Astrella

Industrial Reliability for Femtosecond Research

Superior Reliability & Performance
Astrella is a next-generation, high-performance, kHz amplifier at the forefront of the Industrial Revolution in Ultrafast Science.

- Unmatched combination of performance, reliability, and affordability

- Designed and manufactured using advanced stress testing (HALT/HASS) in a customized test chamber

- Industrial-grade laser reliability allows you to focus on results, publication, and funding
The Industrial Revolution in Ultrafast Science

A Superior Way to Design and Build Ultrafast Lasers

Unique HALT/HASS testing with enhanced engineering margins drives reliability and lifetime
- HALT (Highly Accelerated Lifetime Testing)
- HASS (Highly Accelerated Stress Screening)
- In-house chamber for simultaneous vibration and temperature stressing

Industrial Design and Testing Cycle

Corrective Action

HALT (Design) HASS (Mfg.)

Capture Failure/Performance Changes

Root Cause Analysis

Design/Build

Vertical Integration
- In-house production of diodes, crystals, critical optics – superior supply and quality control

Unmatched Industrial Laser Experience
- Worldwide leadership in industrial lasers – superior reliability, lifetime, breadth of technology
- Advanced manufacturing expertise – contamination control, material qualification

Vertical Integration
- Pump Diodes
- OPS Chip
- Critical Mirrors
- Crystals

Laser
Industrial Reliability

Each unique Astrella sub-system is HASS-verified before integration. The complete amplifier is then HASS-verified for unmatched reliability and lifetime.

**Sealed Stretcher/Compressor**
- Robust, thermally stabilized
- Controlled clean environment
- Proprietary optical design
- Stable pulse width and minimized power degradation over time

**Robust Regenerative Amplifier**
- STAR (STable Architecture Regenerative amplifier) platform
- Maximum stability, efficiency and beam quality
- Thermally-stabilized baseplate
- Low profile, stable mounts
- Unique, Ti:Sapphire slab-geometry enables simple, water-only cooling

**Vitara Oscillator**
- The most successful and reliable broadband oscillator on the market
- Laser of choice in the vast majority of high uptime facilities
- Integrated Verdi pump laser for proven reliability
- In-house manufacturing and quality control of critical, negative dispersion optics

**Revolution Amplifier Pump**
- Built on the strengths of its successful predecessor, the Evolution
- Ample performance margin over design specification
The Coherent Advantage

Reliable Performance. Reliable Support.

Reliable Performance
• All production systems HASS-verified for reliability
  • Available with either <35 fs or <100 fs pulse width
  • Pulse energy specified to >7 mJ at 1 kHz
  • Perfect OPA pump (TOPAS, OPerA Solo) with coverage from UV to IR

Reliable Support
• Largest and most experienced, factory-trained, global network for rapid, expert scientific support
  • Astrella reliability supported by market-leading, value-based service plans offering up to 5 years coverage
  • Certified spare parts available from regional warehouses in US, Europe and Asia for faster delivery