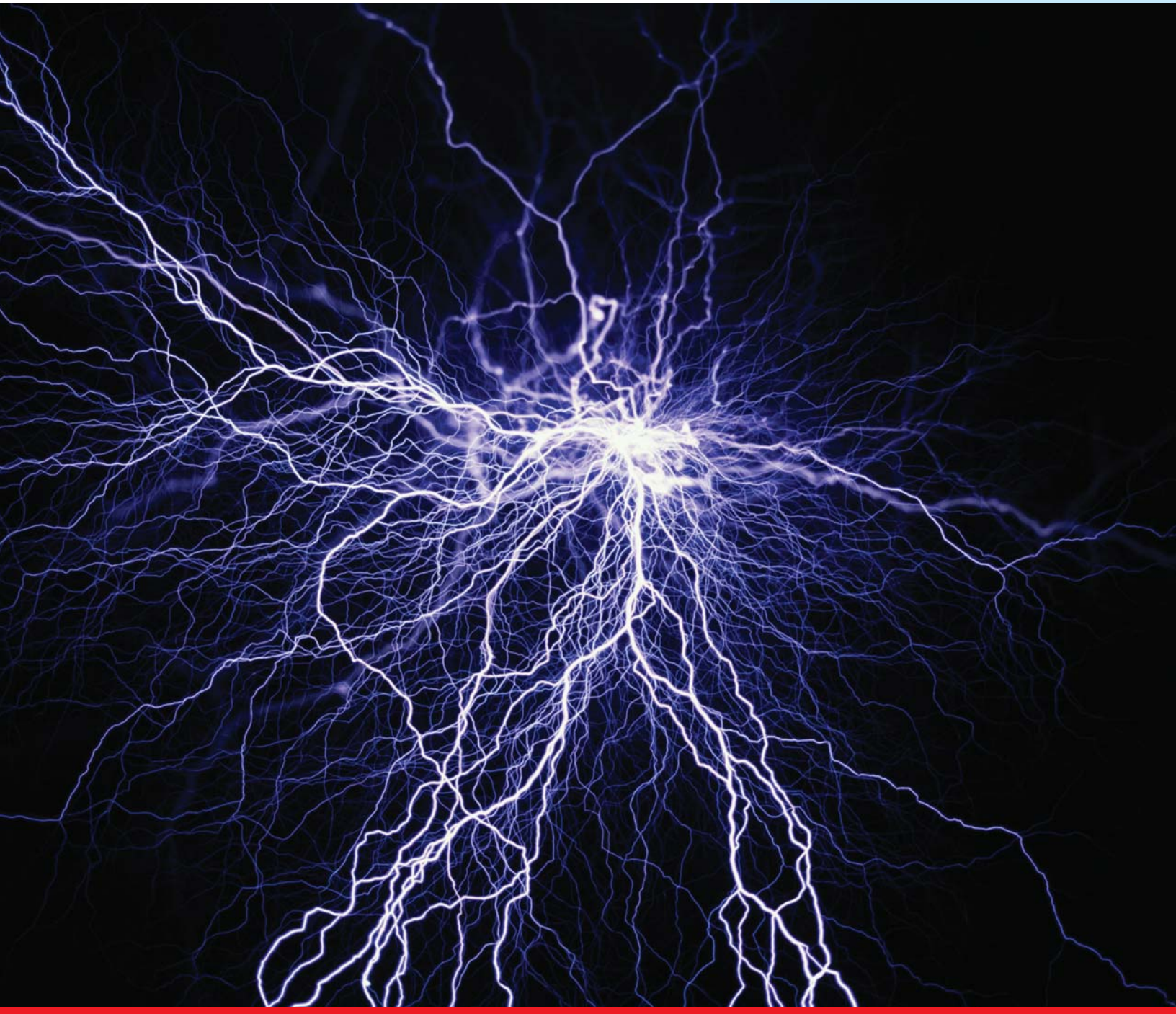
STER-L-RAY™

ATLANTIC ULTRAVIOLET CORPORATION



GERMICIDAL ULTRAVIOLET LAMPS

ABOUT US

Since 1963, Atlantic Ultraviolet Corporation has pioneered the discovery and development of beneficial uses of ultraviolet energy. Over the years these efforts have led to the development of valuable, cost effective and environmentally sound techniques and products now known and respected throughout the world.

Atlantic Ultraviolet's application specialists assist customers in the selection of germicidal lamps and equipment. Their specialized knowledge is a valuable resource in formulating effective and cost-conscious ultraviolet solutions. Extensive inventories and a dedicated staff enable Atlantic Ultraviolet to fulfill its commitment to provide fast deliveries and responsive customer service.

Continuing research and development maintains Atlantic Ultraviolet Corporation's leadership in applied ultraviolet technology. Exacting procedures and stringent quality control measures insure products of consistently high quality. Engineering studies of product design and materials are conducted with an eye to enhancing product usefulness and value. Existing and potential new products are subjected to rigorous test protocols in order to insure the highest standards of performance and reliability.

Production methods and equipment are continually reviewed and, where possible, upgraded to improve productivity and reduce cost. Products include ultraviolet water purifiers, ultraviolet phototherapy equipment, germicidal ultraviolet lamps, ultraviolet product sanitation and disinfection equipment, room air sanitizers, air duct disinfection fixtures and accessories (for application to HVAC systems), ozone generators and equipment, ultraviolet "blacklight" lamps and equipment (suitable for fluorescent analysis, inspection and display, etc.) and ultraviolet photochemical reactors.

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Germicidal Lamps

STER-L-RAY™ germicidal lamps are short wave low pressure mercury vapor tubes that produce ultraviolet wavelengths that are lethal to microorganisms. Germicidal lamps should not be confused with sunlamps or blacklight lamps, for while these are also ultraviolet lamps, the ultraviolet produced is of longer wavelength and is not useful for germicidal applications.

Approximately 95% of the ultraviolet energy emitted from *STER-L-RAY*™ germicidal lamps is at the mercury resonance line of 254 nanometers. This wavelength is in the region of maximum germicidal effectiveness and is highly lethal to virus, bacteria and mold spores.

Wavelength

Nanometer (nm), millimicron (mμ) and the Angstrom unit (Å) are all units of length used to describe ultraviolet wavelengths.

Nanometer and millimicron are synonymous and equal to a billionth of a meter. An Angstrom unit is one tenth as long; therefore 2540 Å =254 mμ = 254 nm.

Slimline Germicidal Lamps

STER-L-RAY™ slimline germicidal lamps are instant starting and utilize a coil filament on each end which operates hot. Lamp life is governed by the life of the electrodes and is affected by the frequency of starting.

Slimline germicidal lamps are well suited to applications requiring high ultraviolet intensity such as water sterilization, air purification in duct systems and conveyorized product disinfection.

Cold Cathode Germicidal Lamps

STER-L-RAY™ cold cathode germicidal lamps are instant starting and utilize a large cylindrical cathode instead of a tungsten filament. Due to this construction the lamp is not adversely affected by frequent starting and the life is considerably in excess of other lamp types. Cold cathode germicidal lamps have favorable operating characteristics and maintain a high ultraviolet transmission throughout life even at reduced temperatures. They are, therefore, widely used in walk-in refrigerators and holding rooms.

STER-L-RAY™ cold cathode germicidal lamps are well suited to disinfection of air and surfaces of unoccupied areas due to their long life and low depreciation. Cold cathode germicidal lamps are also employed in applications where frequent starting is a requirement.

Preheat Germicidal Lamps

STER-L-RAY™ preheat germicidal lamps are operated by a preheat-start circuit that employs a relatively compact and economical ballast. The preheat circuit requires four electrical connections per lamp and a slight to moderate delay is needed to start the lamp. Due to increased circuit complexity, reliability is regarded as slightly less than slimline or cold cathode instant start circuits.

Ozone-Producing Lamps

Ozone (O_3) is a highly reactive form of oxygen and is useful in water purification, as a deodorizer and as a cleaning agent. Ultraviolet wavelengths shorter than 200 nanometers are capable of producing ozone from oxygen (O_2) in the air. The mercury vapor arc, in addition to producing considerable ultraviolet output at 254 nm, also produces a small amount of output at 185 nm.

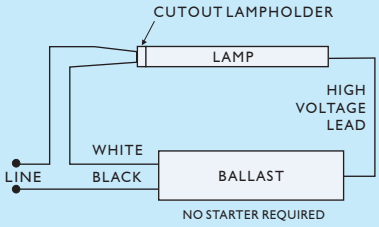
The high purity fused quartz used in *STER-L-RAY*™ ozone producing lamps is transparent to both germicidal (254 nm) and ozone producing (185 nm) wavelengths (see chart on page 6).

Because it is necessary to avoid exposing personnel to high concentrations of ozone, the use of ozone lamps is limited to applications in which ozone concentration will not exceed .05 parts per million in occupied spaces.

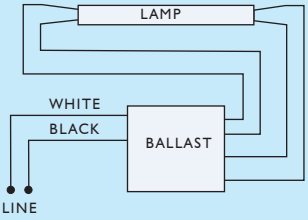
STER-L-RAY™ ozone producing lamps are available in slimline, cold cathode and preheat types.

Wiring Diagrams

Slimline & Cold Cathode Lamps



Preheat Lamps

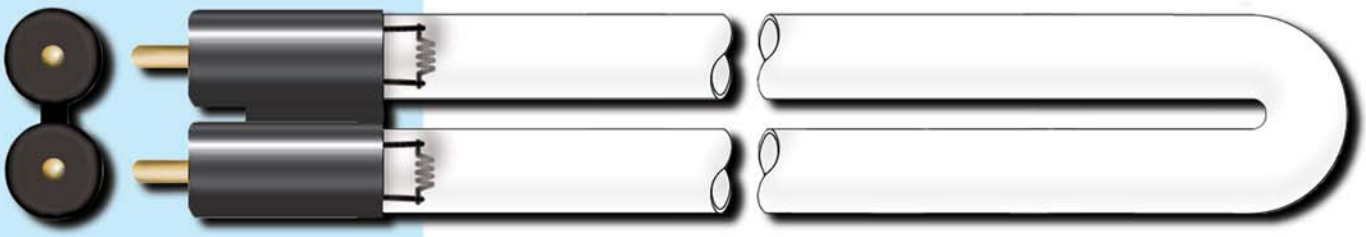


CAUTION: Overexposure to direct or strongly reflected rays will cause painful eye irritation and reddening of the skin. Personnel subject to such exposure must wear suitable face shield, gloves and protective clothing.

Slimline Germicidal Lamps

Lamp Catalog Numbers		Base Face to Base Face Length		Nominal Lamp Length ①		Lamp Watts ②	Approx. Lamp Current mA	Ultraviolet Output		Ozone Output ⑤	Rated Effective Life (Hours)
Ozone Free	Ozone Producing	Inches	mm	Inches	mm			Total Watts ③	Microwatts at 1 Meter ④		
G12T6L	G12T6VH	9 3/16	233.4	12	304.4	10	425	3.1	32	0.8	10,000
G10T5½L	G10T5½VH	14 1/16	357.1	16 7/8	428.6	16	425	5.3	55	1.4	10,000
G18T6L	G18T6VH	15 3/16	385.8	18	457.2	17	425	5.8	59	1.6	10,000
G24T6L	G24T6VH	21 3/16	538.2	24	609.6	25	425	8.5	82	2.3	10,000
G30T6L	G30T6VH	27 3/16	690.6	30	762	32	425	11.2	101	3.0	10,000
G36T6L*	G36T6VH*	33 3/16	843.0	36	914.4	39	425	13.8	120	3.7	10,000
G37T6L	G37T6VH	34 3/16	868.4	37	939.8	40	425	14.3	124	3.8	10,000
G48T6L	G48T6VH	45 3/16	1147.8	48	1219.2	50	425	19.3	164	5.2	10,000
G64T5L*	G64T5VH*	61 3/16	1554.2	64	1625.6	65	425	25.0	200	7.2	10,000

U-Shaped Slimline Germicidal Lamps*



Lamp Catalog Numbers					Ultraviolet Output			
Ozone Free	Ozone Producing	Nominal Lamp Length (Inches) ⑦	Lamp Watts ②	Approx. Lamp Current mA	Total Watts ③	Microwatts at 1 Meter ④	Ozone Output ⑤	Rated Effective Life (Hours)
G18T6L/U	G18T6VH/U	8 1/4	17	425	5.8	59	1.6	10,000
G24T6L/U	G24T6VH/U	11 1/4	25	425	8.5	82	2.3	10,000
G30T6L/U	G30T6VH/U	14 1/4	32	425	11.2	101	3.0	10,000
G36T6L/U	G36T6VH/U	17 1/4	39	425	13.8	120	3.7	10,000
G48T6L/U	G48T6VH/U	23 1/4	50	425	19.3	164	5.2	10,000

① Overall lamp length including standard lampholders. To find lamp length only, deduct 2 1/8".
② Wattage is lamp watts only and does not include ballast loss.
③ Ultraviolet output at 254 nanometers at 100 hours and 80°F (approximate).
④ Microwatts per square centimeter at one meter from lamp.
⑤ Approximate ozone output in grams per hour under favorable conditions. Figures apply only to ozone producing types Please note that ozone output is subject to considerable variation due to conditions under which the lamp is used; under many conditions, the ozone output may be only a fraction of the specified figure.
⑥ Nominal length measured from base face to base face.
⑦ Nominal length measured from end of pin to outside of bend.

*Also available in 2 and 3 and 4-pin configuration
**Also available in 4-pin configuration

* Cold Cathode U-Shaped lamps are available by special order (minimums may apply). Please contact factory for details.

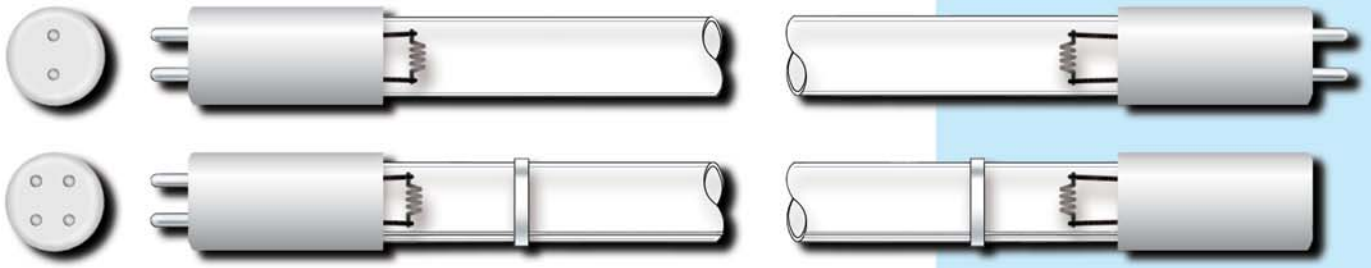
LAMP SPECIFICATIONS

Cold Cathode Germicidal Lamps*

Lamp Catalog Numbers					Ultraviolet Output			
Ozone Free	Ozone Producing	Nominal Lamp Length (Inches) (1)	Lamp Watts (2)	Approx. Lamp Current mA	Total Watts (3)	Microwatts at 1 Meter (4)	Ozone Output (5)	Rated Effective Life (Hours)
CC12T6L	CC12T6VH	12	17	90	1.4	14	0.4	20,000
782L10	782VH10	16 7/8	20	90	2.9	29	0.8	20,000
CC18T6L	CC18T6VH	18	21	90	3.2	32	0.8	20,000
CC24T6L	CC24T6VH	24	23	90	5.0	47	1.3	20,000
782L20	782VH20	26 7/8	24	90	5.8	55	1.5	20,000
CC36T6L	CC36T6VH	36	28	90	8.5	75	2.3	20,000
782L30	782VH30	36 7/8	29	90	8.7	77	2.3	20,000
CC48T6L	CC48T6VH	48	34	90	11.2	98	3.0	20,000

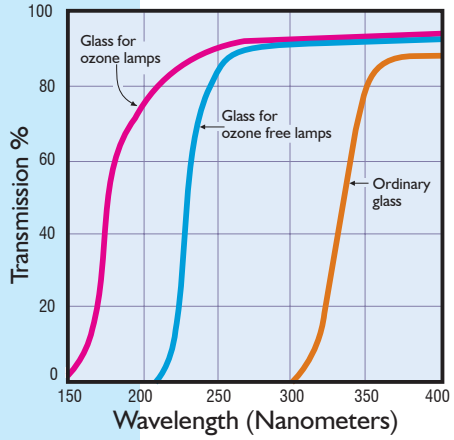
* Cold Cathode U-Shaped lamps are available by special order (minimums may apply). Please contact factory for details.

Preheat Germicidal Lamps

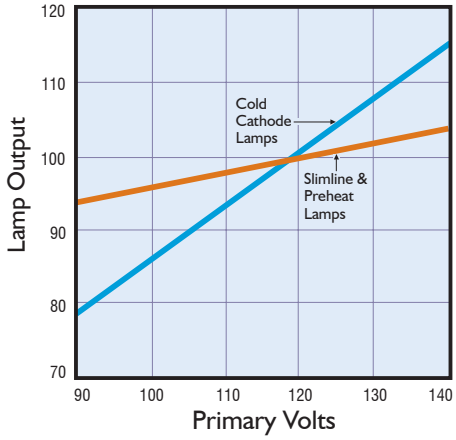


Lamp Catalog Numbers					Ultraviolet Output			
Ozone Free	Ozone Producing	Nominal Lamp Length (Inches) (6)	Lamp Watts (2)	Approx. Lamp Current mA	Total Watts (3)	Microwatts at 1 Meter (4)	Ozone Output (5)	Rated Effective Life (Hours)
GPH212T5L**	GPH212T5VH**	8 11/32	10	425	2.3	24	0.6	10,000
GPH287T5L**	GPH287T5VH**	11 19/64	14	425	3.7	38	1.0	10,000
GPH330T5L/4	GPH330T5VH/4	13	16	425	4.5	44	1.2	10,000
GPH357T5L/4	GPH357T5VH/4	14 1/16	17	425	5.0	51	1.3	10,000
GPH436T5L**	GPH436T5VH**	17 5/32	20	425	6.4	59	1.7	10,000
GPH450T5L/4	GPH450T5VH/4	17 23/32	21	425	6.6	62	1.8	10,000
GPH463T5L/4	GPH463T5VH/4	18 7/32	22	425	6.9	63	1.9	10,000
GPH620T5L/4	GPH620T5VH/4	24 13/32	29	425	9.7	87	2.6	10,000
GPH793T5L**	GPH793T5VH**	31 7/32	37	425	12.8	112	3.5	10,000
GPH810T5L/4	GPH810T5VH/4	31 57/64	38	425	13.1	115	3.6	10,000

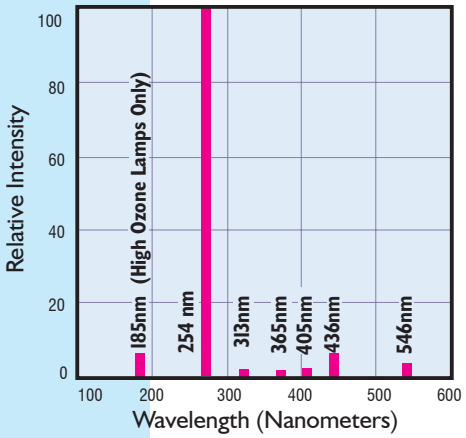
Transmission Curves for High Silica Glass Used in STER-L-RAY™ Germicidal Lamps



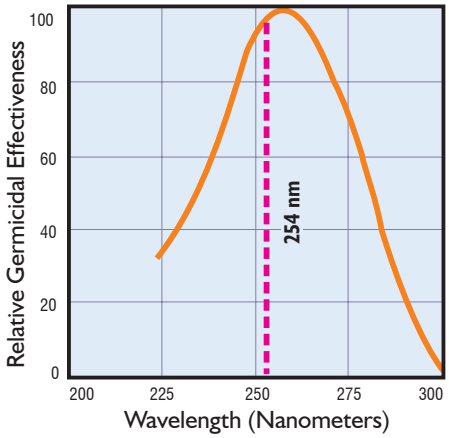
Typical Effect of Line Voltage on Ultraviolet Output



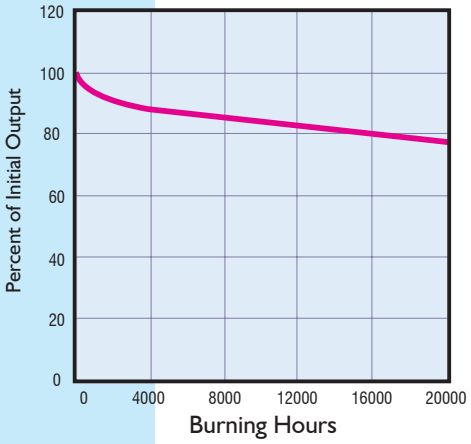
Relative Spectral Energy Distribution (Typical)



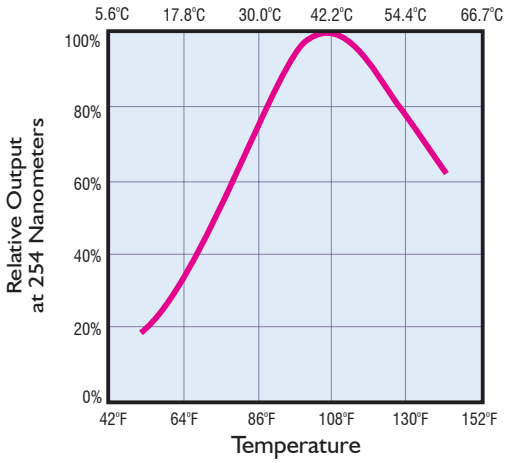
Germicidal Effectiveness as Related to Wavelength



Average Ultraviolet Maintenance at 254nm



Lamp Output at Various Bulb Wall Temperatures



OPERATING CHARACTERISTICS

FOR MULTI-PIN LAMPS

Lamp Socket & Lead Wire

For Miniature Bi-Pin Lamps.
Catalog # 05-1219B4

Miniature Bi-Pin

Catalog # 05-1322

Lampholder for U-Shaped Lamps

For Slimline or Cold Cathode U-Shaped Lamps.
Catalog # 05-0026A

3-Pin Socket

Catalog # 35-1112A

4-Pin Socket

Catalog # 35-1103A

Atlantic Ultraviolet maintains a complete inventory of lampholders and sockets for all applications. To select the proper lampholder, consult our application specialists.

FOR SINGLE PIN LAMPS

Tombstone Telescopic

Catalog # 05-1319
Stationary & Spring-Loaded Set Illustrated

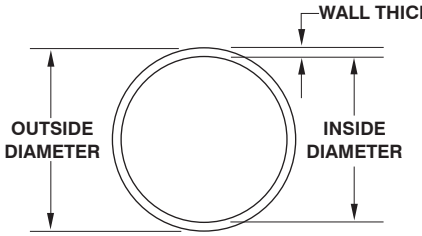
Lamp Socket & Lead Wire

Catalog # 05-1218A2

Butt-On

Catalog # 05-1320A
Stationary & Spring-Loaded Set Illustrated

CRYSTAL CLEAR™ QUARTZ SLEEVES & TUBING



High quality quartz sleeves are available in a wide range of diameters and wall thicknesses in virtually any length.

Many other sizes available - consult factory.
Supplied with open ends or with closed (test tube) end.
Firepolishing and custom fabrication are available upon request.

Standard Sizes

Inside Diameter	Outside Diameter	Wall Thickness
18.0 mm	20.5 mm	1.25 mm
20.0 mm	22.0 mm	1.00 mm
20.0 mm	23.0 mm	1.50 mm
22.0 mm	24.5 mm	1.25 mm
22.0 mm	25.0 mm	1.50 mm
30.0 mm	33.0 mm	1.50 mm
35.0 mm	38.0 mm	1.50 mm
45.0 mm	48.0 mm	1.50 mm

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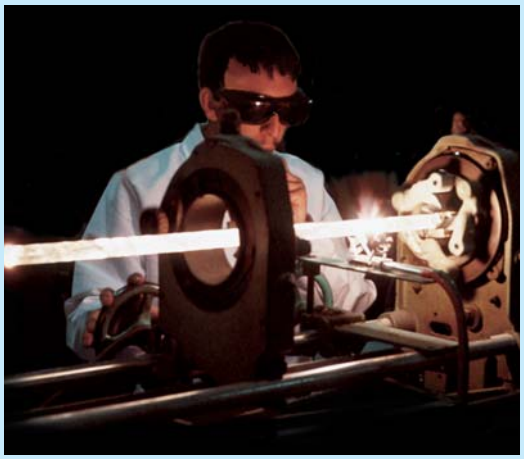

Atlantic Ultraviolet lamps and equipment are manufactured in the USA.

The information and recommendations contained in this publication are based upon data collected by the Atlantic Ultraviolet Corporation and are believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. Specifications and information are subject to change without notice.

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