Sterilight®

ULTRAVIOLET DISINFECTION SYSTEM

PLATINUM

ensuring the safety of your water

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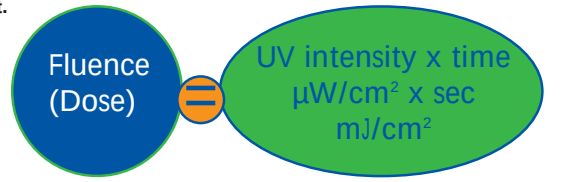
Sterilight® Platinum will *ensure the safety of your water...*

Sterilight's PLATINUM UV disinfection systems offer simple, safe and effective disinfection. If waterborne pathogens, including bacteria, virus, protozoa and others are a concern, Sterilight PLATINUM UV is the answer!

Disinfection using ultraviolet (UV) light is fast becoming the ecological choice in disinfection techniques. UV effectively destroys microbial contaminants without adding anything to the water. Unlike chlorine where there is the possibility of potentially harmful by-products created during its disinfection process, UV creates no residual by-products. The process is quickly completed within the confines of the reactor. Unlike chlorine and ozone treatments, no external tanks are required and no hazardous chemicals need to be handled.

As a note, microorganisms require varying UV fluence levels for destruction. Some of the common organisms and their corresponding fluence level are shown to the right.

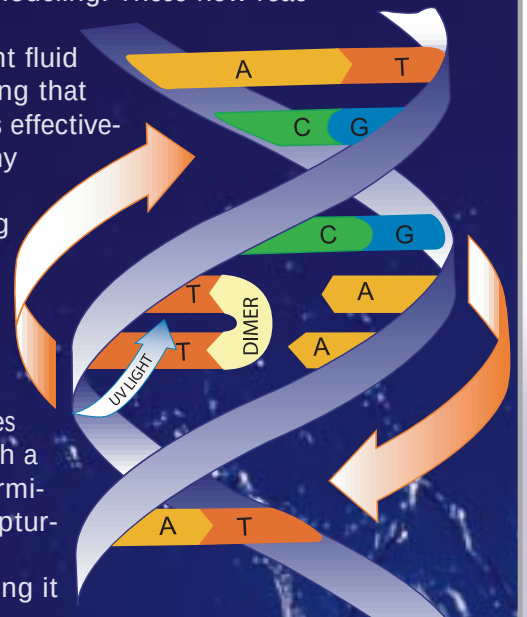


Note: 1mJ/cm² = 10mJ/m² = 1000µWsec/cm²

MICROORGANISIM	FLUENCE (DOSE)
E. coli[2]	6.6 mJ/cm²
Cryptosporidium parvum[1]	<10 mJ/cm²
Giardia lamblia[1]	<10 mJ/cm²
Hepatitus Virus[1]	8 mJ/cm²
Influenza Virus[1]	6.6 mJ/cm²
Shigella dysenteriae[2]	4.2 mJ/cm²
Legionella pneumophila[2]	3.8 mJ/cm²
Salmonella paratyphi[2]	6.1 mJ/cm²

1. 2-log reduction *2. 4-log reduction*

Sterilight's PLATINUM UV systems incorporate a unique stainless steel reactor design based on advanced computational fluid dynamic (CFD) modeling. These new reactors create an extremely efficient fluid flow path, ensuring that ultraviolet light is effectively delivered to any microbiological organism residing in the water. As the organisms pass through the reactor, a powerful high-output UV lamp irradiates the organism with a lethal dose of germicidal UV light, rupturing its DNA (or RNA), rendering it incapable of reproducing and ultimately incapable of causing infection! After disinfection, the water exits the reactor ready for use.



Looking for a system that provides more information than just when it is time to change your lamp? Look no further than Sterilight's new PLATINUM ICE CONTROLLER. This revolutionary device includes a small touch panel switch providing a graphical representation of a variety of system functions. Depress switch to obtain UV output represented in "% UV output".

Depress switch two times to obtain remaining lamp life

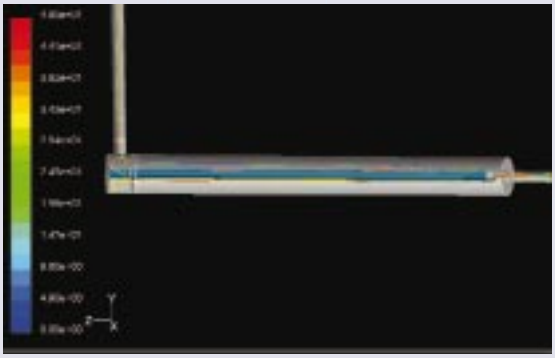
and depress three times to show total controller running time.

UV disinfection systems are used around the world treating water, air and other viscous fluids. Applications are broad and ever expanding. They include residential, commercial, institutional and now municipal applications. Sterilight systems have been installed and operating around the world since 1986. Sterilight has become a world leader in the design and manufacture of UV disinfection systems and continues to make many advancements within the industry.

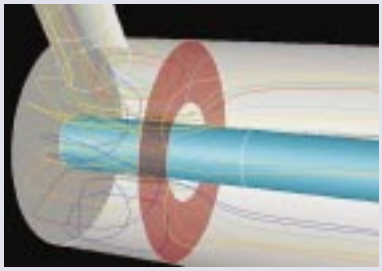
ensuring the safety of your water

Reactor

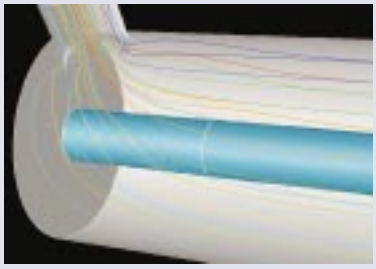
Sterilight's new PLATINUM reactors were designed using advanced computational fluid dynamics (CFD) to optimize the fluid flow path, ensuring that ultraviolet light is more efficiently delivered to any microbiological organism residing in the water.
This achievement represents a marked improvement over traditional designs, which tend to suffer from reduced overall efficiency due to non-uniform dose distribution within the reactor.



This new Sterilight reactor starts with an axial flow inlet that directs the fastest flowing fluid to the region of highest intensity close to the UV lamp. Just prior to the outlet, the Sterilight PLATINUM design incorporates a unique flow distributor which again forces the water into close proximity to the lamp. This represents a marked improvement over other products which allow a portion of the water to take a "fast-track" short-circuit path along the reactor wall near the outlet port, with the result that some microorganisms receive less than optimal germicidal dose.



This CFD image shows water track path lines as they approach and go through the Platinum reactor's unique flow distributor prior to exiting the reactor. This flow distributor ensures that the water follows the most optimum path in this region, enabling more effective delivery of germicidal UV energy to any microorganism in this zone.



Other systems, as shown at left without the Sterilight flow distributor, allow a portion of the water to take a "fast-track" short-circuit path (dark blue lines) along the reactor wall near the outlet port. This short-circuit path is flowing faster as it approaches the outlet, and even exits the reactor early before traveling the full lamp length! Coupled with the fact that the UV intensity is lower near the reactor wall, microorganisms following this short-circuit path will receive lower germicidal dose.

Controller

IF YOU ARE LOOKING FOR THE MOST ADVANCED UV CONTROLLER ON THE MARKET....LOOK NO FURTHER THAN STERILIGHT'S NEW PLATINUM ICE CONTROLLER.

This patent pending controller features an integral Smart Switch™, which provides a graphical interface and selection switch all in one compact unit. The PLATINUM ICE controller provides features typically found only on commercial systems costing thousands of dollars more. The new PLATINUM ICE provides:

- 90-265 VAC universal operation
- Visual UV intensity readings (reads in % UV output)
- Visual elapsed time meter (counts down remaining days between lamp changes and provides for total running time of the controller)
- Constant current output over entire input line voltage
- Active power factor correction
- EMI/RFI filtering (meets new CE directives)
- One controller to drive all lamps
- Isolated power source for alarm system
- True lamp current detection
- Full diagnostic check on start-up
- Separate fuse protection for controller circuit
- Dry contacts (for solenoid, lamps, audible alarms, etc.)
- RJ-11 communication port (sensor output and future RF remote alarm package)
- Universal IEC power input connector

Connector

Safety Loc™

Once again, Sterilight offers an industry first: an interlock switch moulded into the new **Safety-Loc™** lamp connector. The interlock switch prevents lamp operation in the event that the lamp is not fully inserted into the reactor chamber. This new design offers the user quick and simple removal of the lamp connector by hand without any special tools or assistance. This connector is keyed to the reactor chamber, allowing for the correct lamp orientation within the reactor and thereby eliminating potentially false sensor readings. The Safety-Loc™ connector is keyed to the Sterilume™ lamps, ensuring the integrity of the manufacturer's lamp/controller design selection.

UV Sensor

flow-pace™

Sterilight's new **Flow-Pace™** UV sensor is a discrete 254nm sensor which incorporates the latest in UV detection components for stable, long-life reliability. In addition, the UV sensor is capable of detecting a low-flow condition with a novel design technique. The processing electronics are all enclosed in a compact, watertight enclosure. This patent pending design, when coupled with the new Platinum ICE controller, allows for 2-stage flow pacing that automatically adjusts lamp power to the water flow. This unique design incorporates the sensor and calibration electronics in an integral unit, thus eliminating the two separate components used in competitive units. This "flow-pacing" results in lower power consumption, reduced operational costs and ultimately less heat transfer into the water!

Lamps

Sterilight's Sterilume™-HO ultraviolet disinfection lamps use new low pressure high-output lamp technology. These lamps incorporate an advanced proprietary lamp coating, offering consistent UV output over the life of the lamp. These lamps offer superior cold water starting conditions, ideal for those cold weather climates. High-output lamps offer more UV output than traditional designs, therefore more compact systems can be designed to deliver even higher UV fluence (dose). Sterilight offers a full one year warranty on their Sterilume™-HO lamps!

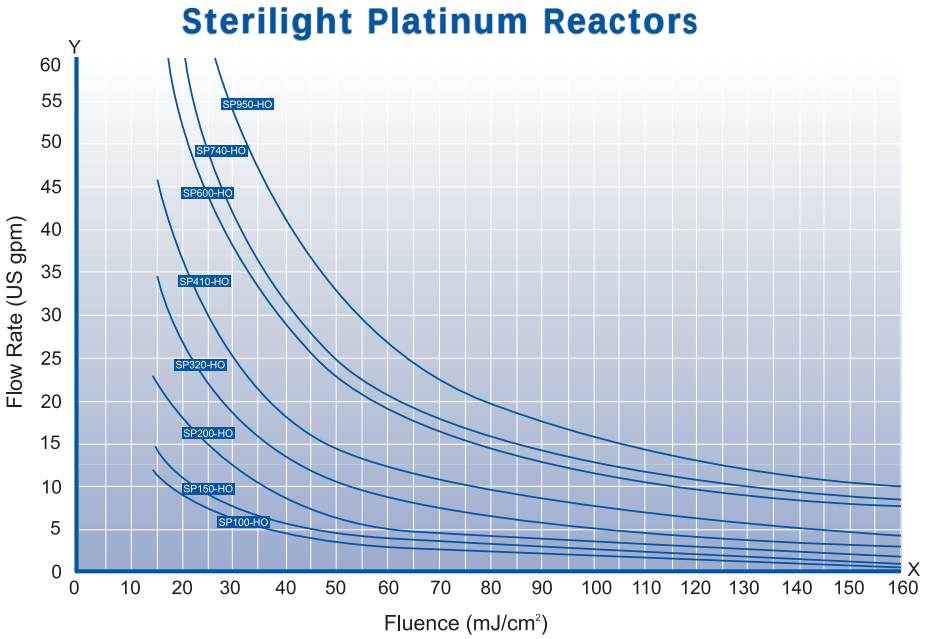
Sterilume™

Water Quality Guidelines

- Iron: < 0.3 ppm (0.3 mg/L)
- Hardness: < 7gpg (120 mg/L)
- Turbidity: < 1 NTU
- Manganese: < 0.05 ppm (0.05 mg/L)
- Tannins: < 0.1 ppm (0.1 mg/L)
- UV Transmittance: > 75% (call factory for recommendations on applications where UVT < 75%)

Sizing

The UV fluence (dose) delivered by a given reactor is dependent on many factors, including water quality and flow rate. Actual delivered fluence is flow dependent. As fluence is a product of UV intensity and residence time within the reactor, changes in the flow rates through a reactor will change the delivered fluence. The graph below shows the various Sterilight Platinum systems and their corresponding flow rates over a range of fluences (dosages), based on UVT_{10} = 95%.



UVT (%)	FACTOR
70	0.41
72	0.43
74	0.45
76	0.46
78	0.49
80	0.52
82	0.56
84	0.61
86	0.65
88	0.71
90	0.78
92	0.82
94	0.98

1 Find Adjusted flow for UV-T levels other than 95%

System	UVT	Desired Fluence
SP410-HO	80%T	30 mJ/cm²

1. Select “0.52” factor from chart for an 80% UV-T adjustment
2. Divide 30 mJ/cm² by 0.52 (30 mJ/cm² / 0.52=57.7 mJ/cm²) for an adjusted fluence
3. From the graph, select 57.7 mJ/cm² on the “x” axis and follow the line to the point of intersection on the SP410-HO curve. Follow a horizontal line across to the line “y” axis to find the “adjusted” flow rate.
4. The adjusted flow rate in this example is 13gpm.

2 Find Adjusted Fluence (dose)

System	UVT	Desired Flow Rate
SP410-HO	90%T	15 gpm

1. Select “0.78” factor from chart for an 90% UV-T adjustment
2. Select 15 gpm on the “y” axis and follow a horizontal line to the SP410-HO curve and follow that line down to a fluence of 48 mJ/cm²
3. To find adjusted fluence, multiply fluence 48 mJ/cm² by 0.78 (adjustment) to get an adjusted fluence of 37.4 mJ/cm²

3 Find Appropriate System

System	UVT	Desired Fluence
18 gpm	90%T	40 mJ/cm²

1. Select “0.78” factor from chart for an 90% UV-T adjustment
2. Divide 40 mJ/cm² by 0.78 (40 mJ/cm² /0.78=51.3 mJ/cm²) for an adjusted fluence
3. Select a flow rate of 18 gpm on the “y” axis and the adjusted fluence of 51.3 mJ/cm² on the “x” axis and move to a point on the chart where these two lines intersect. Select the curve closest to the point of intersection (if point falls between the two curves, choose the larger system). In this example the correct system would be the SP600-HO

Product Specifications

Models		SP100-HO	SP150-HO	SP200-HO	SP320-HO	SP410-HO	SP600-HO	SP740-HO	SP950-HO
Rated Flow Rate @	16 mJ/cm²	11 gpm[1] (41.6 lpm) (2.5 m³/hr.)	14 gpm[1] (53.0 lpm) (3.2 m³/hr.)	20 gpm[1] (75.7 lpm) (4.5 m³/hr.)	34 gpm[1] (128.7 lpm) (7.7 m³/hr.)	45 gpm[1] (170.3 lpm) (10.2 m³/hr.)	60 gpm[2] (227.1 lpm) (13.6 m³/hr.)	60 gpm[2] (227.1 lpm) (13.6 m³/hr.)	60 gpm[2] (227.1 lpm) (13.6 m³/hr.)
	30 mJ/cm²	6 gpm[1] (22.7 lpm) (1.4 m³/hr.)	8 gpm[1] (30.3 lpm) (1.8 m³/hr.)	10 gpm[1] (37.9 lpm) (2.3 m³/hr.)	18 gpm[1] (68.1 lpm) (4.1 m³/hr.)	24 gpm[1] (90.8 lpm) (5.45 m³/hr.)	35 gpm[1] (132.5 lpm) (7.9 m³/hr.)	42 gpm[1] (158.9 lpm) (9.5 m³/hr.)	52 gpm[1] (196.8 lpm) (11.8 m³/hr.)
	40 mJ/cm²	4 gpm[1] (15.1 lpm) (0.9 m³/hr.)	6 gpm[1] (22.7 lpm) (1.4 m³/hr.)	8 gpm[1] (30.3 lpm) (1.8 m³/hr.)	13 gpm[1] (49.2 lpm) (2.9 m³/hr.)	18 gpm[1] (68.1 lpm) (4.1 m³/hr.)	26 gpm[1] (98.4 lpm) (5.9 m³/hr.)	31 gpm[1] (117.3 lpm) (7.0 m³/hr.)	39 gpm[1] (147.6 lpm) (8.9 m³/hr.)
UV Intensity Monitor		yes	yes	yes	yes	yes	yes	yes	yes
Flow Pacing		yes	yes	yes	yes	yes	yes	yes	yes
Time Meters	Remaining Lamp Life	yes	yes	yes	yes	yes	yes	yes	yes
	Total Running Hours	yes	yes	yes	yes	yes	yes	yes	yes
Dry Contacts		yes	yes	yes	yes	yes	yes	yes	yes
Safety Interlock		yes	yes	yes	yes	yes	yes	yes	yes
Lamp Replacement Reminder		yes	yes	yes	yes	yes	yes	yes	yes
Diagnostic Check		yes	yes	yes	yes	yes	yes	yes	yes
Communication Port		yes	yes	yes	yes	yes	yes	yes	yes
Reactor Chamber Material		304 SS	304 SS	304 SS	304 SS	304 SS	304 SS	304 SS	304 SS
Electrical	Volts	90-265V./ 50-60Hz.	90-265V./ 50-60Hz.	90-265V./ 50-60Hz.	90-265V./ 50-60Hz.	90-265V./ 50-60Hz.	90-265V./ 50-60Hz.	90-265V./ 50-60Hz.	90-265V./ 50-60Hz.
	Power Consumption	20W	25W	35W	42W	52W	73W	88W	110W
	Lamp Watts	15W	20W	30W	36W	45W	65W	80W	100W
Maximum Operating Pressure		8.62 bar (125 psi)	8.62 bar (125 psi)	8.62 bar (125 psi)	8.62 bar (125 psi)	8.62 bar (125 psi)	8.62 bar (125 psi)	8.62 bar (125 psi)	8.62 bar (125 psi)
System Pressure Drop		0.3 bar (4psi) at 50% rated flow							
Ambient Water Temperature		2-40˚C (36-104˚F)	2-40˚C (36-104˚F)	2-40˚C (36-104˚F)	2-40˚C (36-104˚F)	2-40˚C (36-104˚F)	2-40˚C (36-104˚F)	2-40˚C (36-104˚F)	2-40˚C (36-104˚F)
Maximum Ambient Temperature		50˚C (122˚F)	50˚C (122˚F)	50˚C (122˚F)	50˚C (122˚F)	50˚C (122˚F)	50˚C (122˚F)	50˚C (122˚F)	50˚C (122˚F)
Rated Service Life of Lamp		9000 hours	9000 hours	9000 hours	9000 hours	9000 hours	9000 hours	9000 hours	9000 hours
Replacement Lamps		S100RL-HO	S150RL-HO	S200RL-HO	S320RL-HO	S410RL-HO	S600RL-HO	S740RL-HO	S950RL-HO
Dimensions	Chamber (L x D)	13.8" x 3.5" (350.52 x 89 mm)	15.8" x 3.5" (401.32 x 89 mm)	17.8" x 3.5" (452.12 x 89 mm)	22.8" x 3.5" (579.12 x 89 mm)	26.0" x 3.5" (660.4 x 89 mm)	30.7" x 3.5" (779.78 x 89 mm)	39.4" x 3.5" (1000.76 x 89 mm)	47.6" x 3.5" (1130.3 x 89 mm)
	Controller (L x W x H)	10.75" x 4.5" x 2" (254 x 114 x 53 mm)	10.75" x 4.5" x 2" (254 x 114 x 53 mm)	10.75" x 4.5" x 2" (254 x 114 x 53 mm)	10.75" x 4.5" x 2" (254 x 114 x 53 mm)	10.75" x 4.5" x 2" (254 x 114 x 53 mm)	10.75" x 4.5" x 2" (254 x 114 x 53 mm)	10.75" x 4.5" x 2" (254 x 114 x 53 mm)	10.75" x 4.5" x 2" (254 x 114 x 53 mm)
Shipping Weight		10 lbs (4.5 kg)	11 lbs (5 kg)	12 lbs (5.4 kg)	15 lbs (6.8 kg)	17 lbs (7.7 kg)	19 lbs (8.6 kg)	24 lbs (10.9 kg)	29 lbs (13.1 kg)
Inlet/Outlet Port Size		Combo 3/4" FNPT/ 1" MNPT	Combo 3/4" FNPT/ 1" MNPT	Combo 3/4" FNPT/ 1" MNPT	1" MNPT	1" MNPT	1" MNPT	1" MNPT	1" MNPT
Other Approvals									

1. Flow rates stated at 95% UVT_{10}

2. Flow Rate dictated by maximum pressure drop (>8psi)

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EPA Establishment 57987-CN-001

LIT-0403141
PRINTED IN CANADA 04/03