Ultraviolet lamp

Heat-tech

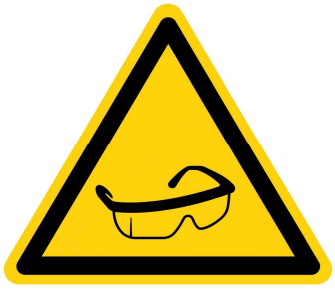
4th edition

Ultraviolet lamp – Ultraviolet light irradiation and Ozone generation

INDEX

Caution

The UV radiation area is stamped with this symbol because exposure to UV radiation can range from skin irritation to cancer of the skin itself.



Directly looking at ultraviolet light is dangerous.
Wear safety goggles during installation and maintenance.

Close exposure to UV radiation can range from skin irritation to cancer of the skin itself.
Wear gloves during installation and maintenance.

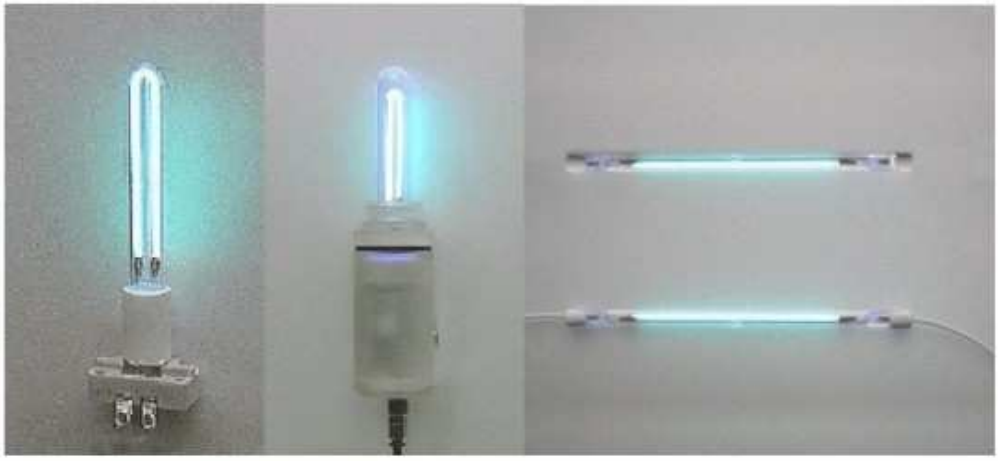
Ozone caution

Ozone is a substance that exists in nature at low concentrations.
It is created by the discharge phenomenon of sunlight and lightning.
Many people feel reluctant to be exposed to even small amounts of ozone, but ozone originally occurs naturally in the atmosphere, albeit in small amounts.
Ozone exists in the normal atmosphere at a concentration of 0.005 ppm, and has a self-purifying effect (sterilizing, deodorizing, decolorizing, etc.).
By the way, although there are individual differences, in forests where the air is very delicious, it contains 0.05 to 0.1 ppm of ozone.
Ozone levels of 0.1 to 0.3 ppm have been measured on beaches with strong summer sunlight.
Ozone is produced from the action of electrical discharge using oxygen in the air, so it is a highly safe substance as long as its concentration is controlled.
Ozone is a non-persistent substance, and low concentrations of ozone have been proven to have no effect on the human body.

It has been confirmed that high concentrations of ozone have an adverse effect on the human body

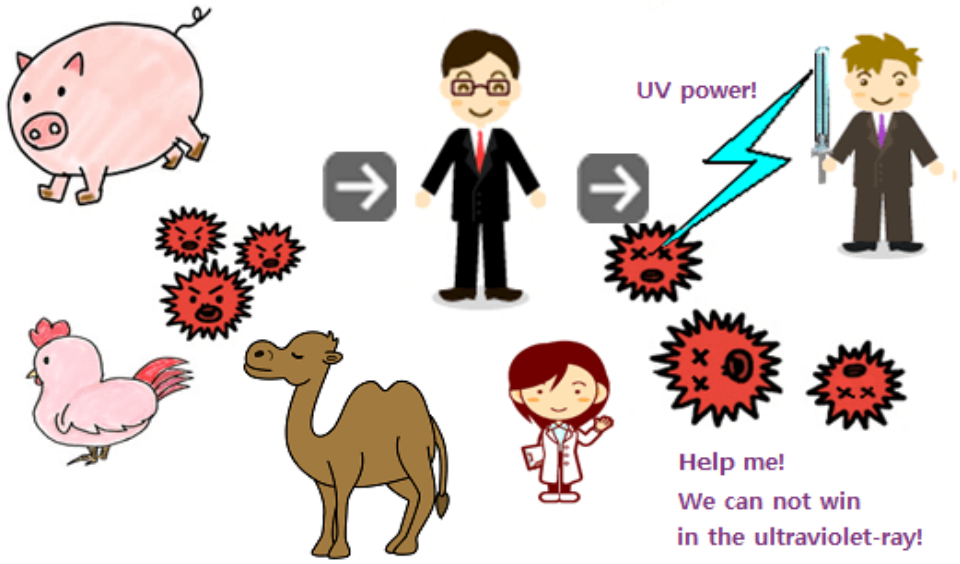
Ozone concentration	Effect on the human body
0.01～0.02 ppm	There may be a slight odor
0.02～0.05 ppm	Understand the unique smell of ozone
0.05ppm	The air feels very delicious
～0.1ppm	**Permissible concentration as a working environment standard**
0.1～0.3 ppm	I feel irritation in my nose and throat
0.2～0.5 ppm	decreased visual acuity
0.4～0.5 ppm	Sensing irritation to the upper respiratory tract
0.5 ppm	Chronic bronchitis, etc. increases in people who work in ozone environments.
0.6～0.8 ppm	Causes chest pain, cough, difficulty breathing, decreased lung function, etc.
1～2 ppm	Sensation of fatigue, headache, heavy head, changes in respiratory function
5～10 ppm	Causes breathing difficulty, increased pulse rate, body pain, anesthesia state, and pulmonary edema.
15～20 ppm	Small animals die within 2 hours
50 ppm～	life-threatening situation

Referenced materials from the Japan Society of Industrial Hygiene and the Japan Ozone Associati



Compact facilities, the maintenance cost is cheap
Simpl , time shortening, lowcost
Effective for every species of bacteria
Durability bacteria less
Sterilize it at normal temperature
Do not let an agenda change in quality

EASY CHEAP STRONG



<< Merit of the ultraviolet rays sterilization >>

Sunburns change by ultraviolet rays and the action were known for a long time, but it did not advance to the application to the public for only approximately 20 years that the mechanism was elucidated because in front of and the history were shallow though an effect was very high.

However, wide demand is anticipated from the industry to home while the use in various fields is expected now from the plane of the safety and the economy, and the things that the identification of infection courses such as swine flu virus, the O-157s and Covid-19s difficult increase.

Sterilizing property

A sterilizing effect is high in the ultraviolet rays, and I reach 1,600 times of wavelength 350nm of the direct rays of the sun, and the wavelength 260nm neighborhood can sterilize all microbes from “a virus” to “mold” in a short time in particular.

Safety

There is not remaining of the poison after the sterilization, and the ultraviolet rays to use do not almost penetrate it other than polyethylene because transmission power is very weak. I peep out by the direct naked eye in a short time, and please do not iiradiate skin directly.

The sterilization effect of ultraviolet rays

1.As for the disinfection to the microbe by ultraviolet rays, ultraviolet rays of complementary wavelength 253.7nm are absorbed by the nucleic acid of the living bodies, and what lose a restoration function by a chemical change is caused, and damaging it becomes an established theory.

2.When It demand a sterilization effect by ultraviolet rays, quantity of ultraviolet irradiation is defined by incidence energy, and it is expressed in the product (μ W / a sec / c square meter) of (sec) as custom in ultraviolet rays illumination (a μ W / c square meter) and irradiation time.

3.The judgment of the effect defines that sterilization and the cell of the one of the mold or cell group forms one macro colony as survival and expresses it at survival rate or sterilization rate. It is as an aim of the one of the sterilization effect judgments for the microbes which the sensitivity for ultraviolet rays uses unlike, specific sterilization rate and the list of necessary ultraviolet rays exposure dose by a microbe, and become an object.

Irradiation amount required for sterilization

Necessary to kill 99% of bacteria on earth.
UV irradiation with a wavelength of 254 nm (typical example)

Types of bacteria	Scientific name	Irradiation (mJ/cm^2)
Gram negative bacteria Gram-negative strains	Proteus vulgaris Hau.	3.8
	Shigella dysenteriae	4.3
	Shigella paradysenteriae	4.4
	Escherichia coli communis	5.4
	Escherichia coli NBRC 3972	9.8
	Vibrio cholerae	10.2
	Legionella pneumophila	7.5
	Pseudomonas aeruginosa	16.5
	Salmonella typhi	7.5
	Salmonella paratyphi	9.6
	Salmonella typhimurium	24.0
Gram positive bacteria Gram-positive strains	Streptococcus hemolyticus (Group A-Gr.13)	7.5
	Streptococcus hemolyticus (Group D, C-6-D)	10.6
	Streptococcus faecalis R.	14.9
	Staphylococcus albus	9.1
	Staphylococcus aureus	9.3
	Staphylococcus aureus NBRC 12732	9.4
	Bacillus mesentericus fuscus	18.0
	Bacillus mesentericus fuscus (spores)	28.1
	Bacillus subtilis Sawamura	21.6
	Bacillus subtilis Sawamura (spores)	33.3
	Bacillus subtilis (spores)	36.0
	Bacillus subtilis (spores) NBRC 3134	20.3
	Bacillus anthracis	13.5
	Bacillus anthracis (spores)	163.5
	Mycobacterium tuberculosis	18.0
Yeasts Saccharomyces cerevisiae	Bakers Yeast	8.8
	Saccharomyces ellipsoideus	13.2
	Saccharomyces cerevisiae untergar. Munchen	18.9
	Saccharomyces Sake	19.6
	Zygosaccharomyces Barkeri	21.1
	Willia anomala	37.8
	Pichia miyagi	38.4

Necessary to kill 99% of bacteria on earth.
UV irradiation with a wavelength of 254 nm (typical example)

Types of bacteria	Scientific name	Irradiation (mJ/cm^2)
	Poliovirus-Polimyelitus	6.0
	Bacteriophage (E.coli)	6.6
	Influenza	6.6
	Infection Heptitus	8.0
	Hepatitis A	11.0
Virus	Poliovirus 1	12.0
Virus	Feline calicivirus	21.0
	Rotavirus SA-11	24.0
	Coxsackievirus A-9	36.0
	Bacteriophage MS2 (E.coli phage)	42.0
	Bacteriophage Qβ (E.coli phage)	54.0
	Adenovirus 40	90.0
	Tobaacco mosaic	440.0
	Oospora lactis	10.2
	Mucor racemosus	34.2
	Penicillium roqueforti	26.4
	Penicillium expansum	22.2
Mold stores	Penicillium digitatum	88.2
Fungi	Rhizopus nigricans	222.0
	Aspergillus glaucus	88.2
	Aspergillus flavus	120.0
	Aspergillus niger	264.0
	Aspergillus brasiliensis NBRC 9455	417.0
	Aspergillus niger NBRC 105649	261.0
	Cryptosporidium parvum	12.0
Protozoa	Giardia lamblia	11.0
Protozoa	Chlorella vularis(Algas)	22.0
	Nemat ode eggs	92.0
	Param ecium	200.0

Ozone gas sterilization (typical example)

Types of pathogenic cells	Ozone concentration	Temp	Action time	Mortality rate
	ppm	℃	min	%
Proteus vulgaris Hau.	0.6	13	15	99.9%
Salmonella typhimurium	0.6	13	60	99.9%
Pseudomonas aeruginosa	0.6	13	60	99.9%
Pseudomonas fluorescens	0.6	13	60	99.9%
Escherichia coli communis	0.5	5	10	99.9%
Escherichia coli communis	0.6	13	30	99.9%
Serratia marcescens	0.6	13	60	99.9%

Type of the water sterilizer

The water sterilization is classified roughly into in-side style and out-side style by an irradiation method.

1. External lighting is a method in which running water is irradiated from the outside in a glass or Teflon resin tube that transmits ultraviolet rays.It does not need to be sealed and has a simple structure, but compared to internal lighting, it utilizes ultraviolet radiation. Less efficient.

2.The internally illuminated type uses a double-tube germicidal lamp, which is a germicidal lamp wrapped in a quartz outer tube, immersed in running water and emits ultraviolet rays underwater, so it is more efficient in using UV radiation than the externally illuminated type. A large amount of water can be treated with a compact device with high efficiency.

Poblems of other sterilization methods

Heat sterilization

It let bacteria sterilization agenda change in quality.
An energy cost is high expensive.
By a cooling process, bacteria are easy to stick.
It is not suitable for heat-resistant bacteria.

Sterilization with the medicine

There is residual property.
Second processing is necessary.
It generate resistant bacteria.

Filter sanitization

Exchange frequency is demanded.
Running cost is high expensive.

The principle of cleaning and modification using ultraviolet rays

Ultraviolet reforming

Ultraviolet rays are irradiated to the organic irradiated object, and then cut the chemical bond of the surface layer.
Active oxygen is separated from the generated ozone with ultraviolet light, attached to a molecule of the cut surface layer and convert it to a highly hydrophilic functional group.

Ultraviolet cleaning

By the action of active oxygen separated from ozone generated by the action of ultraviolet radiation, organic pollutants and volatile H2O, CO, CO2, NO2 and removed by decomposing changes made to

To overcome the technical difficulties, and ultra-compact, high-output. It now can be applied in many fields.

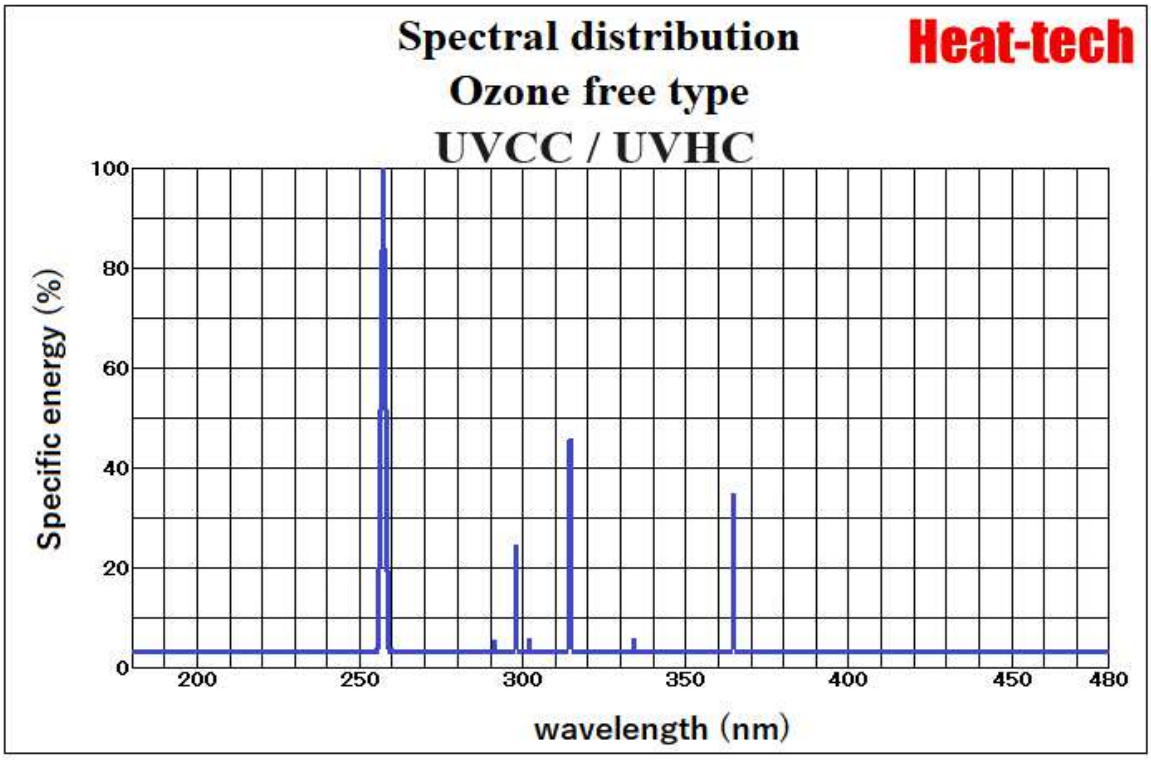
<< Specifications and outline drawings >>

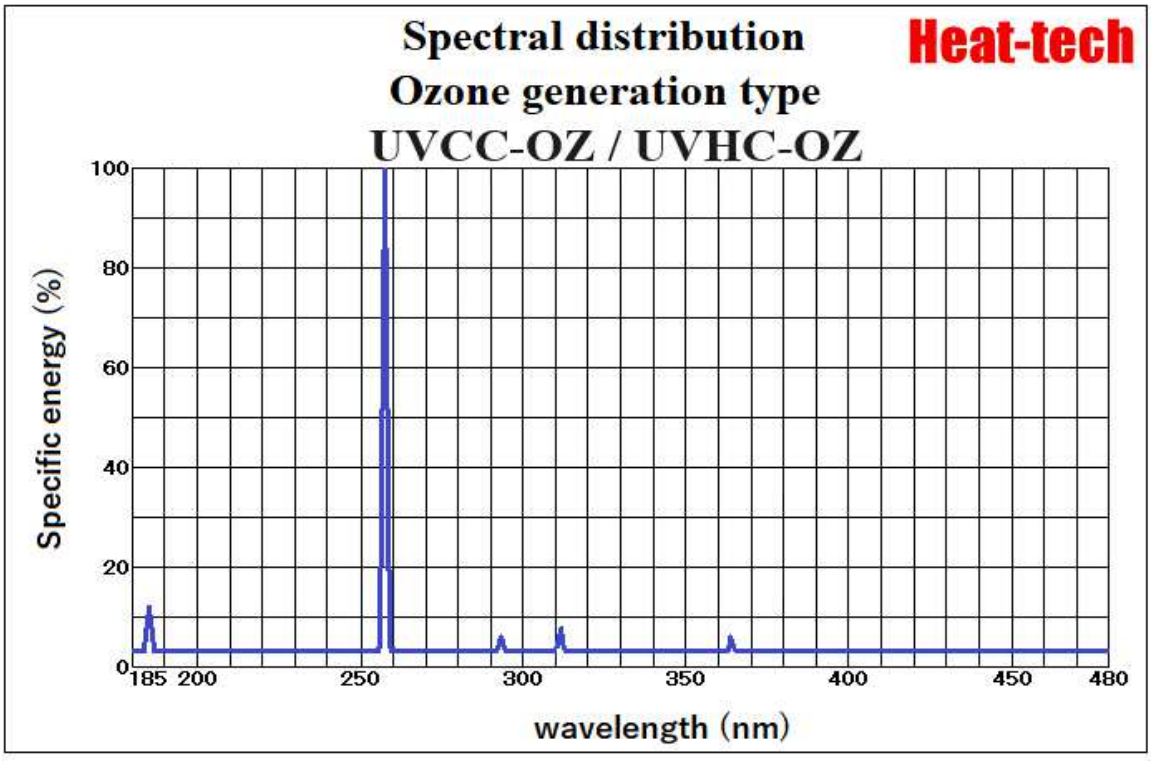
Ultraviolet light lamp specifications

Design nomber	UVCCU-M	UVCCU-J	UVCCU/UVCCW	UVCCS	UVHCU	UVHCS
Electrode	Cold cathode				Hot cathode	
Tube shape	U	U	U	Straight	U	Straight
Pipe diameter	φ4.5		φ6		φ13～20	
Full length	45～85		112～132	119～422	210～640	525～1645
Output	1～1.5W		3～9W		20～110W	40～200W
Ozone generation amount	0.8～1.2mg/h		3～18mg/h		20～200mg/h	
Emission wavelength	185nm/254nm					
Operating temperature range	+10～60℃					
Storage temperature range	−20～60℃					
Operating humidity range	35～85%RH (No condensation)					
Vibration resistance	10～50Hz Vibration width 1.0mm 3 directions 2 hours					
Shockproof	Natural fall approximately 30G					
Lighting method	Inverter					

We manufacture a wide range of products from small cold cathode lamps to large hot cathode lamps.
A quartz glass low-pressure mercury discharge lamp that uses mercury discharge efficiently irradiates 254nm and 185nm ultraviolet rays.
254nm is a wavelength that has a bactericidal effect, and 185nm is a wavelength that has an ozone growth effect.
Ultraviolet lamps contain small amounts of mercury and rare gases such as neon and argon.
Sterilization using ultraviolet light is effective against most types of bacteria, including bacteria, viruses, and mold. Taking advantage of this feature, it can be used in medical, food, electronics, water, air sterilization, etc.
It is used in a wide range of fields. In addition, ultraviolet sterilization is used in a wide range of fields because it is easy to handle, does not cause secondary contamination, and does not require secondary treatment.
Ozone is used in a wide range of applications, including optical cleaning, surface treatment, air sterilization, and deodorization.
Ozone lamps are special ultraviolet lamps that emit ultraviolet light with two wavelengths: 253.7nm and 184.9nm. It is used for purposes such as light cleaning, surface treatment, air sterilization, and deodorization.
We offer a variety of lamps, including lamps with a wavelength of 254nm, which has a strong sterilizing effect, and lamps with a wavelength of 185nm, which has a strong oxidizing and deodorizing effect, so that they can be used depending on the purpose.

Spectral distribution





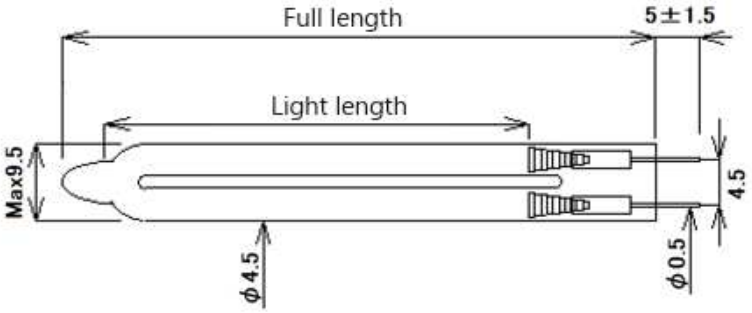
Cold cathode mini U tube ultraviolet lamp UVCCU-M series

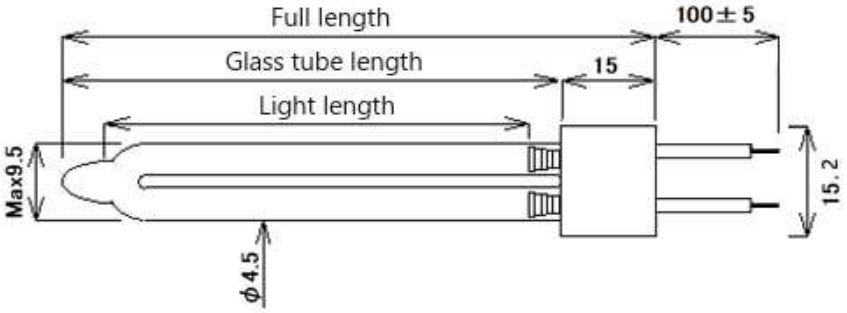
UVCCU-M is a small cold cathode type UV lamp with a tube diameter of 4.5 mm.
It efficiently emits sterilizing wavelength around 254nm and is used for sterilization and deodorization.
It is characterized by low output but long life.
There are ozone generating type (185nm) and ozone free type.
Because they are ultra-compact, they are useful when you want to keep them small and compact, or when you want to place them side by side for surface illumination.

Cold cathode mini U tube mercury ultraviolet lamp UVCCU-M series
Emission wavelength 254nm

Design numbeL	Base and Terminal	Current	Volts	Power	UV Intensity	Ozone generation	Design life	Recommended inverter	Light length	Glass tube length	Full length
		A	V rms	Watts	μW/cm²/10cm	mg/hrs	hrs	Design number	mm	mm	mm
UVCCU-M40P-OZ	Pin φ0.5	5	200	1	50	0.8	30000	HAC-012P2010	25×2	-	45
UVCCU-M40L-OZ	Lead Wire	5	200	1	50	0.8	30000		25×2	40	55
UVCCU-M40P	Pin φ0.5	5	200	1	50	Ozon free	30000		25×2	-	45
UVCCU-M40L	Lead Wire	5	200	1	50	Ozon free	30000		25×2	40	55
UVCCU-M55P-OZ	Pin φ0.5	5	240	1.2	70	1.0	30000		40×2	-	60
UVCCU-M55L-OZ	Lead Wire	5	240	1.2	70	1.0	30000		40×2	55	70
UVCCU-M55P	Pin φ0.5	5	240	1.2	70	Ozon free	30000		40×2	-	60
UVCCU-M55L	Lead Wire	5	240	1.2	70	Ozon free	30000		40×2	55	70
UVCCU-M70P-OZ	Pin φ0.5	5	300	1.5	100	1.2	30000		55×2	-	75
UVCCU-M70L-OZ	Lead Wire	5	300	1.5	100	1.2	30000		55×2	70	85
UVCCU-M70P	Pin φ0.5	5	300	1.5	100	Ozon free	30000		55×2	-	75
UVCCU-M70L	Lead Wire	5	300	1.5	100	Ozon free	30000		55×2	70	85

*Product tolerance is +0 -5% as it is a glass product.





Product tolerance is +0 -5% as it is a glass product.

Design numbeL	Base and Terminal	Current	Volts	Power	UV Intensity	Ozone generation	Light length	Glass tube	Full length
		A	V rms	Watts	μW/cm²/10cm	mg/hrs	mm	mm	mm
UVCCU-M40P-OZ	Pin φ0.5	5	200	1	50	0.8	25×2	-	45
UVCCU-M40L-OZ	Lead Wire	5	200	1	50	0.8	25×2	40	55
UVCCU-M40P	Pin φ0.5	5	200	1	50	Ozon free	25×2	-	45
UVCCU-M40L	Lead Wire	5	200	1	50	Ozon free	25×2	40	55
UVCCU-M55P-OZ	Pin φ0.5	5	240	1.2	70	1.0	40×2	-	60
UVCCU-M55L-OZ	Lead Wire	5	240	1.2	70	1.0	40×2	55	70
UVCCU-M55P	Pin φ0.5	5	240	1.2	70	Ozon free	40×2	-	60
UVCCU-M55L	Lead Wire	5	240	1.2	70	Ozon free	40×2	55	70
UVCCU-M70P-OZ	Pin φ0.5	5	300	1.5	100	1.2	55×2	-	75
UVCCU-M70L-OZ	Lead Wire	5	300	1.5	100	1.2	55×2	70	85
UVCCU-M70P	Pin φ0.5	5	300	1.5	100	Ozon free	55×2	-	75
UVCCU-M70L	Lead Wire	5	300	1.5	100	Ozon free	55×2	70	85

Emission wavelength	185nm/254nm
Operating temperature range	＋10～60℃
Storage temperature range	−20～60℃
Operating humidity range	35～85%RH (No condensation)
Vibration resistance	10～50Hz Vibration width 1.0mm 3 directions 2 hours
Shockproof	Natural fall approximately 30G
Lighting method	Inverter
Recommended inverter	HAC-012P2010
Design life	30000hrs

Cold cathode mini U tube mercury ultraviolet lamp

Heat-tech Co.,Ltd.

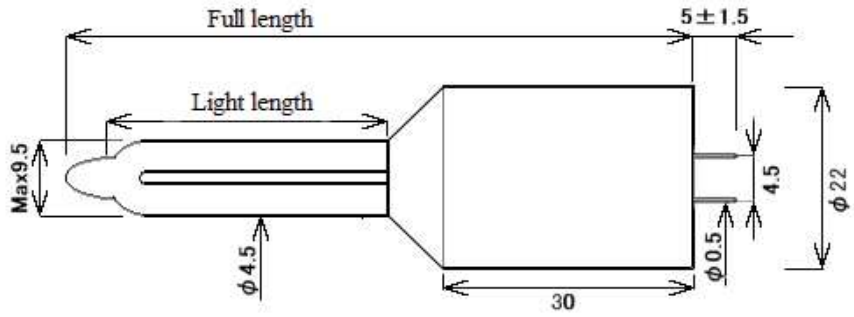
Cold cathode small jacket tube ultraviolet lamp UVCCU-J series

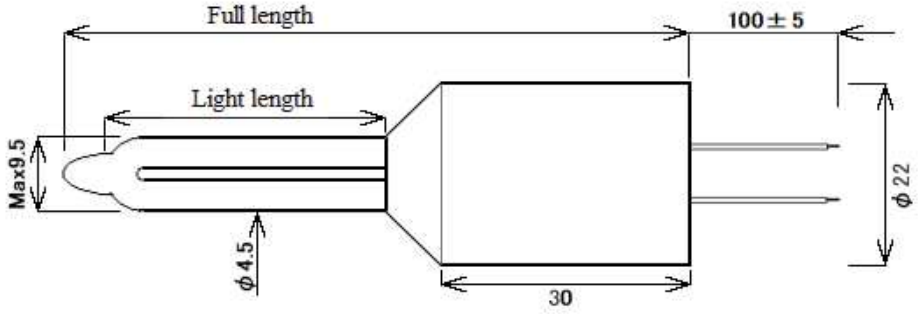
UVCCU-J is a model with a jacket attached to UVCCU-M.
It efficiently emits sterilizing wavelength around 254nm and is used for sterilization and deodorization.
It is characterized by low output but long life.
There are ozone generating type (185nm) and ozone free type.
Since it is attached to a jacket, it is suitable for single use.

Cold cathode small jacket tube mercury ultraviolet lamp UVCCU-J series
Emission wavelength 254nm

Design number	Base and Terminal	Current	Volts	Power	UV Intensity	Ozone generation	Design life	Recommended	Light length	Full length
		A	V rms	Watts	μW/cm²/10cm	mg/hrs	hrs	D/#	mm	mm
UVCCU-J40P-OZ	Pin φ0.5	5	200	1	50	0.8	30000	HAC-012P2010	25×2	85
UVCCU-J40L-OZ	Lead Wire	5	200	1	50	0.8	30000		25×2	95
UVCCU-J40P	Pin φ0.5	5	200	1	50	Ozon free	30000		25×2	85
UVCCU-J40L	Lead Wire	5	200	1	50	Ozon free	30000		25×2	95
UVCCU-J55P-OZ	Pin φ0.5	5	240	1.2	70	1.0	30000		40×2	100
UVCCU-J55L-OZ	Lead Wire	5	240	1.2	70	1.0	30000		40×2	110
UVCCU-J55P	Pin φ0.5	5	240	1.2	70	Ozon free	30000		40×2	100
UVCCU-J55L	Lead Wire	5	240	1.2	70	Ozon free	30000		40×2	110
UVCCU-J70P-OZ	Pin φ0.5	5	300	1.5	100	1.2	30000		55×2	115
UVCCU-J70L-OZ	Lead Wire	5	300	1.5	100	1.2	30000		55×2	120
UVCCU-J70P	Pin φ0.5	5	300	1.5	100	Ozon free	30000		55×2	115
UVCCU-J70L	Lead Wire	5	300	1.5	100	Ozon free	30000		55×2	120

*Product tolerance is +0 -5% as it is a glass product.





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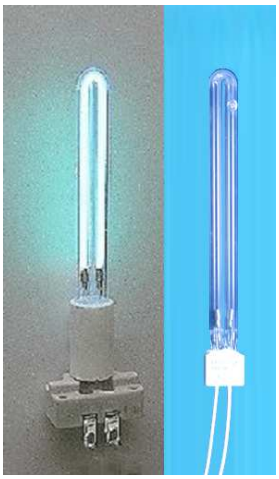
Design numbeL	Base and Terminal	Current	Volts	Power	UV Intensity	Ozone generation	Light length	Full length
		A	V rms	Watts	μW/cm²/10cm	mg/hrs	mm	mm
UVCCU-J40P-OZ	Pin φ0.5	5	200	1	50	0.8	25×2	45
UVCCU-J40L-OZ	Lead Wire	5	200	1	50	0.8	25×2	55
UVCCU-J40P	Pin φ0.5	5	200	1	50	Ozon free	25×2	45
UVCCU-J40L	Lead Wire	5	200	1	50	Ozon free	25×2	55
UVCCU-J55P-OZ	Pin φ0.5	5	240	1.2	70	1.0	40×2	60
UVCCU-J55L-OZ	Lead Wire	5	240	1.2	70	1.0	40×2	70
UVCCU-J55P	Pin φ0.5	5	240	1.2	70	Ozon free	40×2	60
UVCCU-J55L	Lead Wire	5	240	1.2	70	Ozon free	40×2	70
UVCCU-J70P-OZ	Pin φ0.5	5	300	1.5	100	1.2	55×2	75
UVCCU-J70L-OZ	Lead Wire	5	300	1.5	100	1.2	55×2	85
UVCCU-J70P	Pin φ0.5	5	300	1.5	100	Ozon free	55×2	75
UVCCU-J70L	Lead Wire	5	300	1.5	100	Ozon free	55×2	85

Emission wavelength	185nm/254nm
Operating temperature range	＋10～60℃
Storage temperature range	−20～60℃
Operating humidity range	35～85%RH (No condensation)
Vibration resistance	10～50Hz Vibration width 1.0mm 3 directions 2 hours
Shockproof	Natural fall approximately 30G
Lighting method	Inverter
Recommended inverter	HAC-012P2010
Design life	30000hrs

Cold cathode small jacket tube mercury ultraviolet lamp **Heat-tech Co.,Ltd.**

Cold cathode medium-sized U tube ultraviolet lamp UVCCU/UVCCW series



UVCCU is a cold cathode type medium-sized ultraviolet lamp with a tube diameter of φ6 mm.
It is characterized by a long lifespan.
It efficiently emits sterilizing wavelength around 254nm and is used for sterilization and deodorization.
It can also be used in UV/O3 precision cleaning processes for semiconductors.
There are ozone generating type (185nm) and ozone free type.

Easy wiring design
Wiring design is easy due to U-tube type wiring on one side.
We can produce lead wire type and socket type.

W tube type
There is also a W-tube type that is even smaller by bending the U-shape.

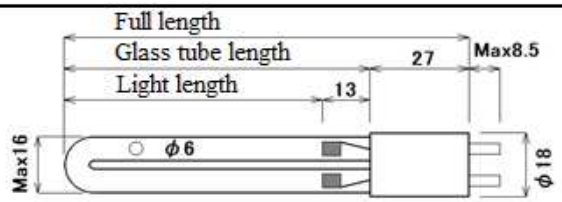
Ozone characteristics
The 185nm far ultraviolet light (or vacuum ultraviolet light) emitted from a low-pressure mercury lamp efficiently converts oxygen in the air into ozone.
In addition, the generated ozone enables more powerful sterilization and deodorization.
It is used in all kinds of fields, including water sterilization, agriculture, medicine, and food.

Cold cathode medium-sized U-tube mercury ultraviolet lamp UVCCU/UVCCW series
Emission wavelength 254nm

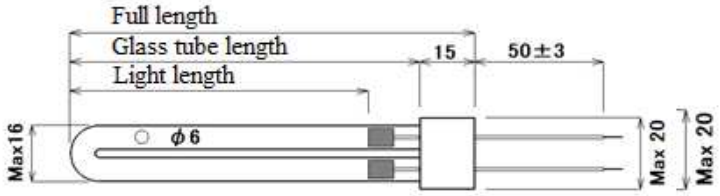
Design numbeL	Base and Terminal	Current	Volts	Power	UV Intensity	Ozone generation	Design life	Recommended inverter	Light length	Glass tube length	Full length
		A	V rms	Watts	μW/cm²/10cm	mg/hrs	hrs	Design number	mm	mm	mm
UVCCU-100P-OZ	GY9.5	10	300	3	250	3	30000		70×2	83	112
UVCCU-100L-OZ	Lead Wire	10	300	3	250	3	30000		70×2	95	112
UVCCU-100P	GY9.5	10	300	3	250	Ozon free	30000		70×2	83	112
UVCCU-100L	Lead Wire	10	300	3	250	Ozon free	30000		70×2	95	112
UVCCU-150P-OZ	GY9.5	20	350	7	500	12	30000		120×2	133	162
UVCCU-150L-OZ	Lead Wire	20	350	7	500	12	30000		120×2	145	162
UVCCU-150P	GY9.5	20	350	7	500	Ozon free	30000		120×2	133	162
UVCCU-150L	Lead Wire	20	350	7	500	Ozon free	30000		120×2	145	162
UVCCU-200P-OZ	GY9.5	20	400	8	700	16	30000	HAC-012P2010	170×2	183	212
UVCCU-200L-OZ	Lead Wire	20	400	8	700	16	30000		170×2	195	212
UVCCU-200P	GY9.5	20	400	8	700	Ozon free	30000		170×2	183	212
UVCCU-200L-OZ	Dây điện	20	400	8	700	Ozon free	30000		170×2	195	212
UVCCU-250P-OZ	GY9.5	20	450	9	800	18	30000		220×2	233	262
UVCCU-250L-OZ	Dây điện	20	450	9	800	18	30000		220×2	245	262
UVCCU-250 P	GY9.5	20	450	9	800	Ozon free	30000		220×2	233	262
UVCCU-250 L	Dây điện	20	450	9	800	Ozon free	30000		220×2	245	262
UVCCW-100P-OZ	GY9.5	20	400	8	500	16	30000		70×4	110	132

*PLoduct toleLance is +0 -5% as it is a glass pLoduct.

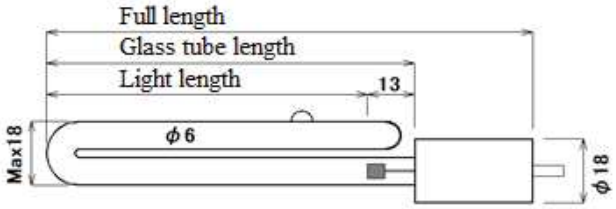
U 2Pin Type



U Lead Type



W 2Pin Type



Product tolerance is +0 -5% as it is a glass product.

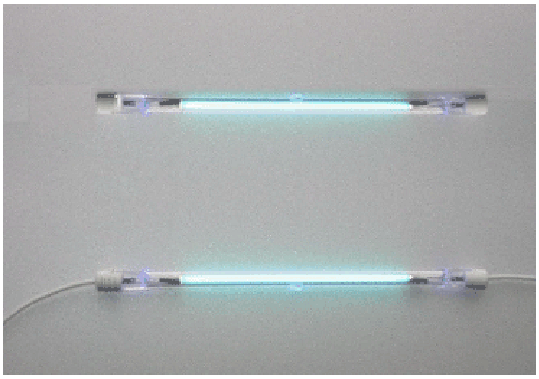
Design numbeL	Base and Terminal	Current	Volts	Power	UV Intensity	Ozone generation	Light length	Glass tube	Full length
		A	V rms	Watts	μW/cm²/10cm	mg/hrs	mm	mm	mm
UVCCU-100P-OZ	GY9.5	10	300	3	250	3	70×2	83	112
UVCCU-100L-OZ	Lead Wire	10	300	3	250	3	70×2	95	112
UVCCU-100P	GY9.5	10	300	3	250	Ozon free	70×2	83	112
UVCCU-100L	Lead Wire	10	300	3	250	Ozon free	70×2	95	112
UVCCU-150P-OZ	GY9.5	20	350	7	500	12	120×2	133	162
UVCCU-150L-OZ	Lead Wire	20	350	7	500	12	120×2	145	162
UVCCU-150P	GY9.5	20	350	7	500	Ozon free	120×2	133	162
UVCCU-150L	Lead Wire	20	350	7	500	Ozon free	120×2	145	162
UVCCU-200P-OZ	GY9.5	20	400	8	700	16	170×2	183	212
UVCCU-200L-OZ	Lead Wire	20	400	8	700	16	170×2	195	212
UVCCU-200P	GY9.5	20	400	8	700	Ozon free	170×2	183	212
UVCCU-200L-OZ	Dây điện	20	400	8	700	Ozon free	170×2	195	212
UVCCU-250P-OZ	GY9.5	20	450	9	800	18	220×2	233	262
UVCCU-250L-OZ	Dây điện	20	450	9	800	18	220×2	245	262
UVCCU-250 P	GY9.5	20	450	9	800	Ozon free	220×2	233	262
UVCCU-250 L	Dây điện	20	450	9	800	Ozon free	220×2	245	262
UVCCW-100P-OZ	GY9.5	20	400	8	500	16	70×4	110	132

Emission wavelength	185nm/254nm
Operating temperature range	+10～60℃
Storage temperature range	−20～60℃
Operating humidity range	35～85%RH (No condensation)
Vibration resistance	10～50Hz Vibration width 1.0mm 3 directions 2 hours
Shockproof	Natural fall approximately 30G
Lighting method	Inverter
Recommended inverter	HAC-012P2010
Design life	30000hrs

Cold cathode medium-sized U-tube mercury ultraviolet lamp

Heat-tech Co.,Ltd.

Cold cathode medium-sized straight tube ultraviolet lamp UVCCS series



UVCCS is a cold cathode type medium-sized ultraviolet lamp with a tube diameter of φ6 mm.
It is characterized by a long lifespan.
It efficiently emits sterilizing wavelength around 254nm and is used for sterilization and deodorization.
It can also be used in UV/O3 precision cleaning processes for semiconductors.
There are ozone generating type (185nm) and ozone free type.

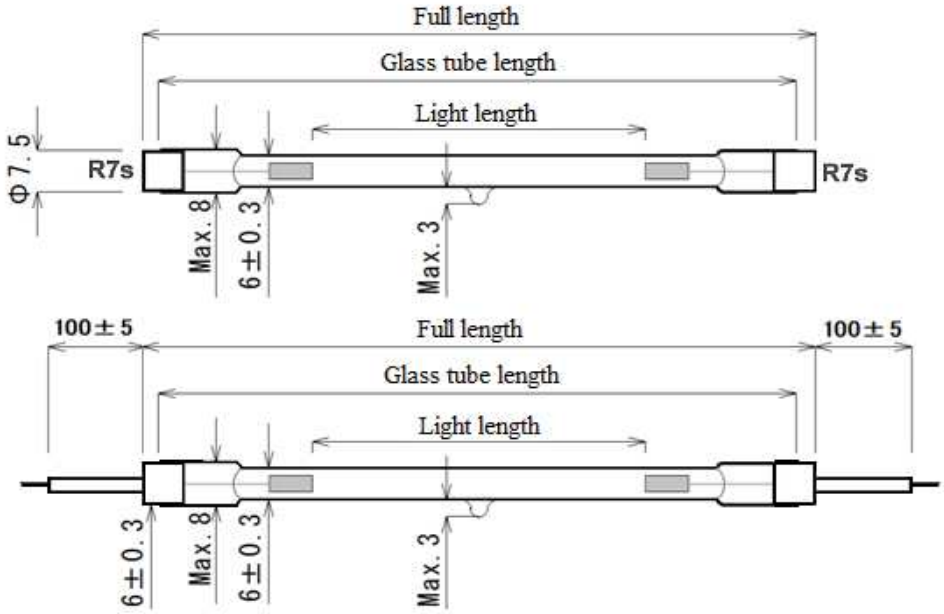
Straight pipe type
Since they are straight tube types, they can illuminate a large area when used side by side.
We can produce lead wire type and socket type.

Ozone characteristics
The 185nm far ultraviolet light (or vacuum ultraviolet light) emitted from a low-pressure mercury lamp efficiently converts oxygen in the air into ozone.
In addition, the generated ozone enables more powerful sterilization and deodorization.
It is used in all kinds of fields, including water sterilization, agriculture, medicine, and food.

Cold cathode medium-sized straight tube mercury ultraviolet lamp UVCCS series
Emission wavelength 254nm

Design numbeL	Base and Terminal	Current	Volts	Power	UV Intensity	Ozone generation	Design life	Recommended inverter	Light length	Glass tube length	Full length
		A	V rms	Watts	μW/cm²/10cm	mg/hrs	hrs	Design number	mm	mm	mm
UVCCS-107S-OZ	R7s	20	170	3.5	120	2mg/hrs	30000	HAC-012P2010	48	114.2	119
UVCCS-107L-OZ	Lead Wire	20	170	3.5	120	2mg/hrs	30000		48	-	131
UVCCS-107S	R7s	20	170	3.5	120	Ozon free	30000		48	114	119
UVCCS-107L	Lead Wire	20	170	3.5	120	Ozon free	30000		48	-	131
UVCCS-200S-OZ	R7s	20	300	6	300	5mg/hrs	30000		140	207.2	212
UVCCS-200L-OZ	Lead Wire	20	300	6	300	5mg/hrs	30000		140	-	222
UVCCS-200S	R7s	20	300	6	300	Ozon free	30000		140	207.2	212
UVCCS-200L	Lead Wire	20	300	6	300	Ozon free	30000		140	-	222
UVCCS-300S-OZ	R7s	20	350	7	350	10mg/hrs	30000		240	307.2	312
UVCCS-300L-OZ	Lead Wire	20	350	7	350	10mg/hrs	30000		240	-	322
UVCCS-300S	R7s	20	350	7	350	Ozon free	30000		240	307.2	312
UVCCS-300L	Dây điện	20	350	7	350	Ozon free	30000		240	-	322
UVCCS-400S-OZ	R7s	20	400	8	450	16mg/hrs	30000		340	407.2	412
UVCCS-400L-OZ	Dây điện	20	400	8	450	16mg/hrs	30000		340	-	422
UVCCS-400S	R7s	20	400	8	450	Ozon free	30000		340	407.2	412
UVCCS-400L	Dây điện	20	400	8	450	Ozon free	30000		340	-	422

*PLoduct toleLance is +0 -5% as it is a glass pLoduct.



Light length Glass tube length Full length

Product tolerance is +0 -5% as it is a glass product.

Design numbeL	Base and Terminal	Current	Volts	Power	UV Intensity	Ozone generation	Light length	Glass tube	Full length
		A	V rms	Watts	μW/cm²/10cm	mg/hrs	mm	mm	mm
UVCCS-107S-OZ	R7s	20	170	3.5	120	2mg/hrs	48	114.2	119
UVCCS-107L-OZ	Lead Wire	20	170	3.5	120	2mg/hrs	48	-	131
UVCCS-107S	R7s	20	170	3.5	120	Ozon free	48	114	119
UVCCS-107L	Lead Wire	20	170	3.5	120	Ozon free	48	-	131
UVCCS-200S-OZ	R7s	20	300	6	300	5mg/hrs	140	207.2	212
UVCCS-200L-OZ	Lead Wire	20	300	6	300	5mg/hrs	140	-	222
UVCCS-200S	R7s	20	300	6	300	Ozon free	140	207.2	212
UVCCS-200L	Lead Wire	20	300	6	300	Ozon free	140	-	222
UVCCS-300S-OZ	R7s	20	350	7	350	10mg/hrs	240	307.2	312
UVCCS-300L-OZ	Lead Wire	20	350	7	350	10mg/hrs	240	-	322
UVCCS-300S	R7s	20	350	7	350	Ozon free	240	307.2	312
UVCCS-300L	Dây điện	20	350	7	350	Ozon free	240	-	322
UVCCS-400S-OZ	R7s	20	400	8	450	16mg/hrs	340	407.2	412
UVCCS-400L-OZ	Dây điện	20	400	8	450	16mg/hrs	340	-	422
UVCCS-400S	R7s	20	400	8	450	Ozon free	340	407.2	412
UVCCS-400L	Dây điện	20	400	8	450	Ozon free	340	-	422

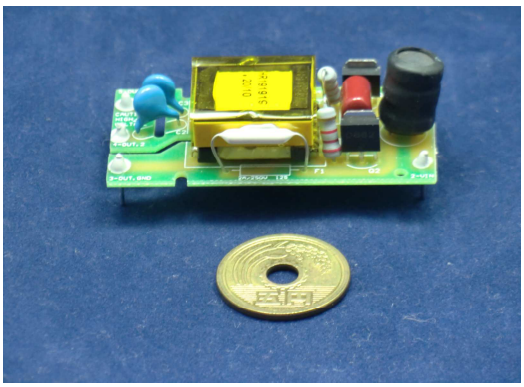
Emission wavelength	185nm/254nm
Operating temperature range	+10～60℃
Storage temperature range	−20～60℃
Operating humidity range	35～85%RH (No condensation)
Vibration resistance	10～50Hz Vibration width 1.0mm 3 directions 2 hours
Shockproof	Natural fall approximately 30G
Lighting method	Inverter
Recommended inverter	HAC-012P2010
Design life	30000hrs

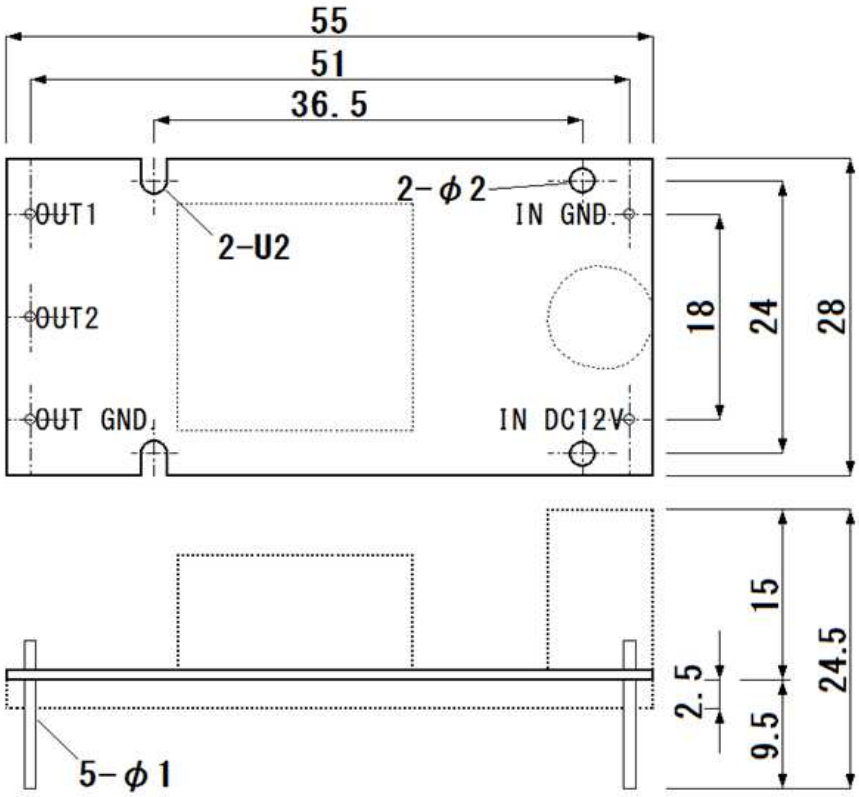
Cold cathode medium-sized straight tube mercury ultraviolet lamp

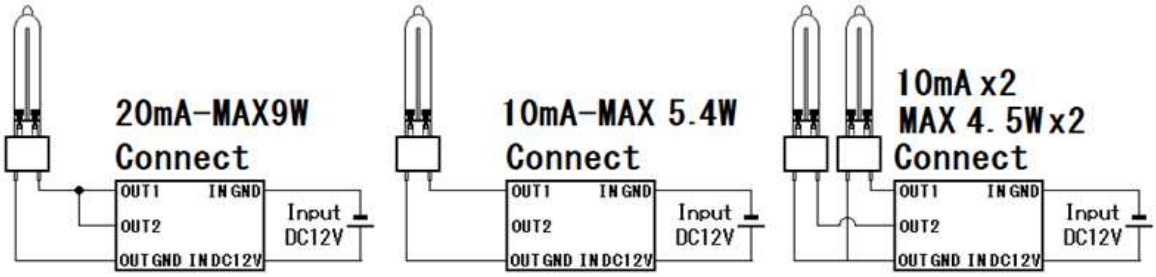
Heat-tech Co.,Ltd.

Inverter board for cold cathode ultraviolet lamp HAC-012P2010

This is a printed circuit board for making your own controller.
By applying DC12V, you can light one or two cold cathode ultraviolet lamps.







Control method	Inverter
Supply voltage	DC12V
Control current	20mA-9W / 10mA-5.4W / 10mA-9W
D/#	**HAC-012P2010**
Model	**Inverter board for Cold cathode ultraviolet lamps**

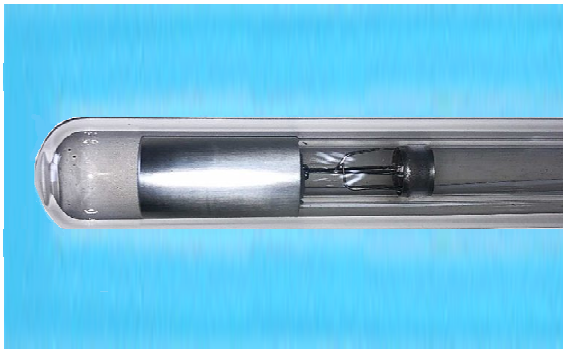
Date	2023/11/2

Heat-tech

Hot cathode large U tube ultraviolet lamp UVHCU series

This germicidal lamp uses quartz glass with extremely high ultraviolet transmittance.
Using advanced envelope processing technology, it is possible to prototype ultraviolet lamps of various shapes.

Water resistant double tube type custom made product
A special double tube structure is available for underwater lighting.
The double tube structure has little drop in sterilizing radiation even at low temperatures, allowing for stabl
The UV lamp is sealed with a quartz tube to prevent the germicidal radiation from dropping due to the temp



Ultraviolet (254nm)
Hot cathode germicidal lamps use ultraviolet light (254nm) to instantly inactivate viruses and bacteria when irradiated. Also, unlike chemical sterilization, it does not create resistant bacteria, so you can use it with confidence.

Ozone characteristics
The disinfecting effect of ozone is more than twice that of chlorine. Also, unlike ultraviolet sterilization, ozone molecules travel into air currents far away, decomposing odor particles, deodorizing, and sterilizing bacteria. This allows for efficient sterilization and deodorization.

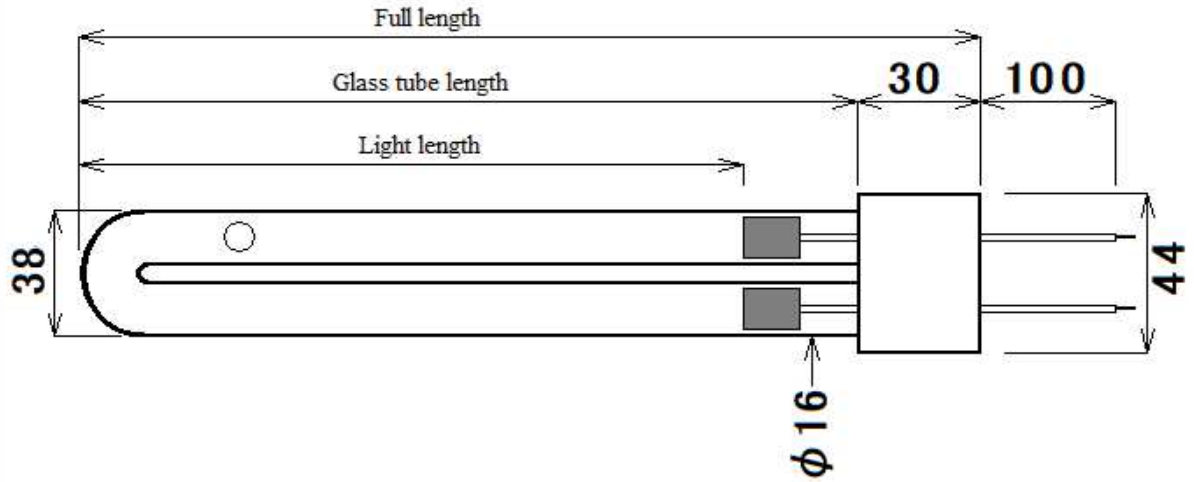
Decomposes organic matter
Ozone not only has a sterilizing and deodorizing effect, but also has a strong oxidizing effect that decomposes organic matter. It is used for waste oil treatment, oil traps in sewers, and for creating ultrapure water needed when creating semiconductors.

Stable output
Normally, cold cathode and hot cathode germicidal lamps reduce their luminous efficiency and the amount of ultraviolet rays attenuated at low temperatures or when convection occurs. However, at Hakuron Seisakusho, we are able to stably irradiate high-output ultraviolet rays even in low-temperature environments using special coils and lighting methods.

Hot cathode large U tube mercury ultraviolet lamp UVHCU series
Emission wavelength 254nm

Design numbeL	Base and Terminal	Current	Volts	Power	UV Intensity	Ozone generation	Design life	Recommended inverter	Light length	Full length
		A	V rms	Watts	μW/cm²/10cm		hrs	Design number	mm	mm
UVHCU-210/20L-OZ	Lead Wire	0.375	56	20	50	Generat	6000	HAC-100W 0440	140x2	210
UVHCU-210/20L	Lead Wire	0.375	56	20	50	Ozon free	6000		140x2	210
UVHCU-270/40L-OZ	Lead Wire	0.435	95	40	90	Generat	6000		200x2	270
UVHCU-270/40L	Lead Wire	0.435	95	40	90	Ozon free	6000		200x2	270
UVHCU-360/70L-OZ	Lead Wire	0.8	100	70	150	Generat	6000		300x2	360
UVHCU-360/70L	Lead Wire	0.8	100	70	150	Ozon free	6000		300x2	360
UVHCU-525/90L-OZ	Lead Wire	0.8	130	90	210	Generat	6000		450x2	530
UVHCU-525/90L	Lead Wire	0.8	130	90	210	Ozon free	6000		450x2	530
UVHCU-635/110L-OZ	Lead Wire	0.8	160	110	240	Generat	6000		560x2	640
UVHCU-635/110L	Lead Wire	0.8	160	110	240	Ozon free	6000		560x2	640

*PLoduct toleLance is +0 -5% as it is a glass pLoduct.



Product tolerance is +0 -5% as it is a glass product.

Design numbeL	Base and Terminal	Current	Volts	Power	UV Intensity	Ozone generation	Light length	Full length
		A	V rms	Watts	μW/cm²/10cm	mg/hrs	mm	mm
UVHCU-210/20L-OZ	Lead Wire	0.375	56	20	50	Generat	140x2	210
UVHCU-210/20L	Lead Wire	0.375	56	20	50	Ozon free	140x2	210
UVHCU-270/40L-OZ	Lead Wire	0.435	95	40	90	Generat	200x2	270
UVHCU-270/40L	Lead Wire	0.435	95	40	90	Ozon free	200x2	270
UVHCU-360/70L-OZ	Lead Wire	0.8	100	70	150	Generat	300x2	360
UVHCU-360/70L	Lead Wire	0.8	100	70	150	Ozon free	300x2	360
UVHCU-525/90L-OZ	Lead Wire	0.8	130	90	210	Generat	450x2	530
UVHCU-525/90L	Lead Wire	0.8	130	90	210	Ozon free	450x2	530
UVHCU-635/110L-OZ	Lead Wire	0.8	160	110	240	Generat	560x2	640
UVHCU-635/110L	Lead Wire	0.8	160	110	240	Ozon free	560x2	640

Emission wavelength	185nm/254nm
Operating temperature range	+10～60℃
Storage temperature range	−20～60℃
Operating humidity range	35～85%RH (No condensation)
Vibration resistance	10～50Hz Vibration width 1.0mm 3 directions 2 hours
Shockproof	Natural fall approximately 30G
Lighting method	Inverter
Recommended inverter	HAC-100W 0440
Design life	6000hrs

Hot cathode large U tube mercury ultraviolet lamp **Heat-tech Co.,Ltd.**

Hot cathode large straight tube ultraviolet lamp UVHCS series

This germicidal lamp uses quartz glass with extremely high ultraviolet transmittance.
Using advanced envelope processing technology, it is possible to prototype ultraviolet lamps of various sha

Ultraviolet (254nm)
Hot cathode germicidal lamps use ultraviolet light (254nm) to instantly inactivate viruses and bacteria when irradiated. Also, unlike chemical sterilization, it does not create resistant bacteria, so you can use it with confidence.

Ozone characteristics
The disinfecting effect of ozone is more than twice that of chlorine. Also, unlike ultraviolet sterilization, ozone molecules travel into air currents far away, decomposing odor particles, deodorizing, and sterilizing bacteria. This allows for efficient sterilization and deodorization.

Ddecomposes organic matter
Ozone not only has a sterilizing and deodorizing effect, but also has a strong oxidizing effect that decomposes organic matter. It is used for waste oil treatment, oil traps in sewers, and for creating ultrapure water needed when creating semiconductors.

Stable output
Normally, cold cathode and hot cathode germicidal lamps reduce their luminous efficiency and reduce the amount of ultraviolet rays at low temperatures or when convection occurs. However, at Hakuron Seisakusho, we are able to stably irradiate high-output ultraviolet rays even in low-temperature environments using special coils and lighting methods.

Water resistant specifications
This straight tube type can be used with a special double tube structure for underwater lighting. The double tube structure has little drop in sterilizing radiation even at low temperatures, allowing for stable sterilization. We can also sell just the quartz glass jacket tube.
Note: Stabilizer is required for lighting.

We offer a wide range of sizes from small lamps to large lamps.

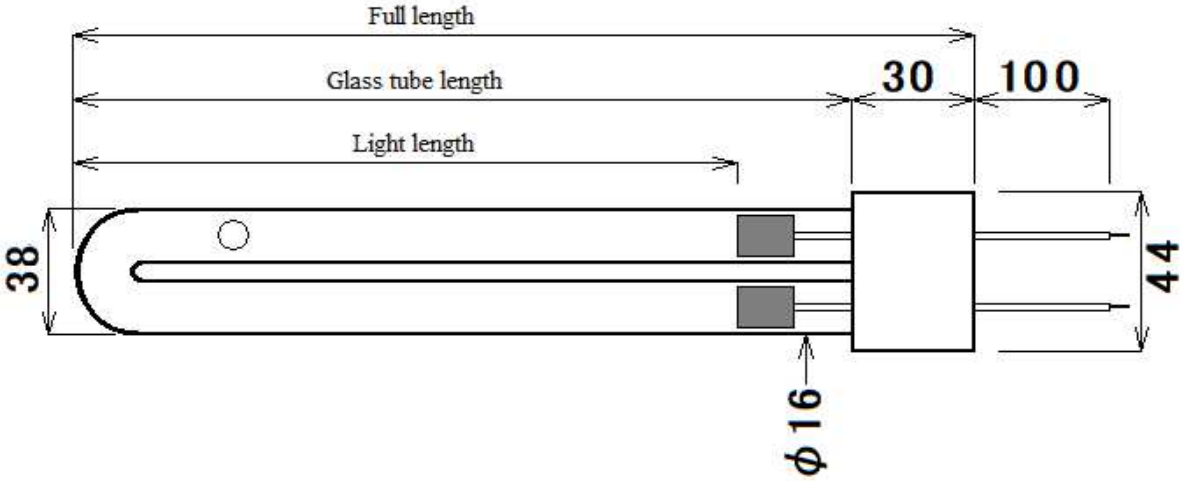
Lamp length
Please let us know your desired size referring to the table below.

Outer diameter
We will respond to a wide range of requests. Please let us know your desired outer diameter.

Hot cathode large straight tube mercury ultraviolet lamp UVHCS series
Emission wavelength 254nm

Design numbeL	Base and Terminal	Current	Volts	Power	UV Intensity	Ozone generation	Design life	Recommended inverter	Light length	Full length
		A	V rms	Watts	μW/cm²/10cm		hrs	Design number	mm	mm
UVHCS-525L-OZ	Lead Wire	0.435	95	40	90	Generat	6000	HAC-100W 0440	375	525
UVHCS-525L	Lead Wire	0.435	95	40	90	Ozon free	6000	HAC-100W 0440	375	525
UVHCS-725L-OZ	Lead Wire	0.8	100	70	150	Generat	6000	HAC-100W 08H1	575	725
UVHCS-725L	Lead Wire	0.8	100	70	150	Ozon free	6000	HAC-100W 08H1	575	725
UVHCS-1025L-OZ	Lead Wire	0.8	130	90	210	Generat	6000	HAC-100W 08H1	875	1025
UVHCS-1025L	Lead Wire	0.8	130	90	210	Ozon free	6000	HAC-100W 08H1	875	1025
UVHCS-1425L-OZ	Lead Wire	0.8	160	110	240	Generat	6000	HAC-100W 08H1	1095	1245
UVHCS-1425L	Lead Wire	0.8	160	110	240	Ozon free	6000	HAC-100W 08H1	1095	1245
UVHCS-1645L-OZ	Lead Wire	1.4	200	200	430	Generat	6000	HAC-100W 14H2	1495	1645
UVHCS-1645L	Lead Wire	1.4	200	200	430	Ozon free	6000	HAC-100W 14H2	1495	1645

*PLoduct toleLance is +0 -5% as it is a glass pLoduct.



Product tolerance is +0 -5% as it is a glass product.

Design numbeL	Base and Terminal	Current	Volts	Power	UV Intensity	Ozone generation	Light length	Full length
		A	V rms	Watts	μW/cm²/10cm	mg/hrs	mm	mm
UVHCU-210/20L-OZ	Lead Wire	0.375	56	20	50	Generat	140x2	210
UVHCU-210/20L	Lead Wire	0.375	56	20	50	Ozon free	140x2	210
UVHCU-270/40L-OZ	Lead Wire	0.435	95	40	90	Generat	200x2	270
UVHCU-270/40L	Lead Wire	0.435	95	40	90	Ozon free	200x2	270
UVHCU-360/70L-OZ	Lead Wire	0.8	100	70	150	Generat	300x2	360
UVHCU-360/70L	Lead Wire	0.8	100	70	150	Ozon free	300x2	360
UVHCU-525/90L-OZ	Lead Wire	0.8	130	90	210	Generat	450x2	530
UVHCU-525/90L	Lead Wire	0.8	130	90	210	Ozon free	450x2	530
UVHCU-635/110L-OZ	Lead Wire	0.8	160	110	240	Generat	560x2	640
UVHCU-635/110L	Lead Wire	0.8	160	110	240	Ozon free	560x2	640

Emission wavelength	185nm/254nm
Operating temperature range	＋10～60℃
Storage temperature range	−20～60℃
Operating humidity range	35～85%RH (No condensation)
Vibration resistance	10～50Hz Vibration width 1.0mm 3 directions 2 hours
Shockproof	Natural fall approximately 30G
Lighting method	Inverter
Recommended inverter	HAC-100W 0440
Design life	6000hrs

Hot cathode large U tube mercury ultraviolet lamp **Heat-tech Co.,Ltd.**

Non-touch High temperature heating

Heat-tech

Heat-tech Co., Ltd.

https://heater.heat-tech.biz

International Medical Device Alliance IMDA

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