Excimer Lasers

LEAP

High Energy, High Precision Processing

LEAP excimer lasers deliver a unique combination of high duty-cycle output, outstanding reliability, and low cost-of-ownership. This makes them an ideal source for a diverse assortment of demanding, high throughput, high-precision microprocessing tasks, ranging from display fabrication to reel-to-reel manufacturing of superconductive tape. LEAP lasers are available at wavelengths of either 193 nm, 248 nm, or 308 nm, with output powers of up to 600 W (and pulse energies of up to 1.25 J). This power comes in a compact footprint package which is easily integrated into tools, or with other production equipment.

FEATURES

- Compact industrial design for easy integration
- Pulse-on-Demand to enable cost effective Laser-Lift-Off
- High laser energy for fast and large area processing
- Ethernet interface for control and fast data acquisition
- 193 nm, 248 nm, and 308 nm wavelengths for optimized processing of a large variety of materials

APPLICATIONS

- LLO – Laser Lift-Off (OLEDs and MicroLEDs)
- PLD – Pulsed Laser Deposition
- LDP – Laser Direct Patterning
- Micro-Structuring
- LIFT – Laser-Induced Forward Transfer (MicroLEDs)

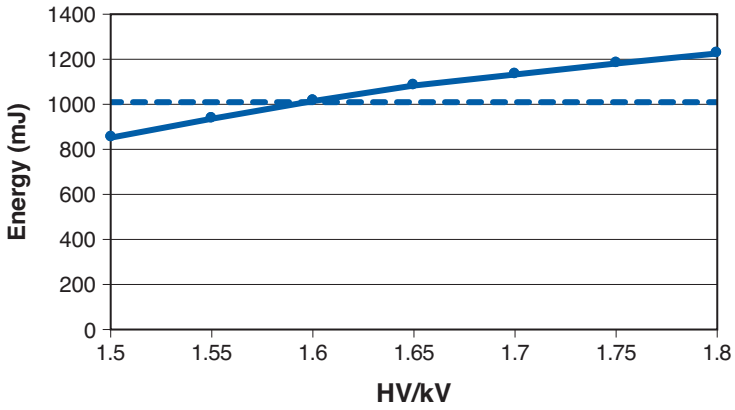
COHERENT

Specifications		LEAP Medium Energy Range			
	Wavelength	LEAP 50	LEAP 60	LEAP 80	LEAP 130
Stabilized Energy Range (mJ)	193 248 308	200 to 250 - -	350 to 400 - -	- 550 to 650 550 to 650	- 550 to 650 550 to 650
Max. Repetition Rate (Hz)		200	150	125	200
Max. Stabilized Average Power (W)	193 248 308	50 - -	60 - -	- 80 80	- 130 130
Energy Stability (1 sigma) (%)		≤2	≤2	≤1.2	≤1.2
Pulse Duration (FWHM) (ns) (typ.)	193 248 308	18 - -	18 - -	- 29 22	- 29 22
Beam Dimensions (V x H, FWHM) (mm^2) (typ.)	193 248 308	25 x 13 - -	32 x 13 - -	- 32 x 13 33 x 13	- 32 x 13 33 x 13
Divergence (V x H, FWHM) ($mrad^2$)		≤4.5 x ≤1.5			
Dynamic Gas Lifetime (at max. stabilized energy) (mio. pulses)		20	20	30	30
Electrical		3-phase, 200/208 or 400 VAC, 50/60 Hz			
Water Cooling		8 to 20 l/min; T=18 to 21°C			
Weight		860 kg (1896 lbs.)			
Cabinet Size (L x W x H)		2415 x 800 x (1090 ±10) mm^3 [95.1 x 31.4 x (42.9 ±0.4) $in.^3$]			
Specifications		LEAP High Energy Range			
	Wavelength	LEAP 100/150	LEAP K 1.25J	LEAP 300	LEAP 600
Stabilized Energy Range (mJ)	248 308	900 to 1000[1] 900 to 1000	1000 to 1250 -	900 to 1000 900 to 1000	- 900 to 1000
Max. Repetition Rate (Hz)		100/150	100	300	600
Max. Stabilized Average Power (W)	248 308	100/150 100/150	125 -	300 300	- 600
Energy Stability (1 sigma) (%)		≤1.2			
Pulse Duration (FWHM) (ns) (typ.)	248 308	32 27	32 -	32 29	- 24
Beam Dimensions (V x H, FWHM) (mm^2) (typ.)	248 308	32 x 13 33 x 13	32 x 13 -	34 x 15 37 x 14	- 35 x 12
Divergence (V x H, FWHM) ($mrad^2$)		≤4.5 x ≤1.5			
Dynamic Gas Lifetime (at max. stabilized energy) (mio. pulses)	248 308	30 30	20 -	40 50	- 75
Electrical		3-phase, 200/208 or 400 VAC, 50/60 Hz		3-phase, 400 VAC, 50/60 Hz	
Water Cooling		8 to 20 l/min; T=18 to 22°C		0 to 40 l/min; T=11 to 14°C	0 to 70 l/min; T=11 to 14°C
Weight		860 kg (1896 lbs.)		1100 kg (2425 lbs.)	1500 kg (3307 lbs.)
Cabinet Size (L x W x H)		2415 x 800 x (1090 ±10) mm^3 [95.1 x 31.4 x (42.9 ±0.4) $in.^3$]		2440 x 820 x (1125 ±10) mm^3 [96.1 x 32.3 x (44.3 ±0.4) $in.^3$]	2440 x 820 x (1680 ±10) mm^3 [96.1 x 32.3 x (66.1 ±0.4) $in.^3$]

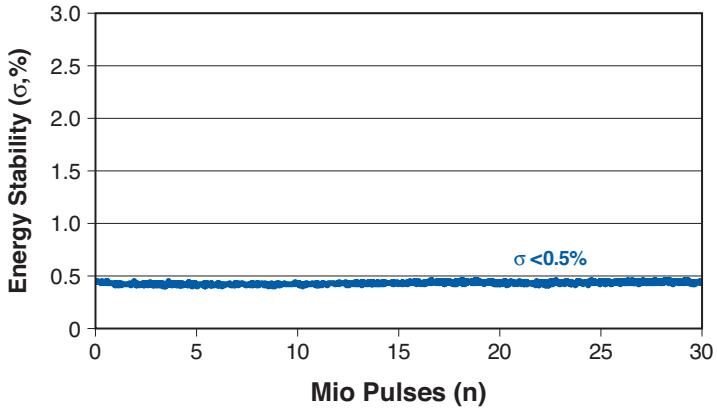
1. Max. pulse energy 1100 mJ @ 10 Hz.

Typical Performance Data

LEAP 150K 1 Joule at 150 Hz,
Dynamic Energy Range



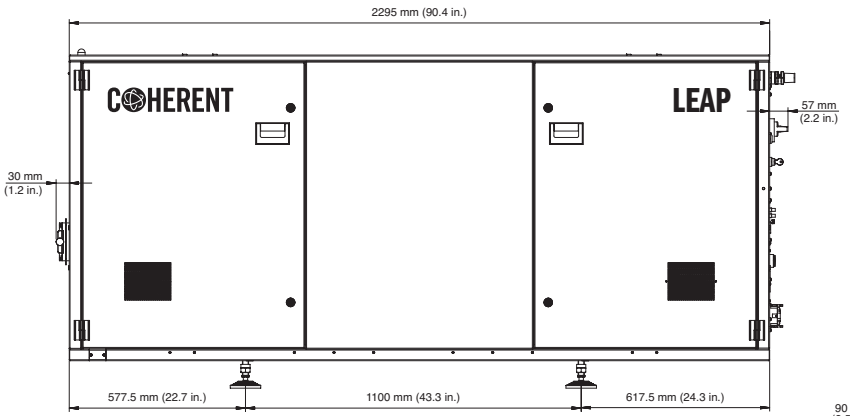
LEAP 150K 1 Joule at 150 Hz,
Energy Stability over 30 Mio. Pulses



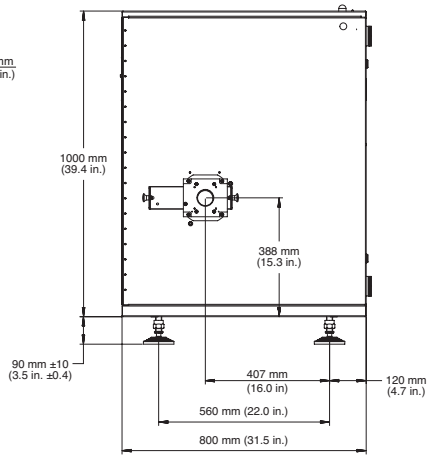
Mechanical Specifications

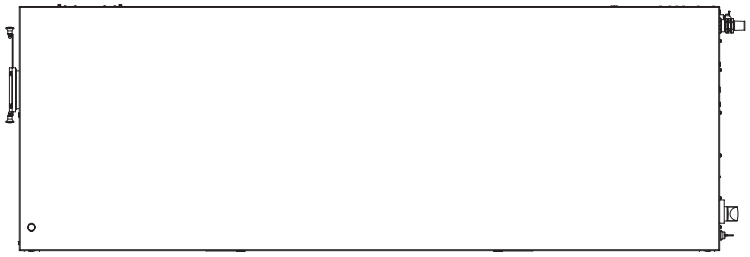
LEAP 50 to 150, LEAP K 1.25 J Beam Exit Left
(view from access side)

Front View



Side View



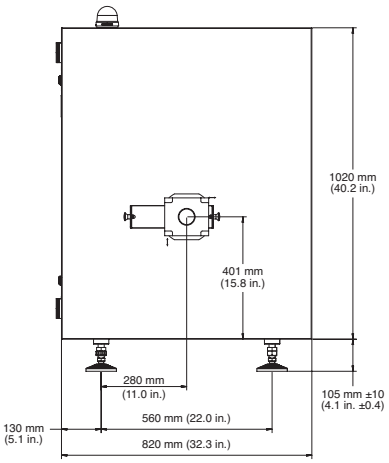


Top View

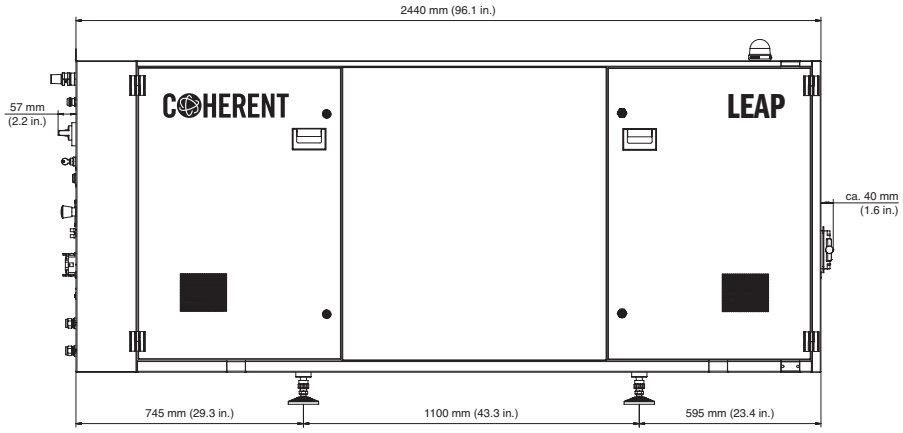
Mechanical Specifications

LEAP 300C/300K Beam Exit Right
(view from access side)

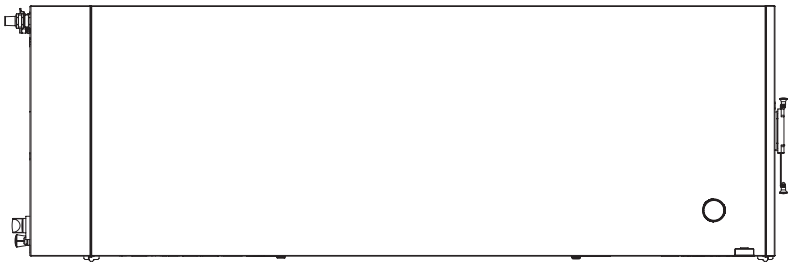
Side View



Front View



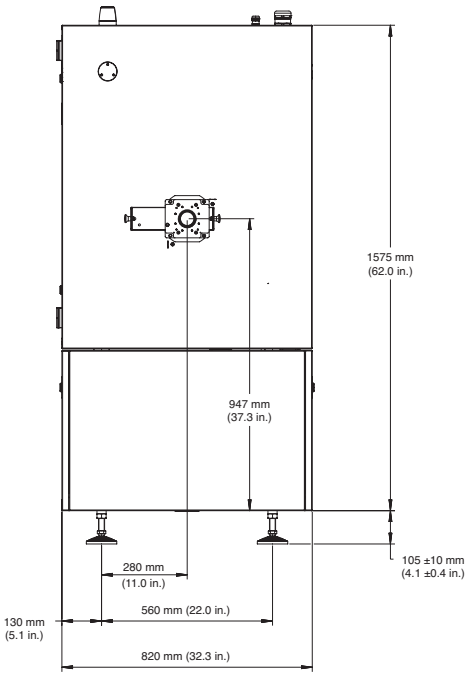
Top View



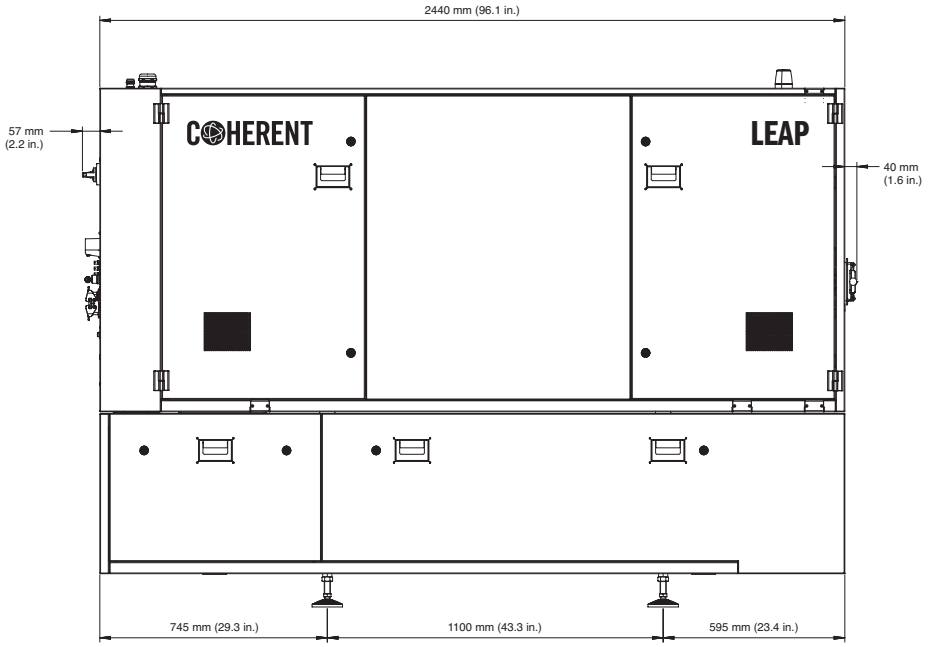
Mechanical Specifications

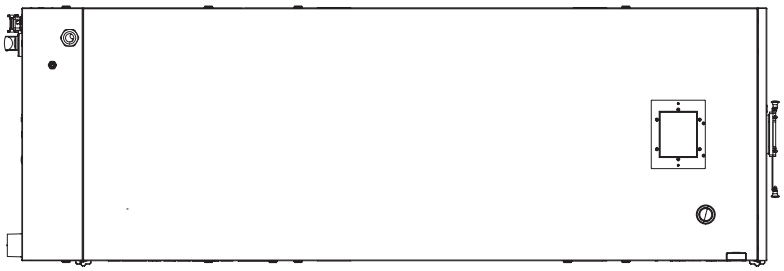
LEAP 600C Beam Exit Right
(view from access side)

Side View



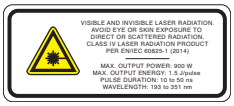
Front View





Top View

ISO 9001 Registered



For more information
www.coherent.com