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Air-Conditioning & Ventilation Components & Systems

UL Listed Ballast
U.S. Made Lamps

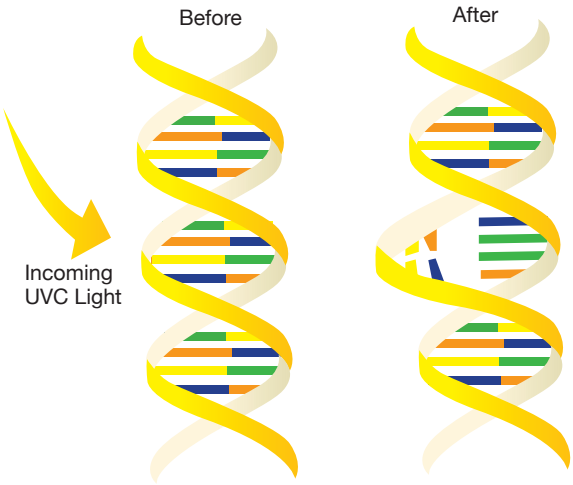
UV-Lux

UVC Lamps for Coil Surfaces and Air Irradiation

The value of UV-C

UV-C is a low cost solution to disinfect cooling coils, drain pans and duct surfaces that have accumulated mold and bacteria growth. The technology disrupts a microorganism's DNA, triggering a chain reac-tion that leads to cellular death. Because the lamps operate continu-ously, biofilms are unable to regenerate, provided the UV-C source is properly maintained. This technology is frequently used to address many sources of poor indoor air quality that contribute to employee discomfort and absenteeism.

Contaminants, particularly the presence of fungi (mycotoxins), can trigger serious health problems to building occupants. As noted in an Applied and Environmental Microbiology study, "fungi have been found growing on air filters, insulation and cooling coils, as well as in ducts. The contamination often contributes to building related diseas-es, including both infectious diseases and hypersensitivity diseases such as allergic rhinitis, asthma and hypersensitivity pneumonitis. HVAC system can also inadvertently transmit rhinoviruses (common cold), tuberculosis, measles, SARS Also acute toxicosis and cancer have been attributed to respiratory exposure to mycotoxins.

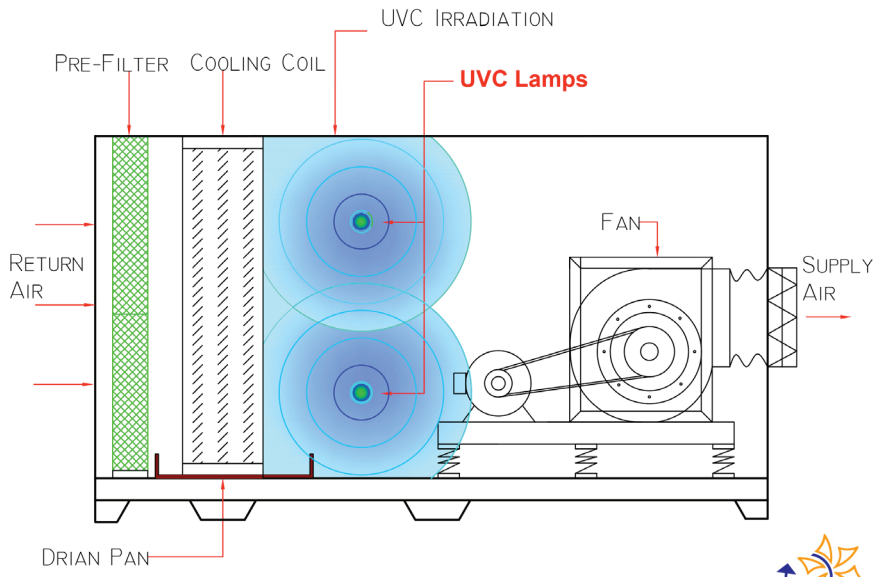


The DNA of the micro-organism is destroyed rendering the organism harmless and preventing future reproduction.

As an added value, its ability to constantly clean the interior workings of the AHU can extend the equipment's life for prolonged savings. Bio-films on coil fins adversely affect heat transfer to/from the airstream, if mechanical cleanings are incomplete or ignored, up to 25% of cooling capacity can be lost in as little as five years. Another factor is the lack of personnel or labor hours to routinely address coil maintenance. UV-C sources help restore an AHU to its original operating capacity.

The HVAC application of UV-C is nearly universal, including offices, schools, hospitals, correctional facilities, laboratories and assisted living facilities. UV-C represents a small investment (roughly 3%) rela-tive to overall cost of AHU and are easy to retrofit. Building owners can achieve 10%-25% increase in HVAC efficiency by adding a UV-C device.

(adapted from ASHRAE Journal, Jan 2017, HVAC UV Germicidal Irradiation UV-C Fixtures, by Brian Rodgers, Dean Saputa, Associate member, ASHRAE)



Schematic Drawing UVC for AHU Application

RL Type UVC Lamps for AHU Coil Irradiation

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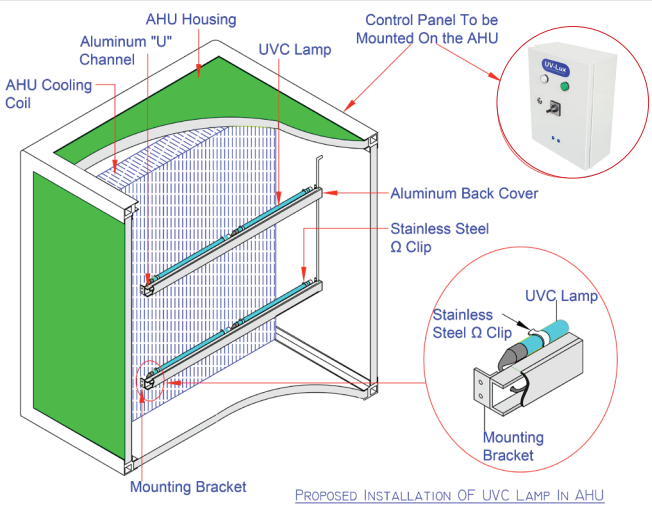
RL Type is designed for easy and flexible installation and maintenance inside the AHU. The UVC lamps and ballasts are separated, with only the UVC lamps being installed inside the AHU. The ballasts and other ancillary components are assembled in a Control Panel Housing, attached to the external wall of the AHU, keeping them away from the moist environment inside the AHU. This make it very easy for service and maintenance.

The lamps are installed on an aluminum skeletal structure secured to the AHU's internal frame support. The skeletal structure is not supplied, and is to be determined and fab-ricated by the installer.



Proposed Installation of UVC Lamp in AHU

Items supplied are:

1) Control Panel Housing for required number of lamps.
2) Required number of Lamps
3) 2 Stainless Steel Clips per Lamp
4) A 5m long wire loom with 4 pin socket affixed with "SILICON PLUG GLUV" for connection to the lamp.
   (The SILICON PLUG GLUV is TUV tested to IP65 Standard and prevents electrical shorts from moisture and water)

The basic features of Control Panel Housing are:

- Power on/off switch,
- Power indicator lamps .
- LEDs for each ballast/lamp set.

Sizing criteria

The UV Lux UVC lamp sizing complies with guidelines set in the 2016 ASHRAE Handbook of at least 100 microwatt/cm^2 striking the furthest point of the cooling coil and drain pans. The lamp watts to cooling coil surface area shall be at least 70 lamp watts for every square meter of coil surface to be irradiated.

Optional features include:

- Building Management System (BMS) feature
- Door Safety switch function (230VAC)
- Fan Interlocking function (230VAC)
- Radiometer Monitoring

Optional Components Available are:

- Door Safety Switch

Benefits:

- Destroy DNA of micro-organism, mold spores, bacteria, viruses yeast etc.
- No ozone output, safe for occupants.
- Improves indoor air quality
- Reduces need for regular washing.
- Keeps cooling coil in "like new" condition.
- Clean coil reduces load on blowers.
- Keep airconditioning sysytems efficient, last longer and lower maintenance costs.
- Results in overall energy savings
- Low payback on investment.

Models	Part Number	Lamp Dia	Lamp Length	Arc Length	Lamp Wattage	UV output @1m, 21C, 2.5m/sec	Lamp Current	Lamp Life
RL22T5HO	UVLHO546T5L-US	15mm/0.6"	546mm/22"	470mm/18.5"	58	180uW/cm^2	800mA	12,000 Hrs
RL33T5HO	UVLHO846T5L-US	15mm/0.6"	846mm/33"	726mm/28.6"	75	265uW/cm^2	800mA	12,000 Hrs
RL61T5HO	UVLHO1554T5L-US	15mm/0.6"	1554mm/61"	1434mm/56.5"	145	442uW/cm^2	800mA	12,000 Hrs

DUV Type UVC Lamps for FCUs and Duct Inserted Application

DUV series uses the same lamp and ballast for application where the RL type is not suitable, eg in aircondition-ing ducts or FCUs.

The ballast are kept out of the airflow, indicator LED show lamp's operation.

BMS feature can be built into this model as well.

This series are easy to install and maintain and provide the same benefits as the RL type.

DUV units are available in high output and in lengths of 300mm, 400mm, 600mm and 900mm.

U shaped lamps are available in single or double lamps configuration for duct mounted application.

T5 Lamps are in 600mm and 900mm and are only available in single lamp configuration for FCUs application

Model	Input Voltage	Lamp Power	Length	No of Lamp/Type	Lamp Life	BMS Option
DUV-2x300	230 Volts AC	90 watts (45wx2)	300mm	2, U Type	12,000 Hrs	DUV-2x300-B
DUV-2x400	230 Volts AC	120 watts (60wx2)	400mm	2, U Type	12,000 Hrs	DUV-2x400-B
DUV-1x400	230 Volts AC	60 watts	400mm	1, U Type	12,000 Hrs	DUV-1x400-B
DUV-1x300	230 Volts AC	45 watts	300mm	1, U Type	12,000 Hrs	DUV-1x300-B
DUV-1x600	230 Volts AC	50 watts	600mm	1, T5 Type	12,000 Hrs	DUV-1x600-B
DUV-1x900	230 Volts AC	75 watts	900mm	1, T5 Type	12,000 Hrs	DUV-1x900-B

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