



DIAMOND E-1000

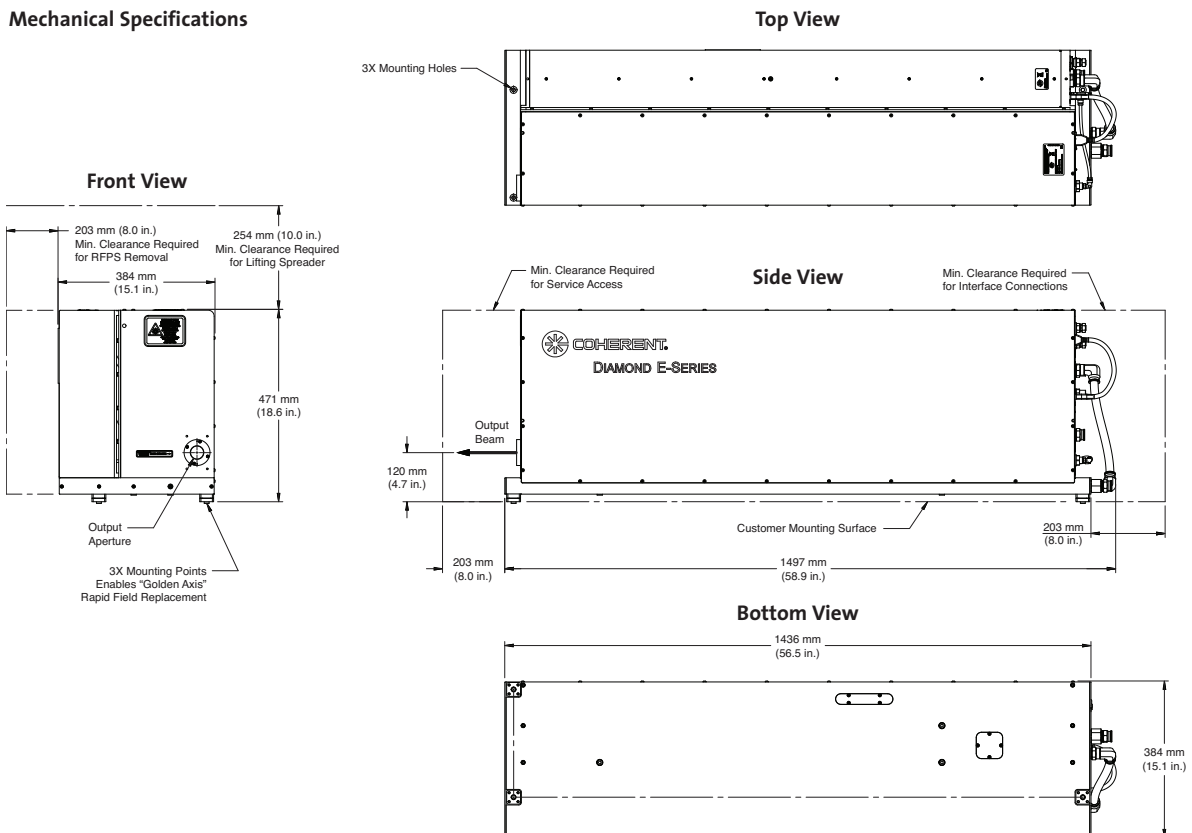
Liquid-Cooled, RF-Excited OEM Industrial CO₂ Laser

Features

- Wide operating power range
- Peak power >2.5 kW
- Pulse frequency from single-shot to 200 kHz
- Fast rise/fall time
- Outstanding beam quality
- Excellent power stability
- Low-cost OEM configuration
- Integrated but detachable RF power supply
- Compact design
- Equipped with on-board internet-accessible diagnostics and control



Mechanical Specifications



Superior Reliability & Performance

DIAMOND™ E-1000

Liquid-Cooled, RF-Excited OEM Industrial CO₂ Laser

System Specifications¹

Wavelength (µm)	10.2 to 10.8
Output Power (W)	1000
Power Range ² (W)	100 to 1000
Peak Effective Power ³ (W)	>2500
Power Stability ⁴ (%)	±5
Mode Quality (M ²)	<1.2
Beam Waist Diameter ⁵ at 1/e ² (mm)	12 ±1.5
Full-Angle Beam Divergence (mrad)	<1.5
Polarization (perpendicular to baseplate)	Linear >100:1
Beam Ellipticity	>0.83, <1.20
Pulse Frequency (kHz)	Single-shot to 200
RF Excitation Pulse Width Range (µsec)	2 to 1000
Duty Cycle Limit (%)	≤60
Fall Time (µs)	<55
Weight	173 kg (381 lbs.)
Dimensions (L x W x H)	1497 x 384 x 471 mm (58.9 x 15.1 x 18.6 in.)

Electrical Power Requirements

DC Input Voltage (VDC)	48 ±1.0%
Continuous DC Current (A)	≤425
Peak Current (A)	<628 for up to 1 ms

Coolant

Heat Load (kW)	<22
Dynamic Coolant Flow Rate (l/min.)	>25 (6.5 gpm)
Coolant Temperature Stability (max.)	±1.0°C (±1.8°F)
Coolant Setpoint Temperature Range	21 to 25°C (69.8 to 77°F)
Coolant ⁶	Anti-corrosion treated water
Coolant Differential Pressure ⁷ (kPa)	344 (50 psi) @ 25 l/min. (6.5 gpm)
Coolant Maximum Static Pressure (kPa)	827 (120 psi)

Environmental Conditions

Ambient Temperature	5 to 45°C (41 to 113°F)
Relative Humidity ⁸ (%)	<95 (non-condensing)
Altitude	<2000 m (<6500 ft.)

¹ All specifications apply when the product is operated in accordance with the guidelines defined in the operators manual.

² Output stability specification may not be met at lowest power or at acoustic resonances.

³ Measured at 10% duty cycle and 1 kHz prf.

⁴ Measured as $\pm(P_{max} - P_{min})/2P_{max}$.

⁵ Beam diameter is measured at the waist location, located at approximately 5 m from the laser output.

⁶ See manual for details.

⁷ This differential pressure is from system input to output and does not include the pressure drop from chiller fittings and the supply and return hose.

⁸ 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-1000 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-1000 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

Coherent, Inc.
 5100 Patrick Henry Drive
 Santa Clara, CA 95054
 phone (800) 527-3786
 (408) 764-4983
 fax (408) 764-4646
 e-mail tech.sales@Coherent.com

Benelux +31 (30) 280 6060
 China +86 (10) 6280 0209
 France +33 (0)1 6985 5145
 Germany +49 (6071) 968 333
 Italy +39 (02) 34 530 214
 Japan +81 (3) 5635 8700
 Korea +82 (2) 460 7900
 UK +44 (1353) 658 833

