

XENON™ S-5000

Roll-to-Roll Sintering System

The XENON S-5000 is a customizable multi-lamp, Pulsed Light system ideal for Roll-to-Roll (R2R) applications. Ten independently-controlled 16" lamps enable throughputs up to 70 feet-per-minute. The lamps are controlled via an industrial touch-screen computer that uses a patent-pending algorithm to automatically synchronize the lamp flashes with the moving sample; this allows flexibility in defining the number of flashes per area and the degree of overlap between the pulses.



FEATURES

- 10 lamp design
- Integrated touch panel
- Integrated cooling
- Adjustable light energy
- Optional integrated conveyor

Lamp System

The S-5000 utilizes a modular design that enables each of the lamp housings or individual bays to be removed for lamp replacement, upgrade or service, thereby increasing ease-of-use and decreasing system downtime. The system is comprised of between one and five modular lamp systems. Each system consists of two lamp housings, a power supply and a pulse forming network. Each lamp system is capable of pulsing two lamps at up to 500 Joules-per-pulse or one lamp at up to 1000 Joules-per-pulse. Spare lamp housings can be kept in an integrated storage cabinet for quick replacement. The modular design keeps downtime for lamp replacement to below five minutes.



The modular lamp housing can be configured with as few as two lamps, or as many as 10.

Power

The S-5000 is capable of up to 15 Kilowatts for a full 10-lamp system. Users can configure the system for continuous operation of 10 lamps at ± 500 Joules per pulse or 5 lamps at ± 1000 Joules per pulse. Mains power for the system is delivered through a single 3-phase line, and all power conversion and distribution for the system is handled internally.

Variable Control

Integrated into the S-5000 is an easy to use Industrial touch panel controller that is both the user interface and the central processing unit for the System. The touch panel allows the user to set specific parameters of the System including number of lamps, lamp overlap, energy-per-pulse, lamp footprint, and web speed. These parameter sets can be saved and recalled later for different process recipes. Based on these parameters, the controller determines the optimal flash sequence and necessary blower speed and provides a graphical representation of the sequence. In case of power disruptions, the system is equipped with a UPS backup to provide uninterrupted power.

Customization

The S-5000 can be customized to fit numerous applications and scales easily to all levels of production. An optional conveyor can be integrated for high-speed runs of separate samples. Additional lamp housings can be added to increase throughput to meet higher production demands.

Conveyor (Optional)

An optional conveyor can be integrated into the S-5000 to qualify R2R processes or non-R2R production runs. The conveyor operation and speed is controlled via the touch panel.

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Specifications

System Units	
S-5000 frame and cooling plenum assembly	Modular I/O bay
Industrial touchscreen computer	Modular C-800 bay
7.5 Hp blower	Modular pulse forming networks (1 for every 2 lamps)
Conveyor	Modular power supplies (1 for every 2 lamps)
Modular lamp housings	From 1 to 10
Outline Dimensions (LxWxH)	
Frame	248.0 cm x 154.3 cm x 189.9 cm (97.64" x 60.74" x 74.75") ¹
Blower	68.3 cm x 105.1 cm x 69.3 cm (26.9" x 41.4" x 27.3")
Operating Environment	
Temperature	0°C - 40°C (32° - 104°F)
Humidity	10% to 90% relative humidity (non-condensing)
AC Input Power	480 Vac, 50/60 Hz, 3-phase, 97 amp max
Maximum Power per Lamp	1500 Watts
Optical Uniformity	±10% at focus
Duty Cycle	100%
Lamp Cooling Requirements	Maintain minimum 3.5" H ₂ O per inlet at all times. Cincinnati Fan SQBI-130 or equivalent (optionally provided by XENON)
Maximum Energy per Pulse	Configurable for 1450 Joules per pulse with up to 10 lamps or 1850 Joules per pulse with up to 5 lamps
Pulse Width	Configurable for 500 μs with up to 10 lamps or 1000 μs with up to 5 lamps
Pulse Frequency	1.5 Hz to 3.3 Hz depending on user-selected High Voltage parameter
Effective Optical Area	30.5 cm x 1.91 cm (12" x 0.75") at focus
Optimum Distance from Window to Test Sample	38 mm (1.5")
Conveyor	
Dimensions	40.64 cm x 274.3 cm (16" x 108")
Speed	0.91 to 182 m/min (3 to 100 ft/min)
Max Load	38 mm (1.5")

¹Dimensions do not include handles and hardware.

All specifications are typical unless otherwise noted (T AMBIENT @ +25 °C, VINPUT = 208). Specifications subject to change without notice



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