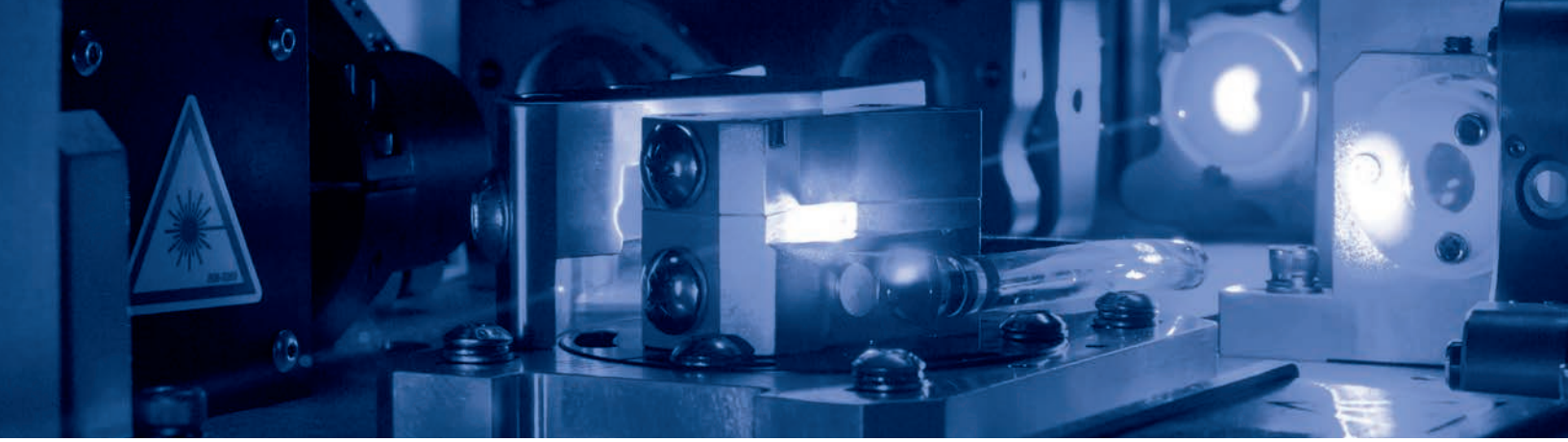


# Astrella

## Ultrafast Ti:Sapphire Amplifier

Astrella and the new Astrella HE are next-generation, ultrafast, kHz amplifiers that are the first to combine industry-leading performance and industrialized durability. Manufactured to Coherent's rigorous standards using advanced stress-testing techniques, the one-box Astrella system enables a wide range of demanding scientific applications and operating conditions, offering higher productivity and lower data acquisition costs. Delivering high (up to >9 mJ/pulse) energy, either <35 fs or <100 fs pulse widths, and excellent beam quality ($M^2$ <1.25), Astrella is ideal for ultrafast spectroscopy, THz studies, femtosecond micromachining, etc. With unmatched performance, reliability and affordability, Astrella stands at the forefront of the industrial revolution in ultrafast science.

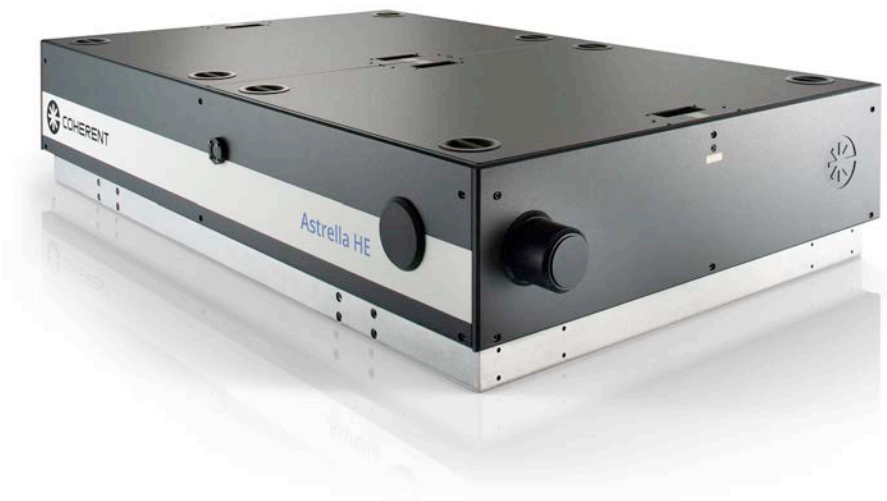
### FEATURES & BENEFITS

- One-box, industrialized platform
- HASS* verified for quality and reliability
- >5 mJ, >7 mJ or >9 mJ <35 fs or <100 fs pulses
- High performance STAR regen amplifier (water-only cooling)
- Hands-free Vitara oscillator
- Revolution pump laser for performance overhead
- Sealed stretcher/compressor section with advanced dispersion management for clean, short pulses
- Thermally-stabilized sub-systems for long term stability

### APPLICATIONS

- Time-resolved Spectroscopy
- Multidimensional Spectroscopy
- THz Spectroscopy
- fs Micromachining
- Surface SFG/SHG
- Stimulated Raman Scattering

* HASS – Highly Accelerated Stress Screening



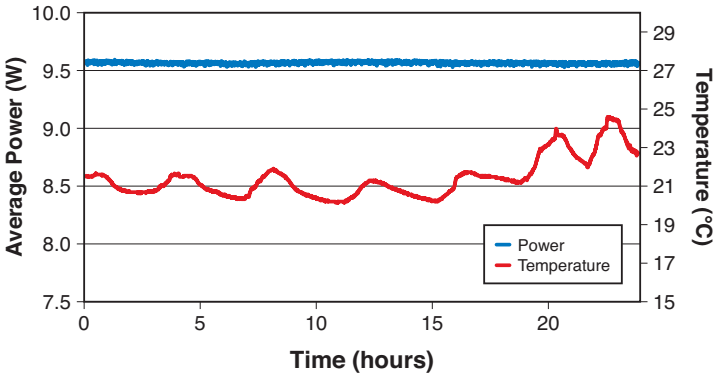

COHERENT®
Superior Reliability & Performance

| SPECIFICATIONS[1] | Astrella USP | Astrella F | Astrella HE USP | Astrella HE F |
|---|---|---|---|---|
| Center Wavelength[2] (nm) (nominal) | 795 to 805 | 780 to 820 | 795 to 805 | 780 to 820 |
| Repetition Rate[3] (kHz) | 1, 5 | | | |
| Pulse Duration[3,4] (fs) (FWHM) | <35 | <100 | <35 | <100 |
| Contrast Ratio[5] | | | | |
| Pre-Pulse | >1000:1 | | | |
| Post-Pulse | >100:1 | | | |
| Power Stability[6,7] (rms) | <0.5 | | | |
| Beam Pointing Stability[6,7] (mrad) (rms) | <10 | | | |
| Beam Diameter (mm) ($1/e^2$) (nominal) | | | | |
| 1 kHz | 11 | | 13 | |
| 5 kHz | | | 11 | |
| Spatial Mode | $TEM_{00}$, $M^2$ <1.25 | | | |
| Polarization | linear, horizontal | | | |
| Energy per Pulse (mJ) | | | | |
| 1 kHz | >5.0, >7.0 | | >9.0 | |
| 5 kHz | >1.4 | | >2.0 | |
| Pump Laser | Revolution-50, Revolution-65 | | Revolution-80 | |
| Seed Laser | Vitara-S, Vitara-T, or Vitara-T-HP | | | |
| Each System HASS Verified | Yes | | | |

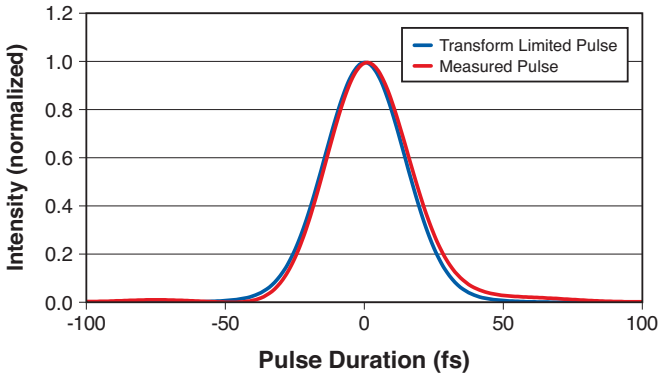
1 Specifications apply at 800 nm.
2 Factory set, must be specified when ordered and will be optimized prior to shipment.
3 Contact factory for other repetition rates and pulse width options.
4 A Gaussian pulse shape de-convolution factor (0.7) is used to determine the pulse width from an autocorrelation signal measured by a Coherent SSA (Single-Shot Autocorrelator).
5 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.
6 Under stable environmental conditions after system warm-up.
7 Over 24 hrs.

## TYPICAL PERFORMANCE DATA

### Astrella HE 24-Hour Stability




### Astrella HE USP Pulse Width

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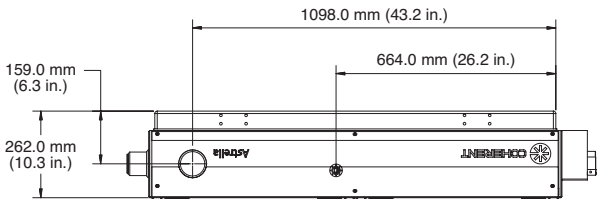
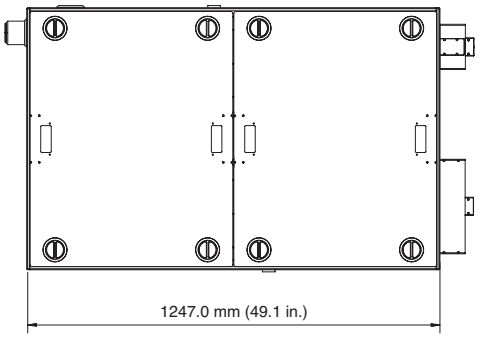
## MECHANICAL SPECIFICATIONS

### Astrella

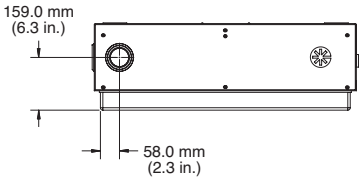
**Right Side View**



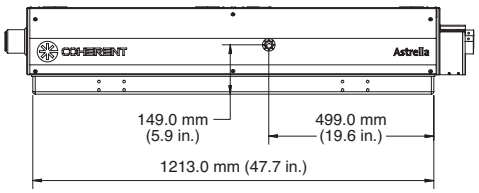

**Top View**



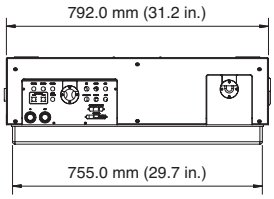

**Front View**




**Left Side View**




**Rear View**

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