



High-Energy Germicidal UVC Solutions



Healthy Buildings.
Healthy Bottom Line.™



How Does a Healthy Building Add Up to a Healthy Bottom Line?

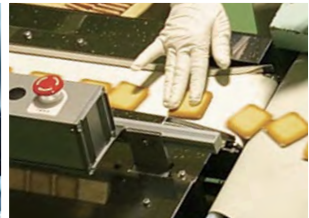
Imagine an investment that paid measurable, almost immediate benefits across multiple areas of your organization, from controlling energy costs to boosting productivity.

That's exactly what happens when you invest in equipment from Steril-Aire, the global leader in high-output ultraviolet germicidal solutions for improved indoor air quality and energy efficiency.

Biofilms: Costly buildup that shortens the life of your HVAC equipment

Dust adheres to the sticky biofilm surface, resulting in a number of bottom-line issues:

- HVAC units are forced to work harder, shortening the lifespan of your equipment and increasing your energy costs
- Indoor air quality (IAQ) is reduced as mold, bacteria and other biocontaminants spread, impacting the health and productivity of building workers or inhabitants
- Messy, ineffective cleaning solutions force equipment downtime and the use of hazardous chemicals in an attempt to remove biofilms



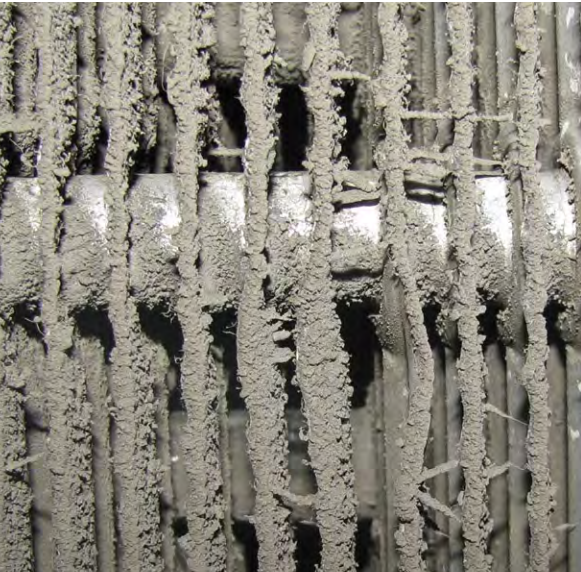
Biofilms form when mold and bacteria adhere to surfaces in moist environments by excreting a slimy, glue-like substance. Biofilms can be a thin layer or several inches thick, depending on environmental conditions — just like the ones inside your HVAC system.



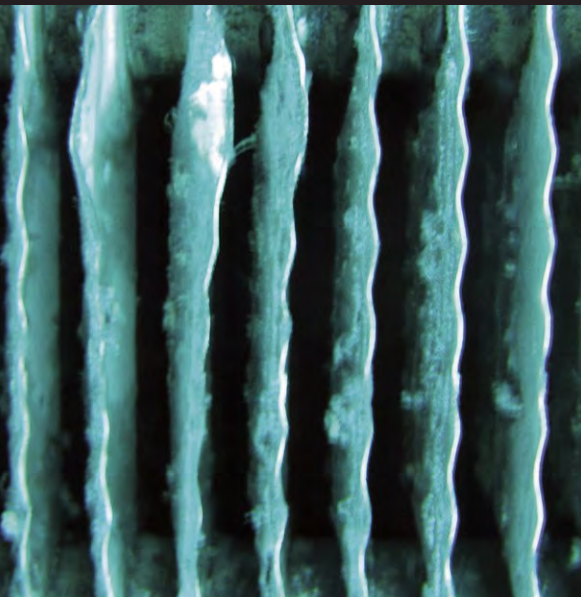
Steril-Aire UVC for HVAC™ – Rapid ROI in Multiple Areas:

- Saves up to 15% in energy costs
- Improves Indoor Air Quality (IAQ)
- Reduces water use
- Cuts maintenance costs
- Enhances operational efficiency
- Extends food shelf life and quality

Steril-Aire's systems-engineered UVC Emitters™ are the perfect solution for retrofit or new HVAC systems. They produce no ozone or secondary contaminants. In addition to being environmentally friendly, they offer an average payback within 24 months (or less) of installation.



Before Steril-Aire UVC ▲ ▼ After Steril-Aire UVC



The study of **biofilms** has intensified in recent years due to increased awareness of their pervasiveness and impact on human health and natural and industrial systems.

According to a study conducted by Florida State University, biofilms cost the U.S. billions of dollars every year in energy losses, equipment damage, product contamination and medical infections.

UVC: The key to green, sustainable HVAC solutions

The coils in a heating, ventilating and air conditioning system (HVAC) do more than simply condition the air in your home or workplace. They provide an ideal breeding ground for mold, bacteria, viruses and HVAC operational issues.

Steril-Aire UVC Emitters use the proven power of germicidal ultraviolet-C (UVC) energy as an effective inactivation method for microorganisms, cleaning the coils, drain pans and ductwork, extending the life of your HVAC equipment and providing a healthier environment in which to live.

Energy & Water Conservation

With 60% of energy consumed by a buildings HVAC system and with energy costs rising, everyone's looking to control expenses and lessen their carbon footprint. A cleaner, more efficient HVAC system curbs overhead and conserves natural resources by reducing energy and water consumption.

Steril-Aire's germicidal UVC reduces energy consumption used by the fan, chiller and chiller pump by continuously cleaning the coils and drain pan. The result is improved:

- Heat transfer
- Airflow
- Net cooling capacity
- Compressor run time
- Operational efficiency
- Thermal comfort



Steril-Aire UVC Emitters will:

- Lower HVAC operational costs by improving heat transfer and increasing net cooling capacity
- Continuously clean coils, drain pans, plenums and ducts, reducing or eliminating costly cleaning programs and the use of harmful chemicals and disinfectants
- Reduce surface and airborne microorganisms such as mold, bacteria and viruses
- Reduce unpleasant, harmful odors associated with mold and bacterial growth
- Improve general IAQ for better productivity and less absenteeism

Multi-patented Steril-Aire UVC Emitters are also effective when used in forced air systems and for surface decontamination.



Water is fast becoming the new oil — a precious resource to be used wisely.

How can Steril-Aire UVC solutions help? Reclaimed clean, coil condensate can be used for cooling tower make-up water, landscape irrigation or gray water flushing, thereby reducing:

- Water consumption
- Operating costs
- Chemical use
- Chiller energy use and costs

This reclamation process can also realize energy savings by mixing the chilled make-up water with the warmer water for the tower. Not only is the water already chilled — requiring less energy — but also distilled and clean with high output Steril-Aire UVC germicidal energy. Only Steril-Aire's patented installation provides this benefit.

Productivity and Well-being

Why is IAQ a major concern to companies, building owners, managers, tenants, and employees alike? It can have a significant impact on the comfort, well-being and productivity of your building occupants. Studies conducted by the U.S. Environmental Protection Agency and independent scientific panels have found indoor air pollution to be an ongoing environmental health problem.

Steril-Aire UVC makes a vital contribution to IAQ improvement by reducing complaints and absenteeism that result from mold contamination and sick building syndrome (SBS).

By eliminating the source of contamination at the coils and in the drain pan,* Steril-Aire germicidal UVC can help reduce:

- Spread of airborne contaminants
- Absenteeism
- Chemical use
- Liability

A healthy, comfortable work environment is the key to optimum performance and reduced absenteeism. According to the National Institute of Building Sciences, a one percent increase in productivity can offset a company's entire energy costs for the year.

Better for the environment, **and** your business

According to the U.S. Environmental Protection Agency, we spend more than 90% of our time indoors — breathing air that can be two to 10 times more polluted than outdoor air. The quality of indoor air, influenced by the levels of bioaerosols, contaminants and pollutants, can affect occupant health and development, resulting in reduced worker productivity and increased workplace absenteeism.

But air quality is not simply a health issue. Building operation and maintenance, particularly of the heating, ventilation and air conditioning (HVAC), can also have a major impact on your building's financial health.

From reducing energy and water consumption to extending equipment life and efficiency, environmental stewardship is more than simply a feel-good message — it's a strategic business imperative for remaining competitive in the 21st century global marketplace.

Efficiency and Sustainability

More efficient HVAC systems last longer, cutting unnecessary capital expenditures for replacement and keeping prematurely aged equipment out of landfills.

Steril-Aire UVC solutions can even help support your efforts to achieve LEED credits in multiple categories as well as to realize tax rebates and incentives.

Superior Ultraviolet Germicidal Energy

Steril-Aire solutions give your building an enormous edge by improving your bottom line in multiple areas:

- Reduced energy costs
- Improved indoor air quality
- Reduced operating costs
- Reduced water costs
- Extended equipment life

*Source: <http://www.epa.gov/iaq/pubs/sbs.html>

Significant Benefits for a Wide Array of Industries

From offices to factories, hotels to bottling plants, prisons to museums, Steril-Aire’s germicidal UVC offers benefits.

Commercial Buildings: Steril-Aire can support your bottom line goals by significantly reducing your HVAC operating costs, decreasing water use and improving indoor air quality. Owners can expect increased property values and reduced liability. Property managers will see higher employee satisfaction and productivity as well as marketing differentiation.

Schools & Institutions: With 14 million missed school days each year, a healthy school building is essential. Good indoor air quality means healthier students, teachers, professors and administrators. Steril-Aire’s UVC for HVAC can protect your building, your students and staff while reducing energy consumption and maintenance costs. This improves your bottom line and provides a healthy learning environment.

Industrial: By eliminating biofilm in the building’s HVAC system, the well-being of its occupants can be improved and safety risks measurably reduced. Steril-Aire UVC makes a vital contribution to IAQ improvement, reducing complaints and absenteeism that can result from biofilm contamination.



Health Care: Steril-Aire’s germicidal UVC can help protect your building, your patients, and staff while reducing energy consumption and maintenance costs. Steril-Aire’s health care customers have realized reduced hospital acquired infections, cross-contamination, reduced hospital stays, direct and third party costs as well as reduced liability. Steril-Aire can also take cleanrooms to a whole new level of germicidal effectiveness.



Not all UVC is created equal

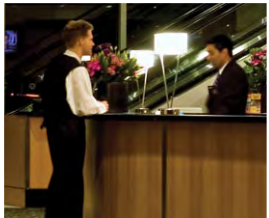
Residential Homes:

By reducing a major source of airborne bacteria, mold and viruses with Steril-Aire germicidal UVC, you and your family can breathe easy knowing your environment is cleaner while lowering energy costs and finding a green solution.

Hospitality: Contaminated air systems are a common source of guest complaints that can lead to lower revenue and occupancy rates as well as employee retention and satisfaction issues. Steril-Aire UVC reduces surface and airborne microorganisms that contribute to poor IAQ.

Ultraviolet-C (UVC) light is a powerful tool for arresting the spread of unhealthy contaminants. But careful examination shows that not all systems are equally effective when it comes to the real-life needs of the HVAC environment.

In tests conducted by the U.S. Environmental Protection Agency’s National Homeland Security Research Center Technology and Testing and Evaluation Program (results shown below), the Steril-Aire germicidal UVC configuration was, on average, six times more effective on a Kill/Watt basis.



HVAC coil Petri dish samples demonstrate high concentrations of bacteria, mold and yeast. After exposure to a UVC Emitter these microbes are almost completely eliminated.



... the Steril-Aire germicidal UVC configuration was, on average, six times more effective on a Kill/Watt basis.

Food and Beverage:

Steril-Aire UVC enhances food safety through mold, bacteria and virus control, extending product shelf life and improving quality and production yields. Germicidal UVC helps to avoid recalls and mitigation, reducing sales loss, brand damage and liability.



When comparing UVC systems, be sure to ask about:

Effectiveness — How does the device perform in tests conducted at 50° F with moving air? You may find that many competitive performance claims are based on tests conducted at 90° F with still air. As shown in the chart on the right, Steril-Aire solutions are six times more effective on average than competing devices.

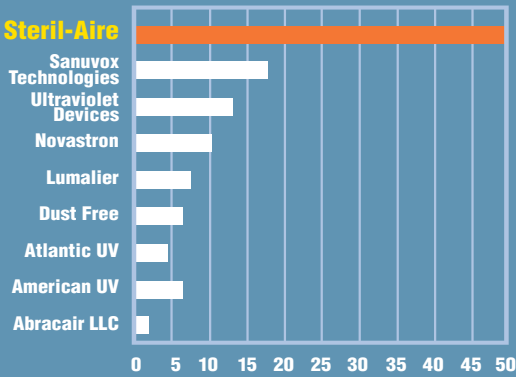
Service Life — Some competitors recommend changing UVC devices every three to four months because they quickly lose the output needed to maintain microbial control but they say that their lamps last two years. Others claim a longer than two-year life without any independent testing to verify claims. Steril-Aire, in comparison, has a 12-month service life, maintaining two to three times greater output than the competition even after a full year.

Independently Verified Output — All Steril-Aire products are tested and independently verified as to their performance.

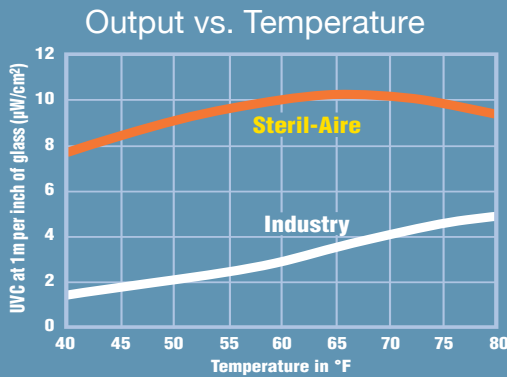
Post-Installation Support — Steril-Aire backs every purchase with comprehensive technical and engineering support, including in-house expertise in both HVAC technology and microbiology.

Steril-Aire’s germicidal UVC products have received over a dozen patents and have been recognized among the industry’s best, winning numerous industry awards. With a variety of sizes and configurations — including externally mounted, internally mounted, and portable units — Steril-Aire has the UVC solution to fit nearly any commercial or residential application.

U.S. Homeland Security Research: Biological Interaction Study



U.S. Homeland Security/EPA tests confirm that on average, Steril-Aire Emitters are 6 times more effective than tested competitive UV on a Kill/Watt basis



Independent tests show Steril-Aire delivers up to 6 times the output of other ultraviolet devices under HVAC conditions (50° F at 400 fpm air velocity)

The Bottom Line

Mechanical engineers know that HVAC systems account for an estimated 40-60% of energy use in commercial and residential buildings. When you consider that fouled coils can add another 30% to your energy costs[†] while producing 10% less cooling, performance and energy efficiency become key factors in your bottom line. Steril-Aire can help you to achieve short and long term bottom line goals by improving your triple bottom line, improving occupant well-being, reducing operational costs and providing environmental stewardship.

[†]U.S. Department of Energy

Steril-Aire UVC: The science behind healthier, more profitable buildings

Steril-Aire solutions are used throughout the world in hospitals, laboratories, schools, government facilities, offices and homes. Steril-Aire's UVC has been proven effective during food processing, packaging and storage applications, enhancing quality and safety, extending shelf life and improving product yield.

DE Series UVC Emitters

- For built-up AHUs in all commercial & industrial applications
- Double-ended fixtures (18, 24, 30, 36, 42, 62 inches) are mounted internally and fitted end-to-end for any size coil
- Available in 16, 22, 28, 34, 40, 60 inch Emitter lengths
- Universal power supplies 120-230 V and 120-277 V, 50/60 Hz



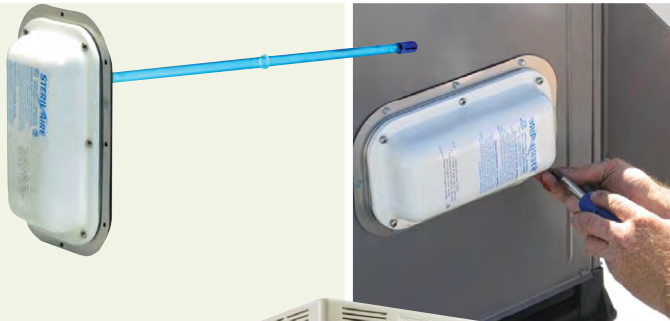
SE Series UVC Emitters

- For interior installed fan coils, heat pumps, unit ventilator, packaged AHU's, terminal units and ductwork
- Available in 12, 16, 20, 24, 30, 36, 42 inch Emitter lengths
- Universal power supply 120-277 V, 50/60 Hz



SEN Series UVC Emitters

- For exterior units including rooftop units, AHUs, heat pumps, fan coils, packaged terminal units and ducts
- NEMA 4X
- Available in 12, 16, 20, 24, 30, 36, 42 inch Emitter lengths
- Universal power supply 120-277 V, 50/60 Hz



Steril-Zone Room Air Purifier (120 V and 230 V)

- 3-Stage purification system: UVC, high-efficiency pleated filter, activated carbon
- Safe and ozone-free
- Compact and powerful



Mounting Options for UVC Kits*

Spring Clips, Flat Plate (for Metal), Flat Plate (for Plastic), Insert Lamp Holder, Short Hooks, U Bracket

- Mounting options for HVAC units with limited accessibility for Emitter placement
- Widest range of mounting options in the industry



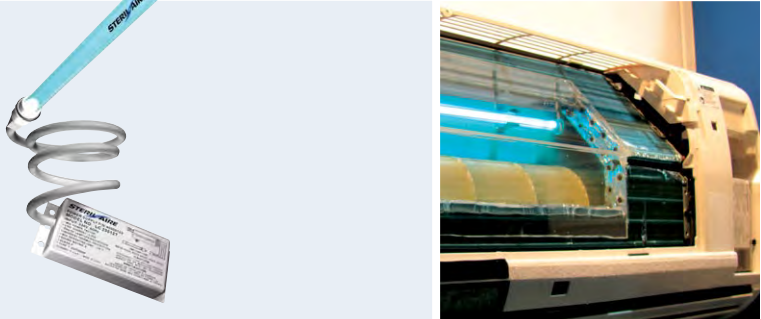
UVC Kit For Air Handlers*

- For indoor air handlers with coils up to 122 inches with dual access, fan coils, packaged systems, heat pumps and unit ventilator systems. Pre-wired NEMA enclosures for outdoor use available for 61 inch Emitter.
- Available in 12, 16, 20, 24, 30, 36, 42, 61 inch Emitter lengths
 - Universal power supply 120-277 V, 50/60 Hz
 - Multiple mounting options available



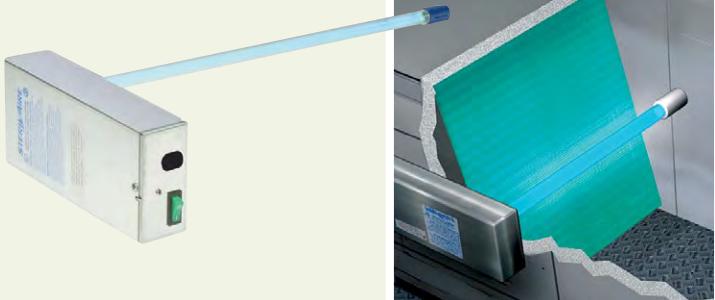
UVC Kit for Unitary Air Conditioners*

- For air conditioners below 5 tons, splits, mini-splits, fan coils, packaged terminal units
- Available in 7.5, 10, 16, 20, 24 inch Emitter lengths
- Power supply 120 V and 208/230 V, both 50/60 Hz
- Multiple mounting options available



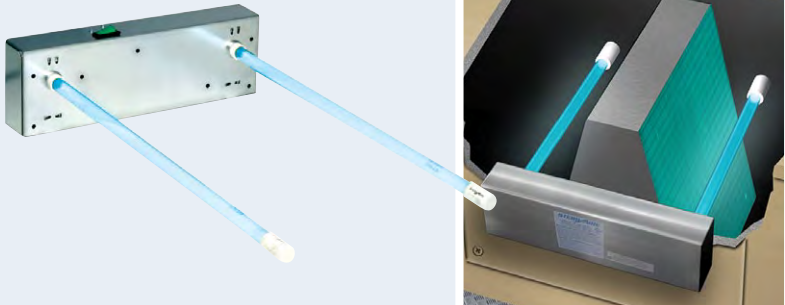
SteriLight I (RSE1)

- For interior residential and light commercial applications
- Available in 16, 20, 24 inch Emitter lengths
- Universal power supply 120-277 V, 50/60 Hz



SteriLight II (RSE 2)

- For residential and light commercial applications
- Two Emitters per fixture designed for "A", "N" and "W" style coils
- Available in 16, 20, 24 inch Emitter lengths
- Universal power supply 120-277 V, 50/60 Hz



SterilWand

- For surface decontamination in commercial and residential applications
- Portable, hand-held device
- Available in 24 inch Emitter length
- 120 V and 230 V, 50/60 Hz



Accessories

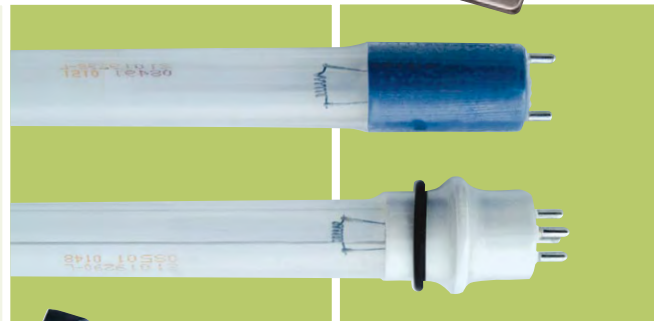
Radiometer

- For commercial, industrial, institutional or residential Emitter installations
- Measures irradiance in $\mu\text{W}/\text{cm}^2$ and user-defined pre-set percentage
- Building Management System connectivity



Shatter-Resistant Sleeved Emitters

- For use in food, beverage, life science and transport applications
- Shatter and moisture protection for critical applications
- USDA and FDA approved for surface decontamination
- Available for the complete line of Emitters



Waterproof Emitters

- For use in moist and wet HVAC applications
- Available for the SE Series UVC Emitters



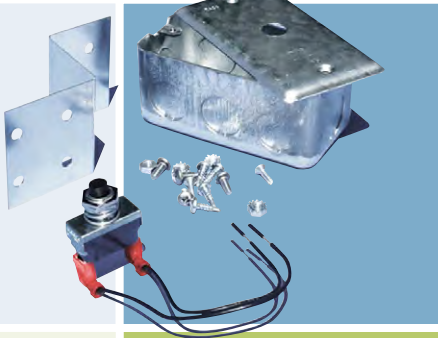
DE Boot Drip Proof Kit

- Designed to moisture-proof DE Emitter sockets
- Includes rubberized caps and silicone grease



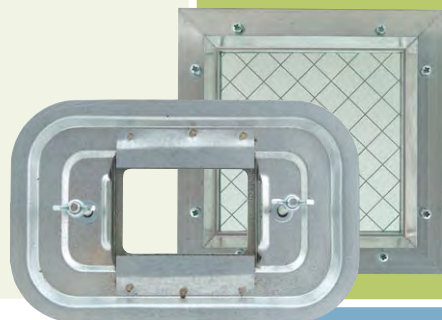
Interlock Switch

- Safety feature for maintenance & inspection
- De-energizes UV Emitter/s when door or access panels are opened



Viewports

- Provides a safe method to observe working UVC lights
- 2 options available:
 - 6" L x 6" W (15.2 cm x 15.2 cm) for 2" (5.1 cm) AHU wall depth
 - 4" L x 2-5/8" W (10.2 cm x 6.7 cm) adjustable- up to 3" (7.6 cm) AHU wall depth



DE Wiring Kit

- Quickly & easily joins DE fixtures
- Available in two lengths



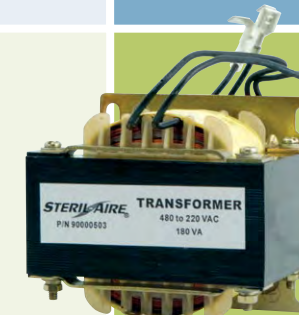
Cleaning Kit

- Disposable gloves & clean wipes for Emitters installation & change-out



Step-Down Transformer

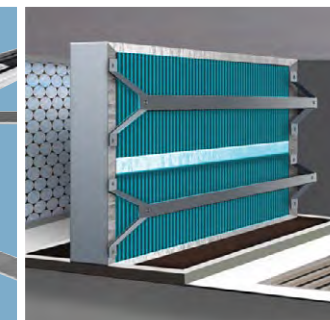
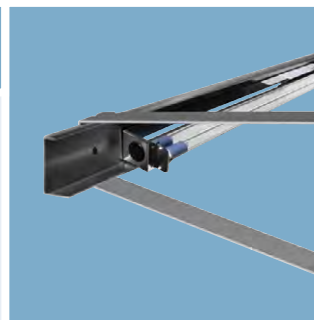
- 180 VA rating heavy-duty continuous use transformer
- Converts 480 V down to 230/1 V
- UL rated



Mounting

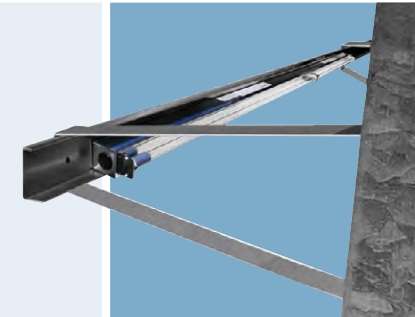
"A" Bracket

- Designed to hold, fasten and position DE Series fixture directly in front of the coil
- Sturdy, adjustable bracket offers installation flexibility



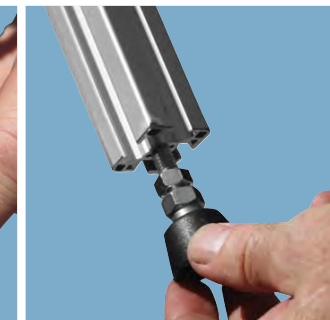
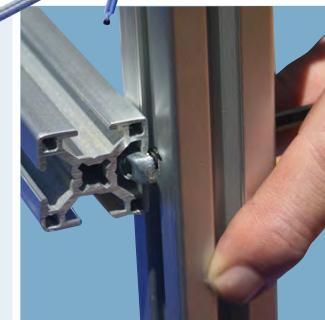
"A" Frame Rail System

- Designed for internally mounting DE fixtures to coil frame
- Slide-out, track mounted system optional



Framing Kit

- Designed for internally mounting DE Series fixtures to ductwork
- Slide-out, track mounted system for ease of servicing and maintenance
- Made from extruded aluminum to withstand HVAC environments
- Adjustable to allow assembly to be positioned in front of coil



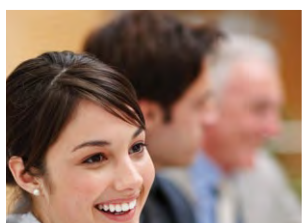


Sustainable solutions for healthier buildings

Founded in 1994 after a decade of intensive research and development, Steril-Aire launched an industry with its multi-patented devices that are systems-engineered specifically for the cold, moving air of an HVAC system.

Today, Steril-Aire remains the unrivaled leader in IAQ improvement in residential and commercial heating, ventilating, air conditioning and refrigeration systems. All products are manufactured in an ISO 9001:2008 facility.

From reducing energy consumption and controlling costs, to optimizing both human and mechanical productivity, UVC solutions from Steril-Aire pay measurable dividends to your bottom line.



Steril-Aire distributor:

787-272-3345

**TECHNICAL
INDUSTRIAL SALES, INC.**

MANUFACTURERS' REPRESENTATIVES & DISTRIBUTORS
OF HVAC AND PROCESS EQUIPMENT & ACCESSORIES



Complies with current U.S. and
Canadian safety standards for
use in HVAC equipment



STERIL-AIRE

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