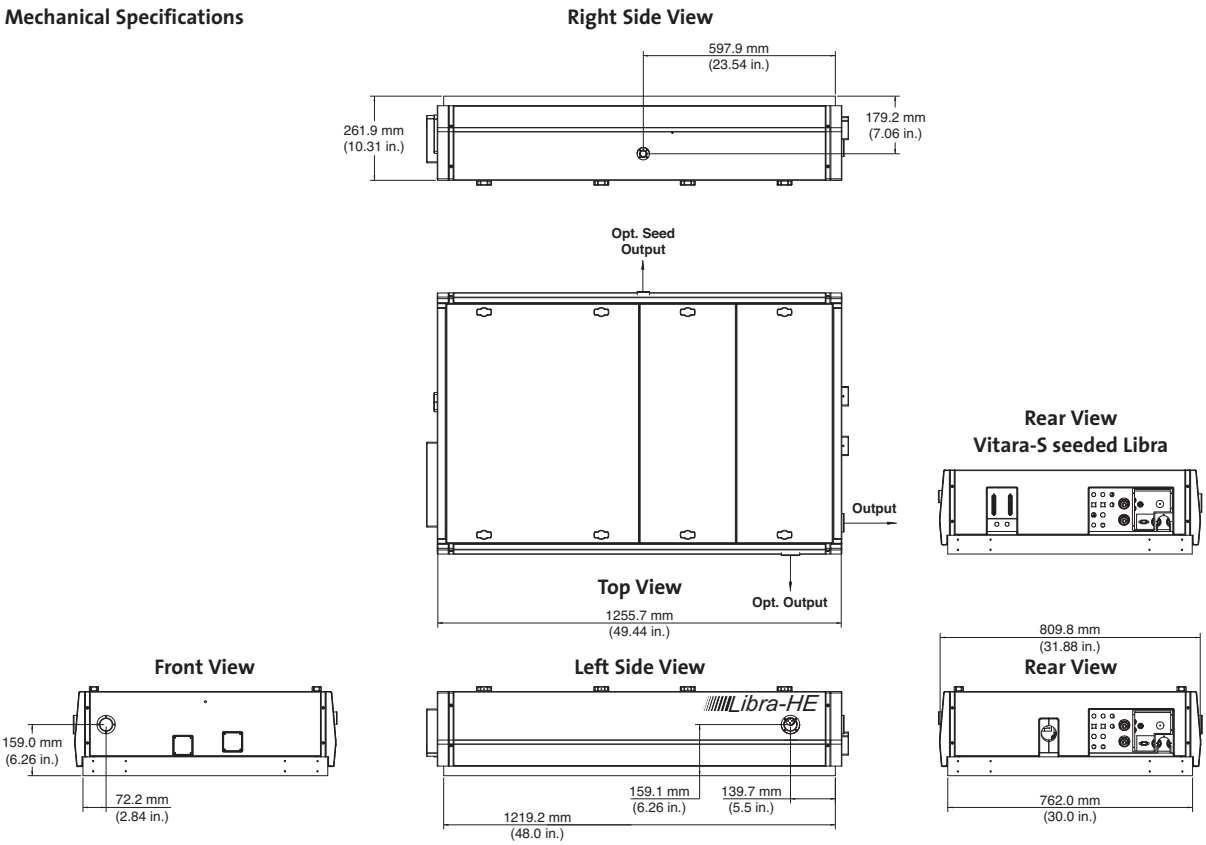
# Libra Series

## One-Box, Ultra-Stable, kHz Repetition-Rate, Ti:Sapphire Amplifier System

### Features

- One-box, compact, computer-controlled system contains integrated Vitesse/Vitara seed laser, Evolution pump laser, regenerative amplifier, stretcher and compressor
- E-2 Engine - high performance, high reliability, regenerative amplifier module providing the highest energy and efficiency with exceptional beam quality ($M^2$ <1.3)
- Unique Ti:Sapphire rod geometry for enhanced thermal management, enabling water-only cooling.
- Thermally-stabilized amplifier platform for long-term stability
- Pulse energy to >5.0 mJ at 800 nm
- <40 fs, <50 fs and <100 fs pulse width models
- Stability <0.5% rms
- 1, 5 and 10 kHz versions

### Mechanical Specifications




### Superior Reliability & Performance

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**System Specifications**

**System Specifications**[1]

| | Libra | Libra-HE | Libra-HE+ |
|---|---|---|---|
| Center Wavelength (nm)(nominal) | | 800 | |
| Repetition Rate[1] (kHz) | 1, 5 or 10 | 1, 5 or 10 | 1 |
| Pulse Duration[2] (fs)(FWHM) | | | |
| F-Model | <100 | <100 | <100 |
| USP-Model | < 50 | < 50 | <40 |
| Energy-per-Pulse (mJ) | >1.0 at 1 kHz<br>>0.3 at 5 kHz<br>>0.15 at 10 kHz | >4.0 at 1 kHz<br>>0.8 at 5 kHz<br>>0.4 at 10 kHz | >5.0 at 1 kHz |
| Contrast Ratio[3] | >1000:1 pre-pulse >100:1 post-pulse | | |
| Energy Stability[4] (% rms)(8 hrs.) | <0.5 | | |
| Beam Diameter[5] (mm)($1/e^2$)(nominal) | 6 | 9 | 9 |
| Spatial Mode | TEM00, $M^2$ <1.3 | | |
| Polarization | linear, horizontal | | |
| Pump Laser | Evolution-15 | Evolution-30 | Evolution-45 |

[1] Repetition rate must be specified when ordered and will be optimized prior to shipment.

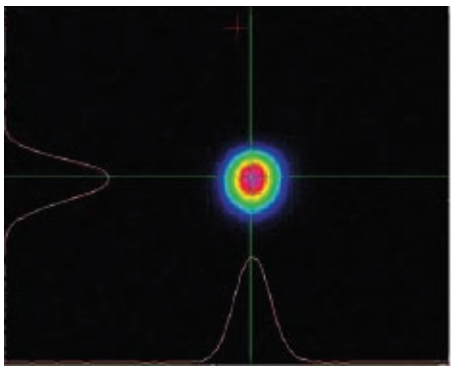
[2] A Gaussian pulse shape de-convolution factor (0.7) is used to determine the pulse width from an autocorrelation signal measured by a Coherent SSA (Single-Shot Autocorrelator). Vitara-S used as seed laser for Libra-USP-HE+ (all other versions use Vitesse).

[3] 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.

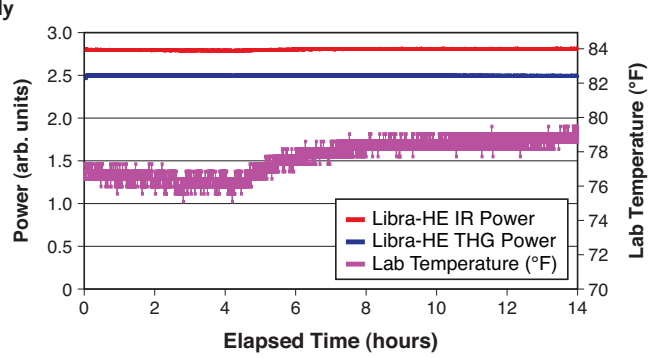
[4] Under stable environmental conditions, after system warm-up.

[5] 8 mm (nominal) for Libra-F-HE and Libra-USP-HE at 10 kHz.

**Libra-HE Far-Field Beam Quality**



**Libra-HE Power Stability >14 hours, 800 and 266 nm Simultaneously**




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 Libra Series amplifiers. For full details of this warranty coverage, please refer to the Service section at www.Coherent.com or contact your local Sales or Service Representative.

COHERENT®

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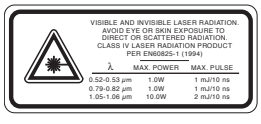


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