

Heraeus Noblelight Fusion UV Inc.

F300S and F300SQ

The F300S is a production-proven 300 watt/inch microwave-powered electrodeless lamp, packaged in a compact 6-inch modular unit. An optional integral blower makes installation and setup especially easy and is perfect for lab or other facilities where blower and ducting installation is difficult. Indicator lights make operating the system intuitive and easy.



Electrodeless Technology

The microwave-powered lamp and its electrodeless bulb technology have proven themselves over time and in hundreds of demanding applications. At the heart of the microwave technology is the tubular electrodeless bulb in an elliptical reflector that focuses an intense strip of UV energy onto the surface in front of it. These long life bulbs (no metal electrodes as required in conventional arc lamps) are known for their stable performance, high intensity and low maintenance operation. Frequent on/off operation has no adverse effect on UV output or bulb lifetime.

More Efficient and Faster UV Curing from High Peak Irradiance and Low Infrared

The small diameter bulb combined with the elliptical reflector provides high peak of UV irradiance for high-speed cure. The small diameter bulb also reduces infrared emission resulting in lower surface temperatures of the substrate, thus reducing the need for complicated heat removal methods.

The system features two easy-to-service modular components: the microwave-powered irradiator and the power supply.

The Irradiator

Rigid aluminum construction incorporates both the bulb and reflector assembly. The major benefits of this design are:

- **Higher production rates** - The focused elliptical reflector concentrates maximum UV power 53 mm (2.1 inches) below the lamp face.
- **Reduced maintenance** - No water cooling required. Positive air flow, using only filtered air, forces dirt, dust, and vapors away from the reflectors and bulb, maintaining system cleanliness and long bulb life. Irradiator modules are available with integral cooling

blowers. Simple bulb changes can be accomplished in minutes.

Energy savings and flexibility - The modular design enables adjustable cure width. The 6" modules can be placed end-to-end for uniform cure, or turned on independently to save energy costs for narrow width runs on wide systems. When placed end-to-end, there is no loss of illumination at the juncture of adjacent lamps.

The Power Supply

The power supply embodies simple controls and easy interconnections. The benefits are:

- **Easy, Quick Start-up** - On/off/standby control allows easier, quicker start-up procedures.
- **Safe operation** - Safety interlocks built in.
- **Eliminate scrap** - Lamp function monitored to eliminate product scrap or waste.
- **Easy production line integration** - Lamps automatically switch on and off with the production line. - Production interlock.
- **Easy maintenance and troubleshooting** - Pullout control board eases service and component change. If any section of the UV curing systems fails, a front panel indicator identifies the cause. A fault can signal other production equipment. Multiple power supplies can be interconnected with a simple communication bus to provide common control and fault indication.

The Electrodeless Bulb

- **Long bulb lifetime** - 300 watt/inch mercury bulbs are guaranteed to last a minimum of 8,000 hours. Most users report lifetimes well in excess of warranty period.
- **Rapid start and restart** - Eliminates requirement for shutters and associated shutter mechanisms.
- **Less heat to substrate** - Optimized bulb fill to give maximum ultraviolet output with minimum infrared heat to substrate.
- **Reduced maintenance** - Long life means fewer changes and bulbs simply snap in and out requiring minimal operating downtime.
- **Full cure width maintained throughout bulb life** - No blackening at bulb ends; therefore, no decrease in cure width over time.

Popular Bulb Spectra Available

Different spectral output bulbs enable users to optimize UV wavelength with the reactive sensitivity of chemistry being used and the desired properties of the end product. Simply swap the bulb type in the irradiator with no change to the power supply. Additives in the bulb create the different spectral distributions. Because there are no electrodes in the bulb, the bulb will have long term output stability and long life. Consequently, Fusion UV bulb life guarantees exceed all other medium-pressure lamps.

The standard bulb spectra are available: "H" for clear-coats and varnishes; "D" for inks and thick coatings or adhesives; and "V" for white basecoats, through laminating materials and in other specialty applications.

SPECIFICATIONS: F300S and F300SQ

Specifications are for a single lamp system consisting of irradiator and power supply. Larger systems are constructed by placing lamp modules end-to-end; power supplies may be stacked and interconnected. F300S system uses P300MT power supply, F300SQ system uses P300MQ power supply.

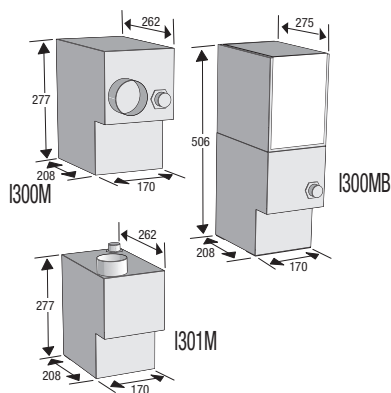
Irradiator: Models I300MB, I300M, I301M

Available with integral blower (I300MB), or with 3 inch diameter hose adaptor for remote blower (I300M or I301M).

Lamp Power: 300 w/in (120 w/cm); 1800 watts total.

Bulb Type: Standard style BF9. Standard spectra available.

Dimensions: 6.7" (170 mm) long (along bulb axis), x 8.2" (208 mm) wide at lamp face.



Height:

- I300MB 19.9" (506 mm). Blower top 6.7" (170 mm) x 10.8" (275 mm).
- I300M/I301M 10.9" (277 mm). Top surface 6.7" (170 mm) x 10.3" (262 mm).

Weight:

- I300MB 30 lbs. (14 kg).
- I300M/I301M 17 lbs. (8 kg).

Cooling: Minimum 100 cfm (2.8 m³/min) of filtered air at 2.6" water gauge (650 Pa) at the inlet [1.8" (450 Pa) measured at the housing], supplied by integral blower or via 3" diameter flexible hose from remote blower (not included).

Reflector Geometry: Semi-elliptical, focuses at 2.1" (53 mm) from irradiator face.

Fasteners: Metric.

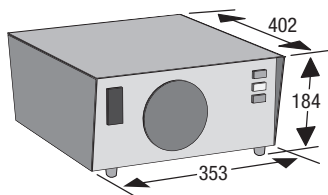
Substrate Location: 2.1" (53 mm) from irradiator face, for maximum irradiance.

Mounting Position: Can be mounted and operated in any position.

Mounting Enclosure: Supplied as custom item (must have exhaust system with approximately 130 cfm capacity per irradiator).

Power Supply: Model P300MT

Dimensions: 13.9" (353 mm) wide x 7.2" (184 mm) high x 15.8" (402 mm) deep. An additional 12" (300 mm) clearance is recommended for cable connection access at rear.



Weight: 68 lbs. (31 kg).

Cooling: Self contained internal fan.

Control Functions: Power ON/OFF; Lamp: ON/STANDBY/OFF-RESET.

Interlocks:

- UNIT:** Lamp Out, Power Imbalance, Power Error, Power Interrupted, Power Supply Temperature, Blower Pressure.
- SYSTEM:** System Blower, External Interlock, RF Interlock (RF Detector).

Test Points: Available on front panel.

RF Detector: Model RF1, with 13' (4 m) connecting cable (other cable lengths available).

Connections: 13' (4 m) cable assembly from power supply to irradiator (other cable lengths available). Line power connections and fused disconnect to be supplied by user.

Service Access: Removal of cover.

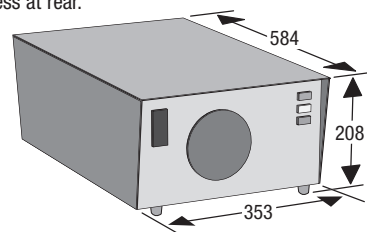
Stacking: Up to three power supplies may be stacked; soft feet fit into top dimples.

Power Connection: 200-240 V, 18 amp, 50/60 Hz, 1 phase.

Power Supply: Model P300MQ

Quick-Restart Feature: Maintains low power to bulb during standby (up to 40 seconds) to permit lamp restart at any time, without 24 second cool-down period.

Dimensions: 13.9" (353 mm) wide x 8.2" (208 mm) high x 23.0" (584 mm) deep. An additional 12" (300 mm) clearance is recommended for cable connection access at rear.



Weight: 88.6 lbs. (40.3 kg).

All other specifications same as P300MT.

F300S and F300SQ systems are fully certified to applicable European and USA regulations and requirements.

Contact your local Heraeus Noblelight Fusion UV office for an engineered solution for your specific requirements.

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