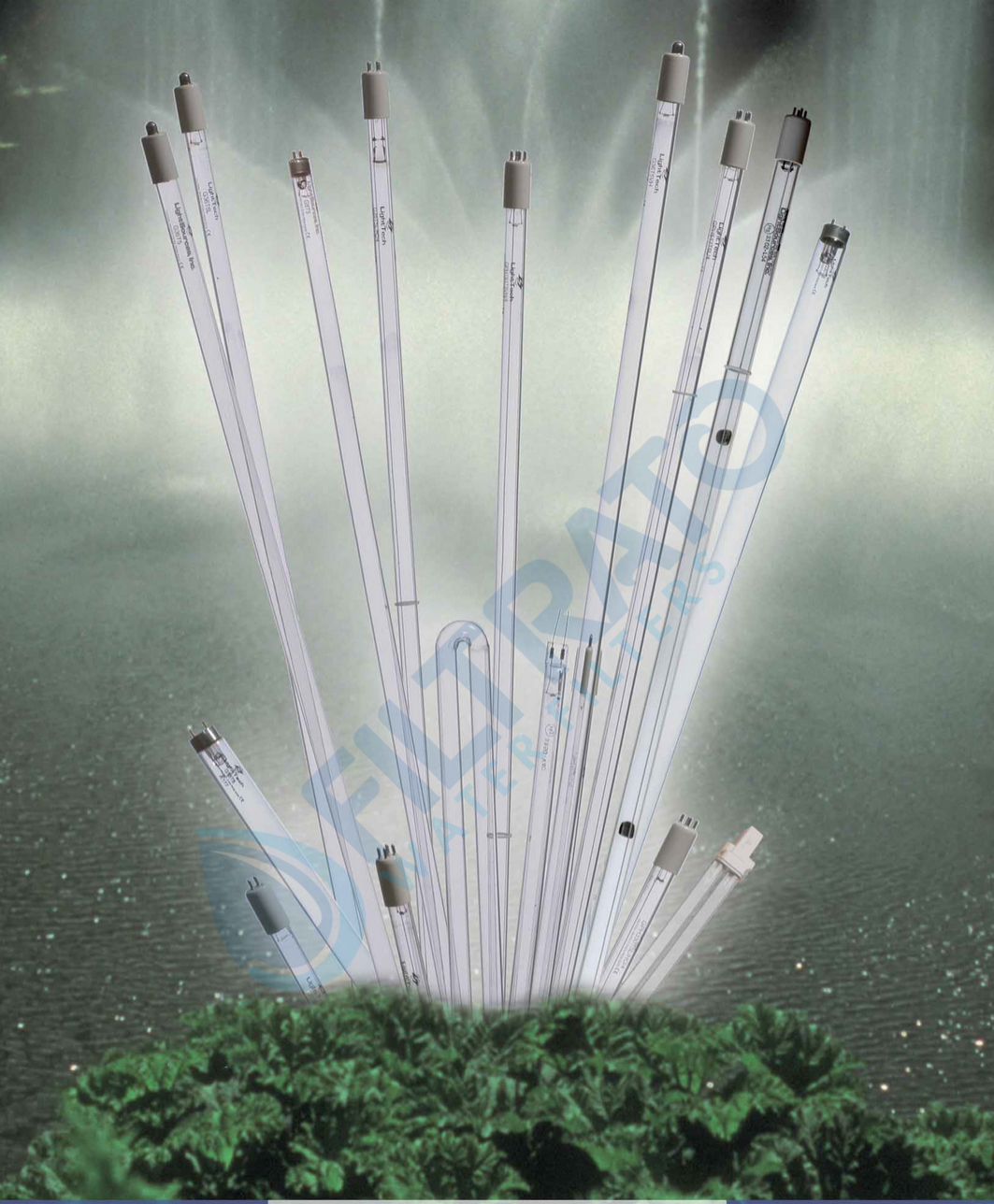
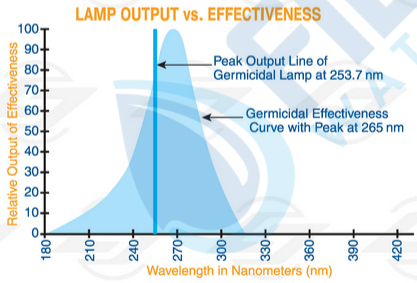


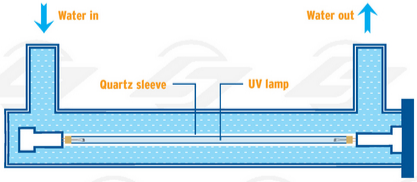
LightSources

Germicidal lamps

LightTech

Index:





Germicidal action

UV-action

Ultraviolet radiation in the 200-300 nanometer (nm) range is extremely effective in killing microorganisms such as airborne and surface bacteria, viruses, yeasts and molds.

Light Sources & Lighttech low-pressure, mercury-arc germicidal lamps are specially designed to produce the highest amounts of UV radiation - typically about 90% of the total rated energy is at 253.7nm. This radiation is very close to the peak of the germicidal effectiveness curve of 265nm, the most lethal wavelength to microorganisms (see graph below). Our germicidal lamps are used extensively in air and water purification applications such as in the food and beverage industry, medical applications, HVAC systems (Heating, Ventilating, and Air Conditioning), pharmaceutical and semiconductor sterilization applications. In addition, they are used in drinking water, waste water and ground water remediation.

Ozone Action

Our "VH" germicidal lamps generate energy at 185nm in addition to the 253.7nm line. This UV emission produces abundant amounts of ozone in air. Ozone is an extremely active oxidizer. It destroys microorganisms on contact and acts as a deodorizer.

One of its primary advantages is that it can be carried by air into places that the UV radiation cannot directly reach. We design and manufacture lamps to produce various amounts of ozone to meet specific application requirements. "VH" lamps are typically used in the treatment of air, pool and spa water, T.O.C. (Total Organic Compound) reduction, and HVAC.

Advantages of UV-Radiation:

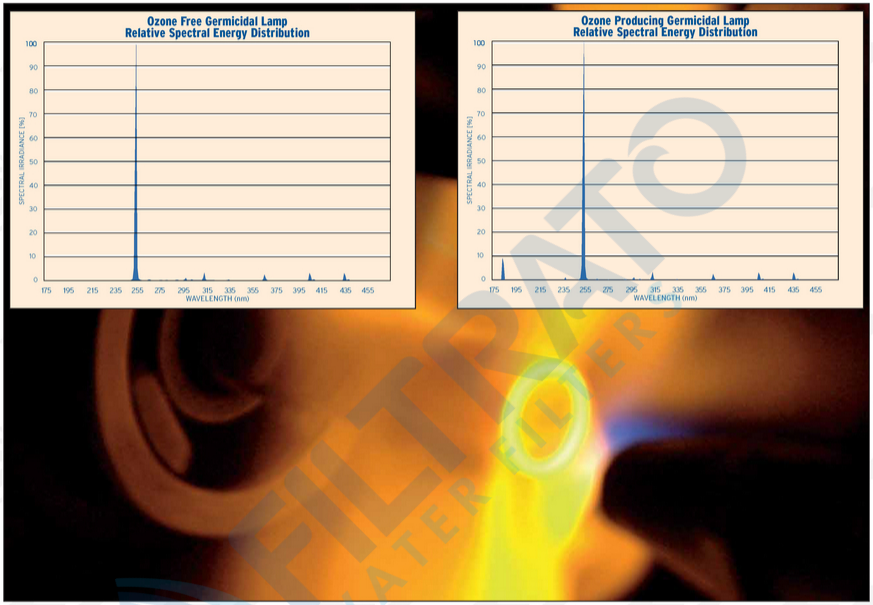
- Environmentally friendly, no dangerous chemicals to handle or store, no problems of overdosing
- Low initial capital cost and reduced operating expenses when compared with other technologies such as chemical processing
- Immediate treatment process, no need for holding tanks, long retention times
- No chemicals added to water supply; no by-products
- No change in taste, odor, pH, conductivity or the general chemistry of the water
- No handling of toxic chemicals, no need for specialized storage requirements
- Simplicity and ease of maintenance, periodic cleaning (if applicable) and annual lamp replacement
- Highly compatible with other water and air treatment processes

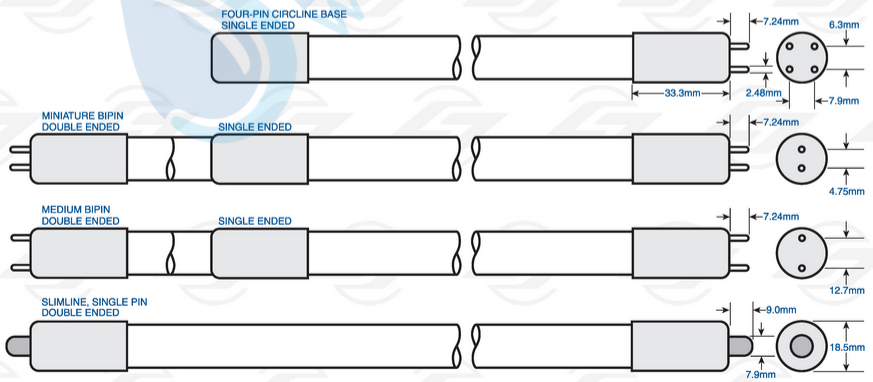
Germicidal applications can be used for all three states of matter: gases, liquids and solids.

Quartz Germicidal Lamps

The type of fused quartz used to make the envelope or bulb of the germicidal lamp determines the emission of the wavelengths of UV energy that react with the oxygen in the air to produce ozone. The relative amount of ozone generating energy at 185nm is indicated by the letters "L" and "VH". "L" lamps are made with a specially doped fused quartz that prohibits the emission of the energy at 185nm. "VH" lamps are made with clear fused quartz which will transmit both the 254nm and 185nm energy. In applications where a moderate amount of ozone may be required, we can splice the two types of quartz together in a ratio to produce the desired amount of ozone*.

*Ozone generation is the result of a complex reaction of the oxygen in the air to the presence of radiation at 185nm. Other factors influencing ozone production include: temperature, relative humidity, air flow, dew point, UV intensity, etc. The actual amount of ozone generated will depend on the above factors as well as the actual system design.





Ultraviolet radiation in the 200-300 nanometer range is extremely effective in killing microorganisms.

Specialty UV Emitting Germicidal Lamps

Our in-house manufactured germicidal glass was developed to the highest standards specifically for low pressure mercury vapor lamps serving the water and air purification industries

- Maximum efficiency in producing short wave UVC radiation at 254nm
- Newly developed manufacturing process provides higher UVC Output over lamp life
- Custom configurations available to meet OEM requirements

Specialty UV Emitting Lamps

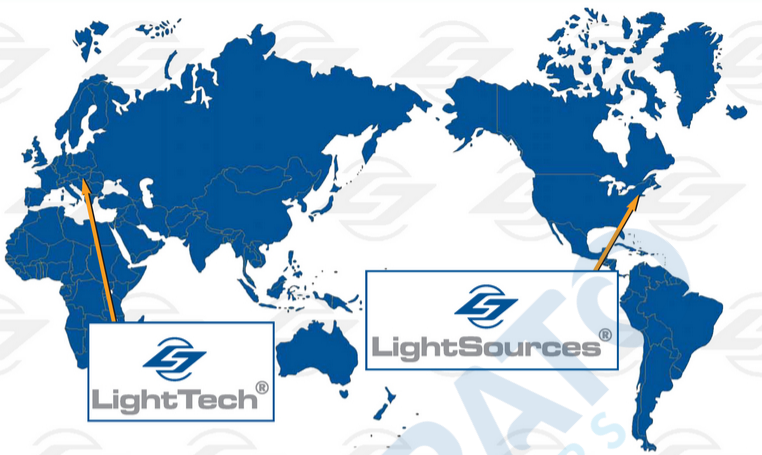
	Tube diameter mm	Base configuration	BF-BF BF-EOL* mm	Arc length mm	Power Current W	mA	Voltage at 50/60Hz V	Voltage at High Freq V	UV Output at 254nm $\mu W/cm^2$	W	Rated Life h
Standard Lamps											
LTC4T5	15.7	Mini Bipin	134.7	77	4	180	28	23	9	0.9	7,000
LTC6T5	15.7	Mini Bipin	210.9	154	6	180	40	34	16	1.6	9,000
LTC8T5	15.7	Mini Bipin	287.1	231	8	180	55	45	21	2.1	9,000
LTC11T5	15.7	Mini Bipin	210.9	154	11	280	49	40	22	2.2	9,000
LTC11T5SE	15.7	4-Pin Single Ended	241.1	170	12	280	53	43	24	2.4	9,000
LTC16T5	15.7	Mini Bipin	287.1	231	16	370	54	44	40	4	9,000
LTC16T5SE	15.7	4-Pin Single Ended	317.3	245	17	370	57	46	42	4.2	9,000
LTC40T5	15.7	Single Pin	842	767	39	425	120	92	136	15	9,000
LTC64T5	15.7	Single Pin	1,554	1,481	76	425	220	180	230	30	9,000
LTC40T5SE	15.7	4-Pin Single Ended	842	767	39	425	120	92	136	15	9,000
LTC64T5SE	15.7	4-Pin Single Ended	1,554	1,481	76	425	220	180	230	30	9,000
High Output Lamps											
LTC80T5SE	15.7	4-Pin Single Ended	842	767	76	800	120	97	245	27	9,000
LTC125T5SE	15.7	4-Pin Single Ended	1,554	1,481	150	800	230	191	345	48	9,000
LTC10T8	25.7	Medium Bipin	330.3	247	10	280	40	36	23	2.3	9,000
LTC15T8	25.7	Medium Bipin	436.2	353	15	350	49	44	47	4.8	9,000
LTC25T8	25.7	Medium Bipin	436.2	353	25	620	43	41	71	7.2	9,000
LTC30T8	25.7	Medium Bipin	893.4	810	30	380	98	80	100	11.3	9,000
LTC55T8	25.7	Medium Bipin	893.4	810	55	800	87	70	170	19	9,000
LTC75T8	25.7	Medium Bipin	1,198.2	1,115	75	900	110	85	215	26.5	9,000
LTC115T12	37.7	Medium Bipin	1,198.2	1,118	115	1,700	85	69	280	34	9,000
Compact Lamps											
LTCPL5	13	G23	83*	125	5	180	34	30	9	1	8,000
LTCPL9	13	G23	145*	210	9	170	60	55	22	2.4	8,000
LTCPL11	13	G23	214*	350	11	160	89	71	33	3.6	8,000

- All values are nominal. Straight lamps are measured from base-face to base-face. U-lamps are measured from base-face to outside of bend. Length tolerances are for:
  Double ended Bipin straight lamps: ±1.2mm
  Slimline and all single ended: ±2.0mm
- Approximate output at 253.7nm at 100 hours use under laboratory conditions. Subject to wide variations due to application conditions.
- Rated average useful life is defined as the average life of a group of lamps when operated under laboratory conditions in air. For reference purposes only. Actual life depends heavily on operating conditions.


Using germcidal lamps reduces or eliminates the need to use, handle and store hazardous chemicals.

LightSources & LightTech

World Wide Suppliers of Quality Germicidal Lamps



Light Sources, Inc was founded in 1983 and after more than 20 years of operation it is now the leading manufacturer of quartz germicidal lamps in the world. In 1993 LightTech Ltd. of Hungary was formed to serve the growing demand of germicidal lamps and sleeves to the European and Asian markets. The combined strengths of Light Sources and Lighttech in product design, application engineering, proprietary manufacturing processes and process controls enable us to provide the OEM with an integrated system approach from product concept through aftermarket sales retention. Our continued investment in state of the art manufacturing equipment, strategic vertical integration in glass manufacturing and ceramic base facilities, allows us to bring quality products to the market faster with reduced lead times. We design and manufacture lamps for a wide variety of special lighting applications in a number of industries. Our manufacturing capabilities of low pressure mercury vapor gas discharge lamps encompasses an extensive selection of colors, glass types, diameters, lengths, shapes and operating modes. Here are just a few of our areas of expertise; germicidal, photochemical, skin tanning, LCD backlighting and compact fluorescent lamps. Our companies are known in their respective markets for excellence in product design and performance. Our engineering capabilities permeate every aspect of product offerings. We consider the evolution of products from low volume to high volume production a fundamental process. Flexible manufacturing techniques allow us to respond cost effectively at any stage of the product life cycle. Our success in the markets we serve has stemmed from meeting our customers requirements for performance, quality and reliability. Our sales staff is ready to serve you in several languages.

SERVE YOUR GERMICIDAL LAMP NEEDS WITH US!

We will do our utmost to satisfy your special application.

ISO 9001
Certified

The products in this catalogue may be covered by one or more of the following patents:
4700101, 5166527, 5753996, 6634902, 6781303, 5422487, 5565685, 5552664, 5557112, 6741023, 6692309.

LightTech®

LightTech Lamp Technology Ltd.
2120 Dunakeszi, Hegyrejáró út 1. HUNGARY
Tel.: +36 27/541-800 Fax: +36 27/390-099
www.lighttech.hu

LightSources®

Light Sources, Inc.
37 Robinson Blvd., Orange,CT 06477, USA
Tel: +1 203 799-7877 Fax: +1 203 795-5267
www.light-sources.com