Coolant

Cooling Water Flow Rate	1.5 gal/min., 5.7 l/min.
Heat Load (kW)	2.5
Coolant Temperature Stability (max.)	±1.0°C (±1.8°F)
Coolant Setpoint Temperature Range ⁷	10 to 35°C (50 to 95°F)
Water Hardness ⁶ (equivalent CaCO ₃)	<250 mg/l
Max. Pressure Drop at Required Flow Rate	207 kPa (30 psi)

Environmental Conditions

Ambient Temperature	5 to 40°C (40 to 104°F)
Relative Humidity ⁷	<95%, non-condensing
Altitude	<2000 m (<6600 ft.)

- ¹ Guaranteed at 0.7-100 KHz and 70% duty cycle at coolant temp 25°C.
- ² Output stability spec may not be met at lowest power or at acoustic resonances.
- ³ Typical value at 1 KHz and 35% duty cycle.
- ⁴ Measured as $\pm(P_{max} - P_{min})/2P_{max}$.
- ⁵ ModeMaster™ measurement, 40 kHz and 35% duty cycle.
- ⁶ Measured at 10 kHz and 70% duty cycle.
- ⁷ 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.



www.Coherent.com

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