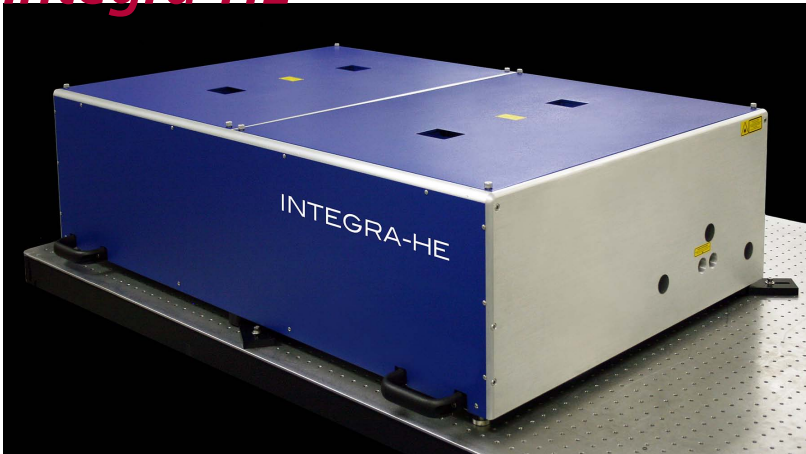


Ultrafast Amplifiers Ultrafast Amplifiers Ultrafast Amplifiers

Integra™ HE



Integra HE, the Ti:Sapphire Ultrafast Amplifier

The Integra HE Series of amplifiers are designed to deliver >7 mJ pulses at 1 kHz repetition rates. The seed can be provided by an integrated fiber oscillator or an external Ti:Sapphire oscillator. Its platform includes integrated pump laser(s), amplification stage(s), and a stretcher/compressor. The amplifier system can be designed to deliver ultrashort (<40 fs), femtosecond (80-130 fs), or picosecond (1-3 ps) output pulses.

This amplifier uses an architecture similar to the successful Integra C series, which includes a regenerative preamplifier and a multipass power amplifier. This amplification scheme delivers the most stable output in terms of pulse energy, spatial profile, and beam pointing.

This high power amplifier system is built on the same proven engineering advancements found in the Integra and Odin series of amplifier systems. Thermal stabilization and robust zero-drift optical mounts result in an unsurpassed $\pm 5^\circ\text{C}$ operating range. The whole system is built on our precision-engineered base-plates, giving exceptional thermal stability and alignment-free operation. This allows you to focus on your experiments and not the laser system.

Pulse energies > 7 mJ in compact amplifier design

Repetition rates 1-3 kHz, 3-5 kHz, 10 kHz

40 - 130 fs; 1 - 3 ps

Exceptional beam pointing and power stability

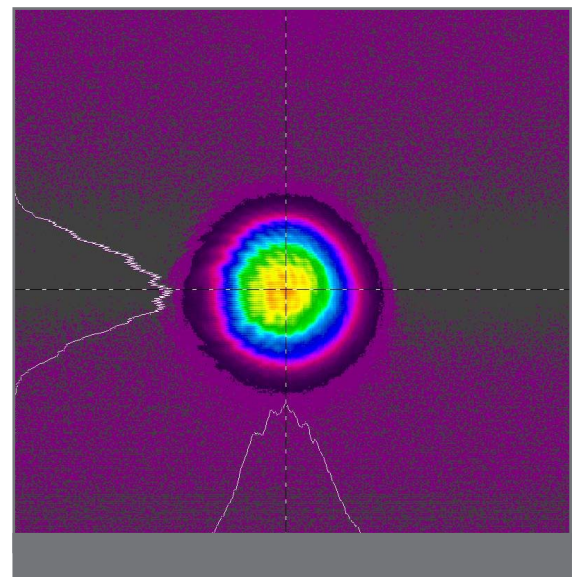
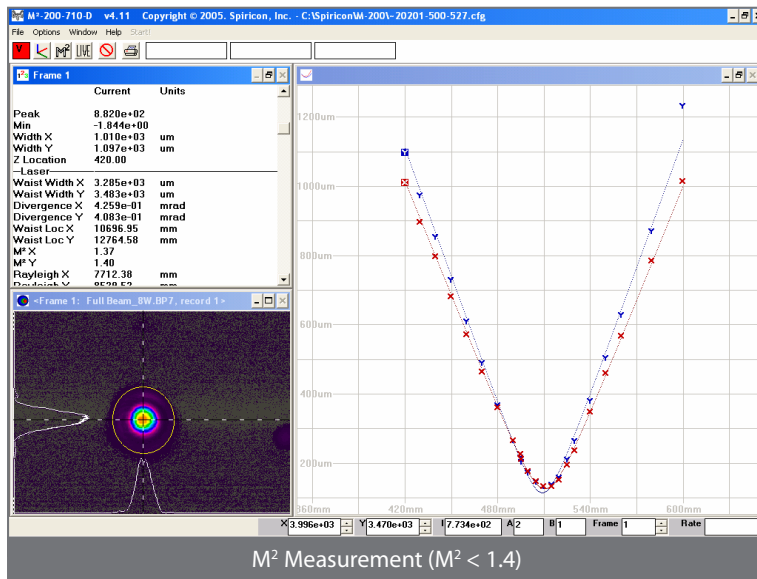
Superior beam quality & stability

Integra HE Specifications

Description				
Model	Integra HE-4	Integra HE-7	Integra HE.V-6	Integra HE.X-5
Output Power ¹ (W)	4	7	6	5
Pulse Duration (FWHM)	FS (with integrated fiber oscillator): 130 fs FS ³ (with external Ti:Sapphire oscillator): 80-130 fs USP ⁴ (with external Ti:Sapphire oscillator): <40 fs PS ⁵ (with external Ti:Sapphire oscillator): 1-3 ps			
Pulse Repetition Rate ² (kHz)	1-3 kHz	1-3 kHz	3-5 kHz	10 kHz
Spatial Mode (TM ₀₀)	M ² <1.3	M ² <1.4	M ² <1.4	M ² <1.4
Contrast Ratio (Pre & Post Pulse ⁶)	>500:1	>1000:1	>500:1	>1000:1
Energy Stability ² (% RMS)	<0.5	<0.75	<0.75	<75
Beam Pointing Stability (μrad)	<30	<30	<30	<30
Center Wavelength (nm)	790±10	790±10	790±10	790±10
Beam Diameter (1/e ²)	8	10	10	10
Polarization	linear, vertical			

Notes

1. Spec for constant output power in given repetition rate range.
2. If optimum power is needed at more than one repetition rate, additional optics may be required.
3. Requires a seed source with more than 15 nm bandwidth
4. Requires a seed source with more >40 nm bandwidth
5. Requires a >200 mW seed source with <10 nm bandwidth
6. High contrast ration option (>1000:1) available



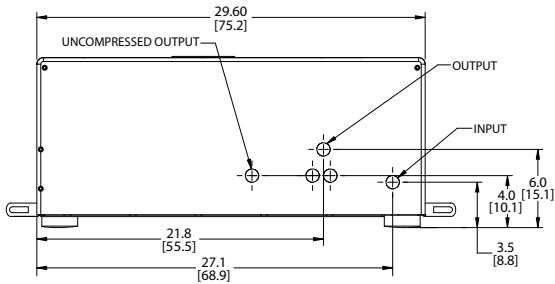
Integra HE System Requirements

Size	Optical Head (LxWxH)	1143 x 752 x 329 mm (45.0 x 29.6 x 13.0 in)
	Power Supply (LxWxH) Chiller (LxWxH)	742 x 545 x 603 mm (20.2 x 21.4 x 23.7 in) Integra HE-4: 699 x 483 x 411 mm (27.5 x 19.0 x 16.2 in) All other HE models: 699 x 483 x 492 mm (27.5 x 19.0 x 19.3 in)
Electrical Service	Power Supply	Single-phase: 208-240 VAC, 50/60 Hz Operating current: Integra HE-4: 10A, Max current: 15A All other HE models: 15A, Max current: 20A
	Chiller	Single-phase: 230 ±10% VAC, 50/60 Hz Operating current: Integra HE-4: 10A, Max current: 15A All other HE models: 12A, Max current: 20A
Water Service		No external cooling required for standard models External water to water cooling available as option

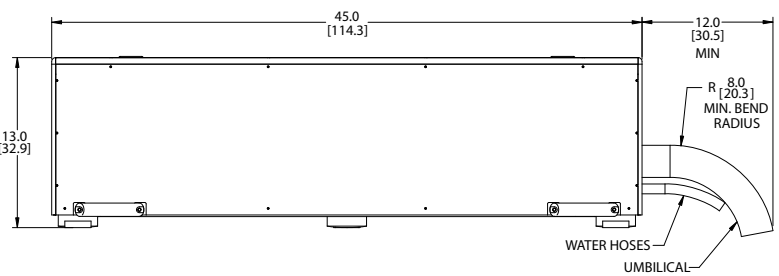
Integra HE Physical Layout

All dimensions are in inches [cm]

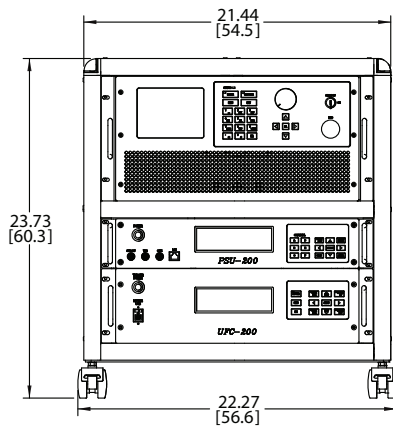
**LASER HEAD
OUTPUT VIEW**



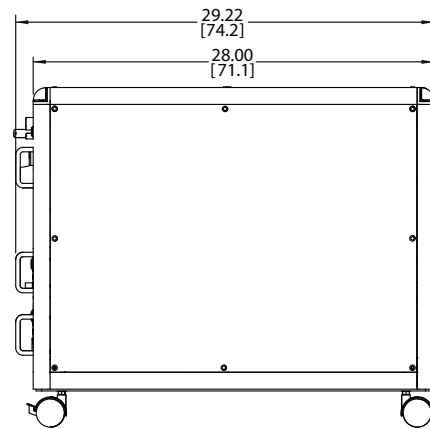
SIDE VIEW



**CONTROL UNIT
FRONT VIEW**



SIDE VIEW



Continuum
140 Baytech Drive, San Jose, CA 95134
Tel (408) 727-3240
www.continuumlasers.com
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