



UV LAMP







Helios has been active since 1940 in the manufacturing of glass quartz, in the construction of scientific devices and infrared (IR) emitters.

Since 1940, Helios has manufactured glass quartz for the use in scientific components and IR emitters.

It has also a great experience in the production of quartz ultraviolet lamps (UV) at low pressure, amalgam, at medium pressure with mercury and black light lamps. Helios has extensive experience in the manufacturing and production of Ultraviolet Lamps (UV) for low pressure, amalgam, medium pressure with mercury & black-light lamps.

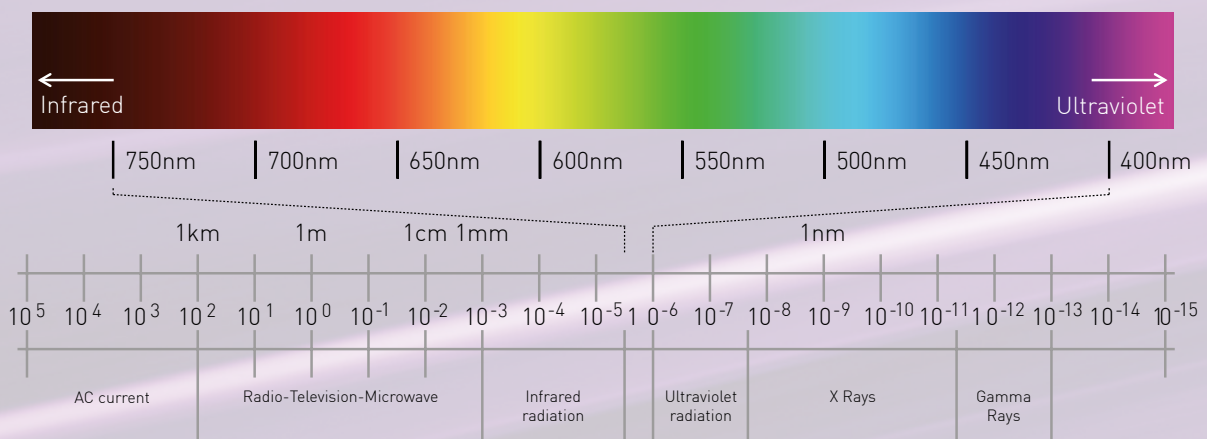


UV LIGHT

Ultraviolet radiation (so-called UV or ultraviolet rays or ultraviolet light) is an electromagnetic radiation, belonging to the electromagnetic spectrum, which emits a shorter wavelength than that of visible light but longer than X-rays. The name means "beyond

violet" (from Latin ultra, "beyond") because the spectrum consists of electromagnetic waves with higher frequencies than those that humans identify as the colour violet, being the one with the shortest wavelength.

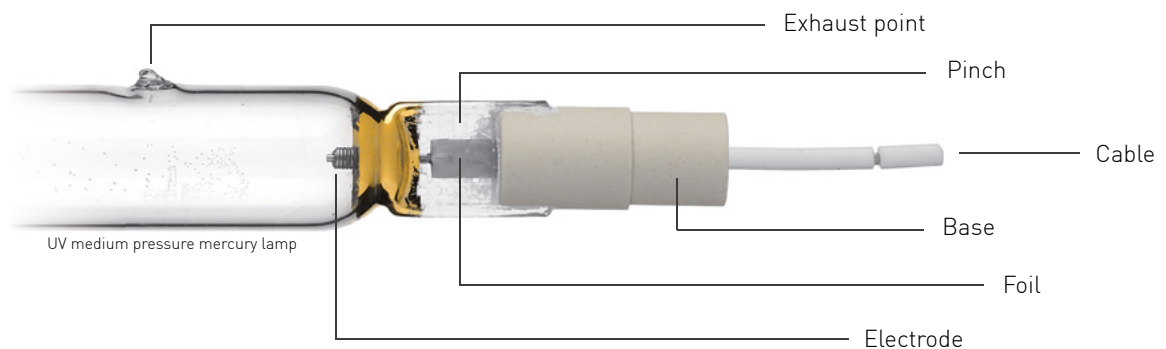
Spectrum of light visible to the human eye



UV LAMPS

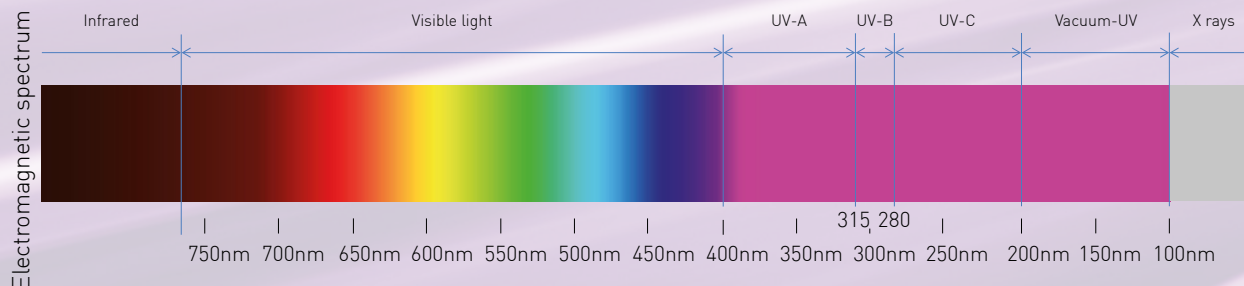
UV lamps produced by Helios Italquartz are made of a quartz tube, sealed at both ends, containing a small quantity of mercury and an inert gas.

Note picture: UV low pressure mercury lamp



Ultraviolet light can be divided into two ranges: near-UV spectral range (380-200 nm) and far-UV spectral range (200-10 nm). When considering the effect of UV radiation on human health, the range of UV wavelengths is typically divided UV-A (400-315 nm), UV-B (315-280 nm) and UV-C (280-100 nm).

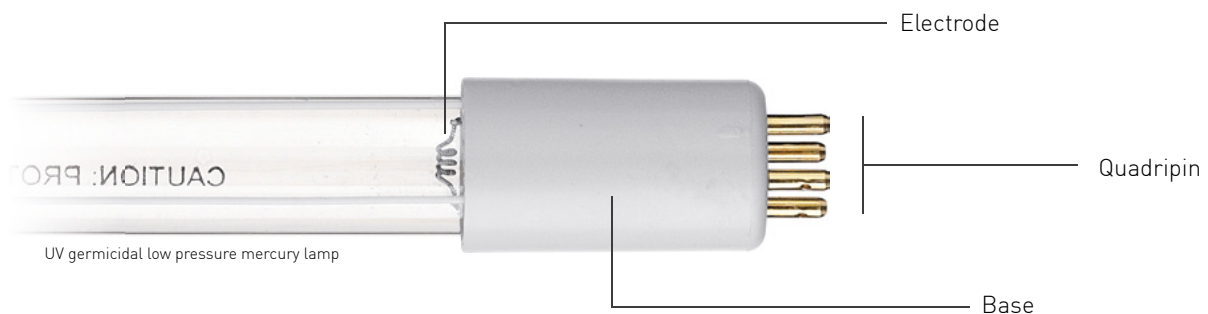
The Sun emits ultraviolet light at all three bands UV-A, UV-B and UV-C but, due to the absorption by the first Ozone layer of the atmosphere, about 99% of ultraviolet rays that reach the earth's surface is UV-A. Almost 100% of the UV-C rays and 95% of UV-B rays is filtered by Earth's atmosphere.



Helios produces ultraviolet lamps made of quartz glass with wavelengths from 200 to 400 nm.

UV lamps produced by Helios Italquartz are made of a quartz tube, sealed at both ends, containing a small quantity of mercury and an inert gas.

Note picture: UV germicidal low pressure mercury lamp



UV LAMPS MADE OF QUARTZ GLASS



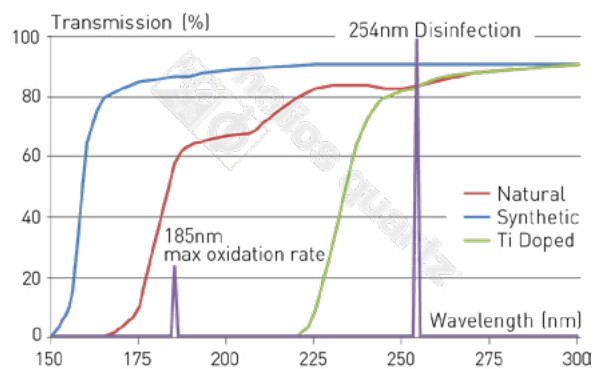
QUARTZ

The choice of using a quartz tube to produce UV lamps is not random: this material, known for its high thermal and mechanical stability, has high transmission efficiency and it is highly transparent to UV radiation.

Helios Italquartz uses different kinds of quartz tubes according to the type of ultraviolet lamp to be produced:

- Natural quartz
- Synthetic Quartz
- Doped Quartz (Ozone Free)

Transmissivity of Quartz Glass



Helios produces:

- **Medium pressure UV lamps**
- **Low pressure UV lamps**
- **Amalgam UV Lamps**
- **UV Black Light lamps (Wood's light)**
- Quartz glass plates
- Quartz glass disks
- Quartz glass tubes
- Quartz glass domed tubes



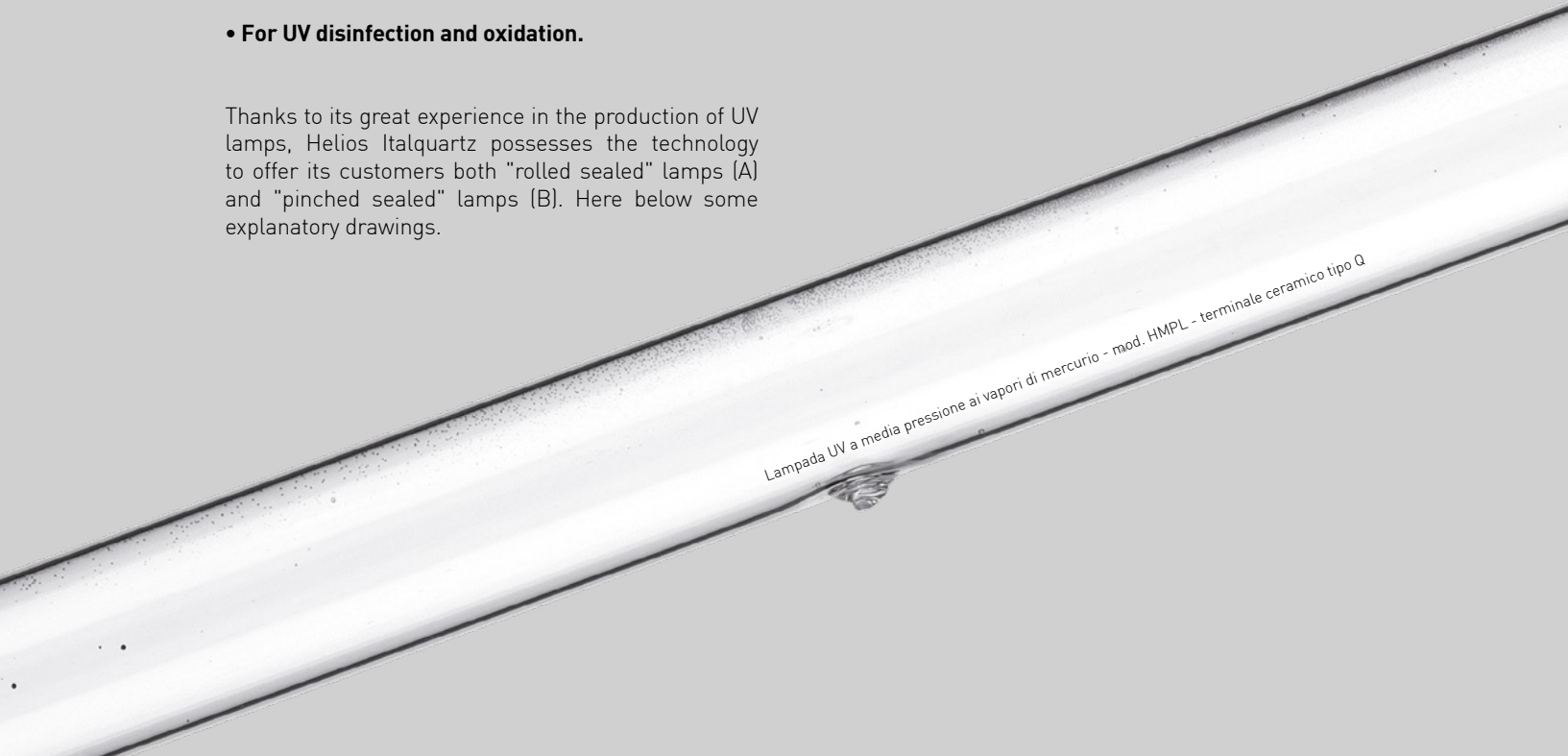


MERCURY MEDIUM PRESSURE UV LAMPS

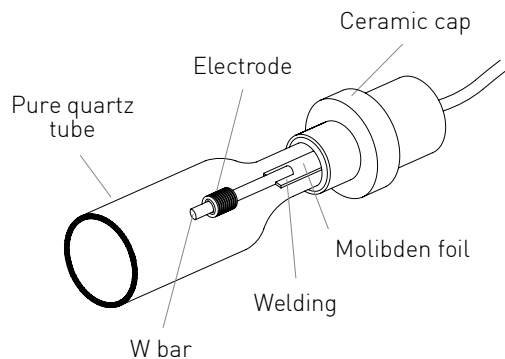
The mercury medium pressure UV lamps are appreciated mainly for two applications:

- For UV curing and drying;
- For UV disinfection and oxidation.

Thanks to its great experience in the production of UV lamps, Helios Italquartz possesses the technology to offer its customers both "rolled sealed" lamps (A) and "pinched sealed" lamps (B). Here below some explanatory drawings.

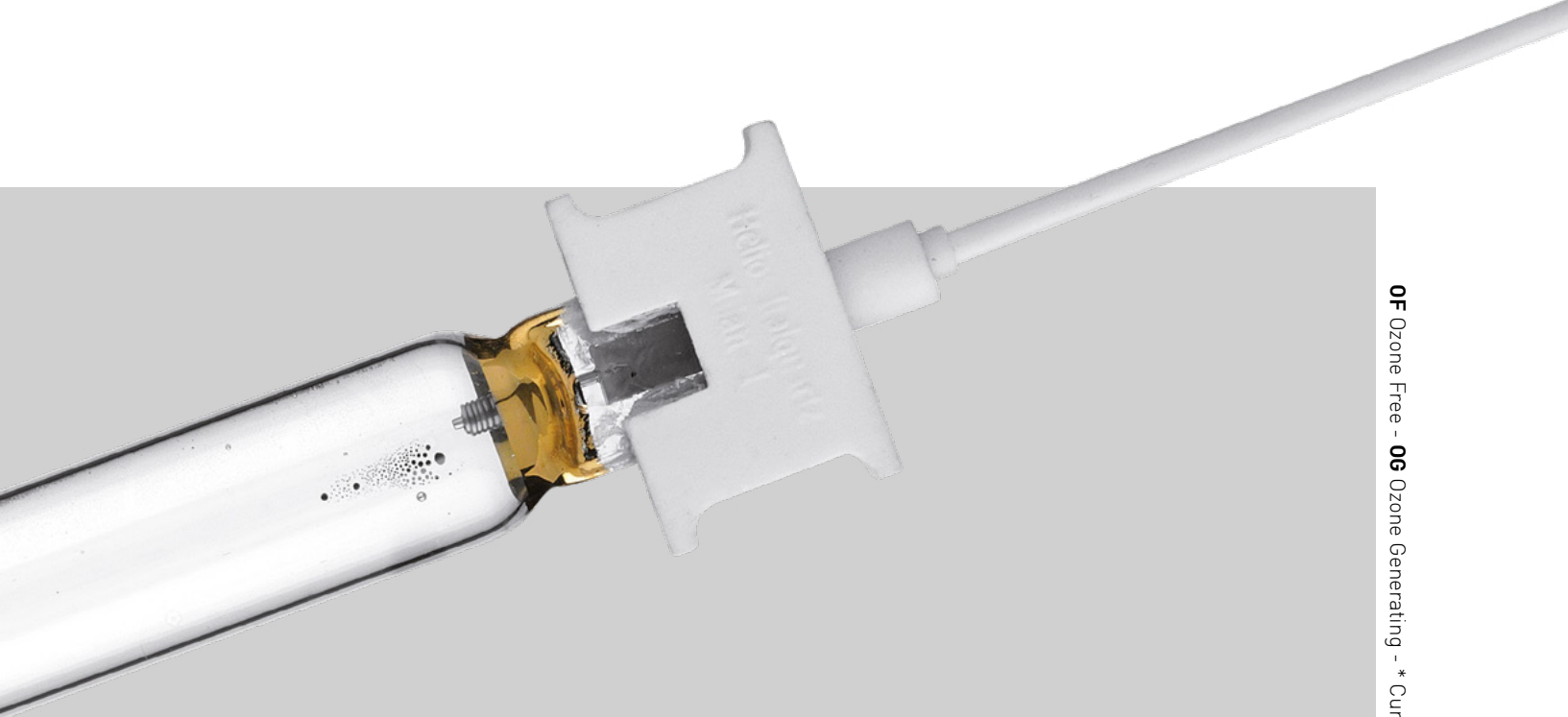


A - Rolled Sealed Lamps



The sealing process of the lamp occurs on a lathe under vacuum. While perfectly heated, the Quartz will collapse around the leaves of molybdenum





OF Ozone Free - OG Ozone Generating - * Curing lamps - ** Disinfection lamps - *** Oxidation lamps

The main features of the medium-pressure UV lamps manufactured by Helios are as follows:

Quartz tubes: • Natural Quartz (OF) • Natural Quartz (OG) • Synthetic Quartz (OG)

Outer diameter (OD) of the quartz tubes from 10 mm to 38 mm

Arc length from 50 mm to 2500 mm and power range from 100 W to 60 kW

Shape of the lamp body: • Linear • U form • Spiral • Other forms available upon request

Max nominal power density per unit length (to be checked in the prototyping stage):

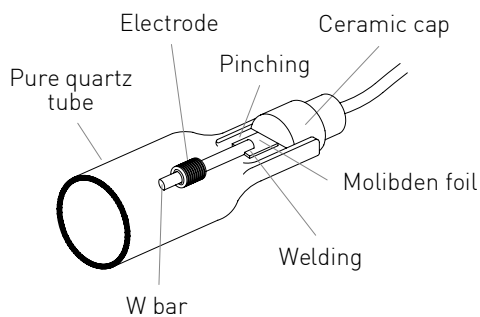
• 80 W / cm to 300 W / cm * • 80 W / cm to 120 W / cm ** • 80 W / cm to 250 W / cm ***

Useful life (lab tested and according to the power of the lamp - one ignition per day):

• from 1000 to 1500 h * • from 1500 to 5000 h ** • from 1500 to 5000 h ***

Surface temperature (lab tested and according to lamp power) from 600 ° C to 900 ° C

B - Pinched sealed lamps



The sealing process takes place using a spiker pinching machine; the quartz, suitably warmed, is pressed by two hammers.





MERCURY MEDIUM PRESSURE UV LAMP

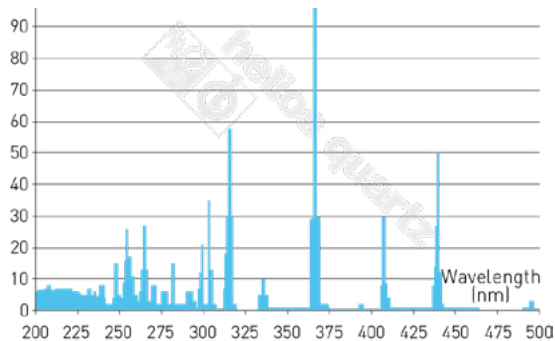
For special applications, in addition to the usual mercury lamps, Helios has developed a series of UV Lamps (Metal Halide) adding doping elements (metal halide) that change the spectrum of ultraviolet radiation, thus optimizing it for different possible applications.

All lamps produced by Helios are available with different specifications / configurations, both in not doped quartz and in Ozone-Free quartz.



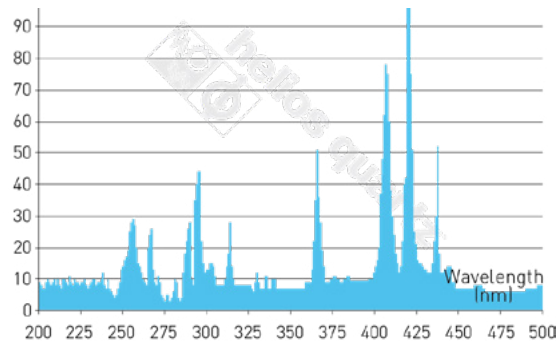
UV MEDIUM PRESSURE MERCURY VAPOUR LAMPS

These UV lamps, emit across the entire spectrum of ultraviolet light (UVA, UVB and UVC) with peak emission in the UVA range at 366 nm.



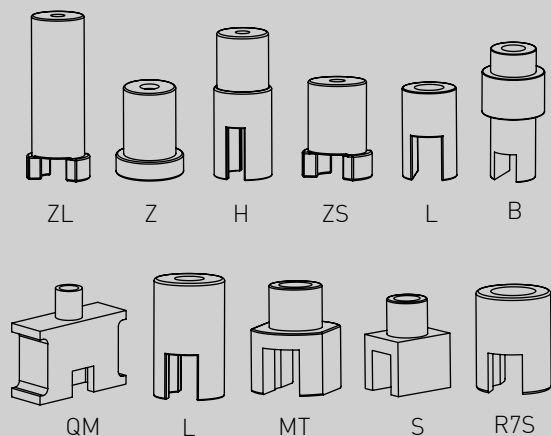
METAL HALIDE UV MEDIUM PRESSURE LAMPS GALLIUM DOPED

The metal halide UV medium pressure gallium doped lamps emit UV radiation with peak emission in the UVA range at 420 nm.



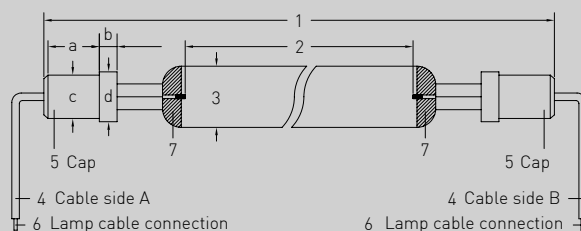


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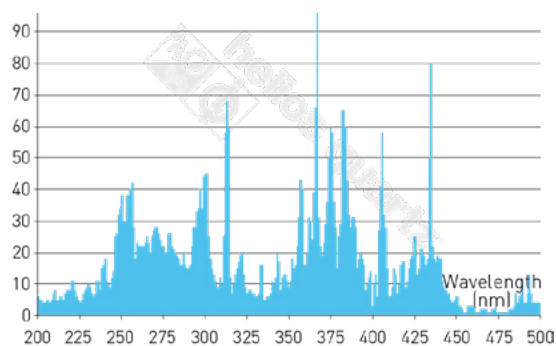
Helios can produce medium pressure UV lamps suitable for almost all UV systems; the following is a list of the necessary information for spare parts:

- Electrical Data (Power [W], input tension [V0 - VL] or input current [A0 - AL])
- Total length of the lamp (inclusive of terminal ceramic) **(1)**
- Arc length **(2)**
- Diameter of the quartz tube **(3)**
- Cable length **(4)**
- Type of ceramic terminal **(5)**
- Type of reflector **(6)**
- Type of electrical connection needed **(7)**
- Lamp production of ozone Yes / No
- Code of the lamp to be replaced



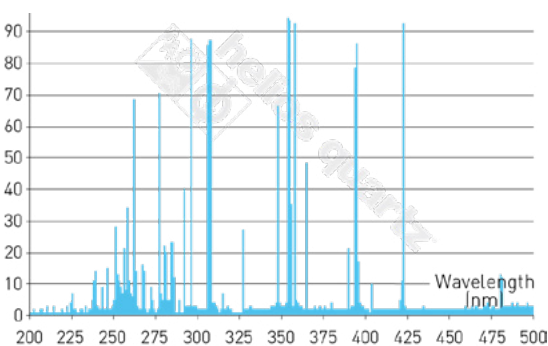
METAL HALIDE UV MEDIUM PRESSURE LAMPS IRON DOPED

The metal halide UV medium pressure iron doped lamps emit UV radiation with peak emission in the UVA range at 366 nm and 440 nm.



METAL HALIDE UV MEDIUM PRESSURE LAMPS IRON DOPED

The metal halide UV medium pressure iron doped lamps emit UV radiation with peak emission in the UVA range of 357 nm and 420 nm.





UV LOW PRESSURE MERCURY LAMPS

The low pressure UV lamps, also called "germicidal lamps," exploit UVC light to get the rapid sterilization of bacteria, molds, fungi, viruses and microorganisms both in air and in water. In this category of lamps about 40% of electricity is converted directly into UVC radiation with monochromatic emission at 254 nm for germicidal applications and at 185 nm for the oxidation of surfaces.

UV low pressure mercury lamp - mod. HUGL

The data in the table are only general information. For any specific requests or to receive more detailed information, please contact the Helios Technical Department.

LAMP TYPE	Quartz low pressure (standard HGL)		Quartz low pressure (high output - HUGL)		Low pressure in soft glass (SGL)
INPUT POWER	4-80 W		40-160 W		4-80 W
POWER DENSITY	0,3-0,5 W/cm		0,7-1 W/cm		0,25-0,3 W/cm
UVC RADIATION	<200 mW/cm		<350 mW/cm		<200 mW/cm
WORKING TEMPERATURE	50 °C		50 °C		50 °C
UV SPECTRUM	Monochromatic		Monochromatic		Monochromatic
WAVE LENGTH/EFFICIENCY	185 nm	254 nm	185 nm	254 nm	254 nm
	2%	40%	2%	25%-30%	35%
SURFACE TEMPERATURE	30-50 °C		>50 °C		30-50
INTENSITA' DI CORRENTE	0,3-0,4 A		0,8-1,3 A		0,3-0,4 A
LIFETIME	12000 h		>8000 h		9000 h
INFLUENCE OF ENVIRONMENT TEMPERATURE	High		High		High
ADVANTAGES	Low working costs		Perfect for air treatment		Convenient/Low working costs
DISADVANTAGES	Temperature range		Temperature range (not suitable for high temperature)		Lower stability/Low efficiency





The main features of the low-pressure UV lamps are the following ones:

Quartz tube: • Natural Quartz (OF) • Natural Quartz (OG) • Synthetic Quartz (OG)

Outer diameter (OD) of the quartz tubes from 10 mm to 38 mm

Arc length L. 50 mm. L. 2000 mm and power range from 5 W to 200 W

Lamp Body shape: • Linear • U Form • Spiral • Other forms available upon request

Max nominal power density per unit length (to be checked in prototyping phase): 1W/cm

UVC max power intensity per unit length (to be checked in the prototyping stage): 0.5 W / cm

Lifetime (lab tested and according to lamp power) up to 10,000 hours

Working temperature from 5 ° C to 40 ° C with stable UVC emission

Maximum loss of efficiency at the end of its useful life: 40%

OF Ozone Free - OG Ozone Generating

Helios uses the best materials in the production of mercury UV low pressure lamps and is able to provide customers with all standard models available on the market, with all possible configurations of the terminals, also with the configuration "High Output" where UVC emission can be up to 60% higher than the basic model with the same wavelength.



helios quartz





MERCURY LOW PRESSURE UV LAMPS

Depending on the materials used, mercury low pressure UV lamps can be divided into two large families: **"Ozone Generating"** lamps and **"Ozone Free"** lamps.

Helios usually chooses **quartz glass** for the production of low-pressure UV lamps because it ensures very high levels of UV transmission (equal to or higher than 90%); moreover, it is very resistant to solarization phenomenon and little susceptible to mechanical failures or to thermal shocks. However, for less important applications or for smaller budgets, Helios provides the same lamps in **Soft Glass**.



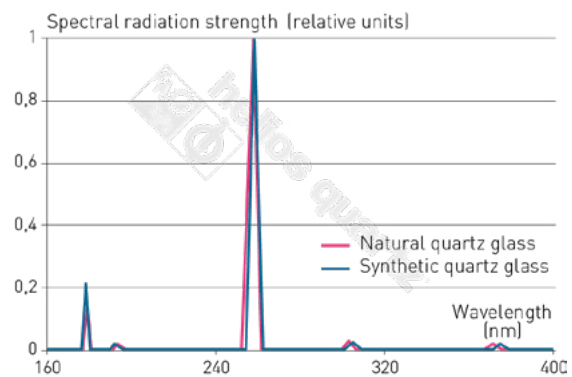
Lamps produced in undoped natural quartz glass (ozone-generating)

Ozone is the strongest oxidizing agent available: it reacts with a multitude of organic compounds and can oxidize and disinfect air and water. Ozone is a highly efficient deodorant and it is able to sterilize complete surfaces, mold in the air and bacteria. Helios provides two different types of Ozone generating lamps: "H" (high-generation ozone) and "VH" (high ozone generation).

Lamps produced in synthetic quartz glass (ozone generating)

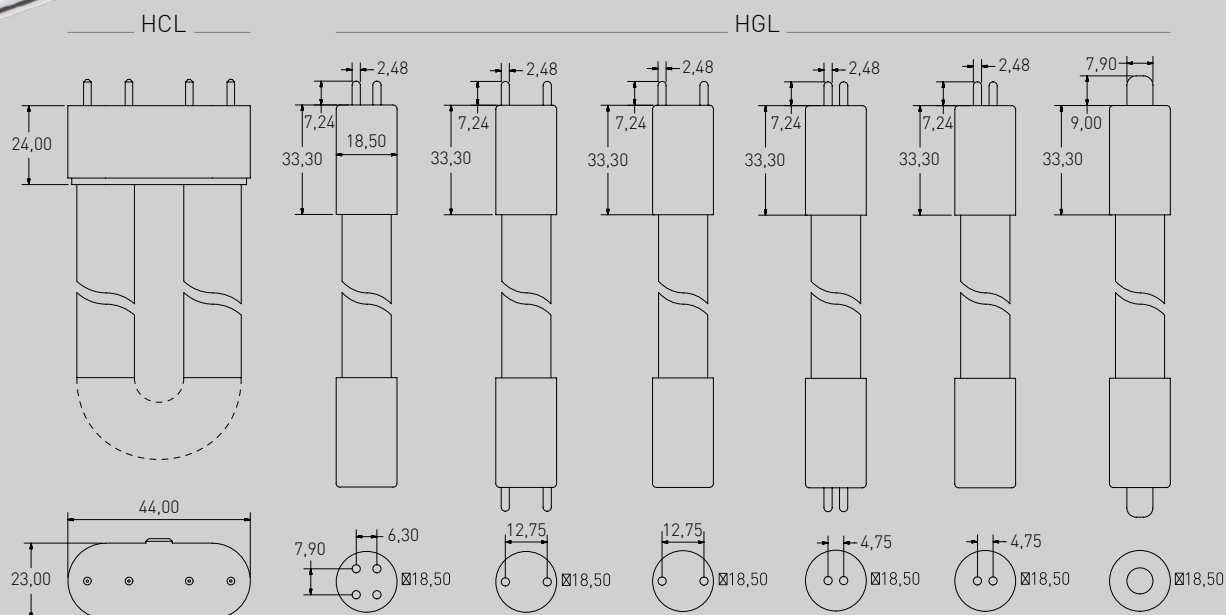
By using synthetic quartz glass it is possible to obtain a higher efficiency of UV transmission at 185 nm; these lamps represent a good solution for the processes of oxidation.

Natural and Synthetic quartz glass





Caps configuration



Sizes in mm

OF Ozone Free - OG Ozone Generating

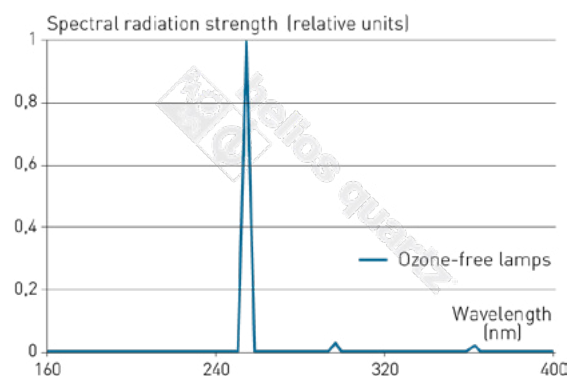
Lamps produced in natural doped quartz glass (ozone free)

Helios, using suitably doped quartz glass (Ti), produces "ozone free" germicidal lamps which can be used for ultraviolet disinfection with a UV emission peak (monochromatic) at 254 nm, a wavelength useful also for the destruction of the ozone.

Lamps produced in soft glass (ozone free)

Germicidal lamps, produced with Soft Glass (SG), have a peak wavelength at 254 nm where the germicidal efficiency is about 30%.

Natural and Synthetic quartz glass



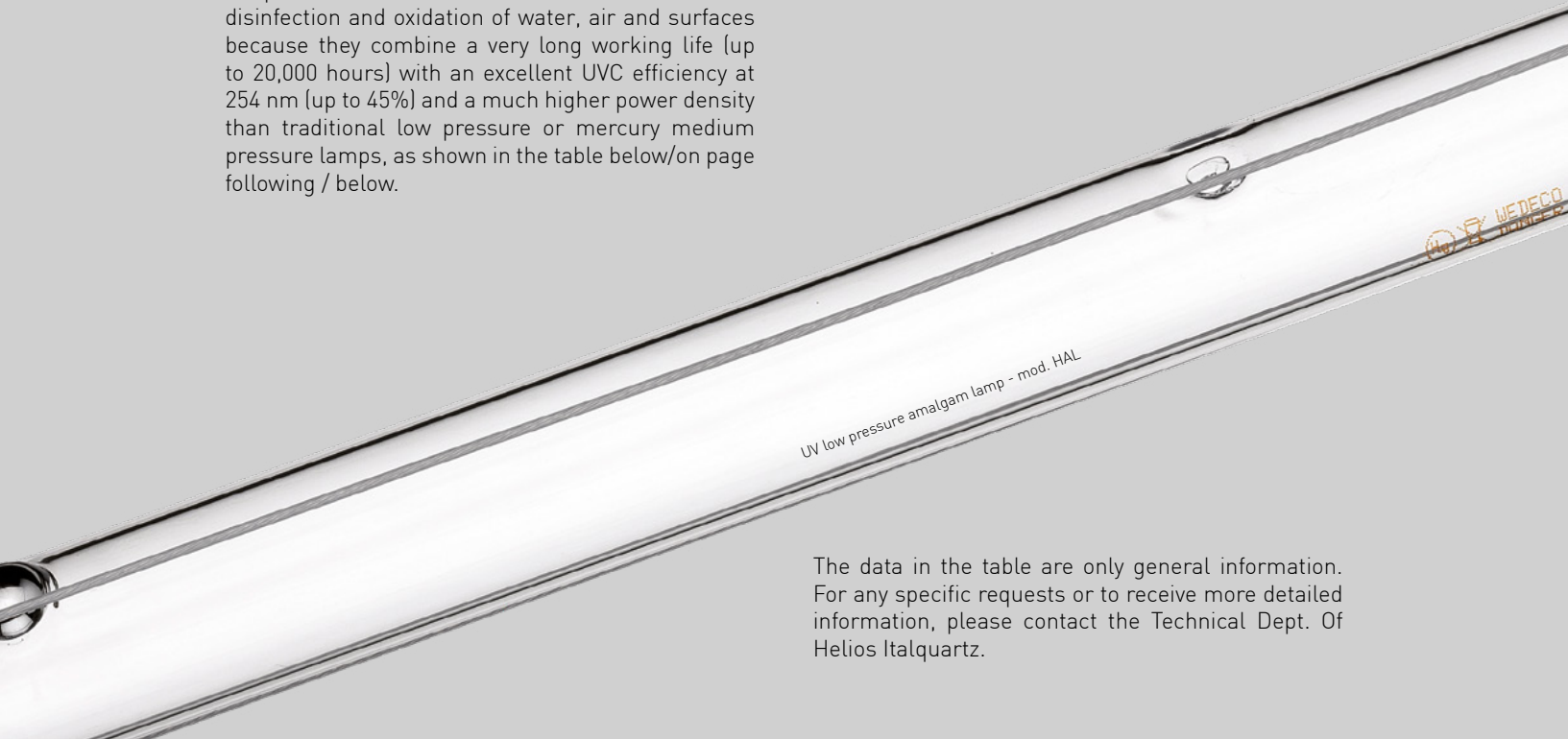
helios quartz





AMALGAM LOW PRESSURE LAMPS

UV low pressure amalgam lamps don't contain only mercury: inside the lamp there is a solid amalgam, that is to say an alloy of mercury with other metals. The low-pressure amalgam lamps produced by Helios Italquartz S.r.l. are the best solution for ultraviolet disinfection and oxidation of water, air and surfaces because they combine a very long working life (up to 20,000 hours) with an excellent UVC efficiency at 254 nm (up to 45%) and a much higher power density than traditional low pressure or mercury medium pressure lamps, as shown in the table below/on page following / below.



The data in the table are only general information. For any specific requests or to receive more detailed information, please contact the Technical Dept. Of Helios Italquartz.

LAMP TYPE	Low pressure (high output)		Amalgam low pressure		Medium pressure
HELIOS MODEL	HOGL		HAL		HMPL
INPUT POWER	10-160 W		50-1500 W		1-30 KW
POWER DENSITY	0,8-1,3 W/cm		1-6 W/cm		80-300 W/cm
UVC RADIATION	<350 mW/cm		<1000 mW/cm		<35000 mW/cm
WAVE LENGTH/EFFICIENCY	185 nm	254 nm	185 nm	254 nm	Policromatico broad band
	2%	25-35%	2%	<45%	5-15%
SURFACE TEMPERATURE	>50 °C		90-120 °C		500-950 °C
CURRENT	0,8-1,3 A		1,2-5 A		0,3-0,4 A
LIFETIME	12000 h		>12000 h		9000 h
INFLUENCE OF ENVIRONMENT TEMP	High		High		Low





The main features of the low-pressure UV lamps are the following ones:

Quartz tubes: • Natural Quartz (OF) - efficiency at 254 nm • Natural Quartz (OG) • Syntetic Quartz (OG)

Outer diameter (OD) of the quartz tubes from 10 mm to 38 mm

Arc length from L. 100 mm up to L. 2600 mm and Power range from 50 W to 1500 W

Lamp Body shape: • Linear • U form • Spiral • Other forms available upon request

Max nominal power density per unit length (to be checked in prototyping phase): 6W/cm

UVC max power intensity per unit length (to be checked in the prototyping stage): 4 W/cm

Coefficient of electric power conversion in UVC radiation at 254 nm up to 45%

Lifetime (lab tested and according to lamp power) up to 20000 hours

Working temperature from 1°C to 60°C with stable UVC emission

Maximum loss of efficiency at the end of its useful life from 5% to 20%

OF Ozone Free - OG Ozone Generating

UV amalgam lamps produced by Helios, thanks to their high power and long-lasting quality, represent a convenient solution for UV disinfection systems, containing the operating and maintenance costs due to the decrease of the total number of the lamps and electronic components to be installed.

A special coating process of the glass quartz allows the amalgam and low pressure UV lamps to maintain a nearly constant germicidal action throughout the life cycle of the lamp, thus increasing its durability.



helios quartz





AMALGAM LOW PRESSURE UV LAMPS

Helios usually chooses the natural quartz glass for the production of low pressure amalgam UV because it provides very high levels of UV transmission (greater than or equal to 90%); moreover, it is very resistant to solarization and it is not susceptible to mechanical failure or thermal shocks. However, for special applications of disinfection and ultraviolet oxidation, Helios produces the same lamps in synthetic quartz glass with a UV emission at 185 nm for ozone generation or oxidation processes on surfaces.

UV low pressure amalgam lamp - mod. HAL

Helios uses the finest materials for the production of low pressure amalgam mercury lamps and is able to offer all standardized models available on the market in different solutions and configurations as shown below, both in the "ozone-generating" and in the "Ozone Free" version.

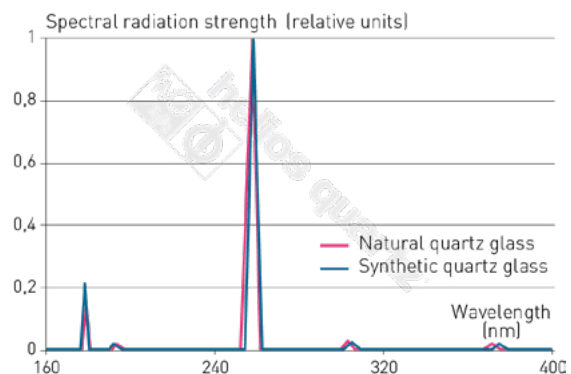
Lamps produced in undoped natural quartz glass (ozone-generating)

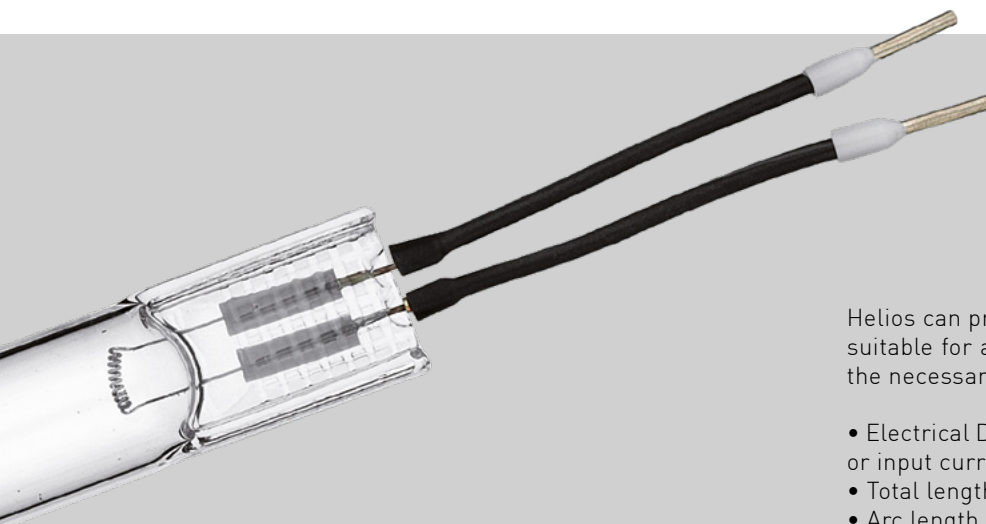
Ozone is one of the strongest oxidizing agent available, that reacts with a multitude of polluting organic compounds to oxidize and disinfect air and water from molds, alga, bacteria and virus.

Lamps produced in synthetic quartz glass (ozone generating)

Using the synthetic quartz glass you have a greater efficiency of UV transmission at 185 nm; these lamps represent a good solution for oxidation processes.

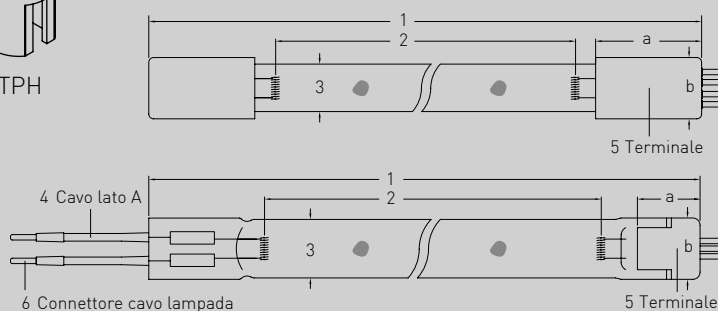
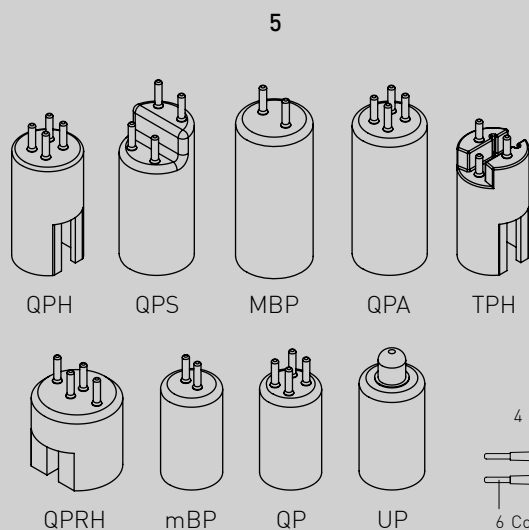
Natural and Synthetic quartz glass





Helios can produce medium pressure UV lamps suitable for almost all UV systems; below a list of the necessary information for spare parts:

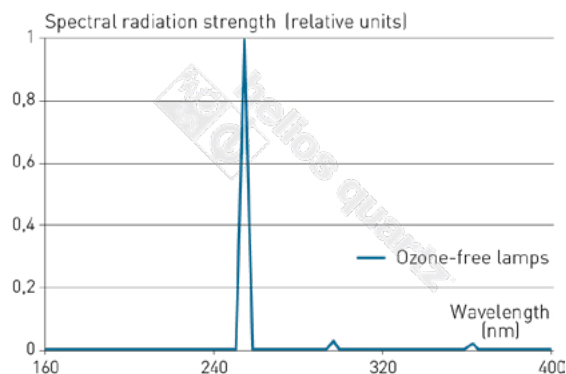
- Electrical Data (Power [W], input tension [V0 - VL] or input current [A0 - AL])
- Total length (with terminal ceramic) **(1)**
- Arc length **(2)**
- Diameter of the quartz tube **(3)**
- Cable length **(4)**
- Type of terminal **(5)**
- Type of electrical connection requested **(6)**
- Lamp production of ozone Yes / No
- Code



Lamps produced with doped natural quartz glass (ozone free)

Made of doped quartz glass (Ti), the "Ozone Free" lamps are used for disinfection, when you need only one wavelength peak at 254 nm. It is important to note that lamps that emit at this wavelength can also be used for the destruction of ozone.

Natural and Synthetic quartz glass

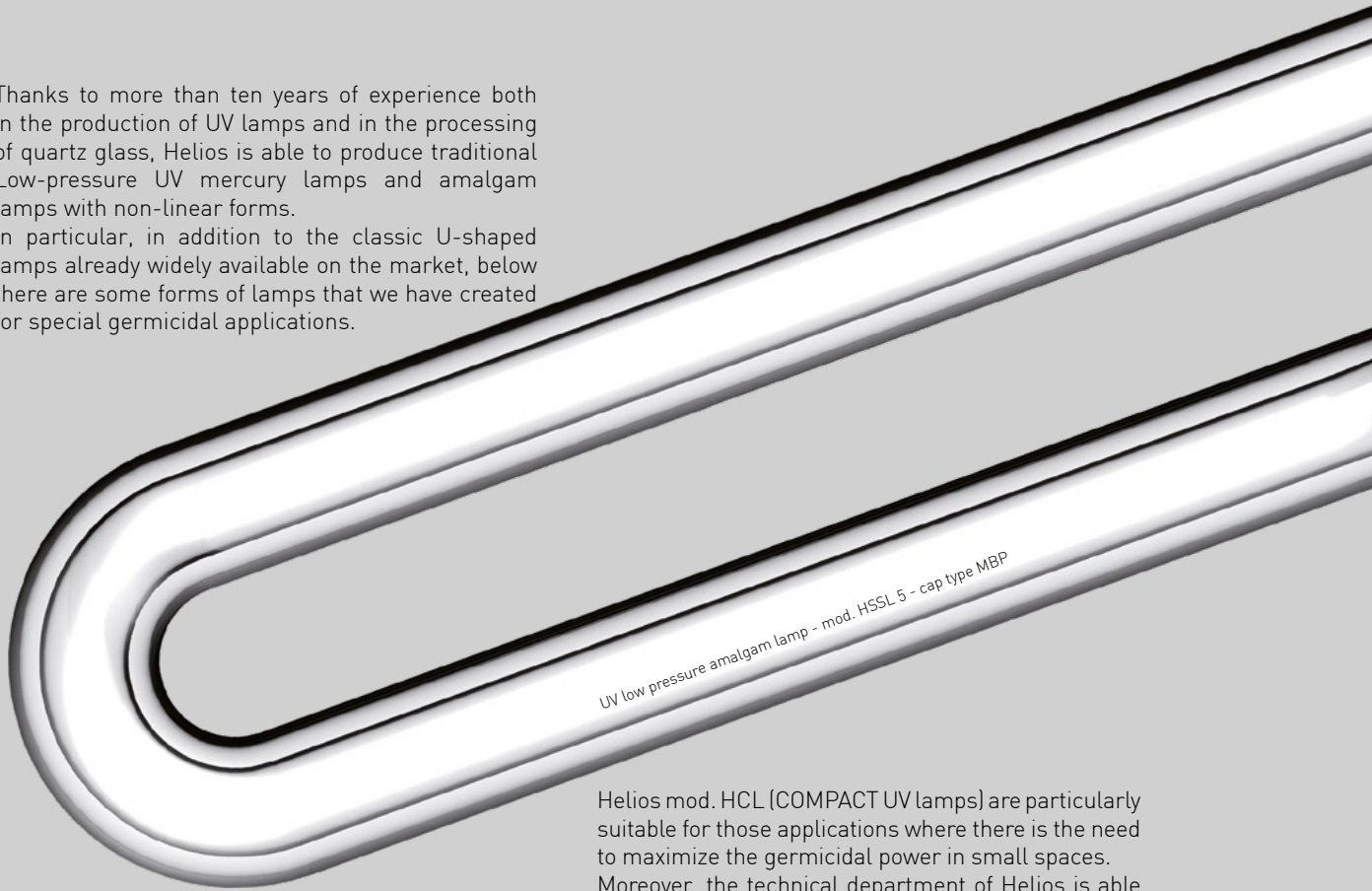




AMALGAM LOW PRESSURE UV LAMP

Thanks to more than ten years of experience both in the production of UV lamps and in the processing of quartz glass, Helios is able to produce traditional Low-pressure UV mercury lamps and amalgam lamps with non-linear forms.

In particular, in addition to the classic U-shaped lamps already widely available on the market, below there are some forms of lamps that we have created for special germicidal applications.

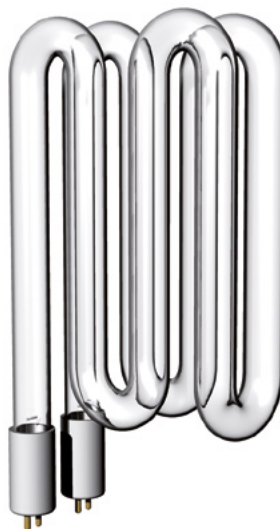


Helios mod. HCL (COMPACT UV lamps) are particularly suitable for those applications where there is the need to maximize the germicidal power in small spaces. Moreover, the technical department of Helios is able to design and develop specific lamps according to the technical specifications provided by the customer.

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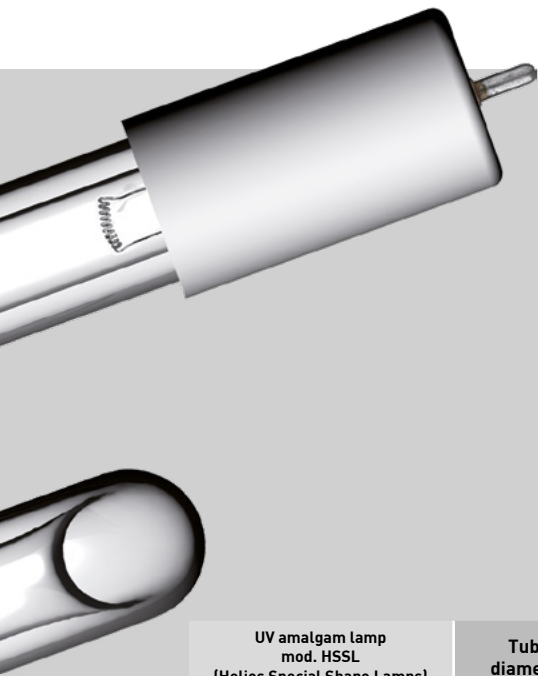


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3





Helios is also able to provide every type of germicidal amalgam lamp mod. HSSL (HELIOS SPECIAL SHAPE LAMPS); the table below shows some models.

UV amalgam lamp mod. HSSL (Helios Special Shape Lamps)	Tube diameter	Quartz tube linear length	Dimensions and shape	Power	Current	UV emission at 254 nm
HSSL155	10 mm	1595 mm	on request	155 W	0,8 A	47 W
HSSL175	12 mm	1595 mm	on request	175 W	1,0 A	56 W
HSSL200	15 mm	1595 mm	on request	200 W	1,2 A	70 W
HSSL310	19mm	1595 mm	on request	310 W	2,0 A	105 W
HSSL325	28 mm	1595 mm	on request	325 W	3,2 A	125 W
HSSL610	32 mm	1595 mm	on request	610 W	5,0 A	200 W

Helios provides models (see above) in all the possible configurations of terminals with vertical working position. The forms 1-6 are available for tubes with maximum length of 1595mm and with diameter of 10 -12-15 -19 -28 and 32 mm.

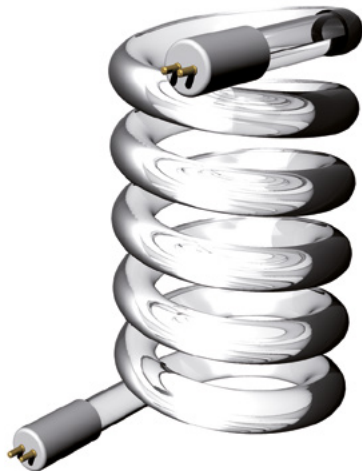
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UV BLACK LIGHT (WOOD LIGHT)

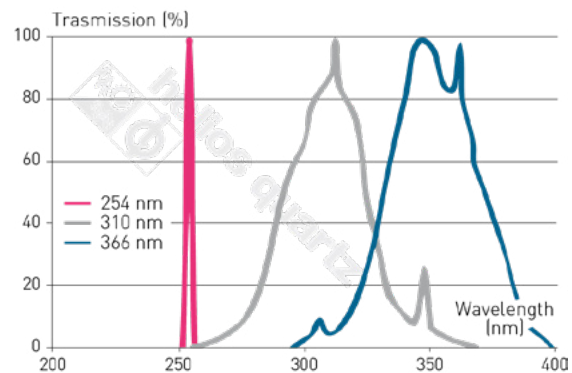
The name **Wood lamp** (named after the American scientist Robert Williams Wood), or black light, refers to a light source that emits electromagnetic radiation predominantly in the range of ultraviolet and in the visible light range.

Lampada UV a luce nera - mod. Wood - terminale Medium Bipin

Helios Italquartz produces Wood lamps with ultraviolet emission peaks at 254 nm, 310 nm and 366 nm.

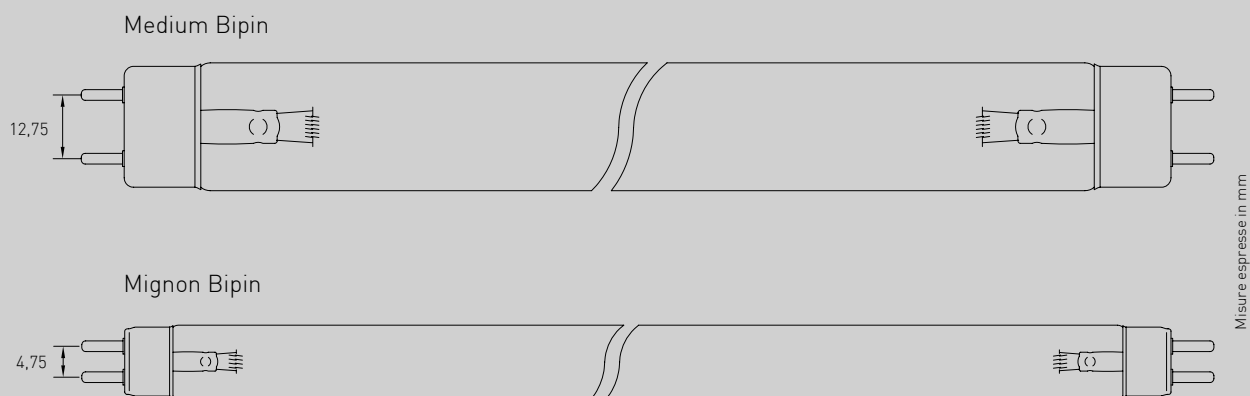
- **UV-C short-waves (180-280 nm)** emitted at 254 nm are suitable for chemical, photochemical and chromatographic applications; in microbiology they are useful for the identification of bacteria and fungi, for the analysis of fluorescent materials and for the analysis of minerals.
- **UV-B medium waves (280-320 nm)** emitted at 310 nm are suitable for the chromatographic analyses and GEL, for tests on thin layers, for searching tests of electrophoresis in DNA / RNA, and for the analysis of minerals.
- **UV-A long-waves (320-380 nm)** emitted at 366 nm are suitable for many organic applications, fluorescence tests, in the food processing industry, for the control of banknotes and documents, art restoration, in many microbiological tests or in the field of dermatology diseases and for the cure of favism or for geological inspections.

Ultraviolet radiation

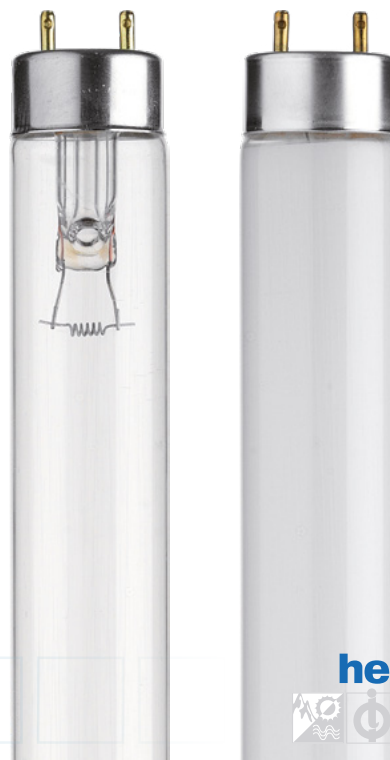




Lamps configuration



A Wood lamp produces light which is not directly visible to the human eye; however, it can be used to illuminate materials on which a ultraviolet radiation causes fluorescent and phosphorescent effects. Possible applications of these properties can be found in the fight against the counterfeiting of banknotes, through the use of banknote verification, or in the search for cracks in metal structures which are coated with materials responsive to UV rays.

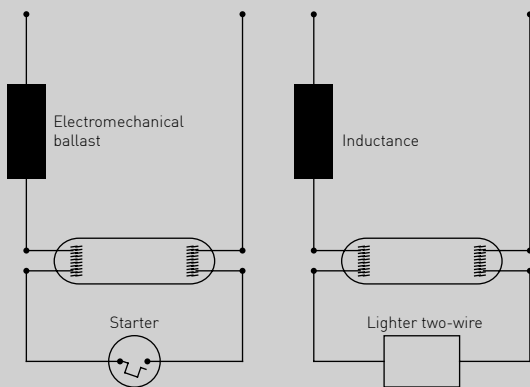
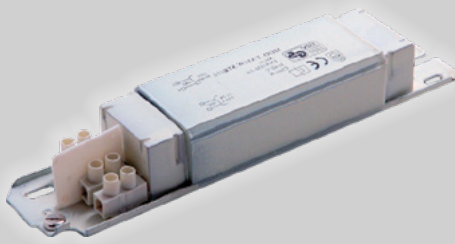




ACCESSORIES

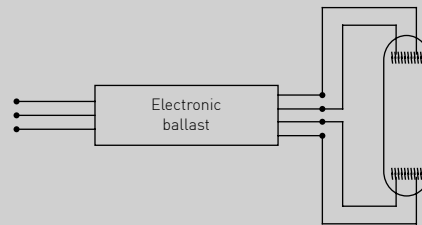
ELECTROMAGNETIC BALLAST WITH STARTER/IGNITORS

They represent the most widely used method to operate correctly the mercury low pressure UV lamps.



ELECTRONIC BALLASTS

Electronic power supplies (ballasts) are commonly used in UV mercury low pressure amalgam lamps disinfection systems.



SPECIAL CABLES FOR HIGH TENSION



Helios pays particular attention to the quality of all materials and components needed to produce its UV lamps; the choice of the cables is particularly important.

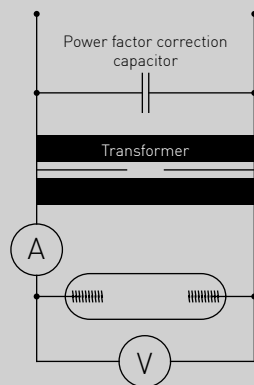
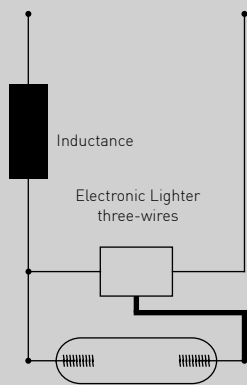
The standard models have cables that can withstand temperatures up to 250 ° C; moreover, special cables are designed for the specific use in UV applications in high temperature and high voltage.

The quality department of Helios tests periodically the level of light resistance of cables used in the production of the UV lamps through our device INVE 2000 for the control of the ageing level of materials.



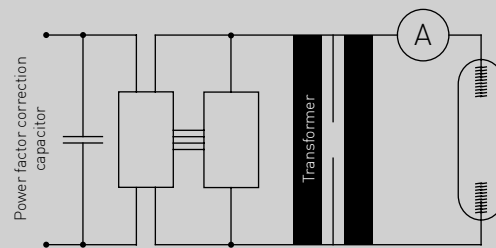
TRANSFORMERS, REACTORS AND LIGHTERS

They are the method for a correct ignition, supply and operation of mercury medium pressure UV lamps. Each lamp has to work exclusively with the electric group with which it was designed.



POWER CAPACITORS AND REGULATORS

Capacitors work in order to re-establish the power factor after the transit through the electric group and the UV medium pressure lamp, thus optimizing the electrical consumption. Regulators work to optimize the UV radiation according to the different applications.



SUPPORTS



Among the accessories we recommend the use of special steel supports for the installation of the lamps inside the UV curing and disinfection system. These supports are specially made for Helios with a special steel which can resist to high temperatures ($> 1000^{\circ}$), with a controlled expansion that keeps shape memory.

The Technical Department is able to assist the client in choosing the proper support for each lamp and to advise about the correct assembly.

In the picture you can see an example of our **code 10Z00319**.



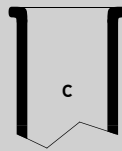
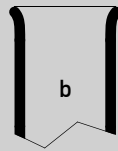
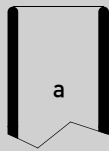
ACCESSORIES

TUBES



The function of quartz tubes, inside of which the UV lamp is placed, is to isolate the lamp from the flow of air and water, thus avoiding possible accidental breakages.

Helios has always at stock a full range of standard diameters commonly used on the market; in addition, the production department is able to satisfy in a short time any specific demand of customers by providing them with customized tubes with fired **(a)**, flared **(b)** or flanged **(c)** edges.

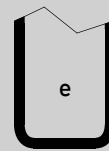
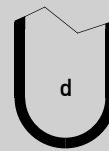


DOMED TUBES



The function of the quartz domed tubes is to isolate the lamp electrically and thermally from the external fluid thus avoiding possible accidental breakages.

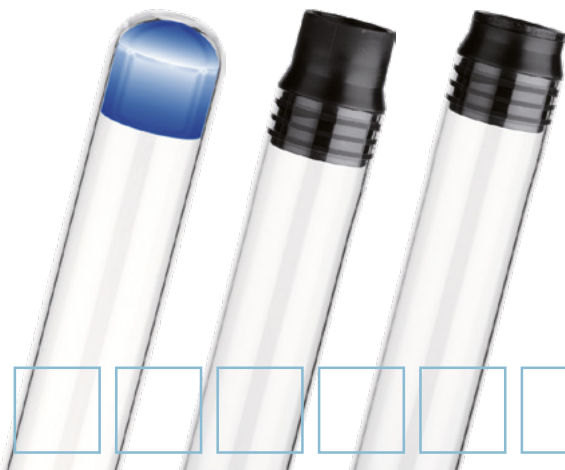
Helios has always available at stock a full range of standard diameters commonly used on the market; in addition, the production department of Helios is able to satisfy in a short time any specific request of the customers by providing them with customized sleeves with fired **(a)**, flared **(b)** or flanged **(c)** edges and withrround (d) or flat (e) bottom.



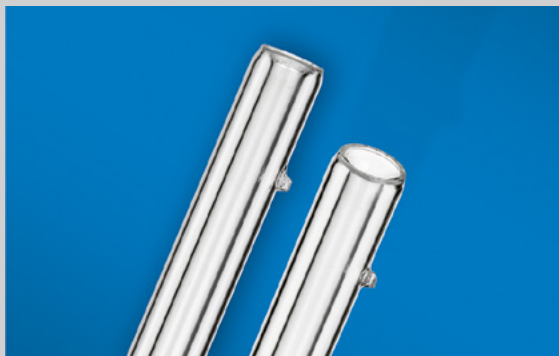
CUSTOMIZED SOLUTIONS

Helios can count on many years of experience in the field of water treatment and is able to support its customers by providing them with optimum solutions for UV systems for the disinfection of water, air and surfaces. Helios is able to develop solutions with a special plastic material that is resistant to UV radiation; solutions to house UV lamps, isolate and connect the UV lamps to the systems.

The quality department of Helios tests periodically the level of UV light resistance of materials through our device INVE 2000 for the control of the ageing level of materials. The pictures below show this device and we kindly invite our interested customers to contact our sale offices to receive all the technical information and documentations.

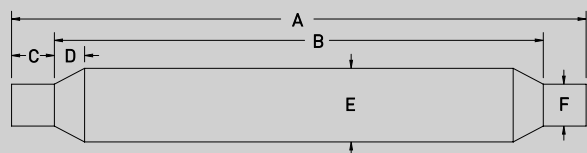


COOLING TUBES

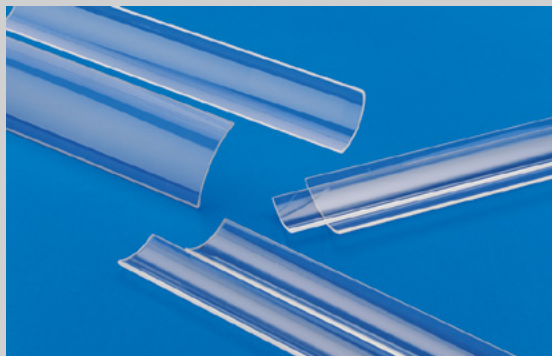


The function of the cooling quartz tubes is to filter the infrared rays emitted by the mercury medium pressure UV lamp and avoid, in this way, possible damages to the product.

Helios keeps always at stock a full range of standard diameters commonly used on the market; moreover, the production department Helios is able to satisfy in a short time any request of the customers, providing them with customized solutions, according to their specifications and drawings.



QUARTZ PLATES AND UV REFLECTORS



Helios produces quartz plates, up to a length of 2500 mm, selecting the best raw materials and the appropriate production process, in order to ensure the best grade for each application and optimize the ultraviolet transmittance.

Helios keeps always at stock a full range of standard thicknesses commonly used on the market; moreover, the production dept. of Helios is able to satisfy any request in a short time by providing both flat and round plates, also according to the design and specifications of the customers.

The UV quartz reflectors are plates in quartz with flat or curved form, which are processed in a particular way; this plates influence the emission of the lamp, optimizing it according to the different possible applications.

PHOTOCHEMICAL REACTORS

For special applications of oxidation and synthesis, Helios produces photochemical reactors to be used in labs for different applications: chlorination processes, production of vitamin D, photopolymerization. These products are widely appreciated by universities, research centres and private laboratories. Below, two of our equipment; we kindly invite our customer to contact our sale dept. that will provide all information and documents.



SPECIAL EYE PROTECTION

Helios remarks for the operators the need to use special glasses protection; in case of non-use of the this protection, Helios declines all responsibility.

Moreover, we remind our customers to always handle the UV lamps with suitable gloves on, in order not to touch quartz glass with bare hands.





MAIN APPLICATIONS

POLYMERIZATION

Drying of UV paints and varnishes	Production of printed circuits	Production of CD s and DVDs
Wood industry	Ceramic industry	Plastic industry
Glass industry	Automotive – Serigraph lines	Serigraph lines for white glass
UV curing and printing industry	Offset printing	Flessographic printing
Ink printing	Packaging industry	Labels printing
UV curing for adhesives	Serigraph printing	Electronics industry



RECOGNITION OF THE PRODUCT

Helios Quartz, being ISO 9001 certified, records any information of the production of every article; for this reason, each lamp is identified by a string written on the tube of the lamp as shown in the picture.



STERILIZATION

Water treatment	Microbiological labs	Biological labs
Waste water treatment	Ceramics industry	Industrial kitchens
Process water treatment	Food conveyor systems	VOC destruction
Air treatment	Refrigerating rooms	Seasoning rooms
Photochemical processes	Packaging industry	Dairy products industry
Food industry	Bottling and packaging industry	Beverage industry



THE QUALITY IN HELIOS



At Helios we believe that the monitoring and control of the quality of raw materials and finished products, the traceability of our products, the production system represent the pillars of our presence on the market and we intend to keep it this way also in the future, in order to continue operating on the market. For this reason, since 2000 the company has been certified by ISO 9001 and TUV: each commercial or manufacturing process complies with certain procedures and control standards; to ensure the availability and traceability of the product, in 2010 we adopted SAP Business One as ERP System.

Helios has been investing heavily on quality control and in this line we are creating and implementing a department, whose job is to constantly monitor both the incoming material from suppliers and the outgoing products. Thanks to this department we are able to perform all the dimensional measurement using traditional tools but also to perform reverse engineering through our FARO device, which can detect measurements with accuracies of 0.05mm. Moreover, we can also measure the transmission of quartz glass through our spectrophotometer VARIAN Cary 500.





GERMICIDAL LAMPS

Helios can provide each type of germicidal low pressure mercury lamp model HGL (HELIOS GERMICIDAL LAMPS); in the table below you can find some models we have always at stock.

Lamps mod. HGL	Tube diameter	Total length	Arc length	Power	Current	Voltage	UV emission at 254 nm	
HGL4T5L	15,7 mm	134,7 mm	77 mm	4 W	180 mA	23 V	9 $\mu\text{W}/\text{cm}^2$	0,9 W
HGL6T5L	15,7 mm	210,9 mm	154 mm	6 W	180 mA	34 V	16 $\mu\text{W}/\text{cm}^2$	1,6 W
HGL8T5L	15,7 mm	287,1 mm	231 mm	8 W	180 mA	45 V	21 $\mu\text{W}/\text{cm}^2$	2,1 W
HGL10T5L	15 mm	357 mm	277 mm	17 W	425 mA	42 V	57 $\mu\text{W}/\text{cm}^2$	5,7 W
HGL15T8L	25,7 mm	436,2 mm	353 mm	15 W	350 mA	42 V	47 $\mu\text{W}/\text{cm}^2$	4,8 W
HGL20T10L	32,5 mm	588,5 mm	505 mm	19 W	360 mA	58 V	76 $\mu\text{W}/\text{cm}^2$	7,5 W
HGL24T5L	15 mm	692 mm	612 mm	32 W	425 mA	77 V	95 $\mu\text{W}/\text{cm}^2$	11 W
HGL25T8L	25,7 mm	436,4 mm	353 mm	25 W	620 mA	41 V	71 $\mu\text{W}/\text{cm}^2$	7,2 W
G30T8L	25,7 mm	893,4 mm	810 mm	30 W	380 mA	80 V	100 $\mu\text{W}/\text{cm}^2$	11,3 W
HGL36T5L	15 mm	843 mm	762 mm	41 W	425 mA	98 V	150 $\mu\text{W}/\text{cm}^2$	16 W
HGL40T5L	15,7 mm	842 mm	767 mm	41 W	425 mA	98 V	141 $\mu\text{W}/\text{cm}^2$	15,6 W
HGL48T5L	15 mm	1148 mm	1067 mm	55 W	425 mA	135 V	180 $\mu\text{W}/\text{cm}^2$	22 W
HGL64T5L	15 mm	1554 mm	1474 mm	75 W	425 mA	179 V	240 $\mu\text{W}/\text{cm}^2$	33 W
HGL67T5L	15 mm	1630 mm	1550 mm	79 W	425 mA	189 V	252 $\mu\text{W}/\text{cm}^2$	34,5 W
HGL135T5L	15 mm	135 mm	55 mm	5 W	425 mA	15 V	10 $\mu\text{W}/\text{cm}^2$	1,2 W
HGL150T5L	15 mm	150 mm	70 mm	6 W	425 mA	18 V	14 $\mu\text{W}/\text{cm}^2$	1,5 W
HGL212T5L	15 mm	212 mm	132 mm	10 W	425 mA	25 V	26 $\mu\text{W}/\text{cm}^2$	2,7 W
HGL237T5L	15 mm	237 mm	157 mm	11 W	425 mA	30 V	30 $\mu\text{W}/\text{cm}^2$	3 W
HGL265T5L	15 mm	265 mm	185 mm	12 W	425 mA	35 V	33 $\mu\text{W}/\text{cm}^2$	3,4 W
HGL287T5L	15 mm	287 mm	207 mm	14 W	425 mA	34 V	40 $\mu\text{W}/\text{cm}^2$	4 W
HGL303T5L	15 mm	303 mm	223 mm	15 W	425 mA	35 V	43 $\mu\text{W}/\text{cm}^2$	4,3 W
HGL317T5L	15 mm	317 mm	237 mm	16 W	425 mA	46 V	48 $\mu\text{W}/\text{cm}^2$	4,8 W
HGL357T5L	15 mm	357 mm	277 mm	17 W	425 mA	42 V	57 $\mu\text{W}/\text{cm}^2$	5,7 W
HGL436T5L	15 mm	436 mm	356 mm	21 W	425 mA	51 V	72 $\mu\text{W}/\text{cm}^2$	7,3 W
HGL793T5L	15 mm	793 mm	713 mm	38 W	425 mA	92 V	125 $\mu\text{W}/\text{cm}^2$	13,5 W
HGL843T5L	15 mm	843 mm	762 mm	41 W	425 mA	98 V	150 $\mu\text{W}/\text{cm}^2$	16 W
HGL1148T5L	15 mm	1148 mm	1067 mm	55 W	425 mA	135 V	180 $\mu\text{W}/\text{cm}^2$	22 W
HGL1554T5L	15 mm	1554 mm	1474 mm	75 W	425 mA	179 V	240 $\mu\text{W}/\text{cm}^2$	33 W
HGL1630T5L	15 mm	1630 mm	1550 mm	79 W	425 mA	189 V	252 $\mu\text{W}/\text{cm}^2$	34,5 W

High output lamps

HOGL436T5L	15 mm	436 mm	360 mm	48 W	800 mA	60 V	120 $\mu\text{W}/\text{cm}^2$	13 W
HOGL36T5L	15 mm	842 mm	755 mm	87 W	800 mA	110 V	260 $\mu\text{W}/\text{cm}^2$	28 W
HOGL846T5L	15 mm	846 mm	767 mm	90 W	800 mA	113 V	265 $\mu\text{W}/\text{cm}^2$	29 W
HOGL893T5L	15 mm	893 mm	815 mm	90 W	800 mA	120 V	270 $\mu\text{W}/\text{cm}^2$	30 W
HOGL64T5L	15 mm	1554 mm	1421 mm	155 W	800 mA	195 V	395 $\mu\text{W}/\text{cm}^2$	54 W

We produce the above models with all configurations of the caps (page 15), also in Soft Glass and with configurations H and VH.





GERMICIDAL LAMPS

Helios can provide each type of germicidal low pressure mercury lamp model HCL (HELIOS COMPACT LAMPS); in the table below you can find some models we have always at stock.

UV low pressure lamps mod. HCL (Helios Compact Lamps)	Tube diameter	Max leghth	Power	Current	Voltage	UV emission at 254 nm	
HCL5W/G23	12,5 mm	83mm	5 W	180 mA	34 V	9 $\mu\text{W}/\text{cm}^2$	1 W
HCL7W/G23	12,5 mm	115 mm	7 W	175 mA	47 V	16 $\mu\text{W}/\text{cm}^2$	1,8 W
HCL9W/G23/G27	12,5 mm	145 mm	9 W	170 mA	60 V	22 $\mu\text{W}/\text{cm}^2$	2,4 W
HCL11W/G23	12,5 mm	214 mm	11 W	160 mA	89 V	33 $\mu\text{W}/\text{cm}^2$	3,6 W
HCL13W/G23	12,5 mm	155,2 mm	13 W	290 mA	59 V	31 $\mu\text{W}/\text{cm}^2$	3,4 W
HCL18/W2G11	17,5 mm	225 mm	18 W	370 mA	60 V	51 $\mu\text{W}/\text{cm}^2$	5,5 W
HCL24W/2G11	17,5 mm	320 mm	24 W	350 mA	87 V	65 $\mu\text{W}/\text{cm}^2$	7W
HCL35W/HO/2G11	17,5 mm	225 mm	35 W	850 mA	40 V	105 $\mu\text{W}/\text{cm}^2$	11 W
HCL36W/2G11	17,5 mm	415 mm	36 W	440 mA	105 V	110 $\mu\text{W}/\text{cm}^2$	12 W
HCL55W/2G11	17,5 mm	535 mm	55 W	540 mA	103 V	156 $\mu\text{W}/\text{cm}^2$	17 W
HCL60WHO/2G11	17,5 mm	415 mm	60 W	670 mA	120 V	169 $\mu\text{W}/\text{cm}^2$	18 W
HCL95WHO/2G11	17,5 mm	535 mm	95 W	950 mA	100 V	304 $\mu\text{W}/\text{cm}^2$	32 W

We produce the above models with all configurations of the caps, also in Soft Glass and with configurations H and VH. Lamp data is based on measurements performed under laboratory conditions in air at room ambient temperature. Measurements were performed on a high-frequency, current limited electronic ballast and represent average values at 1 meter.

Helios can provide each type of germicidal low pressure mercury lamp model HAL (HELIOS AMALGAM LAMPS); in the table below you can find some models we have always at stock.

Lamps mod. HAL	Tube diameter	Total length	Arc length	Power	Current	Voltage	UV emission at 254 nm	
HAL357T5L	15 mm	357 mm	278 mm	42 W	1,2 A	36 V	110 $\mu\text{W}/\text{cm}^2$	11 W
HAL843T5L	15 mm	843 mm	764 mm	110 W	1,2 A	88 V	320 $\mu\text{W}/\text{cm}^2$	35 W
HAL1000T5L	15 mm	1000 mm	921 mm	127 W	1,2 A	107 V	370 $\mu\text{W}/\text{cm}^2$	42 W
HAL1554T5L	15 mm	1554 mm	1475 mm	190 W	1,2 A	164 V	500 $\mu\text{W}/\text{cm}^2$	68 W
HAL357T6L	19 mm	357 mm	278 mm	57 W	1,8 A	32 V	130 $\mu\text{W}/\text{cm}^2$	13 W
HAL843T6L	19 mm	843 mm	764 mm	127 W	1,8 A	71 V	400 $\mu\text{W}/\text{cm}^2$	43 W
HAL1000T6L	19 mm	1000 mm	921 mm	150 W	1,8 A	84 V	460 $\mu\text{W}/\text{cm}^2$	52 W
HAL1554T6L	19 mm	1554 mm	1475 mm	240 W	1,8 A	134 V	630 $\mu\text{W}/\text{cm}^2$	87 W
HAL357T6L-H	19 mm	357 mm	278 mm	65 W	2,1 A	31 V	140 $\mu\text{W}/\text{cm}^2$	14 W
HAL843T6L-H	19 mm	843 mm	764 mm	172 W	2,1 A	82 V	490 $\mu\text{W}/\text{cm}^2$	54 W
HAL1000T6L-H	19 mm	1000 mm	921 mm	207 W	2,1 A	99 V	570 $\mu\text{W}/\text{cm}^2$	65 W
HAL1554T6L-H	19 mm	1554 mm	1475 mm	320 W	2,1 A	154 V	750 $\mu\text{W}/\text{cm}^2$	105 W
HAL1554T10L	32 mm	1554 mm	1434 mm	471 W	5 A	95 V	1160 $\mu\text{W}/\text{cm}^2$	157 W

We produce the above models with all configurations of the caps, also in Soft Glass and with configurations H and VH. Lamp data is based on measurements performed under laboratory conditions in air at room ambient temperature. Measurements were performed on a high-frequency, current limited electronic ballast and represent average values at 1 meter.

HAL lamps are designed for operation on a preheat balast only, unless otherwise noted.



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