



DIAMOND K-500

CO₂ Laser Technology

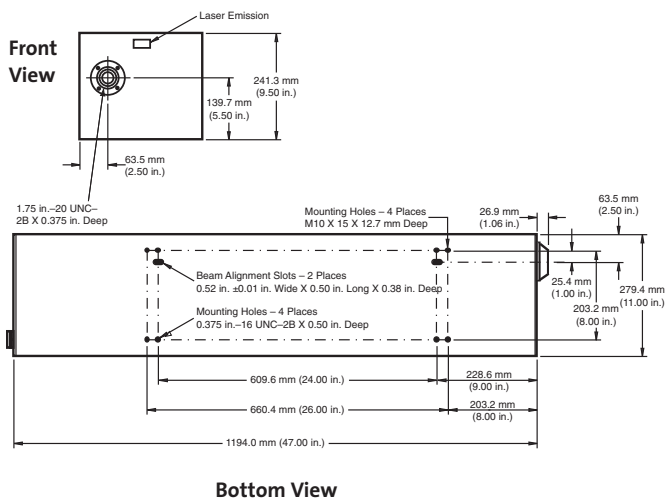
Features

- Available in OEM and Performance packages
- Compact, “no maintenance,” single resonator design
- Solid-state preionization provides instant start-up without using tickle pulses, which can cause equipment damage
- Can be refurbished at a low cost

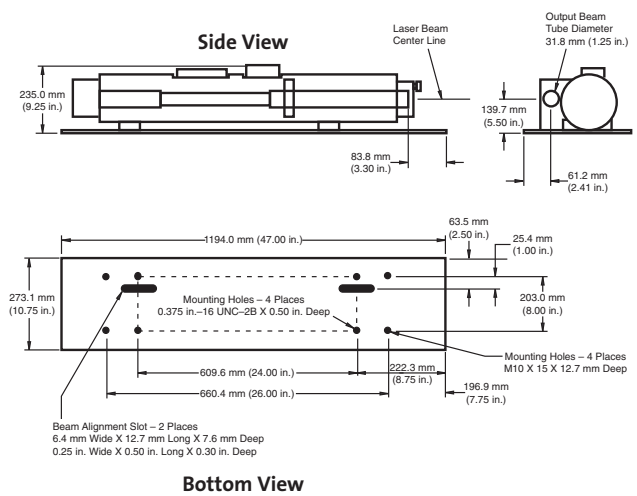


Mechanical Specifications

Laser Head Performance Package



OEM Package



Superior Reliability & Performance

DIAMOND™ K-500

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Guaranteed Specifications	Output Power ¹ (W)	500
	M ² (K >0.71)	<1.4
	Power Range ¹ (W)	25 to 500
	Pulse Frequency (kHz)	0 to 100
Typical Performance	Peak Effective Power (W)	250 to 1500
	Pulse Energy Range (mJ)	25 to 1000
	Pulse Rise & Fall Time (µsec)	<90
	Power Stability ² (%)	±8
	Beam-Pointing Stability ³ (µrad)	<350
	Beam Ellipticity	<1.2:1
	Beam Diameter (1/e ²)	12 ±1.5 mm (0.472 ±0.06 in.)
	Beam Divergence (mrad)(full-angle)	1.4 ±0.3
	Wavelength (µm)	10.4-10.8
	Polarization (relative to baseplate)	Linear >100:1, perpendicular
Facilities Requirements	Electrical Input	
	Voltage (VAC)	208
	Current (A)	34, 3-phase, with ground 50 to 60 Hz
	Or	
	Voltage (VAC)	400
	Current (A)	20, 3-phase, with ground 50 to 60 Hz
	DC (OEM)	
	DC Power Supply (V)	48 ±1%
	Max. DC Current (A)(rms)	200
	Cooling-Water Flow Rate	9.5 l/min. (2.5 gal./min.)
	Heat Load	10 kW
	Cooling-Water Temperature Range ⁴	10 to 30°C (50 to 85°F)
	Water Hardness (equiv. CaCO ₃)	<250 mg/l
Water Pressure	350 to 520 kPa (30 to 75 psi)	
Environmental Conditions	Ambient Temperature	5 to 40°C (41 to 104°F)
	Relative Humidity (%)	<95, non-condensing
	Altitude	<2000 m (<6600 ft.)
Weight	Laser Head	61 kg (135 lbs.)
	Power Module	125 kg (275 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 30°C.
 2 Measured as $\pm(P_{max} - P_{min})/2P_{min}$, from cold start.
 3 Full-angle within a ±5°C water temperature change.
 4 Do not operate near 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 delivery that the DIAMOND K-500 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 K-500 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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