

Irradiator Choices for the Light Hammer® 6

Microwave-powered systems and their electrodeless bulbs have proven themselves over time and in hundreds of demanding applications. These long-life microwave-powered systems are known for their stable performance, high intensity and low maintenance operation.

The irradiator, part of a microwave-powered system, features either rigid aluminum or stainless steel construction and a focused elliptical reflector to concentrate maximum UV energy on your substrate. Simple bulb changes can be accomplished in minutes. Clean filtered cooling air is positively pressurized through the irradiator and out through the reflector cavity. This ensures that any contaminants, like dust, dirt and vapors, do not deposit on the bulb or reflector. Irradiators can be placed end-to-end for uniform wide cure or turned on independently to save energy costs for narrow width runs on wide systems.



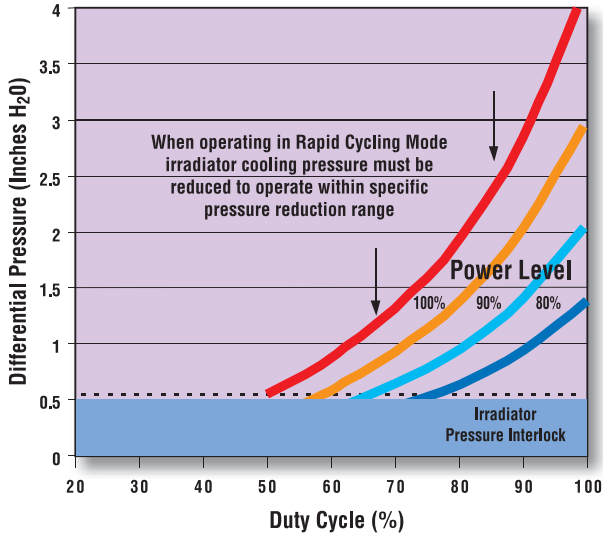
The Light Hammer® 6 offers several irradiator choices, each with a unique set of additional features:

Modes	Irradiator Model	Air Inlet (3" Collar)	Duty Cycle	Power Supply Version	Other Irradiator Features
High Power, QRM*, Rapid Cycle** & Reduced Power	I6P1LH	Top	>50%	LH6	Aluminum Housing, Internal pressure switch measures air pressure
	I6P3LH	Side		LH6	Aluminum Housing, Internal pressure switch measures air pressure (reference to ambient)
	I6SLH	Side		LH6	Stainless Steel Housing, Internal pressure switch measures air pressure differential
Ultra Rapid Cycle*	I6S/ULC	Side	<50%	LH6	Stainless Steel Housing, Requires Fusion UV-supplied external pressure gauge/switch

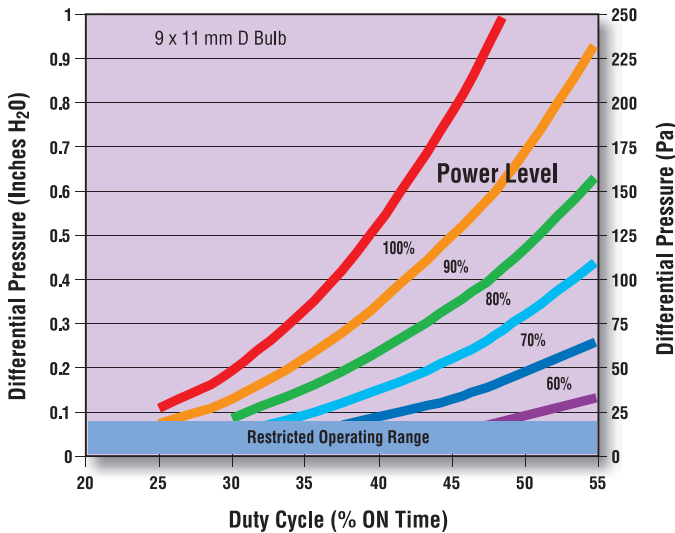
*QRM = Quick Restart Mode where "off" times are less than 1 minute, unit goes to standby after 1 minute in QRM mode.

**Rapid Cycle = Rapid Cycle Mode where "on" and "off" times are less than 6 seconds and greater than 1 second. (Requires setting of SWS6 for power supply control)

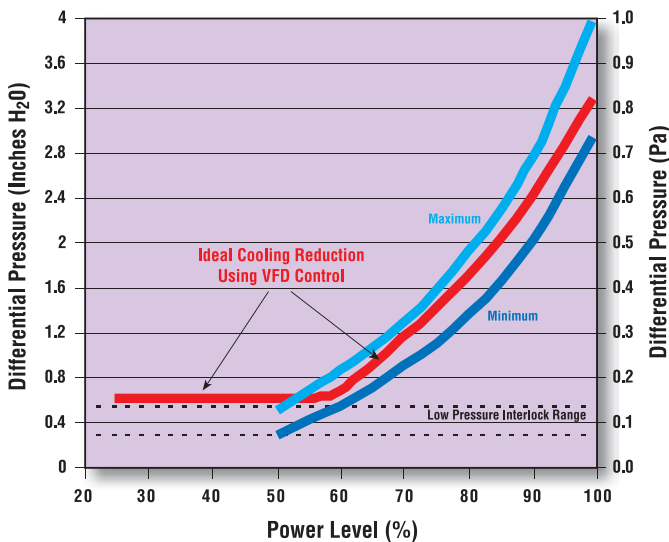
Cooling Chart for Duty Cycle Greater than 50%



Cooling Chart for Duty Cycle Less than 50%



LH6 Ideal Cooling Reduction



The Basic System

The Light Hammer[®] 6 system allows for high power operation, reduced power operation and quick restart mode. Quick Restart Mode (QRM) allows for extended “lamp-on” times and up to 60 seconds in ‘simmer’. Available in a variety of remote blower configurations (I6P1LH, I6P3LH and I6SLH).

The Light Hammer[®] 6 extends the utility of the system to indexing applications and to UV curing applications which require reduced power operation for extended periods of time.

Rapid cycle can act as an ‘electronic shutter’ instantly changing between Lamp “on” and “off” times of one second to six seconds. The differential pressure must be adjusted based on duty cycle as shown in the top graph.

For situations where duty cycles are below 50%, the I6S with Ultra Low Cooling (ULC) is recommended. This system allows cooling to be further reduced using an external pressure gauge in lieu of an internal pressure switch.

For applications that **operate continuously at reduced power**, the air-cooling requirements can again be lowered. With the optional variable frequency drive blower (VFD), the cooling will be automatically adjusted by the power supply.

Electrodeless Bulbs

At the heart of the microwave technology is the electrodeless bulb mounted in an elliptical reflector for focusing an intense strip of light 53.3 mm (2.1") below the face of the lamp. H, D and V spectra are available for each lamp.



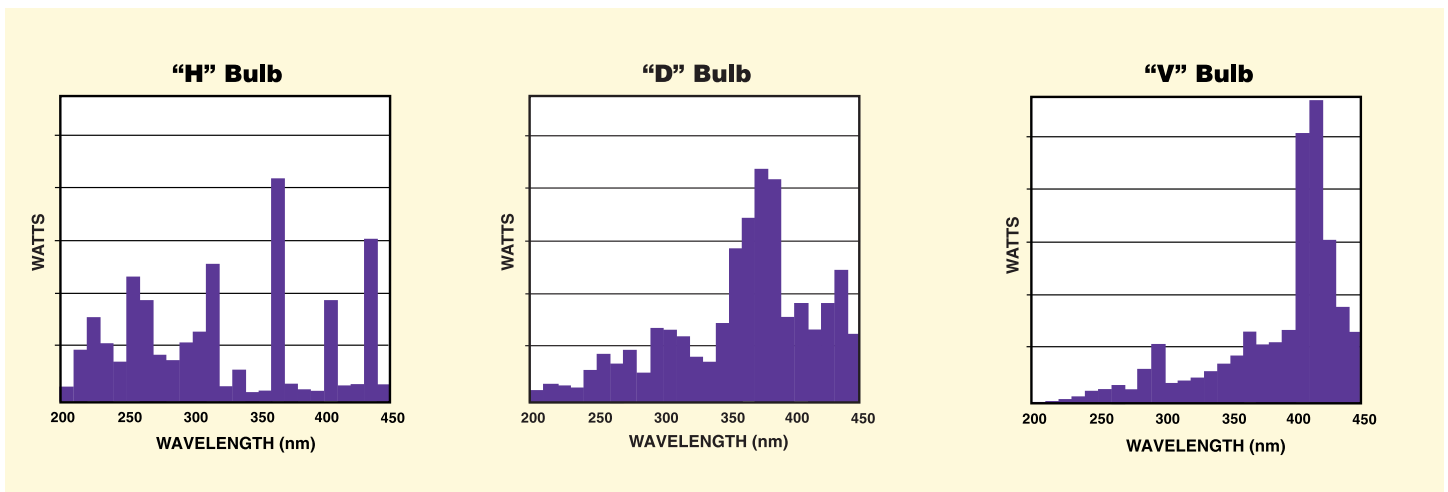
“LH” for Light Hammer[®]

Duty Cycle Table

Lamp ON Time	Lamp OFF Time	Duty Cycle Power Level	Power Level	Cooling Pressure	Recommended Irradiator
2 sec	1 sec	67%	100%	0.8-1.2 inches H ₂ O or 0.2-0.3 KPa	LH Models I6P1LH, I6P3LH, I6SLH
4 sec	2 sec	67%	100%	0.8-1.2 inches H ₂ O or 0.2-0.3 KPa	Same as above
5 sec	1 sec	83%	100%	1.5-2.0 inches H ₂ O or 0.38-0.53 KPa	Same as above
5 sec	3 sec	63%	100%	0.7-1.0 inches H ₂ O or .15-25 KPa	Same as above
3 sec	3 sec	50%	90%	0.5-0.7 inches H ₂ O or 125-175 Pa	Ultra Low Pressure Model Only*
2 sec	4 sec	33%	100%	0.2-0.3 inches H ₂ O or 40-70 Pa	Ultra Low Pressure Model Only*
1.5 sec	2.5 sec	37%	80%	0.12-0.17 inches H ₂ O or 30-45 Pa	Ultra Low Pressure Model Only*

*I6S/ULC with 9 mm D bulb

Output Spectra of Typical Fusion UV Electrodeless Bulbs



Specifications: Irradiator Choices for the Light Hammer® 6

Irradiator Models:

Basic Versions: For full power operation, QRM, reduced power operation and rapid power cycling (i.e. electronic shutter) for operation at duty cycles above 50%.

- I6P1LH with top air inlet; requires remote blower.
- I6P3LH with side air inlet; 385 mm tall (15.2"), requires remote blower.
- I6SLH with side air inlet, stainless steel housing.

ULC Version: For rapid cycle operation at duty cycles below 50%.

- I6S/ULC.

Reflector Geometry: Semi-elliptical. Focus at 53 mm (2.1") from the irradiator surface.

Lamp Power: Full power: 184 watts/cm (467 watts/inch), 2800 watts microwave power input to the bulb.

Exhaust: Fusion UV recommends that a minimum of 110-130% of the required volume of cooling air to be exhausted based on inlet pressure to provide 10-30% makeup air for light shield cooling.

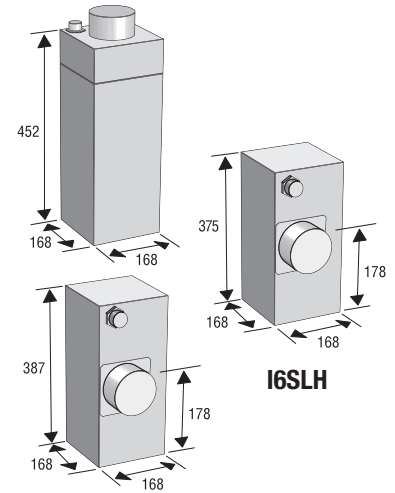
Irradiator Dimensions: Allow space for inlet collar, air connection and electrical connection.

- Footprint: 168 mm (6.6") x 168 mm (6.6").
- Mounting Position: May be mounted and operated in any position.

Optional Accessories:

- **Bulbs:** H, D and V spectra are available. The Ultra Low pressure model is available only with a 9 mm D bulb.
- Optional dichroic end reflectors or main reflectors.
- **Adapter Rails:** A pair of bars which can be attached to the sides of the I6 lamp housing to provide the same footprint as Model I300M. These external rails also provide mounting surfaces for attachments, such as model F6 or C6 secondary reflector housings.
- **Cross-wise Adapter Plate:** Allows I6 irradiator to be mounted in a light shield for I300M; positions irradiator in a 90-degree orientation to the I300M position.
- **External End Reflectors:** Flat plate UV reflectors, constructed of light gauge aluminum with R500 UV reflective surface; designed to fit in a light shield to provide increased radiant uniformity over full length of bulb.
- **(Remote) Pressure Blower:** Vane-type blower with air intake filter housing, to provide filtered air to the irradiator with the proper flow and pressure. A number of power options and configurations are available.
- **Variable Frequency Drive Blower:** Allows automatic adjustment of cooling air to track power level.

I6P1LH



I6P3LH

Note: Specifications are for a single lamp system whose length is 168 mm (6.6"). Adding irradiators and power supplies can make a larger system. Irradiator modules placed end-to-end effectively form a continuous lamp of any length, which are multiples of 168 mm (6.6"). Some specifications will increase proportionally with the number of lamps in a system.



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