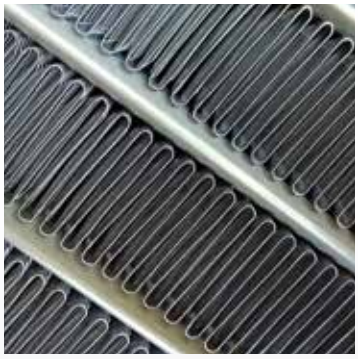
SANUVOX

Solutions & Applications

Solving Indoor Air Quality Problems with Sanuvox UV Systems







About Sanuvox

Sanuvox Technologies is the North American leader in air and surface disinfection. Our air purification systems and coil cleaners are designed to maximize efficiency.

We offer more than 20 different products that solve more than a hundred challenges commonly faced by our customers in improving air quality, eliminating odors and reducing energy costs.

Founded in 1995, Sanuvox mission is to design and manufacture air and surface disinfection units that replicate the natural principles of air purification by UV rays (ultraviolet) in the Earth's upper atmosphere.

Sanitary Ultraviolet Oxidation

Indoor Air Quality Issues (IAQ)

Lingering Odors

Whether these odors come from restaurants, factories, warehouses, delivery trucks, or garbage, Sanuvox systems eliminate them.

Contaminated Air & Particles

Thanks to Sanuvox systems, eliminate thousands of airborne contaminants inside buildings, such as allergens, viruses, bacteria, mold, fungi, and volatile organic compounds (VOCs).

Energy Loss

The accumulation of mold on the surface of the ventilation system coils affects the performance of air conditioners and increases their energy consumption.

Discover our Solutions with Sanuvox Products!

A Complete Range of Versatile Products!

Sanuvox systems meet the multiple challenges faced by building and plant managers. They are customized to solve each of these problems!

For a quick overview of all our commercial products, see the summary chart on pages 16-17.

CLEAN COILS FOR A MORE EFFICIENT SYSTEM

GOAL

- To disinfect evaporators to prevent the growth of biofilms and mold.

APPLICATIONS

- Any building equipped with an air conditioning system, upstream or downstream of the evaporation coils.

IL Coil Clean

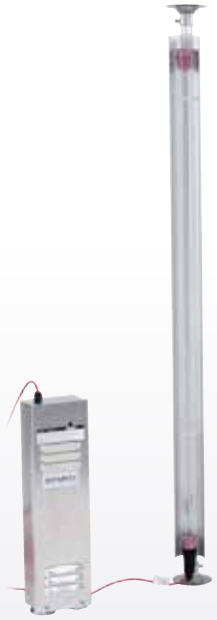
COIL CLEANER

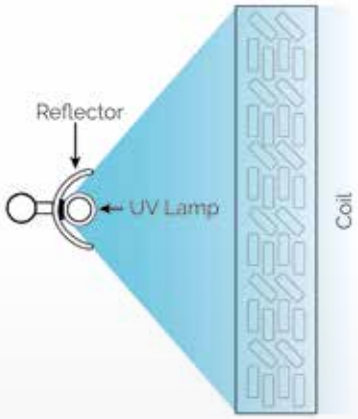
Using a patented, versatile technology and parabolic reflectors, the energy produced by the UVC lamp focuses on the surface to disinfect. This maximizes the efficiency of a single unit and extend its product life. The reflectors also protect the lamps against fouling.

The modules containing the ballasts display LEDs indicating the lamps status for easy maintenance, and include dry contacts for BMS.

BENEFITS

+ Reduces energy consumption
+ Reduces odors associated with mold
+ Improves air quality
+ Eliminates the chemical cleaning of coils





NEED A CUSTOMIZED SYSTEM?

STERILIZATION AND SIZING CALCULATIONS PROVIDED ON REQUEST.

See examples on page 19.

Lamps Length:
12" to 60"

Installation:
In front of the evaporator coils

Bio-Sterilization

WARRANTY **15** YEARS ON BALLASTS

WARRANTY **2** YEARS ON LAMPS

PURIFYING AIR & DESTROYING AIRBORNE BIO-CONTAMINANTS

GOAL

- To remove contaminants directly in the ventilation ducts.

APPLICATIONS

- Any building equipped with a ventilation system.

BioWall

AIR PURIFICATION UNIT

Installed parallel to the air flow, the BioWall is a unique patented product in the area of air quality, combining power and contact time.

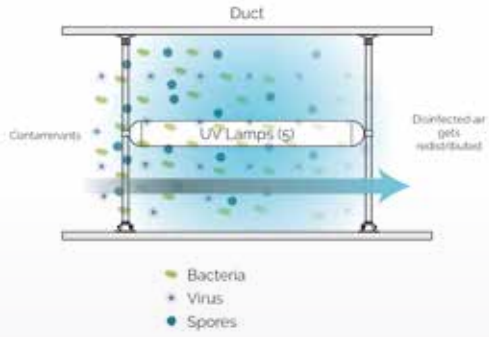
Installing a BioWall in the ventilation duct allows for maximum disinfection due to a prolonged exposure of the bio-contaminants to high-power UVC.
The control box is equipped with dry contacts for BMS.

The BioWall has been successfully tested by EPA for Homeland Security in the United States.

BENEFITS

+ Completes the work of filters by sterilizing what goes through them
+ No addition to pressure losses
+ Ensures continuous air quality
+ Touch screen for unit real time operational status

Touch screen for unit real time operational status



NEED A CUSTOMIZED SYSTEM?

STERILIZATION AND SIZING CALCULATIONS PROVIDED ON REQUEST.

See examples on page 19.

Lamps Length: 24" to 60"

Installation: In-Duct

Bio-Sterilization

Reduction of Odors and Chemical Contaminants

WARRANTY 15 YEARS ON BALLASTS

WARRANTY 2 YEARS ON LAMPS

DISINFECTING LOCKER ROOMS & BATHROOMS

GOAL

- To eliminate odors in locker rooms and gyms.

APPLICATIONS

- Any building with a sports room, locker room, gym or arena.

Sanuvair® S300

AIR PURIFICATION SYSTEM WITH HEPA FILTER

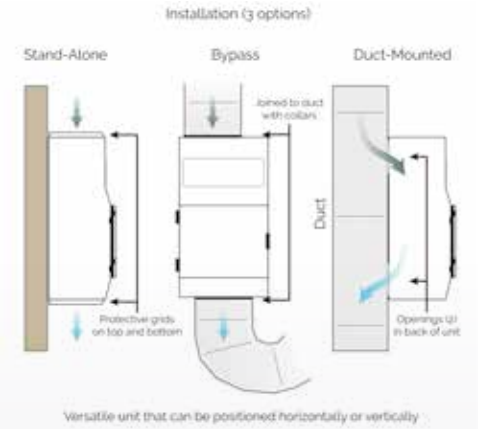
Ideal for buildings that often struggle with the smell of sweat and moisture in locker rooms.

By recirculating the air, the unit eliminates odors and bacteria thanks to a combination of filters and UVV oxidizing and UVC germicidal lamps. A recirculation rate of 6 to 8 times per hour is recommended for this unit.

BENEFITS

+ Eliminates odors
+ Improves air quality
+ Purifies from 200 to 300 cubic feet per minute

Unit Dimensions:
17" x 30" x 12"



NEED A CUSTOMIZED SYSTEM?

STERILIZATION AND SIZING CALCULATIONS PROVIDED ON REQUEST.

Capacity:
3,000 cu.ft.

Lamps Length:
10.5"
'J' Shaped Lamp

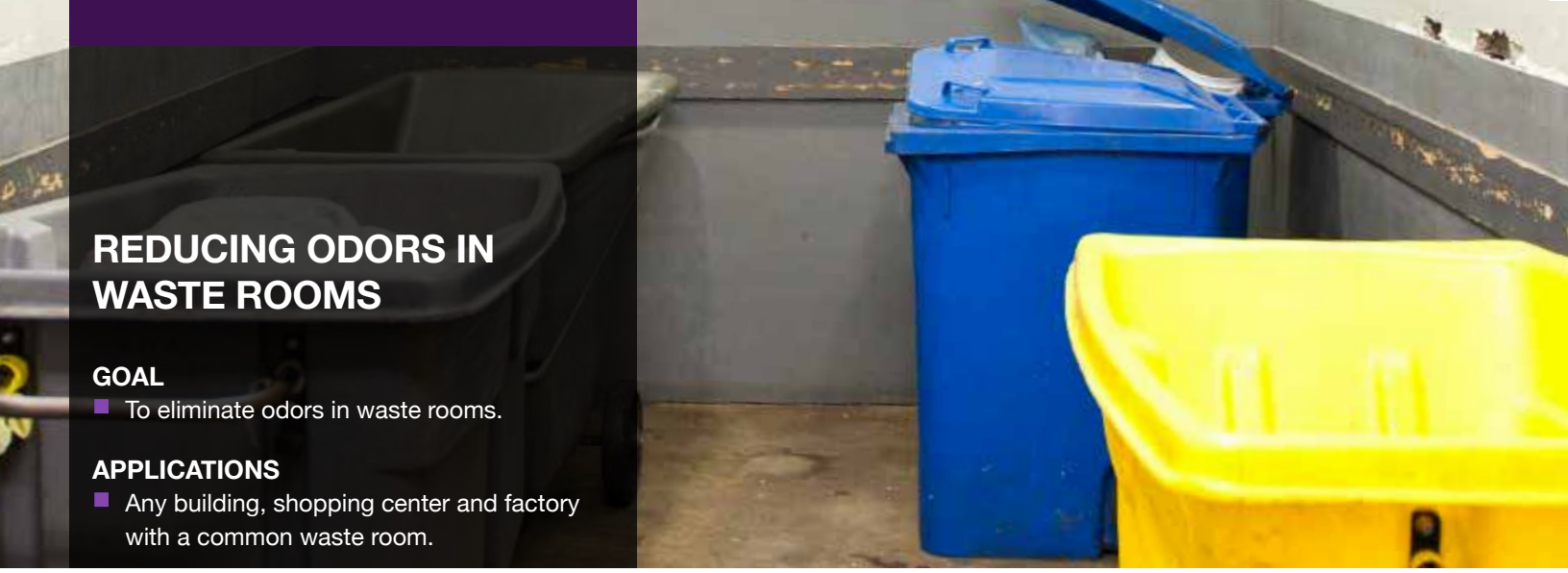
Installation (3 options):
Stand-Alone | Bypass | Duct-mounted

Bio-Sterilization

Reduction of Odors and Chemical Contaminants

HEPA filter

WARRANTY
1 YEAR
ON LAMPS



REDUCING ODORS IN WASTE ROOMS

GOAL

- To eliminate odors in waste rooms.

APPLICATIONS

- Any building, shopping center and factory with a common waste room.

Sanuvair® S600

ODOR REMOVAL UNIT

Ideal for buildings that often struggle with unpleasant odors produced by garbage rooms.

The hydroxyl technology by UV photolysis eliminates odors associated with garbage, and thus reduces the presence of insects and flies in the room.

Compact and efficient, the Sanuvair® S600 can be installed in less than 30 minutes.

Other functional options include the Sanuvair® S300 (p.6) for smaller spaces, and the Sanuvair® S1000 (p.8) for larger spaces.

BENEFITS

+ Strongly reduces odors
+ Increases comfort and wellness of workers and occupants
+ Purifies 600 cubic feet per minute
+ Improves air quality in waste rooms
+ Fights bacteriological contaminants

Unit Dimensions:
23" x 27" x 13"

NEED A CUSTOMIZED SYSTEM?

STERILIZATION AND SIZING CALCULATIONS PROVIDED ON REQUEST.

Capacity:
7,000 cu.ft.

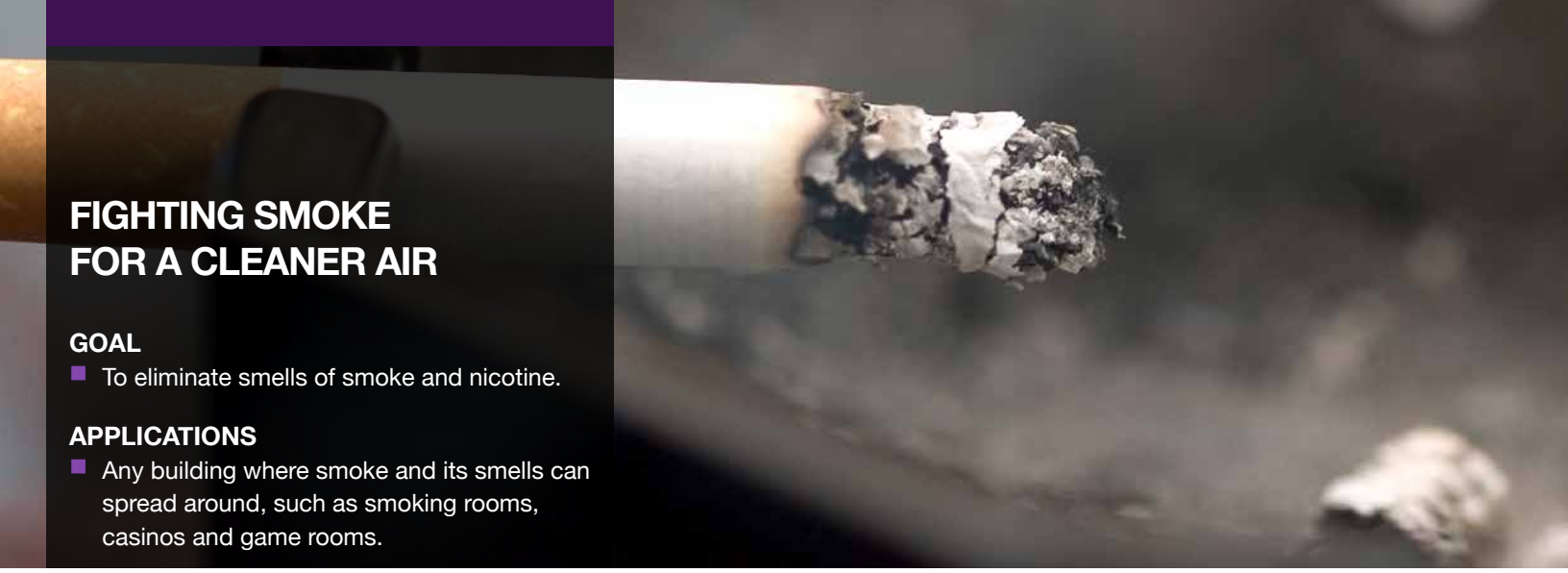
Lamps Length:
6.5"
'U' Shaped Lamp

Installation
Stand-Alone

Bio-Sterilization

Reduction of Odors and Chemical Contaminants

WARRANTY
1
YEAR
ON LAMPS



FIGHTING SMOKE FOR A CLEANER AIR

GOAL

- To eliminate smells of smoke and nicotine.

APPLICATIONS

- Any building where smoke and its smells can spread around, such as smoking rooms, casinos and game rooms.

Sanuvair® S1000

AIR PURIFICATION SYSTEM WITH 95% ASHRAE FILTER

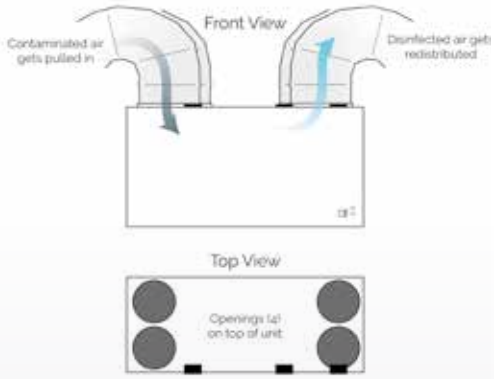
Ideal for buildings that are often struggling with smoke and its associated odors from smokehouses or waste rooms.

By recirculating the air, the unit eliminates odors and bacteria thanks to a combination of filters and UVV oxidizing and UVC germicidal lamps. A recirculation rate of 6 to 8 times per hour is recommended for this unit.

As an option, specific controllers sample the air every 70 seconds, and automatically adjust the power of the lamps to meet OSHA standards.

BENEFITS

+ Eliminates smoke and its associated odors
+ Improves air quality
+ Purifies 1,000 cubic feet per minute
+ Offers three levels of odor treatment



Unit Dimensions:
40" x 20" x 20"

NEED A CUSTOMIZED SYSTEM?

STERILIZATION AND SIZING CALCULATIONS PROVIDED ON REQUEST.

Capacity:
9,600 cu.ft.

Lamps Length:
16"
'J' Shaped Lamp

Installation
Stand-Alone

Bio-Sterilization

Reduction of Odors and Chemical Contaminants

HEPA filter
OPTIONAL

WARRANTY
1 YEAR
ON LAMPS

MAINTAINING HEALTHY AIR IN OFFICES

GOAL

- To ensure superior air quality and reduce odors in offices.

APPLICATIONS

- Any rental office building with suspended ceilings.

Sanuvair® 500

AIR PURIFICATION UNIT

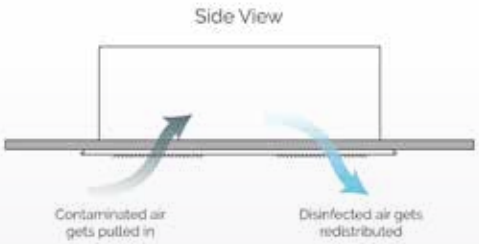
Stand-alone and compact unit that can easily be installed in the ceiling. It purifies the air of a 500 square foot room.

This unit slows the air at the inlet of the aluminum treatment chamber, purifies it with UV, and then distributes it through the outlet located directly on the outside panel of the unit.

BENEFITS

+ Improves air quality
+ Helps reduce absenteeism rate
+ Quiet and discreet

Unit Dimensions:
24" x 24" x 8"



Capacity:
1,800 cu.ft.

Lamps Length:
6.5"
'J' Shaped Lamp

Installation:
Stand-Alone,
ceiling-mounted
(replaces a 24" x 24" tile)

Bio-Sterilization

Reduction of Odors and Chemical Contaminants

WARRANTY 3 YEARS ON BALLASTS

WARRANTY 3 YEARS ON LAMPS

PURIFYING THE AIR IN ANIMAL FACILITIES

GOAL

- To disinfect the air and eliminate odors in pet stores.

APPLICATIONS

- Any place with animals such as pet shops, veterinary clinics, animal shelters and kennels.

Quattro

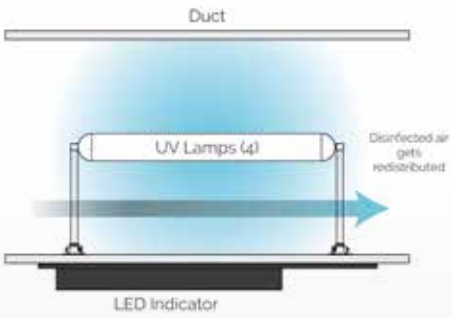
AIR PURIFICATION UNIT

Installed parallel to the airflow, the Quattro is a smaller version of the BioWall for air disinfection.

Installing a Quattro in the ventilation duct allows maximum disinfection thanks to a prolonged exposure of the bio-contaminants to high-power UVC.

BENEFITS

+ Completes the work of filters
+ Avoids high pressure losses
+ Ensures continuous air quality
+ Contributes to the reduction of cross-contamination between animals
+ Reduces animal odors



NEED A CUSTOMIZED SYSTEM?

STERILIZATION AND SIZING CALCULATIONS PROVIDED ON REQUEST.

See examples on page 19.

Lamps Length: 18"

Installation: In-Duct

Bio-Sterilization

Reduction of Odors and Chemical Contaminants

WARRANTY 1 YEAR ON LAMPS

SLOWING THE RIPENING OF STORED FRUITS & VEGETABLES

GOAL

- To eliminate the hormone responsible for ripening : the ethylene.

APPLICATIONS

- Any cold room equipped with a cooling system, upstream of the evaporation coils.

Multi-IL Coil Clean

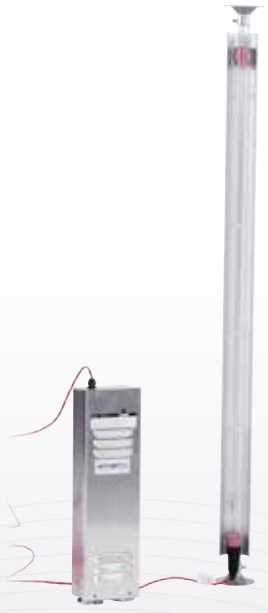
SURFACE DISINFECTION & ETHYLENE PHOTO-OXIDATION UNIT

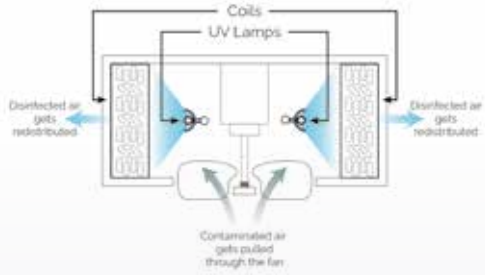
An optimal dosage of two specific wavelengths calculated with a sizing software allows the Multi-IL Coil Clean to maintain the energy efficiency of the coil, and to eliminate the ethylene that triggers the ripening of fruits and vegetables .

The modules containing the ballasts display LEDs that show the status of the lamps for easy maintenance.

BENEFITS

+ Reduces ethylene emissions
+ May increase the life cycle of fruits and vegetables by several days
+ Reduces energy consumption
+ Eliminates mold
+ Eliminates the chemical cleaning of coils





NEED A CUSTOMIZED SYSTEM ?

STERILIZATION AND SIZING CALCULATIONS PROVIDED ON REQUEST.

Lamps Length :
12" to 60"

Installation :
In front of the coils of a refrigeration unit

Bio-Sterilization

WARRANTY **15** YEARS ON BALLASTS

WARRANTY **2** YEARS ON LAMPS

DISINFECTING FOOD PRODUCTS

GOAL

- To disinfect with a natural process that leaves no chemical residue.

APPLICATIONS

- Any continuous production line before packing.

IL Coil Clean

PURIFIER FOR FOOD PRODUCTS AND THEIR PACKAGINGS

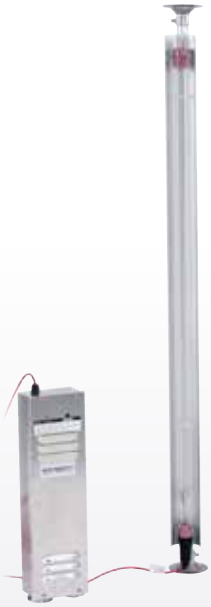
Ideal for all types of food: meat, poultry, fish, fruits, vegetables, cooked food, etc.

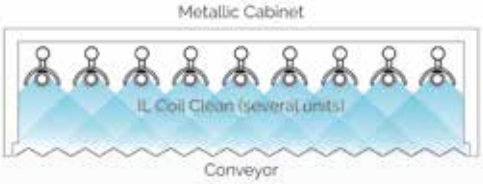
As the system is incorporated into the production line, the lamps are covered with Teflon, that will trap pieces of glass in the event of breakage. The units are positioned in such a way that they provide a consistent dose of disinfection on each row of the conveyor. The speed, width and length of the available conveyor for installing the system make it possible to calculate the number of units required for disinfection.

A study by the Department of Food Science and Nutrition at Laval University shows that the exposure of strawberries to artificial ultraviolet radiation would extend their shelf life by one-third.

BENEFITS

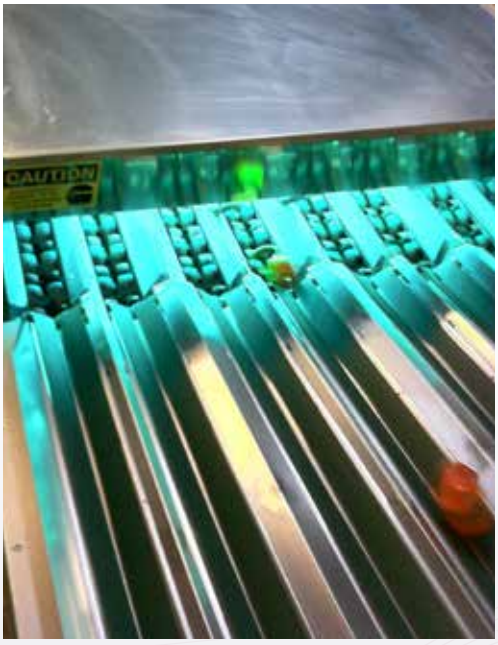
+ Disinfects food preparation, processing and packaging surfaces
+ Increases the shelf life of products
+ Eliminates mold
+ Eliminates the chemical cleaning of food products





NEED A CUSTOMIZED SYSTEM?

STERILIZATION AND SIZING CALCULATIONS PROVIDED ON REQUEST.



Lamps Length:
12" to 60"

Installation:
Over a conveyor

Bio-Sterilization

WARRANTY **15** YEARS ON BALLASTS

WARRANTY **2** YEARS ON LAMPS

PROTECTING FIRST RESPONDERS AGAINST CONTAMINANTS

GOAL

- To destroy airborne pathogens in emergency vehicles.

APPLICATIONS

- Any vehicle that transports an injured or sick patient to health facilities.

VP900 Interceptor

12V AIR DISINFECTION UNIT FOR VEHICLE

Portable unit that uses a recirculation process to sterilize air, specifically designed to be mounted inside a vehicle, or installed under a passenger seat or on an inside wall.

BENEFITS

+ Destroys airborne pathogens responsible for diseases
+ Reduces the risk of cross-contamination
+ Easy installation

Unit Dimensions:
17" x 11" x 5"

Capacity:
600 cu.ft.

Lamps Length:
6.5"
'J' Shaped Lamp

Installation:
Stand-Alone

Bio-Sterilization

Reduction of Odors and Chemical Contaminants

WARRANTY 3 YEARS ON BALLASTS

WARRANTY 2 YEARS ON LAMPS

STERILIZING SURFACES IN A HOSPITAL ENVIRONMENT

GOAL
- To get clean surfaces free of pathogens.

APPLICATIONS
- Any health facilities, mainly in the bathrooms.

DISCOVER OUR MEDICAL PRODUTCS RANGE AT WWW.SANUVOX.COM

ASEPT.1X

24/7 AUTOMATED PROTECTION UNIT AGAINST PATHOGENS

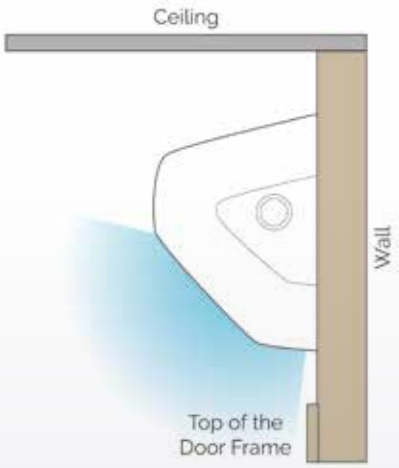
The ASEPT.1X unit pushes the limits of surface disinfection by automatically sterilizing bathrooms, which is an aggravating factor of nosocomial diseases caught in hospitals.

Completely automated, the ASEPT.1X unit includes the following safety features: a door contact and two infrared motion detectors. This allows the unit to only operate when no one is in the bathroom, in 5-minute cycles of operation.

ASEPT.1X disinfects 99.99% of contaminants such as ERV, C. difficile, and MRSA by sterilizing the most commonly touched areas.

BENEFITS

+ Disinfects without contact and without the need of chemical product for bathrooms
+ Sterilizes all surfaces that are regularly touched by patients, visitors and hospital staff
+ Destroys pathogens responsible for nosocomial diseases
+ Reduces the risk of airborne contamination



Unit Dimensions:
33" x 8" x 5.5"

Lamps Length:
30"

Installation:
Stand-Alone

Bio-Sterilization

WARRANTY 3 YEARS ON BALLASTS

WARRANTY 1 YEAR ON LAMPS

CANNABIS GROWERS

GOAL

- To prevent powdery mildew and to eliminate cannabis odors.

APPLICATIONS

- Any indoor facility involved in the production of cannabis.

DISCOVER OUR SPECIALIZED PRODUCTS ON GROWSAVER.NET

GC BioWall Max

AIR PURIFICATION UNIT

The most effective powdery mildew prevention system out there!
A patented, unique and versatile system that has been specifically developed to disinfect indoor air and prevent powdery mildew contamination.

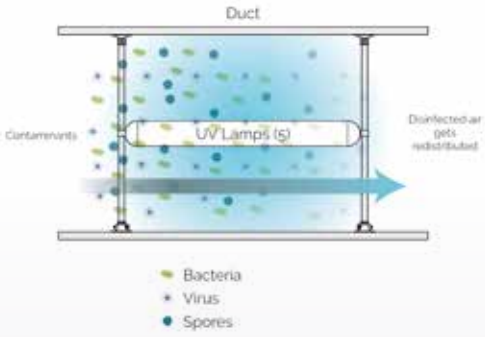
A high-intensity UV chamber is directly integrated into the HVAC system of the growing facilities, and will continuously destroy up to 99.99% of airborne fungi, mold and bacteria every hour.

Designed for air conditioning plants up to 100 tons, this non-invasive, non-toxic and completely green solution leaves no residue and no ecological footprint.

The preferred choice of Cannabis growers in North America to prevent plant contamination and remove odors.

BENEFITS

+ Virtually eliminates the need for fungicides
+ Eliminates odors from facility exhaust systems
+ Reduces labor costs of manual cleaning
+ Completes the work of filters by sterilizing what goes through them
+ Leaves no chemical residue
+ Touch screen for real time status



NEED A CUSTOMIZED SYSTEM?

STERILIZATION AND SIZING CALCULATIONS PROVIDED ON REQUEST.

See examples on page 19.

Lamps Length:
30" to 60"

Installation:
In-Duct

Bio-Sterilization

Reduction of Odors and Chemical Contaminants

WARRANTY **15** YEARS ON BALLASTS

WARRANTY **2** YEARS ON LAMPS

Model	Type	Capacity	Lamps Length	Installation
IL Coil Clean* (p.4-12)	Coil Cleaner & Purifier for Food Products and their Packagings	N/A	12", 18", 24", 30", 40", 50" and 60"	• In front of the evaporator coils • Over a conveyor
BioWall* OR GC BioWall Max* (p.5-15)	Air Purification Unit	N/A	24"**, 30", 40", 50" and 60" ** 24" unavailable for GC BioWall Max.	In-duct
Sanuvair® S300* (p.6)	Air Purification System with HEPA Filter	3,000 cu.ft.	10.5" 'J' shaped lamp	• Stand-alone • Bypass • Duct-mounted
Sanuvair® S600* (p.7)	Odor Removal Unit	7,000 cu.ft.	6.5" 'U' shaped lamp	Stand-alone
Sanuvair® S1000* (p.8)	Air Purification System with 95% ASHRAE Filter	9,600 cu.ft.	16" 'J' shaped lamp	Stand-alone
Sanuvair® 500 (p.9)	Air Purification Unit	1,800 cu.ft.	6.5" 'J' shaped lamp	Stand-alone, ceiling-mounted (replaces a 24" x 24" tile)
Quattro* (p.10)	Air Purification Unit	N/A	18"	In-duct
Multi-IL Coil Clean* (p.11)	Surface Disinfection & Ethylene Photo-Oxidation Unit	N/A	12", 18", 24", 30", 40", 50" and 60"	In front of the coils of a refrigeration unit
VP900 Interceptor (p.13)	12V Air Disinfection Unit for Vehicle	600 cu.ft.	6.5" 'J' shaped lamp	Stand-alone
ASEPT.1X (p.14)	24/7 Automated Protection Unit against Pathogens	N/A	30"	Stand-alone

* Sterilization and sizing calculations for IL Coil Clean, BioWall, GC BioWall Max, Sanuvair® S300, Sanuvair

Bio-Sterilization	Reduction of Odors and Chemical Contaminants	HEPA Filter	Solutions for...	Applications	
✓			• Contaminated air • Energy loss	Office buildings, hospitals, educational institutions, museums, libraries, archive rooms, food preparation and packaging facilities.	
✓	✓		• Contaminated air • Lingering odors	Office buildings, hospitals, educational institutions, museums, libraries, archive rooms, warehouses, indoor cannabis growers.	
✓	✓	✓	• Contaminated air • Particles • Lingering odors	Locker rooms, waste rooms, waste dumps, shops, classrooms, food courts, smoking rooms.	
✓	✓		• Lingering odors • Contaminated air	Waste rooms, waste dumps, sewers.	
✓	✓	✓ *OPTIONAL*	• Contaminated air • Particles • Lingering odors	Smoking rooms, casinos, game rooms, waste rooms.	
✓	✓		• Contaminated air • Lingering odors	Office buildings, meeting rooms, educational institutions, classrooms.	
✓	✓		• Contaminated air • Lingering odors	Veterinary clinics, pet stores, animal shelters, office buildings, hospitals.	
✓			• Contaminated air • Energy loss	Cold rooms, food preparation and packaging establishments.	
✓	✓		• Contaminated air • Lingering odors	Vehicles, ambulances and other emergency transportation, buses, food trucks.	
✓			• Contaminated air	Bathrooms and laboratories in hospitals.	

® S600, Sanuvair® S1000, Quattro and Multi-IL Coil Clean, provided on request. See examples on page 19.

SANUVOX | The Leader in Air Purification & UV Sterilization

Our patented, high-end and affordable systems maximize the time of contact with the UV lamps to disinfect 99.99% of surfaces or air in one pass. They have been studied and tested with succes by agencies, laboratories and universities.

RTi Labs
for National Homeland Securities

Penn State University

McGill University

The Lancet, medical journal

Scientific Evidence of the UV Technology

UVV - Oxidant (185 nm)

The UVV wavelength oxidizes the airborne chemical components by photo-oxidation.

UVC - Germicidal (254 nm)

Wellknown for their highly germicidal properties, UVC wavelengths are well documented (see Chapter 16 of the "ASHRAE Handbook - HVAC Systems and Equipment").
This relationship is generally similar to the absorption curve of a nucleic acid (DNA), the base of any living organism. The relative yield is close to 100% since 90% of the energy spectrum produced by the Sanuvox germicidal UVC source is concentrated to 254 nm.

The Sanuvox Process on Biological & Chemical Contaminants

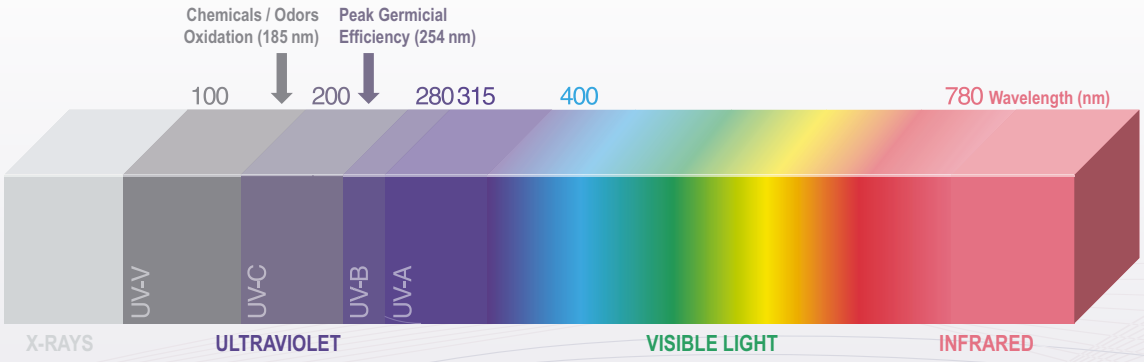
Activation Phase ($H_20 + O^* \rightarrow OH^* + OH^*$)
The ultraviolet photon energy (170 to 220 nm) is emitted by a high intensity source to decompose the water and oxygen molecules into activated hydroxyls. The rate of production or the efficiency of this process depends on the wavelength, relative humidity, and the intensity of UV sources.

Reaction Phase ($OH^* + P \rightarrow POH$)
The activated hydroxyls (OH^*) are then mixed in the air stream; the process will react with any compound containing carbon-hydrogen or sulfur, reducing it by successive oxidation into odorless and harmless byproducts. If the activated hydroxyls outnumber the air contaminants, residual ozone (O^3) will be formed due to oxidation of the oxygen molecules (O^2).

Neutralization Phase ($03 + UV(C) \rightarrow 02 + O^*: 0 + 0 \rightarrow 02$)
Also germicidal.

CHEMICAL DECOMPOSITION

- Formaldehyde: $CH_2O + OH^* \rightarrow CO_2 + H_2O$
- Ammonia: $NH_3 + OH^* \rightarrow N_2 + H_2O$
- Styrene: $C_8H_8 + OH^* \rightarrow CO_2 + H_2O$
- Mercaptans: $H_2S + OH^* \rightarrow SO_2 + H_2O$



NEED A CUSTOMIZED SYSTEM ?

STERILIZATION AND SIZING CALCULATIONS PROVIDED ON REQUEST.

CONTACT US NOW !

Our calculation software gives you the best solution to your indoor air quality problems !

NOTES

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