

Ultraviolet Light Specification

Coil Capacity Maintenance and Mold Control

NEMA 4X - Single Ended Fixture

Independent Testing – All UV-C fixtures shall be tested and labeled as UL Listed.

Irradiation – Fixtures shall be installed in sufficient quantity to provide a minimum of 3 UV-C lamp Watts per square foot of coil surface area, consistent with ASHRAE 2011 Handbook, Chapter 60.8. They shall be installed in a manner that provides an “equal” distribution of 360 degree irradiation of the lowest possible shadowed losses within the plenum – to provide the highest UV-C energy absorption by airborne microbial products. The energy striking “all” surfaces shall be sufficient to maintain coil capacity by degrading surface mold, bacteria and organic material found in HVAC systems.

Fixture – shall be an exterior mount, single-ended lamp type, factory-assembled and tested for use outdoors and in all HVAC environments and consisting of a NEMA 4X rated Housing, Driver, Lamp Socket, Lamp Holder, Housing Cover, and Lamp.

Housing/Cover – shall be constructed of high performance, white polycarbonate and equipped with a lamp support for lamp lengths to 61” and an “O”-ring to seal the Housing against the elements. The housing shall contain all components in one integral assembly for maximum safety and be serviceable without the use of tools. The cover shall be equipped with a disrupt lever that actuates the interlock switch to disconnect or restore power when removed or installed. It shall be equipped with padlock eyelets to lock the housing cover against unwanted entry, four (4) ½” electrical knockouts and four (4) mounting holes for surface installation.

Driver – shall be UL Listed as a 120-240Vac +/-10% - 50-60 Hz, high power factor, low THD, Class P, Sound Rated “A”, auto-matching, Type 1 Outdoor type with thermal and end-of-lamp-life protection and no PCB’s. It shall automatically sense and maximize lamp output, energy efficiency and reliability for lamp lengths from 17” to 61” in air temperatures ranging from 1° to 70° C at any velocity. The driver shall be equipped with an integral interlock switch, de-energizing power plug for driver removal and warranted for three (3) years.

Lamp Holder/Clamp – shall provide a user-adjustable compression coupler and compressible flutes to encompass and secure the lamp base (Clamp) within the Lamp Holder firmly holding the lamp into the lamp socket while providing a watertight seal. The 4- pin receptacle within shall be soldered to the driver to ensure power continuity and pull-proof connectivity.

Lamps - Lamp Watts shall be printed on all lamps, no exceptions. They shall be T5 diameter, hot cathode, single-ended 4-pin type that produces UV-C energy primarily at the 254nm wavelength. Each lamp shall provide 360 degree energy distribution, contain no more than 8 mg of mercury and be capable of operating in air temperatures of 1-70° C, 100% RH at any velocity. Lamps shall be long-mount base types that allow the lamp filament to extend into the airstream beyond plenum walls and insulation. Useful lamp life shall be 9000 hours (minimum) with no more than a 15% output loss at the end of the lamp life. They shall not produce measurable ozone.

Safety – To protect personnel, all access panels and doors to any UV-C assembly must include mechanical interlock switches and UV-C warning labels to insure that all UV-C assemblies are de-energized and personnel properly cautioned before any access is opened.