



# CRYSTAL-AIRE® uv

High-Efficiency Ultraviolet Air Purifier



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There is more awareness and focus now than ever before on the air that we breathe and the desire to filter out and remove air pollutants such as allergens, dust, viruses, mold and bacteria that may be floating or airborne.

Parker Hannifin, the trusted, global leader in filtration systems innovation is excited to introduce the **CRYSTAL-AIRE<sup>uv</sup>** air purifier. The basis of design is a particle irradiation and filtration system that uses advanced technology to purify and improve the air quality within a wide variety of indoor spaces where we live, work, and play.

The **CRYSTAL-AIRE<sup>uv</sup>** air purifier is a mobile, wall mount or ceiling mount particle irradiation and filtration system that utilizes ultraviolet energy, and high efficiency filtration to neutralize and clean ambient air within an occupied room or space.

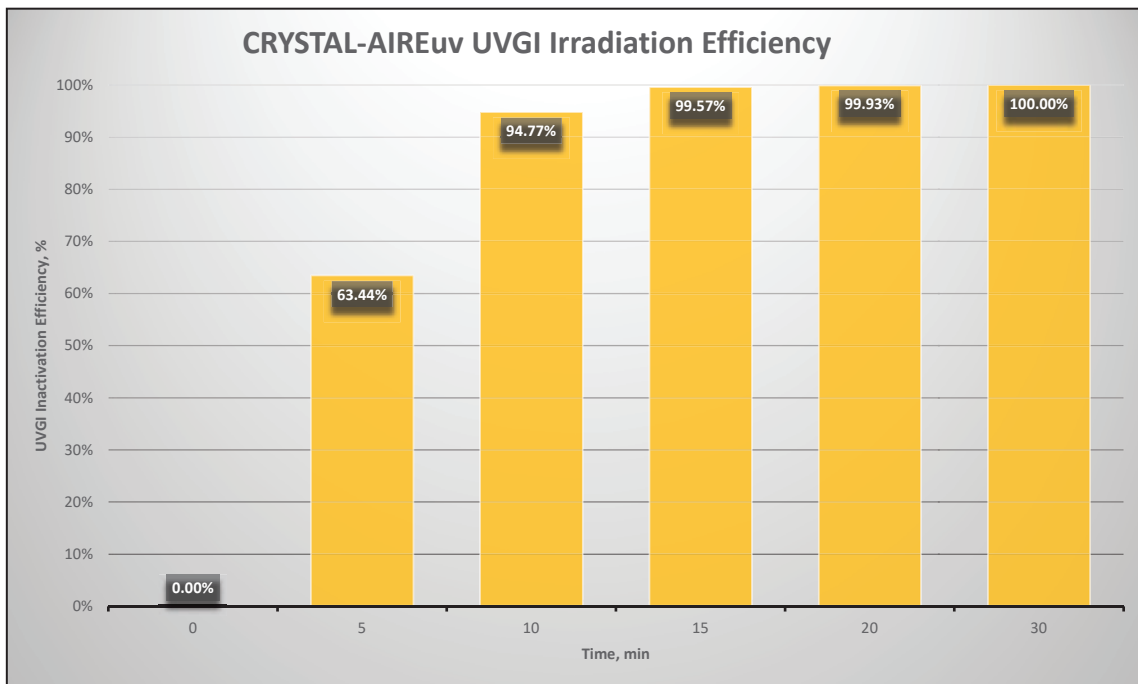
The innovative design of **CRYSTAL-AIRE<sup>uv</sup>** combines ultraviolet germicidal irradiation (UVGI) wavelength technology with high efficiency True-HEPA filtration to provide continuous cleaning of air in an indoor space up to 48,000 ft<sup>3</sup>\*. The combination of ultraviolet radiation and True-HEPA filtration captures, irradiates and filters bacteria, dust, mold spores, odors and virus particles as small as 0.3 microns which is about 250 times smaller than a human hair.



## Theory of Operation

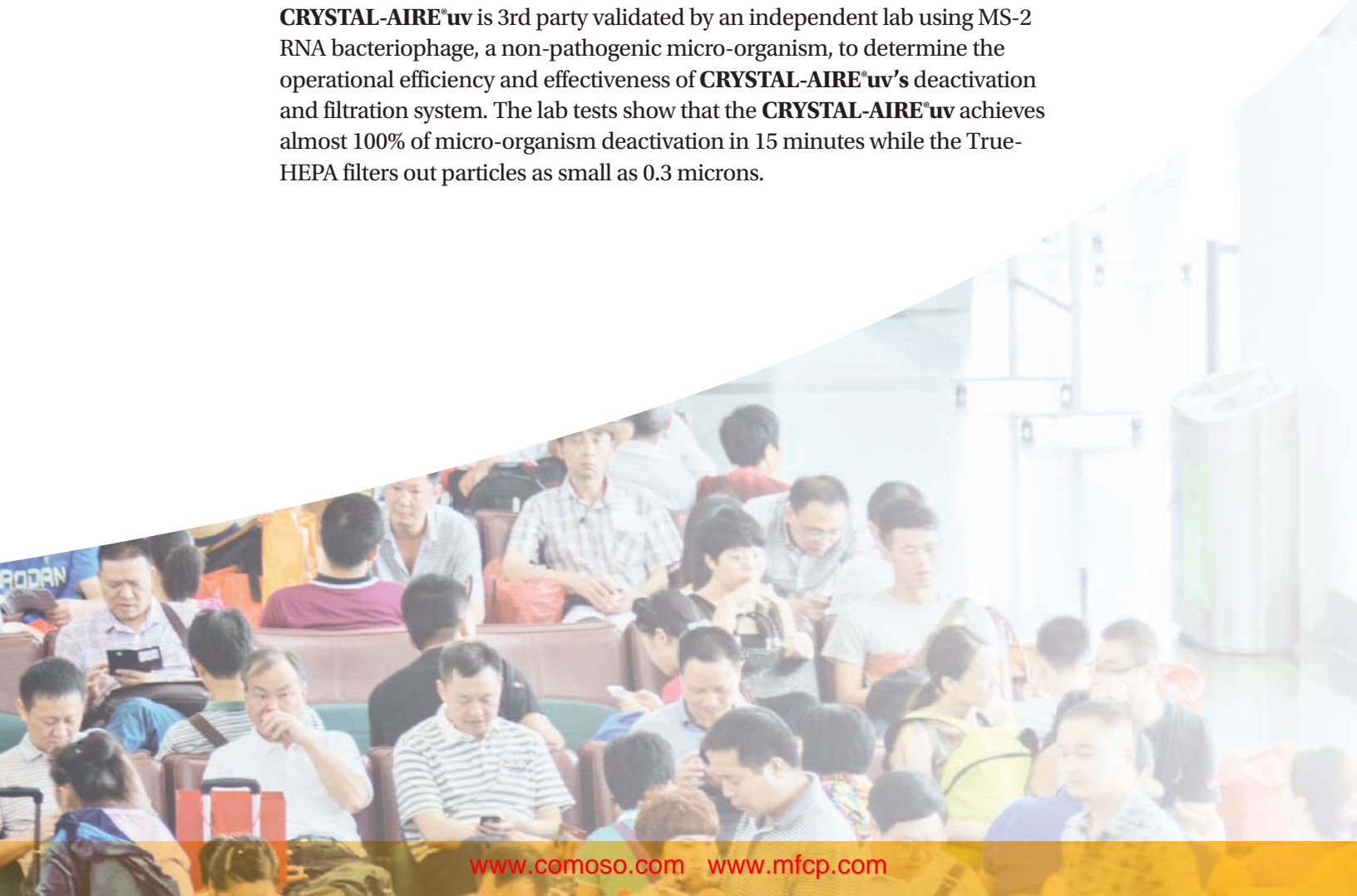
As the air enters at the base of the unit and into the first stage, large particles are filtered out of the airstream by the MERV 8 pre-filter. The air then passes into a second stage, where particles are dosed with high-intensity UVGI energy. In the third stage, the high-efficiency True-HEPA filter captures particles as small as 0.3 micron, and the UVGI high intensity energy irradiates them. The cleaned and purified air is then returned out through an air diffuser and back into the indoor space. Prior to the air diffuser, there is also an optional fourth stage where the air can pass through a carbon filter to help with odors in difficult environments.





The chart shows that **CRYSTAL-AIRE®uv** deactivates >94% of micro-organisms in 10 minutes and >99% in 15 minutes.

**CRYSTAL-AIRE®uv** is 3rd party validated by an independent lab using MS-2 RNA bacteriophage, a non-pathogenic micro-organism, to determine the operational efficiency and effectiveness of **CRYSTAL-AIRE®uv**'s deactivation and filtration system. The lab tests show that the **CRYSTAL-AIRE®uv** achieves almost 100% of micro-organism deactivation in 15 minutes while the True-HEPA filters out particles as small as 0.3 microns.



Product Specifications	
Airflow, SCFM:	300 - 800
Sound Level, dB(A):	50 - 65
Input Power:	115V/1Ph/60Hz
Operating Current, FLA:	12
Pre-filter area, sq.ft.:	4.8
Main filter area, sq.ft.:	113
UV Lamp Type:	(4) Non-Ozone, High Output, Germicidal C band, 254nm
UV Lamp estimated life, hrs:	17,000
Product Dimensions, inch:	19L x 20W x 48H
Product Weight, lbs:	158
Electrical Certification:	cETLus
Lockable casters included on mobile unit	
8ft power cord with NEMA 5-15 receptacle	

Part Description	Part Number
Mobile Unit	01-10258-00
Wall Unit	01-10258-01
Ceiling Unit	01-10258-02
Hanging Unit	01-10258-03
MERV 8 Pre-filter	DPHT-101
MERV 13 Main Filter	2809349
MERV 14 Main Filter	2909349
HEPA Main Filter	2971351
Carbon Filter	33-10163
Outlet Duct Flange	18-11551



## Product Applications

administrative offices  
worship centers  
retirement/assisted living centers  
municipal centers  
police stations  
residential halls  
courtrooms  
reception areas  
hotel lobbies  
passenger terminals  
offices

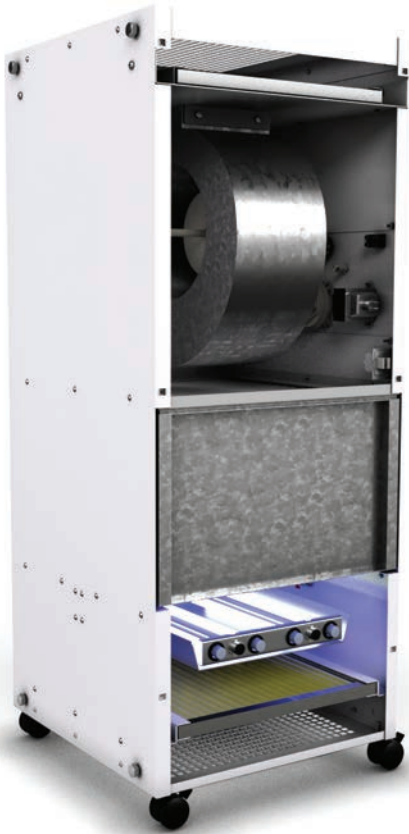
conference and meeting spaces  
physical fitness centers  
gymnasium  
classrooms  
breakrooms  
restrooms  
lunchrooms  
restaurants  
bars/nightclubs  
weight rooms



## Product Highlights

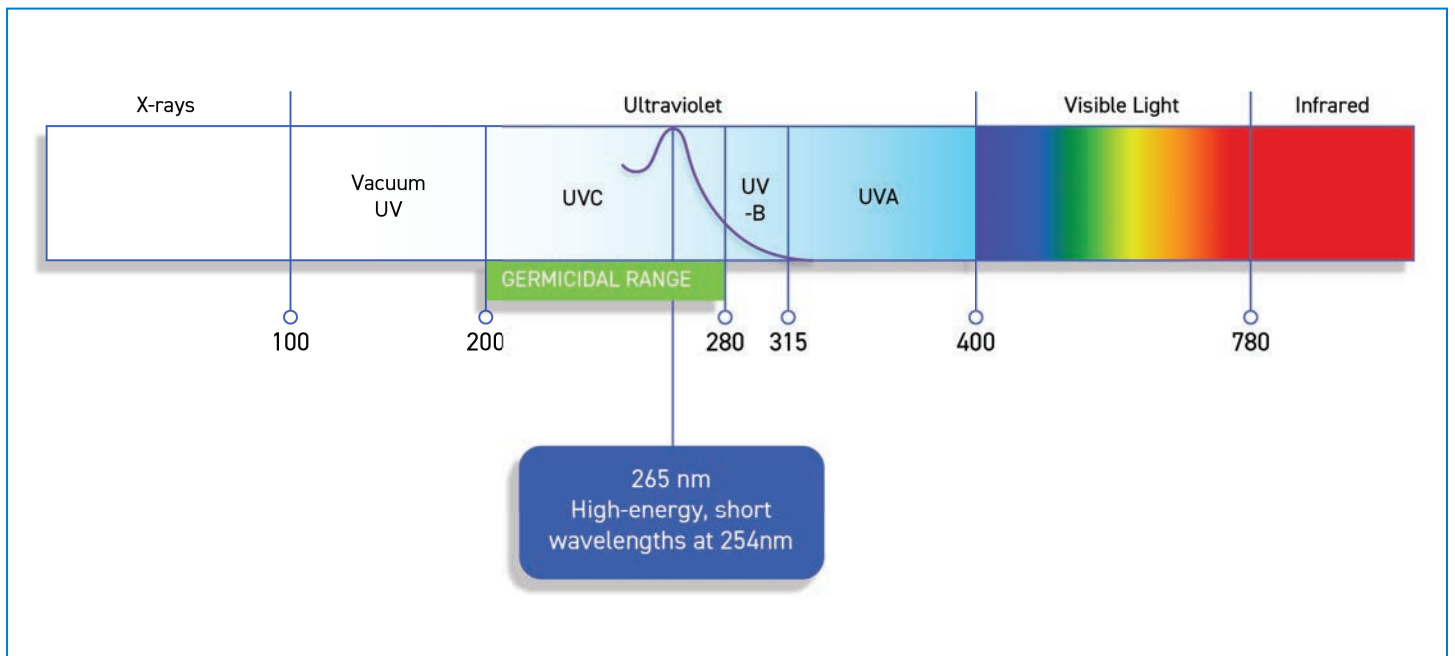
- Available configurations: Mobile, Wall, Ceiling & Hanging
- UV-C Germicidal Technology
- MERV 8 pre-filter
- 99.97% True-HEPA main filter
- Illuminated On/Off switch
- 4 Position fan speed selector
- EC motor for long life
- Laminated safety UV viewing glass
- Change filter indicator light
- Access door safety switch
- 4 lockable casters (installed)
- Optional carbon filter for odor control
- Optional outlet duct flange for negative pressure room air

## How Does UV-C Work?



Ultraviolet Germicidal Irradiation (UVGI) has a history of being used to deactivate micro-organisms. According to the American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE), UVGI uses short-wave ultraviolet C band (UV-C) energy to inactivate viral, bacterial and fungal organism(s) where the UV dosage disrupts its ribonucleic acid (RNA) or deoxyribonucleic acid (DNA) rendering them sterile deactivated and unable to replicate. **CRYSTAL-AIRE<sup>®</sup>uv** uses a variation of an In-Duct UV light arrangement where the UV lamps are placed inside the duct and doses and radiates the airstream and airborne particles as they pass by or 'Fly-

through' and the UV chamber then uses surface dosing when particles become trapped in the HEPA filter. According to the FDA, UV-C radiation is a known disinfectant for air, water, and nonporous surfaces. UV-C has effectively been used for decades to reduce the spread of bacteria, such as tuberculosis. In addition, UV-C radiation has been shown to destroy the outer protein coating of the SARS-Coronavirus and may also be effective at inactivating the SARS-CoV-2 virus.



## Room Application

The application of **CRYSTAL-AIRE<sup>uv</sup>** is dependent on air changes per hour (ACH) or the amount of time it takes to change out or replace all the air that takes up a volumetric space.

The Centers for Disease Control (CDC) and American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) publish recommended ACH for various room types and sizes. Please refer to ASHRAE or CDC websites for recommended room ACH.

The CDC recommends that Mobile HEPA filtration units be selected with a Clean Air Delivery Rate that meets or exceeds the square footage of the room or area in which it will be used.

ASHRAE has published recommendations that Mobile HEPA/UV devices be provided for each classroom that target highest achievable air change rates that will not generate excessive noise or negatively impact general air distribution including 1 CFM per sq ft in residential halls and 6 to 12 ACH for student health facilities.

The chart below is to be used for reference only and shows the CFM required to meet number of air changes per hour (# ACH) based on a room size. For example, an ACH of 6 for a 20x30 room with a 10ft ceiling requires 600 CFM. One **CRYSTAL-AIRE<sup>uv</sup>** set at speed 3 will deliver 600 CFM and achieve the desired room ACH. Maximum room size for **CRYSTAL-AIRE<sup>uv</sup>**: 48,000 ft<sup>3</sup> (60x80x10ft; max. airflow @ 1 ACH)

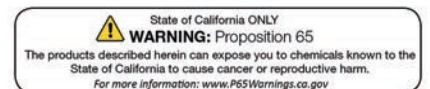


CFM CHART for ROOM SIZES and AIR CHANGES PER HOUR (ACH)							
# ACH	150 ft <sup>2</sup> 10x15	300 ft <sup>2</sup> 15x20	400 ft <sup>2</sup> 20x20	500 ft <sup>2</sup> 20x25	600 ft <sup>2</sup> 20x30	750 ft <sup>2</sup> 25x30	1200 ft <sup>2</sup> 30x40
3	75	150	200	250	300	375	600
6	150	300	400	500	600	750	1200
9	225	450	600	750	900	1125	1800
12	300	600	800	1000	1200	1500	2400

CFM Chart assumes 10ft ceiling height.

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