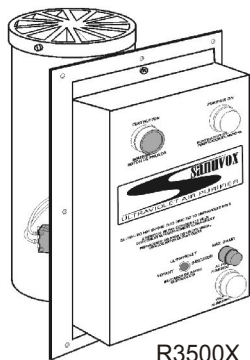


The Facts about the Sanuvox R1500X and R3500X

The Process

The Sanuvox R1500X and R3500X In-Duct Purifier will purify a portion of the air moving within the duct at any given time. The air within



R3500X

our homes continually circulates through the ventilation system every minute of every hour of every day. Sanuvox In-Duct purifiers rely on the re-circulation of the homes ventilation to

bring the overall level of contamination down. After an hour or two of being installed, the home will have circulated the air through the in-duct purifier enough times as to bring the home's overall contamination down drastically.

For a typical application, Sanuvox will destroy the contaminants quicker than the contaminants are introduced into the environment. The R3500X treats the air with 10,959 microwatts per/cm² of UV intensity inside the Aluminum Reflector Tube over a distance of 12".

The Two Inch Rule

Some manufacturers promote that their one and two Lamp Probe purifiers will treat the entire volume of air passing through the duct at one time. Unfortunately, that could not be farther from the truth. According to the Lamp Manufacturers, efficiencies drop very quickly the further away from the Lamp surface you move. **At just 2" from the surface of the glass, the UV efficiency has already dropped 80%, and the decline is not exponential.** This is true for all types of UV Lamps, from cold cathode to hot cathode, soft glass to quartz glass.

Manufacturers who promote that their one or two Lamp Probe purifiers will purify the entire duct are in reality only TREATING A VERY NARROW BAND OF AIR that travels by the lamp. As will be discussed later on, even that narrow band of air is not being treated adequately because the air is moving much too fast in the duct to receive the proper UV dosage.

The 2" Rule is the reason why the "J" Lamp is mounted inside the Aluminum Reflector Tube. Sanuvox wanted to maximize the UV Energy which would otherwise be lost in the duct-work. By using the Reflector, Sanuvox stayed true to the 2" Rule while increasing the amount of UV Energy that is treating the air.

NOTE: THE TWO INCH RULE ONLY APPLIES TO AIR PURIFICATION (TREATING MOVING AIR). WHEN TREATING MOVING AIR, THERE IS ONLY A FRACTION OF TIME TO TREAT THE CONTAMINANT IN THE AIRSTREAM. THAT'S WHY AN AIR PURIFIER NEEDS AN INTENSE

AMOUNT OF UV ENERGY. IN CONTRAST, THE TWO INCH RULE DOES NOT APPLY TO OBJECT PURIFICATION (PURIFYING A STATIONARY OBJECT). THE OBJECT IS NOT MOVING THEREFORE THE NEED TO DELIVER SUCH HIGH AMOUNTS OF UV WITHIN A FRACTION OF A SECOND IS NO LONGER NEEDED. THE UV ENERGY CAN SHINE ON THE OBJECT INDEFINITELY.

Efficiencies & Testing

Many manufacturers are claiming a destruction of 80% or more on their one and two Lamp Probe purifiers against their TEST BACTERIA. Many companies are using *Serratia marcescens* as the test bacteria; *Serratia marcescens* is one of the *weakest* bacteria to test against (3 400 MICROWATTS PER/CM² OF GERMICIDAL UV FOR DESTRUCTION).

In contrast, Sanuvox tests are done in real world conditions and through clinical studies. Sanuvox results have shown mold levels dropped 100%, *Mycobacterium tuberculosis* (10 000 MICROWATTS PER/CM² OF GERMICIDAL UV FOR DESTRUCTION) dropped more than 90% and VOC's dropped 50%. According to the information supplied by other manufacturers, **the Sanuvox R3500X destroys a higher % of contaminants that require at least 300% more UV dosage than their one and two lamp Probe units.**

Proprietary Sanuvox technology is 3rd party tested in real world conditions, as well as tested under strict controlled conditions by a University Medical Hospital. Contaminants tested include but not limited to: *alternaria*, *aspergillus/penicillium*, *ascospore*, *cladosporium*, *hyaline fungi*, *chaetomium*, *cladosporium*, *drescheleria/bipolaris*, *smuts/myxomycetes*, *legioncellosis*, *tuberculosis bacilli* and *formaldehyde*.

**For further research, visit www.sanuvox.com.

Relationship between UV-V and Residual Ozone

Sanuvox Purifiers do not produce ozone as their primary function. The UV-V section of the Dual Zone Lamp (approx. 10% of the Lamp glass) may produce a small amount of residual ozone. The Residential Purifiers that use a Dual Zone Lamp have in tests produced 0.003 ppm. of residual ozone. So minute, that some tests show zero amount of residual ozone in the environment. Sanuvox Residential Purifiers produce less residual ozone than a photocopier or an electronic air cleaner. The amount of residual ozone that can be produced by a Sanuvox Residential Purifier (0.003 ppm.) is a fraction of the ASHRAE (0.05 ppm.) and OSHA (0.10 ppm.) standards for safe levels of ozone. Sanuvox designed the UV-V portion of the lamp to "fire" first. While contained in the Aluminum Tube, the UV-C (approx. 90% of the Lamp glass) Germicidal Energy acts as a catalyst to speed up the process to keep the residual ozone to extremely low levels.

By incorporating UV-V into Sanuvox Purifiers, studies have shown a significant decrease in

VOC's while producing virtually no residual ozone in the environment. Sanuvox Purifiers not only destroys biological contaminants, but are also able to destroy toxins, chemical contaminants such as diesel fumes, cigarette smoke, formaldehyde, pet and cooking odors. It is impossible for UVC Germicidal only Probes to treat any of these chemical contaminants or odors. UV-V does NOT mask odors or contaminants; UV-V molecularly changes the molecule(s).

**Sanuvox Purifiers are always available as germicidal only.

Installation

The installation of an R1500X or R3500X requires no more than 10-30 minutes by an HVAC contractor. The purifiers can be installed on either the return or supply side of the plenum. We recommend installing it on the return side for the added benefit of keeping the filter and coil cleaner then if the purifier was installed on the supply side. The R1500X is hardwired to the fan relay, and the R3500X is simply plugged in, the airflow sensor automatically turns the purifier on and off. If there is not enough room for the control box on the outside of the duct, both purifiers can be remotely installed, having the Reflector Tube and Lamp in the duct, and the control box remotely installed in another location. Direct UV light is destructive to plastics (drainpan, wiring, motor windings, etc.), the Reflector Tube can easily be positioned so no UV will see any plastic. A Probe purifier has no measure to control what the UV sees.

3 Year Warranty

Probe type purifiers (including the Sanuvox Saber) have a maximum lamp life of 8700 operating hours (1 year). Probe purifiers must have each Lamp wiped clean every 2-3 months to remove the bio-aerosols in the air-stream that adhere to the Lamp and block the UV rays.

The R1500X and R3500X have a 3-year warranty, which includes the UV "J" Lamp and all replacement Lamps. As a result of the proprietary design, the Aluminum Reflecting Tube redirects UV to "burn off" any bio-aerosols that adhere to the UV Lamp. The R1500X and R3500X are self-cleaning; the only maintenance required is a one Lamp change every 3 years (Sanuvox takes into consideration the unit will operate 24 hours a day, 7 days a week, 365 days a year).

NOTE: UV Lamps age, and as they age, they lose their effectiveness. The Sanuvox Saber is ONLY the same as any other Probe Purifier. We can ONLY offer a 1-year warranty on the Saber Lamp because the purifier is a) mounted perpendicular to the air-stream, b) does not use any measure to slow the air down as it passes over the lamp, and c) does not use any reflectivity to increase UV intensity. ■

REVISED 3/13/02

SANUVOX-101 : A short lesson in UV

Any bacteria can be destroyed with UVC light; the question is how to do it?

Two Factors in achieving a high bacteria kill are a) The intensity of the UV source and b) The length of time the bacteria is exposed to the UV light.

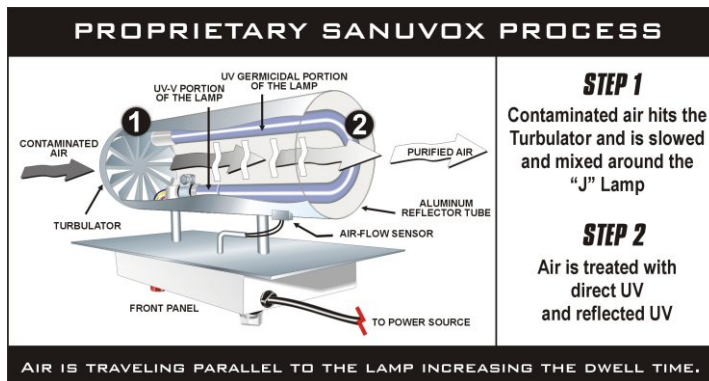
The more time the bacteria is suspended in front of the UV light, the higher the UV dosage it receives, the greater the kill.

That's exactly what the R1500X / R3500X is designed to do. The purifier achieves a high intensity through the use of Reflection. The same way a flashlight or car's headlight uses a reflector to intensify and direct light. The Sanuvox uses an Aluminum Reflector Tube to intensify the UV Energy.

How does Sanuvox slow the bacteria down so it can receive the UV dosage needed to kill it? The Turbulator slows, twists and mixes the air

around the Lamp, dramatically increasing the time the contaminants are suspended in front of the lamp. Very similar to putting your hand over

so the contaminant can be "burned" by the UV Energy. The more time in front of the lamp, the higher the UV dosage the contaminant receives, and the higher the kill.

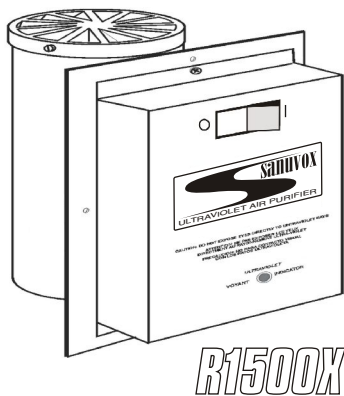


a candle. If you were to quickly move your hand through the flame, you would barely feel the heat. Should you move your hand slowly through the flame, you would surely be burned. That's what Sanuvox does. Slow down the air

Finally, to increase the dwell time (the time the contaminant is in contact with the UV Energy), the purifier is mounted parallel to the air-stream not perpendicular, maximizing the time the contaminant is in contact with the UV lamp.

If properly delivered, UV Irradiation can be a very efficient method for air purification. The use of the Turbulator, Aluminum Reflector Tube, "J" Lamp and placing the unit parallel to the air-stream are the "tools" needed to maximize the UV Energy. ■

For further information: visit www.sanuvox.com or call toll free at 1-888-SANUVOX



- Irradiates bacteria, viruses and mold
- Destroys chemical and biological odors
- High Efficiency UVC/V Air Purifier
- 6,808 microwatts per/cm² of UV intensity inside Reflector Tube
- Hardwired to HVAC System
- Most effective UV Air Purification System on the market
- Uses Sanuvox Patented Process
- In-Duct installation, for whole home purification
- Purify up to 1500 square feet
- 3 year warranty on parts including UV Lamp
- 3 year warranty on replacement Lamps
- CSA/NRTL Certified



- Irradiates bacteria, viruses and mold
- Destroys chemical and biological odors
- High Efficiency UVC/V Air Purifier
- 10,959 microwatts per/cm² of UV intensity inside Reflector Tube
- Airflow sensor automatically turns unit on
- Most effective UV Air Purification System on the market
- Uses Sanuvox Patented Process
- In-Duct installation, for whole home purification
- Purify up to 3500 square feet
- 3 year warranty on parts including UV Lamp
- 3 year warranty on replacement Lamps
- CSA/NRTL Certified

Designed to be installed in the Return Plenum, as the airflow passes through the R1500X/R3500X's Aluminum Reflective Tube, The Sanuvox Process destroys the contaminants that would otherwise been distributed throughout the ventilation system.

The High Efficiency Line uses a split UV-C / UV-V (germicidal / oxidizing) lamp to destroy chemical & biological contaminants including chemical odors.

What is CSA/NRTL?
Accredited by OSHA as a Nationally Recognized Testing Laboratory as is UL. CSA /NRTL have full Regulatory acceptance in the United States and Canada.