LightMachinery
Excellence in Lasers and Optics

IPEX-800 SERIES

Industrial Excimer Lasers

Industrial excimer lasers for precision applications in electronics, telecommunications, semiconductor, medical devices and pulsed laser deposition.

- Now with exciPure™ technology for ultimate gas lifetimes and lowest cost of operation
- EasyClean™ automated optics seals toretain gas fill and reduce downtime during optics maintenance
- Optional High-Brightness optics for applications requiring low beam divergence or extended coherence length
- High-stability optics mounts for ultimate beam pointing accuracy
- Simple integration into industrial processing systems

IPEX™-840 / 860 Series Industrial Excimer Lasers

IPEX-840/860 Series excimer lasers, originally developed by Lumonics and now offered by LightMachinery, deliver the performance and reliability required for a wide range of advanced, high duty-cycle industrial manufacturing applications in the electronics, semiconductor and medical device industries.

exciPure™ technology, introduced in 2016, combines improved materials, a new dual-stage filter that removes both particulate and gaseous contaminants and an improved stabilization algorithm. It represents the greatest improvement in excimer gas lifetime and reduction in operating costs in a generation.

High-Brightness (“Unstable Resonator”) optics are available for applications that demand long-path low beam divergence (e.g. Lidar), extended coherence length (including manufacturing of Fiber Bragg Gratings) and improved focusing.

Features

- **exciPure™** laser tube
- **EasyClean™** automated optics seals
- Advanced optic mounts
- Keyed optics [1]
- StabiLase energy control with micro-injections
- Soft preionisation [2]

(1) U.S. Patent 5,237,583 (2) U.S. Patent 5,081,638

Benefits

- Extended gas lifetime, long replacement intervals, low operating cost
- Simplifies optical maintenance, retains gas fill and passivation
- Delivers 200 microradian pointing stability
- No realignment required after cleaning or replacing optics
- Fast, precise energy stabilization in internal, burst and external trigger modes
- Excellent pulse-to-pulse energy stability, better than 1.0% (1-σ, KrF)

Specifications

	Series	ArF	KrF	XeCl	XeF
Wavelength (nm)		193	248	308	351
Stabilised Pulse Energy (mJ) at maximum repetition rate	IPEX- 840	150	400	250	225
	IPEX 860	200	600	500	300
Maximum Pulse Energy (mJ) at low repetition rate	IPEX- 840	230	450	300	275
	IPEX 860	250	700	600	350
Stabilised Average Power (W)	IPEX- 848	30	80	50	45
	IPEX- 846	15	40	25	22
	IPEX- 844	6.0	20	12	11
	IPEX- 842	3.0	10	6.0	5.5
	IPEX- 868	20	60	50	30
	IPEX- 866	10	30	25	15
	IPEX- 864	5.0	18	10	9.0
	IPEX- 862	2.5	9.0	5.0	4.5
Maximum Repetition Rate (pps)	IPEX- 848	200	200	200	200
	IPEX- 846	100	100	100	100
	IPEX- 844	40	50	50	50
	IPEX- 842	20	25	25	25
	IPEX- 868	100	100	100	100
	IPEX- 866	50	50	50	50
	IPEX- 864	25	30	20	30
	IPEX- 862	12	15	10	15

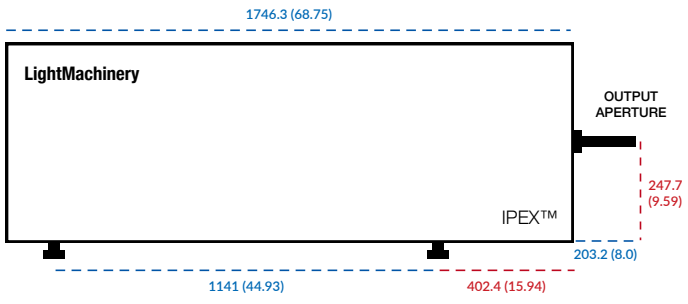
	FWMH, nominal
Pulse Duration (ns)	12-20

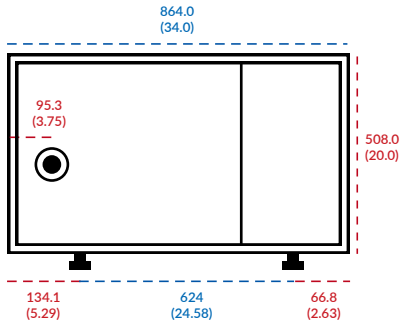
	Series	VxH, nominal
Beam Dimensions (mm) (V x H, nominal)	IPEX- 840 IPEX 860	12 x 26 12 x 28
Beam Divergence (mrad) (V x H, nominal)	IPEX- 840 IPEX 860	1 x 3 1 x 3

Facilities

Name	Description
Electrical 8X8 models 8X6 / 8X4 / 8X2 models	 3-phase, 208 V or 400 V, 4.5 kW, 50 or 60 Hz Single phase, 200- 240 V, 2.5kW / 1.5 kW / 1 kW, 50 or 60 Hz
Cooling Water 8X8 / 8X6 models 8X4 / 8X2 models	 10 liters / minute, 5°- 20°C, 40- 60 psig 5 liters / minute, 5°- 20°C, 40- 60 psig
Laser Gases	Ar, Kr, or Xe rare gas, F2 or HCI halogen gas (diluted), Ne and He buffer gases; or Pre-mixed gas Compressed air or nitrogen (for optics gate valves & beam shutter)
Weight 8X8 models 8X6 / 8X4 / 8X2 models	 400 kg 380 kg

Dimensions in mm (inches)





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