

# Monaco HE

## Scientific Ultrafast Ytterbium Amplifier

The Monaco HE is the newest addition to the Monaco ultrafast amplifier family. Delivering  $<350$  fs pulses with high pulse energy ( $>2$  mJ, up to 10 kHz), high power ( $>25$  W up to 250 kHz), and with the ability to vary pulse width, Monaco HE's flexibility allows the pursuit of a wide range of scientific or material processing applications. This array of capabilities allows users to dial in the ideal combination of repetition rate and energy for their experiment or process without the need to change the laser. Combined with the industrial reliability from Coherent's HALT/HASS testing, Monaco HE delivers. Better Ultrafast, Any Speed.

### FEATURES & BENEFITS

- Flexible, user adjustable energy, rep rate, pulse width
- $>2$  mJ from 1 kHz to 10 kHz
- $>25$  W at rep rates up to 250 kHz
- $<350$  fs pulse width
- Variable pulse width up to  $>10$  ps
- HALT-designed and HASS-verified to ensure quality and reliability

### APPLICATIONS

- Time-Resolved Spectroscopy
- Multidimensional Spectroscopy
- Material Processing
- Optical Parametric Amplifier Pumping
- 2-Photon Polymerization
- THz Generation



SPECIFICATIONS	Monaco HE-2000-25
Center Wavelength (nm) (nominal)	1030 ±5
Pulse Duration <sup>1</sup> (fs) (FWHM)	<350
Tuning Range	<350 fs to >10 ps
Contrast Ratio <sup>2</sup>	
Pre-Pulse	>1000:1
Post-Pulse	>100:1
Power Stability <sup>3,4</sup> (% rms)	<0.5
Beam Pointing Stability <sup>3,4</sup> (μrad) (rms)	<10
Beam Diameter (mm) (1/e <sup>2</sup> ) (nominal)	5
Spatial Mode	TEM <sub>00</sub> , M <sup>2</sup> <1.25
Polarization	Linear, Vertical
Repetition Rate <sup>5</sup>	Single-Shot to 250 kHz
Energy per Pulse	
at 1 kHz	>2 mJ
at 10 kHz	>2 mJ
at 100 kHz	>250 μJ
at 200 kHz	>125 μJ

1 Assuming Gaussian pulse shape.

2 Contrast ratio is defined as the ratio between the peak intensity of the output pulse to the peak intensity of any other pulse that occurs greater than 1 ns before or after the output pulse.

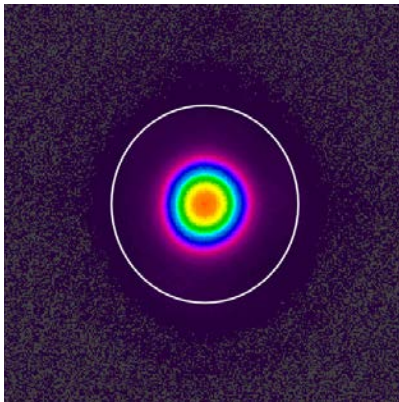
3 Under stable environmental conditions after system warm-up.

4 Over 24 hrs.

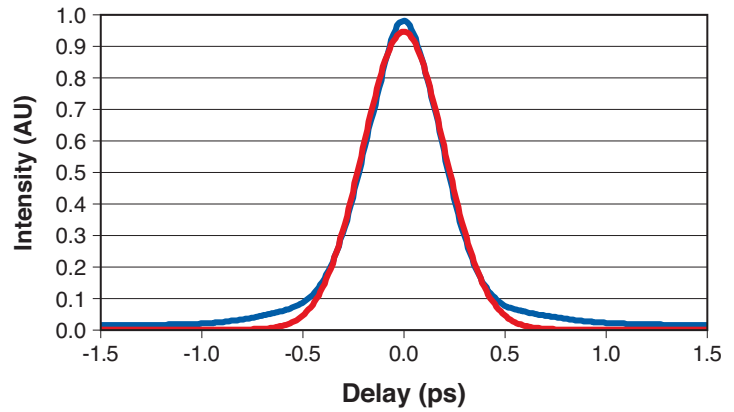
5 User selectable, some repetition rates are not accessible due to system design.

## TYPICAL PERFORMANCE DATA

Sample Spatial Mode  
at 2 mJ, 10 kHz

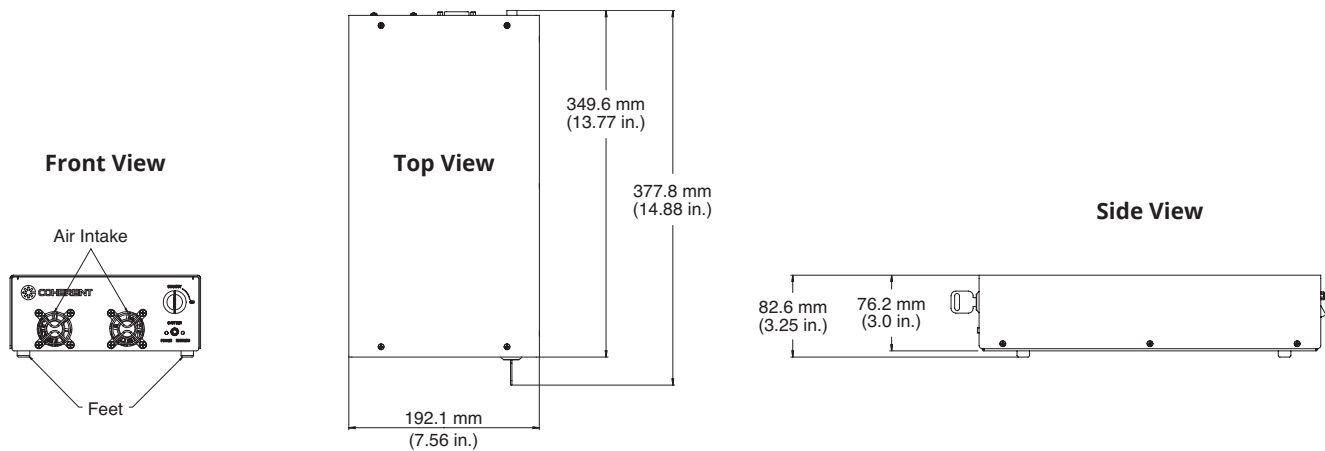


320 fs Pulse Width  
(FWHM)



## MECHANICAL SPECIFICATIONS

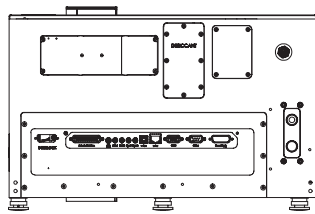
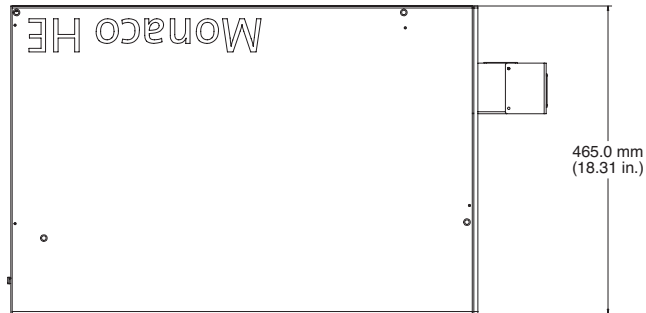
### Monaco HE Power Supply



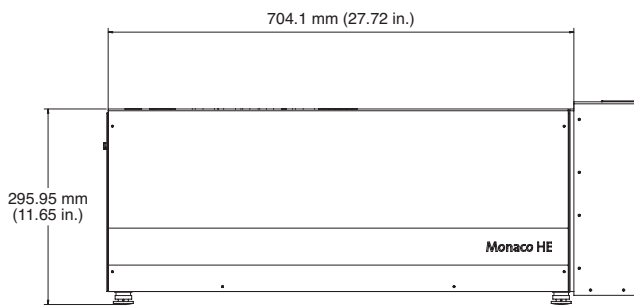
**MECHANICAL SPECIFICATIONS**

**Monaco HE  
Laser Head**

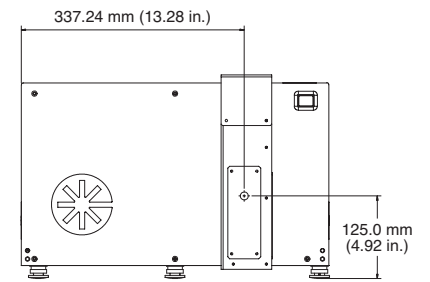
**Top View**



**Rear View**



**Right Side View**



**Front View**



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Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice. Coherent's scientific and industrial lasers are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by the Center for Devices and Radiological Health on all systems ordered for shipment after August 2, 1976.

Coherent offers a limited warranty for all Monaco HE Lasers. For full details of this warranty coverage, please refer to the Service section at [www.coherent.com](http://www.coherent.com) or contact your local Sales or Service Representative.  
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