

Solaris UV Disinfection Performance

1.0 DESIGN DATA 1.1

Design based on: Power Pack - SLX-AAL - 2 17 UVC Lamps

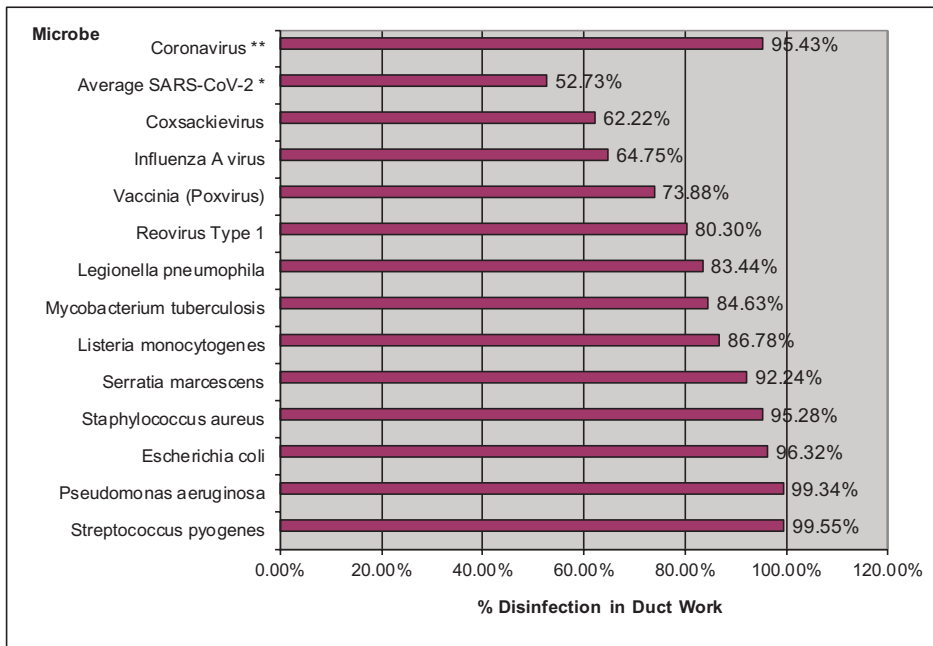
CFM	1200 cfm	Ductwork Area	2.50 ft ²
Average Intensity in Ductwork	3500 μW/cm ²	Air Velocity in Ductwork	7.97 ft/sec
Ductwork Width	20 Inches	Contact time in Ductwork	0.25 s
Ductwork Height	18 Inches	Average Disinfection Rate	64.75 %
Length of UV Intensity Field	24 Inches	Power Consumption by UVC	52 VA
Average Dosage Provided	878.51 μJ/cm ²		

Disinfection on the exposed surfaces is not calculated due to the UVC lamps should be running at all times, so the time constant is indefinite. With the time constant being infinite the dosage applied to any surface exposed to the UVC energy, is infinite.

* Calculations for percentage disinfection were done using the single stage exponential decay equation for microbial populations exposed to UV irradiation ($S = e^{-kIt}$). The results are based on a single pass using the average of the microbes listed in the table below (0.0028483 UVGI Rate Constant), and the following reduction factors:

- 0.80 Lamp Aging (End of Lamp Life)

% Disinfection calculations are based on intensity at end of (18,000 hour) lamp life.



* There are many strands of Coronavirus that have been identified. The chart above lists two of those strands. The disease name was subsequently recommended as COVID-19 by the World Health Organization. Meanwhile, 2019-nCoV was renamed SARS-CoV-2 by the International Committee on Taxonomy of Viruses.

The above chart shows two strains of coronavirus. Many strains have been identified and tested for UV sensitivity. Ultravation UV systems are designed to disinfect air and surfaces in HVAC systems and are not medical devices. The data above are the results of lab testing ([researchgate.net/publication/339887436_2020_COVID-19_Coronavirus_Ultraviolet_Susceptibility](https://www.researchgate.net/publication/339887436_2020_COVID-19_Coronavirus_Ultraviolet_Susceptibility)) and used to calculate the anticipated performance of Solaris UV equipment.