

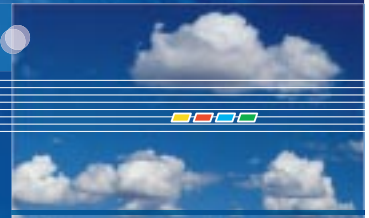
ALTRU...V

REAL SCIENCE FOR HVAC MAINTENANCE

ULTRAVIOLET SYSTEMS

**UNLEASH THE POWER OF THE "V"
TO OPTIMIZE PERFORMANCE
OF YOUR HVAC SYSTEM.**

Ultraviolet products from ALTRU-V™ optimize HVAC performance resulting in lower overall operating costs, safety, reliability, and cleaner air.



UNLEASH THE POWER OF THE V

ALTRU-V products from UVDI are transforming industry perceptions and procedures on how to most effectively and efficiently optimize solutions for HVAC maintenance. By applying real science and the relentless cleaning power of ultraviolet light, ALTRU-V products are optimizing HVAC maintenance by replacing outdated mechanical and chemical cleaning techniques that can be both costly and dangerous. The results are lower operating costs, safer environments for maintenance staff and occupants, and cleaner air.

AIR QUALITY

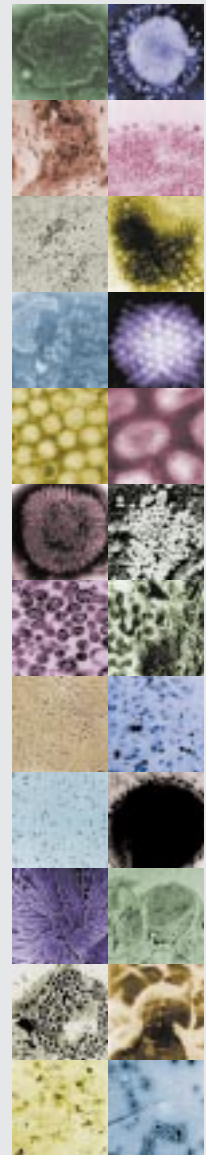
According to the World Health Organization, airborne particles, known as bioaerosols, account for a substantial portion of absences from school and work, and can lead to lower productivity.



THE POWER OF THE V MEANS YOU SAVE VALUABLE TIME AND MONEY

ALTRU-V products are the most cost-effective solutions for HVAC maintenance. A typical installation can pay for itself in less than one year through energy and maintenance savings. When installed, the lamps destroy contaminants in the HVAC system, including molds and bacteria, and maintains the system to virtually original specifications. The system then delivers better energy savings through improved system efficiency. This key benefit results from increased heat transfer in terms of net cooling and heating capacities and improved airflow. In addition, UVC's continuous cleaning significantly reduces the need for costly mechanical or chemical cleaning programs, and each lamp costs only pennies per day to operate. Among UVC products, ALTRU-V systems provide the lowest lifecycle costs, while offering lamps with the highest output retention in the industry.

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Ultraviolet light, properly applied, is most effective on mold spores, bacteria and viruses.

THE VIRTUES OF CLEANER AIR

Damp and dark HVAC systems are the perfect breeding ground for mold and bacteria. Each time the HVAC system runs, these contaminants and airborne viruses are circulated throughout the entire building. Research has shown that building occupants exposed to such contaminants can develop health issues, including sinus congestion, headaches, allergy asthma, and upper respiratory ailments, along with colds and flus. According to the World Health Organization, ailments caused by these contaminants account for a substantial portion of absences from school and work, and can lead to lower productivity. ALTRU-V products continuously destroy contaminants in the HVAC system, protecting building occupants and technicians.

ALTRU-V

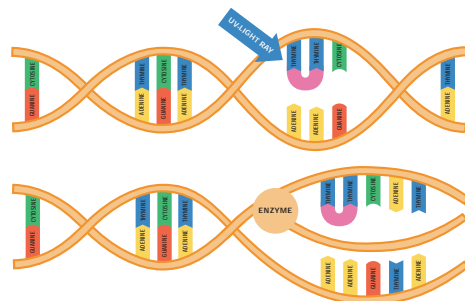
ALTRU-V, a division of UVDI, offers research-driven development expertise, unrivaled quality and engineered production of industrial-grade UV solutions for HVAC maintenance. Founded in 1992, UVDI operates its modern 93,000 sq. ft. facility in Valencia, California, with ISO 9001 certification. UVDI is the world's largest user of UVC lamps and is the North American Technical Resource Center for Philips Lighting Company.

ultra violet
systems

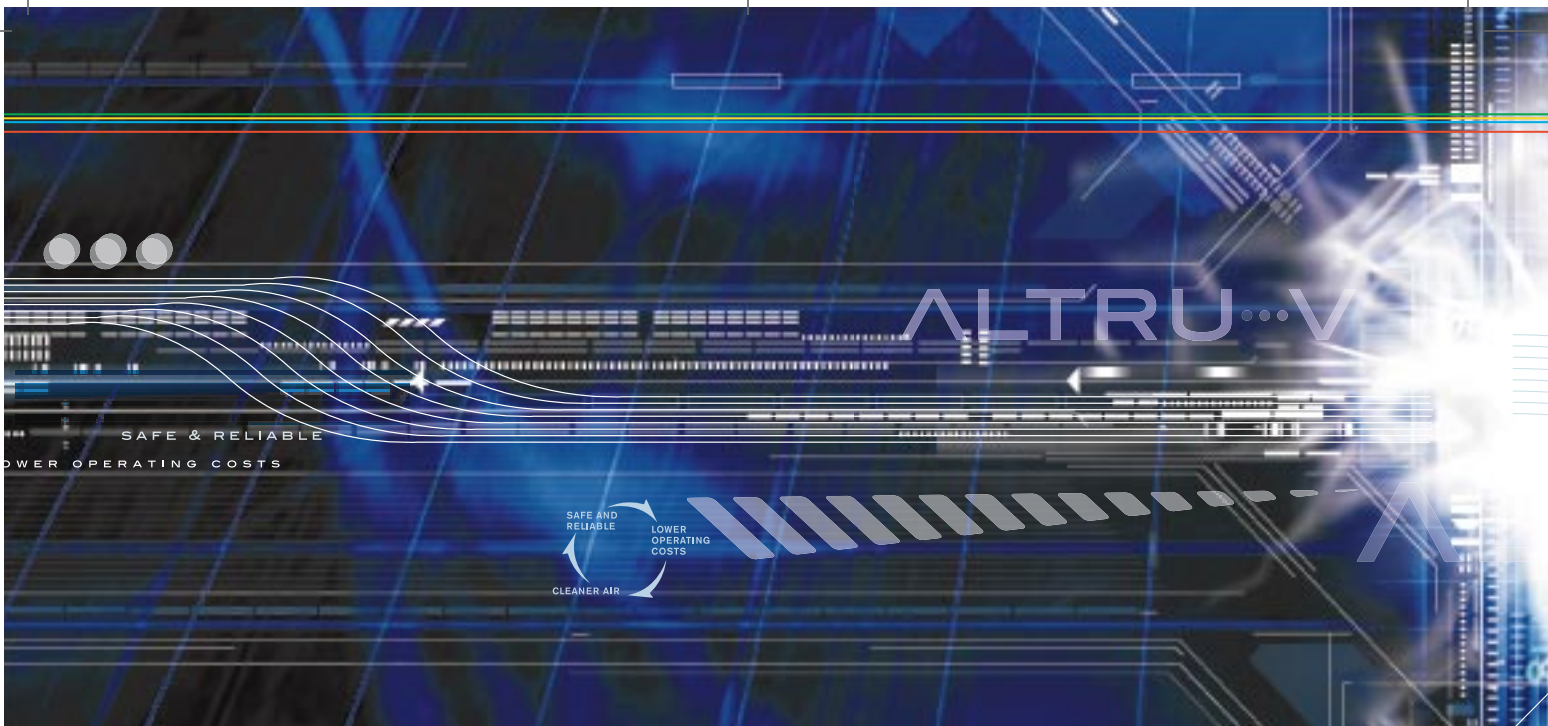


WHY UVC IRRADIATION WORKS SO WELL

UV energy is found in the electromagnetic spectrum between visible light and x-rays and is sometimes described as invisible radiation. Germicidal protection is delivered at 254 nanometers in the light spectrum and is known as UVC. Its photons have just the right wavelength to physically destroy the DNA of microorganisms. It is a safe and tested technology that uses lamps, similar to fluorescent tubes, to generate UVC light to kill bacteria, viruses and mold spores. UV light penetrates the outer cell membrane of the microorganism, passes through the cell body, reaches the DNA and alters the genetic material. Without chemicals the microorganism is destroyed and is unable to reproduce. UVC, combined with the right filter technology, is the optimal solution for cost effective and safe maintenance for HVAC systems.



DNA The DNA of the microorganism is destroyed rendering the organism harmless and preventing future reproduction.

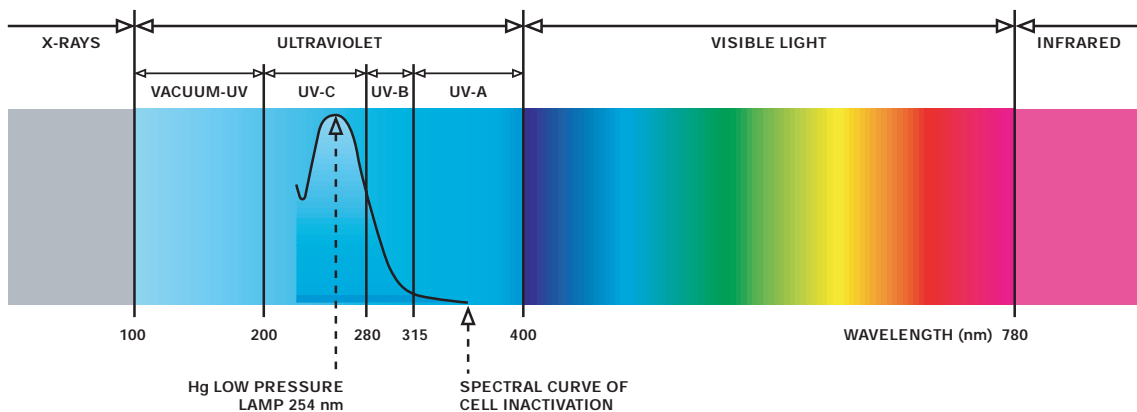


THE V ALSO STANDS FOR QUALITY, SAFETY AND RELIABILITY

UVDI has invested extensively to ensure that your products and systems meet or exceed your most stringent quality goals. We are ISO 9001 certified and we are experts at supplier quality management. As a supplier quality manager, we are responsible for overseeing and maintaining the quality of all of our own suppliers – assuring you that our rated quality extends to all components of every assembly. Our focus on quality extends to every facet of our production floor, including our demand flow operations strategy, which reduces the number of production steps for reduced scrap, more efficient production, and better responsiveness to your needs.

SPOTLIGHT ON SIMULATION

UVDI's research has resulted in a powerful software application, a proprietary design and predictability program that allows the design of UV-based systems with dramatically increased effectiveness. The software uses an UVDI-developed mathematical model of UV lamp performance, UV dose requirements, and airflow rates to determine the effectiveness of UV-based systems. The software user can input the type and number of UV lamps to be used, duct size, airflow (CFM) and air temperature, and the software will calculate the system's effectiveness to eliminate a targeted organism.





Together with UVDI's in-house test beds for lamp life, materials life, intensity testing, multiple environment over stress testing (MEOST), pressure and corrosion testing, our simulation and testing capabilities are unmatched. We work with many outside testing laboratories and have had bio-assay tests performed on all ALTRU-V products.

SMART SYSTEMS EQUAL BRILLIANT PRODUCTS

UVDI has put into place some of the most advanced robotic production equipment available today. Two automated cells now replace literally dozens of manual operations in our water purification line. Custom-built for UVDI, these cells are linked to each other and to other production areas through real-time statistical process control (SPC). This enables the production cells to measure all critical dimensions and parameters on the UV assemblies in real time for the highest overall quality. From wire crimping force to critical dimensions of every assembly, SPC is an integral part of the way we assure that the quality of the first assembly we deliver is as good as the 100,000th.

ALTRU-V Germicidal Ultraviolet Lamps (UVC) produce virtually all of their UV energy at about the 254 nanometer wavelength. This is the optimal wavelength to physically destroy the DNA of microorganisms, which stops cell reproduction.

Real Science from the Family Behind UV Solutions

The Veloz family has a distinguished history as a pioneer in UV technology with a legacy of over 70 years of cutting-edge innovation. The story begins in the 1930's when Luis Veloz, an engineer in Westinghouse's Lighting Division, led the first use of UV technology for air purification, and later in water purification. In 1949, he founded Aquafine Corp and where his son, Tom Veloz, later joined him. In 1992, Tom continued the family tradition when he founded, and became president, of UVDI.

UVDI continues to drive innovations in UV technology for the treatment and purification of air and water. UVDI has built one of the world's most comprehensive research, development and engineering teams dedicated to the application of UV technology. The company has assembled a board of advisors that includes PhD's, professional engineers and scientists with more than 70 years of combined UV experience. Combined with the ongoing PhD-level research of UV germicidal protection, UVDI continues to deliver to the industry and clients real science behind proven products and solutions.

NATIONAL SALES AND SERVICE

The ALTRU-V sales and service team is comprised of dedicated professionals at our Valencia, California, headquarters along with an extensive national network of distributors and local representatives. Our dedicated team of professional applications engineers with backgrounds in HVAC maintenance and air purification can help with your individual requirements. Our technical engineering and service personnel provide unparalleled support. Our customer service department is staffed with technically trained and caring people who are dedicated to working with you to address and solve any problem related to HVAC systems.

INDEPENDENTLY CERTIFIED

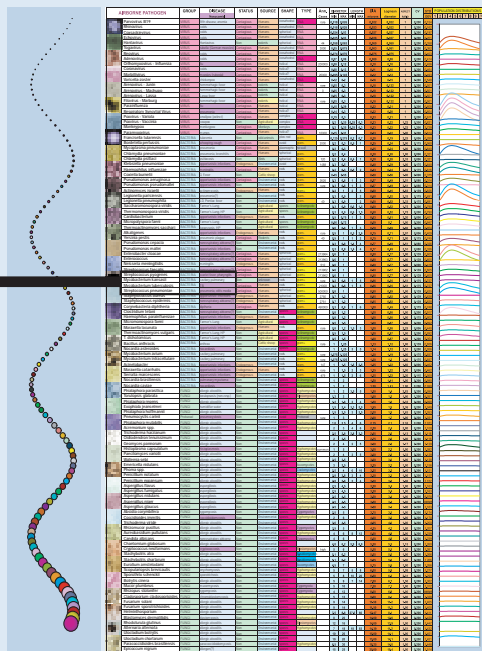
At UVDI, we are proud of the fact that we are independently certified by three leading organizations: ISO, Underwriters Laboratories, and CE. As an ISO 9001 certified supplier, we have received ISO's highest level of quality certification.



THE WORLD'S MOST WANTED FELONS

Altru-V applies the Power of the V to seek out and destroy the nastiest felons—bacteria, viruses, and molds hiding in your equipment and circulating through your ductwork. Rely on Altru-V to drive out the felons and drive efficiency and performance back into your HVAC system while you enhance your air quality.

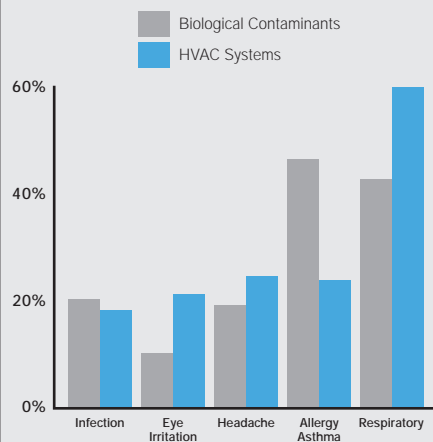
ALTRU-V The Optimal Solution for HVAC Maintenance



Streptococcus pyogenes	BACTERIA	scarlet fever, pharyngitis
Mycobacterium kansasii	BACTERIA	cavitary pulmonary
Mycobacterium tuberculosis	BACTERIA	TB
Streptococcus pneumoniae	BACTERIA	pneumonia, otitis media

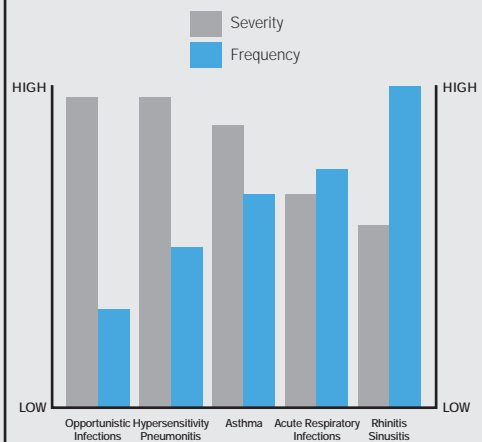
Call your sales representative or distributor for more information on UV products from Altru-V.

IAQ Symptoms Reported



Source: Air Resources Board/California EPA

Severity and Frequency of Bioaerosol-Related Illnesses



Source: World Health Organization

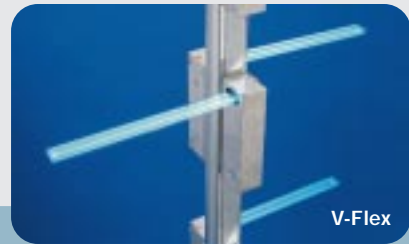
Air Quality Airborne particles, known as bioaerosols, account for 60-80% of indoor air quality problems. According to the World Health Organization, these contaminants account for a substantial portion of absences from school and work, and can lead to lower productivity.



V-Strike



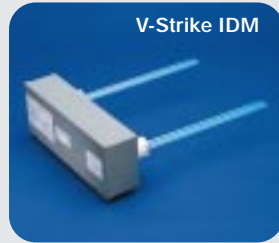
V-Mod



V-Flex



Safety Switch

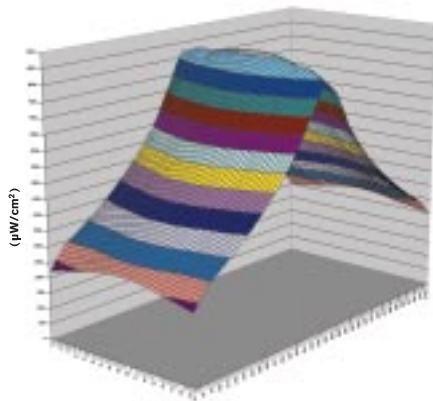


V-Strike IDM

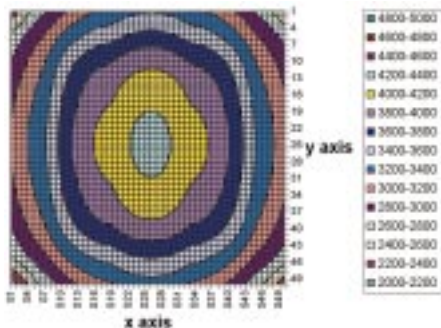
CURRENT HVAC PRODUCT OVERVIEW

ALTRU-V provides a full line of products for retrofitting as well as for new installations. The V-Mod™ design delivers UVC energy to the coils, drain pans and plenum through a modular design (built-up or side access), allowing for maximum application flexibility in systems of almost any size. The V-Strike™ system provides a supported lamp design, allowing for exterior-mounted applications in systems of up to 10 tons. The V-Flex™ system is a high-intensity surface and air stream disinfection system with a “nestable” design that can emit unprecedented energy in every direction (360°). The V-Strike IDM with dual biaxial lamps is perfect for light commercial applications. Contact UVDI for other UV based products and for a full line of UV components such as lamps, ballasts and quartz.

1 Intensity Field at the Horizontal Midplane



2 Coil Surface Intensity Distribution (µW/cm²)



1. V-Smart™ software shown modeling the distribution of UV energy within the moving airstream of a typical large HVAC duct. UV applications can be optimized. The software also calculates the performance of the system in destroying common airborne pathogens.

2. V-Smart software shows the UV intensity distribution over a typical HVAC surface such as a filter bank or an A/C coil. The software provides an outstanding tool for selecting and locating UV fixtures to maximize energy distribution.

V-SMART™ SOFTWARE FROM ALTRU-V OPTIMIZES ULTRAVIOLET SELECTION FOR HVAC DESIGN AND MAINTENANCE

V-Smart™ software enables optimization of design and product selection to reduce energy costs, improve performance and provide a rapid return on investment.

V-Smart software programs help take the confusion out of the selection and application of Ultraviolet (UVC) products and solutions for HVAC design and maintenance. For more than a decade, it's been known that proper application of UVC destroys bacteria, viruses and mold, helping to safely and efficiently maintain the near-new status of HVAC equipment resulting in lower energy costs while providing cleaner air. However, until recently, effectively designing or retrofitting HVAC systems with ultraviolet products, has often times been confusing and frustrating. V-Smart software eliminates frustrations by answering questions such as how much UVC is required, what output performance is necessary, and how long before it pays for itself.

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If you're looking for an IAQ solution that's more than a fan and a filter, look to ALTRU-V (A Division of UVDI). Our research is leading the way to more effective UV solutions and combined systems that offer dramatic performance advantages over single-technology systems. UVDI is your ideal partner for developing, designing and manufacturing complete sub-systems that give your air quality solutions a decided, competitive advantage.



ALTRU-V

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