



JEWELL

M E C H A N I C A L

*A Nashville Original*

HEATING - COOLING - PLUMBING

## **INDOOR AIR QUALITY**

### Product Overview

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### HOW TO VIEW LINKS

Clickable links are available on each category page. These links are from Jewell Mechanical's certified partner and vendor network and all sites have Cookie Policies. If you receive an error when clicking on a link, please directly visit the manufacturer's website.



## AIR QUALITY MONITORS

### CPS



#### CPS IAQ PRO

- Analyzes 8 air quality factors by sampling the surrounding air in parts per million
- 30 minute (default, adjustable) timed air quality test to quickly determine if air quality problems are present

<https://www.cpsproducts.com/indoor-air-quality/iaqpro/>

### AIRTHINX



#### AIRTHINX

- Airthinx monitors and remediates air quality dynamically 24/7
- Access data via the user-friendly app
- The air on-site travels continuously into the IAQ device where built-in sensors evaluate its quality.
- When the IAQ data indicates any deviation from the standard levels, the remediation process is automatically triggered and activates

<https://airthinx.io/iaq/>



## VENTILATION

Jewell Mechanical can help you upgrade any manufacturer's rooftop unit to include modern economizers by using Honeywell LCBS Connect products.

### LCBS-T ECONOMIZING COMMERCIAL THERMOSTAT



#### FEATURES

- Intuitive 4.3-inch color touchscreen wall module with temperature and humidity control
- Customizable programming and display options with 7-day / holiday scheduling
- Built-in optional economizer
- Two-wire SYLK bus simplifies installation





## VENTILATION

Jewell Mechanical can also provide fully assembled CEC approved ultra-low leak economizers with Fault Detection and Diagnostics (FDD) for most brand rooftop units with our MicroMetl product line. Economizers options include Honeywell Jade or Belimo Zip for Title 24 compliance.

## MICROMETL ULTRA-LOW LEAK ECONOMIZERS



<https://www.micrometl.com/>



<https://blog.micrometl.com/category/economizer-mixing-box/>



## VENTILATION

Jewell Mechanical can also assist in upgrading any manufacturer's rooftop unit to meet current two-speed indoor fan and Demand Control Ventilation requirements with Honeywell's SmartVFD product line.

[https://buildingcontrols.honeywell.com/literature/Roof\\_Top\\_Unit\\_Solution\\_01-00041.pdf](https://buildingcontrols.honeywell.com/literature/Roof_Top_Unit_Solution_01-00041.pdf)

<https://buildingcontrols.honeywell.com/Variable-Frequency-Drives/SmartVFD-HVAC2>

## HONEYWELL SMARTVFD HVAC2



If the existing rooftop unit does not have VFD capable indoor fan motor, we can sell a new VFD rated motor from US Motors.

<http://apps.motorboss.com/Datasheets/Suitability-MotorsVFDs.pdf>

## VFD RATED US MOTORS





## VENTILATION

For standalone ventilation applications, Jewell Mechanical offers multiple ERV/HRV product lines as well as packaged high outside air products and 100% outside air products.

### ERV / HRV OFFERINGS

#### BROAN FRESH AIR SYSTEMS



<https://www.broan-nutone.com/en-us/fresh-air-systems>

#### SOLER & PALAU ERV'S



<https://www.solerpalau-usa.com/products/erv.html>

#### MICROMETL ERV'S



<https://www.micrometl.com/>

#### REZNOR® ERV'S

Jewell Mechanical also sells Reznor packaged rooftop units with optional DX cooling, gas heating, energy recovery and dehumidification.

<https://www.reznorhvac.com/?s=ERV>





# FILTRATION

## KEY TERMINOLOGY FOR FILTRATION

- MERV Rating - Minimum Efficiency Reporting Values, or MERVs, report a filter's ability to capture particles between 0.3 and 10microns ( $\mu\text{m}$ )
- Particle Size Range – This is the composite particle size efficiency percentage within a range of particle size. The three ranges used in Std 52.2 are E1 - (0.3-1.0  $\mu\text{m}$ ), E2 - (1.0-3.0  $\mu\text{m}$ ), and E3 – (3.0-10.0  $\mu\text{m}$ ).

## MECHANICAL AIR FILTERS

- Consist of media with porous structures of fibers or stretched membrane material to remove particles from airstreams. Filters range in size but the typical depths of filters are 1", 2", 4" and 12-15".
- Some filters have a static electrical charge applied to the media to increase particle removal.
- The fraction of particles removed from air passing through a filter is termed "filter efficiency" and is provided by the Minimum Efficiency Reporting Value (MERV) under standard conditions.
  - MERV ranges from 1 to 16; higher MERV = higher efficiency
  - MERV  $\geq 13$  (or ISO equivalent) are efficient at capturing airborne viruses
- Generally, particles with an aerodynamic diameter around 0.3  $\mu\text{m}$  are most penetrating; efficiency increases above and below this particle size.
- Overall effectiveness of reducing particle concentrations depends on several factors:
  - Filter efficiency
  - Airflow rate through the filter
  - Size of the particles
  - Location of the filter in the HVAC system or room air cleaner



## FILTRATION

### MERV 13

MERV 13 air filters remove common airborne allergens as they pass through the air filter including dust, pollen, mold spores, bacteria, pet dander, and dust mites. ASHRAE currently recommends using at a minimum, the MERV 13 filter, which is at least 85% efficient at capturing particles in 1  $\mu\text{m}$  to 3  $\mu\text{m}$  size range. MERV 13 filters are significantly more efficient at capturing the particles of concern than a typical MERV 8 filter which is only around 20% efficient in the 1  $\mu\text{m}$  to 3  $\mu\text{m}$  size range.

If MERV 13 filters cannot be installed, consider the following:

- Increase the filtration in the unit to the maximum available
- Provide a recirculation fan filtration unit and duct into the return of units
- Provide a HEPA filtration unit which re-circulates air within the space
- Consider additional treatment technology to kill/disable airborne infectious aerosols (refer to Building Readiness Document for additional guidance)
- Refer to ASHRAE Filtration and Disinfection system section for additional information
- Consider alternate filter locations in return duct or grille but consider static pressure drop implications and relationship with outside air dampers





## FILTRATION

### PORTABLE & STAND-ALONE AIR PURIFIERS

Jewell Mechanical sells and stocks multiple lines on portable and stand-alone IAQ products. These address IAQ without modifications to existing HVAC systems. (Portable air cleaners like the Air Scrubber Plus, Healthway, etc.

#### OPTIONS FOR PORTABLE OR STANDALONE AIR CLEANING DEVICES:

The new Day & Night® OptiClean™ Air Scrubber can help maintain cleaner and healthier indoor air quality in classrooms, libraries, gymnasiums, restrooms and more. It draws air from inside the space, removes many contaminants and discharges cleaner air using HEPA (High Efficiency Particulate Air) filtration.<sup>1</sup>

Similar to the OptiClean Negative Air Machines launched in April to assist hospitals create isolation rooms for the treatment of COVID-19 patients, the OptiClean 600-cfm and 1500-cfm Air Scrubbers are portable and well suited for individual classroom use.

Day & Night OptiClean units plug into a standard wall outlet and use a 99.97% efficient, long-life HEPA filter to significantly reduce the presence of contaminants in the air. OptiClean units exceed the ASHRAE® school reopening recommendation<sup>2</sup> that portable electric HEPA machines be introduced into each classroom and provide a minimum of two air changes per hour.<sup>3</sup>

One 600-cfm unit can adequately clean the air in an average-sized classroom (e.g., 600 sq. ft.). The 1500-cfm model is designed for larger spaces (e.g., 1500 sq. ft.). And, multiple units can be used for even bigger areas. Both models come equipped with low-, medium-, and high-switches to easily adjust the airflow to the needs of the room.

Day & Night engineers have developed an OptiClean Sizing and Selection Tool that helps dealers determine the number of units necessary for the space and/or the number of desired air changes per hour.

Taking only three-square feet of floor space when installed vertically, OptiClean Air Scrubbers can be placed conveniently in classrooms, cafeterias, libraries, or gymnasiums. They can also be placed horizontally for application flexibility.



<https://aircold.fergusonhvac.com/2020/12/21/day-night-portable-opticlean-air-scrubber/>

<sup>1</sup> corporate.carrier.com/corporate-responsibility/covid-19/building-a-healthier-future/

<sup>2</sup> ashrae.org/technical-resources/reopening-of-schools-and-universities

<sup>3</sup> When properly specified.

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## FILTRATION

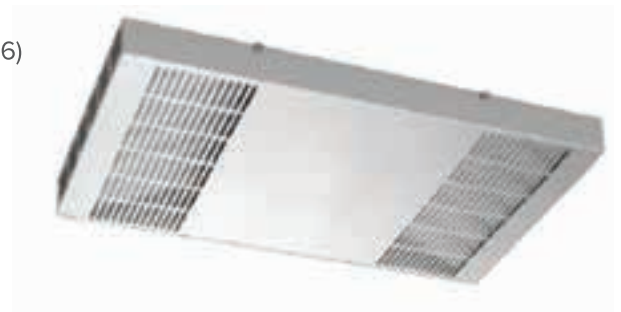
Honeywell offers ceiling mounted standalone and ducted fan powered IAQ solutions in MERV 12, MERV 16 and 99.97% HEPA filters. CPZ Adsorbent Modules are available to collect gases, vapors, odors and VOCs.

## HONEYWELL CEILING MOUNTED AND DUCTED IAQ PRODUCTS

### FEATURES

- Three levels of filtration:
  - 99.97% High Efficiency Particulate Air (HEPA)
  - Hospital grade filter 95% efficient at 0.3 micron (MERV 16)
  - 95% ASHRAE (MERV 12)
- Circulates up to 1250 cfm.
- Designed to overcome the increase in air flow resistance normally caused by filter loading.
- White or black color cover to complement the ceiling.
- CPZ™ module removes up to 95% of the space odors for up to 24 months.
- 3-Speed remote wall switch.

HONEYWELL F111 (SERIES 3)  
IN-CEILING MEDIA AIR CLEANER



### APPLICATION

The F111 (Series 3) Ceiling Media Air Cleaner is a media air cleaner that uses a three-speed direct drive forward curve blower motor with particle filter. When equipped with CPZ™ modules (2), gases and odors are adsorbed from the air passing through the unit. The air cleaner removes airborne particles such as dust, soot, mold spores, pollen and some cooking smoke from the air circulated through the filter.

<https://www.honeywellbuildings.in/bms/indoor-air-quality/duct-mounted-air-purifiers>

<https://buildings.honeywell.com/content/dam/hbtbt/en/documents/downloads/680198-f111-product-data.pdf>



## FILTRATION

Several portable are models available. California associates remember ozone-free.

<https://www.airscrubberbyaerusca.com/>

### PORTABLE AIR SCRUBBER BY AERUS

#### AIR SCRUBBER ACTIVEPURE TECHNOLOGY AIR PURIFIER

- Residential / Commercial
- Pure and clean + ozone-free (up to 3,000 sq. ft.)
- Portable
- Plug and play into 120v outlet
- PCO / proactive oxidation with UV

**Air Scrubber**  
BY AERUS  
WITH CERTIFIED SPACE TECHNOLOGY™



### CEILING MOUNTED PURECLOUD BY AERUS



#### DESCRIPTION

- Designed to be mounted into a ceiling
- Educational and childcare facilities
- Residential and assisted living environments
- Business offices and professional buildings
- Public lobbies and waiting rooms



#### APPLICATION

- 2 x 2 foot drop-in ceiling unit
- Natural air purifier with ActivePure® Technology
- Installed by a professional electrician
- Cleans up to 2,000 sq. ft. of air per hour
- Low maintenance
- Discreet installation

#### TECHNOLOGY

PureCloud substantially reduces odors, visible smoke from the air, and microbial populations on surfaces,\* commonly found in the air of a variety of indoor living and working environments. PureCloud utilizes ActivePure® Technology – consisting of a special UV light and photocatalyst target – thereby creating an Advanced Oxidation Plasma containing several friendly oxidizers. Our Certified Space Technology continuously protects and purifies the air, and attacks contaminants on all surfaces.\*

\* Published scientific studies conducted by Dr. James Marsden at Kansas State University demonstrated that ActivePure® Technology substantially reduces microbial populations on surfaces. The study's results are being provided solely for informational purposes. The study's results have not been reviewed by the FDA, EPA, or any other governmental agency. Our products are not medical devices and are not intended to diagnose, treat, or cure any disease. We make no claims and no claims should be inferred as to the efficacy of our products to sanitize, disinfect, or kill germs or other antimicrobials.





## FILTRATION

### HealthWay Portable Air Cleaners

<https://www.healthway.com>

#### HW Deluxe - Professional DFS Air Purification System

The HealthWay Deluxe has been proven to capture 99.99% of all particles as small as .007 micron in size. The heavy duty commercial-grade gas and odor filter eliminates most gases and the patented DFS technology removes 94 – 100% of harmful viruses, molds, and bacteria, leaving nothing but fresh, pure, healthy air. This technology is currently used in hospitals, medical clean rooms, government buildings and military applications.



#### 950 P – Portable DFS Air Cleaning System

The 950P delivers high CFM with low energy consumption and the mobile Design – built in 3.5” safety lock swivel casters, full width handle for easy movement. Includes features like multiple fan speeds for ease of control, independent air flow/distribution control to facilitate placement anywhere in the space, and a patented V-Bank Filter to increase surface area and provides higher dust loading capacity. The 950P has a 99.99% DFS Filtration Efficiency – down to a size of 0.007 microns.



#### HW 10600-9 - DFS Compact Air Purification System

The HealthWay 10600-9 is designed for home or small office use. It uses the same advanced, patented technology that makes HealthWay the world leader in indoor air quality. The simple, stylish design complements any bedroom or small living space decor.





## UV LIGHT TREATMENT

### HOW DOES UVC FOR HVAC WORK?

The C wavelength of the UV spectrum targets the DNA of microorganisms, destroying their cells and making replication impossible. Directed at a cooling coil or drain pan, UVC energy destroys surface biofilm, a gluey matrix of microorganisms (bacteria, fungi, debris, et al.) that grows in the presence of moisture. Biofilm is prevalent in HVAC systems and leads to a host of indoor air quality (IAQ) and HVAC operational problems that are sometimes mistakenly attributed solely to mold. UVC also destroys airborne viruses and bacteria that circulate through an HVAC system.

### IS UVC LAMP OUTPUT IMPORTANT?

Output is critical because it determines the effectiveness of the designed solution. To effectively clean coils and eliminate biofilm, a UVC device should provide a minimum of 1,225  $\mu\text{W}/\text{cm}^2$  of energy striking any point on the coil face of the HVAC on day one and a minimum of 750  $\mu\text{W}/\text{cm}^2$  of energy striking any point on the coil face on day 365.

### COMMERCIAL UV-C LIGHT PRODUCTS FOR ROOFTOP UNITS:

Jewell Mechanical has vendor agreements with several commercial UV-C manufacturers. These manufacturers are Fresh Aire UV and PremierOne.

There are some notable differences in these products with pricing and lead times.

- **Fresh Aire UV** and **Premier One** size UV bulbs for rooftop units for a multi-pass kill, meaning the air will need to pass across the bulb multiple times to inactivate a virus.
- **Fresh Aire UV** and **Premier One** are lower cost items, not a lower quality. They apply less UV-C for each application.
- **Premier One** has the shortest lead time of any IAQ manufacturer. Current production time is two business days before shipping.



## UV LIGHT TREATMENT

### SANITIZATION: UVGI

Fresh Air UV: Full product offering from residential to Large commercial, including ductless and tight-fit applications

- Ultraviolet Germicidal Irradiation
- Mold and germs are bad news for your lungs.
- The A-coil above the furnace is a perfect place for mold to thrive.
- UVGI: kills living contaminants it shines on for an extended period denying their opportunity to spread



### UV APPLICATION INFORMATION

- Residential: TTUVAPCOMAG15ER2, TTUVAPCOXDI3P, TTUVBTER2
- Commercial RTUs: Full chart available in IAQ channel within HVAC technology TEAM
  - 1-5T: TTUVAPCOMAG15ER2      – 25-30T: 260D
  - 6-10T: 232S OR 232D      – 35-40T: (2) 260D
  - 12-14T: 246S OR 246D      – 45-50T: (3) 260D
  - 16-20T: 246D OR 260S if coil allows for 60 inch bulb

Ductless: TTUVMINILED SW, TTUVTFK (pancake, ceiling recessed etc.)

Electrostatic filters: TTUVPLPXXX: sizes vary



<https://www.freshaireuv.com/commercial-hvac/>



## UV LIGHT TREATMENT

### FRESH-AIRE

<https://www.freshaireuv.com/commercial-hvac/bluecalc-estimate/>



BLUE-TUBE XL DUAL

### PREMIEREONE

<http://premieroneproducts.com/pm1.html>



**OTHER IAQ DEVICES:** Needlepoint Bipolar Ionization and Photocatalytic Oxidation IAQ devices offer simple to install and maintain solutions, typically at a lower installed cost from commercial UV-C installations.

Jewell Mechanical has vendor agreements with two ionizer manufacturers and two PCO manufacturers.



## DEHUMIDIFICATION AND HUMIDIFICATION

Jewell Mechanical also has products available to either dehumidify or humidify the indoor commercial space to ASHRAE recommendations.

### PACKAGED ROOFTOP UNITS WITH HOT GAS REHEAT DEHUMIDIFICATION

Our unitary packaged units offer optional hot gas reheat dehumidification. While the actual control sequence varies slightly by manufacturer, the overall functionality of hot gas reheat is the same.

Hot gas reheat dehumidification option can be the perfect dehumidification solution for many different applications. During dehumidification, the modulating hot gas reheat system condenses water out of the air stream at the unit's evaporator coil, and then, to avoid overcooling the supply air, reheats the air to a desired supply air temperature.

### APRILAIRE® STAND-ALONE DEHUMIDIFIERS

#### R1820

- 70 PPD
- 120V
- Washable MERV 8 filter
- Specific for crawl space installs

#### R1830

- 70 PPD
- 120V
- Washable MERV 8 filter

#### R1850

- 95 PPD
- 120V
- Washable MERV 8 filter

#### R1852

- 95 PPD
- 120V
- Free standing dehumidifier with casters
- Washable MERV 8 filter

#### R1870

- 130 PPD
- 120V
- Washable MERV 8 filter

#### R1872

- 130 PPD
- 120V
- Free standing dehumidifier with casters
- Washable MERV 8 filter



<https://www.aprilaire.com/whole-house-products/dehumidifiers>



## DEHUMIDIFICATION AND HUMIDIFICATION

Jewell Mechanical also carries commercial grade dehumidifiers.

For Humidifiers we have multiple products available from Aprilaire (featured below), Honeywell, and Carnes.

<http://www.carnes.com/humidifiers.phtml>

### APRILAIRE® STEAM HUMIDIFICATION

#### RES800

- 11.5 – 34.6 gpd
  - Multiple Voltage – 120V, 208/240V
  - Digital Humidity Control – RES62
  - Replacement Canister – RES80
- #### R800LC
- 11.5 – 34.6 gpd
  - Multiple Voltage – 120V, 208/240V
  - Digital Humidity Control – RES62
  - Use where naturally soft water is a concern
  - Replacement Canister – RES80LC





## IONIZATION

### NU-CALGON: BI-POLAR IONIZATION PRIVATE LABEL GLOBAL PLASMA SOLUTIONS

- IWAVER: N490020
  - Fan mount product handles up to 6T
  - Self cleaning, Universal voltage
- IWAVEC: N490010
  - Duct mount product handles up to 12T
  - Self cleaning, universal voltage
  - Nema certified enclosure for outdoor install
- IWAVE F & M: N490030 & N490035
  - Flexible ion bars perfect for ductless



<https://www.nucalgon.com/products/indoor-air-quality/iwave-r-air-purifier/>

<https://www.nucalgon.com/products/indoor-air-quality/iwave-c-air-purifier/>

<https://www.nucalgon.com/products/indoor-air-quality/iwave-f-air-purifier/>

<https://www.nucalgon.com/products/indoor-air-quality/iwave-m-air-purifier/>





## IONIZATION

### **PLASMAPURE: BI-POLAR IONIZATION MANUFACTURED BY PLASMAAIR (PART OF WELL AIR)**

- PlasmaPure602: 24V fan inlet mounted by magnet or screws
  - Ideal for splits systems, ductless, unit ventilators or anything up to 6T with a fan
  - No replacement parts required & is very small & compact
  - No maintenance other than brushing off needles if there is dust build up
- Autoclean1500: 24V fan inlet mounted by screws
  - Ideal for any application up to 15T
- Multiple units can be installed on same fan housing
- Access to all products on [plasma-air.com](http://plasma-air.com)



<https://www.plasma-air.com/products?app=168>





## IONIZATION

### APPLICATION OF MULTIPLE UNITS DUCT-MOUNTED

#### BI-POLAR IONIZATION: NU-CALGON AND PLASMAPURE

- Little or no maintenance or replacement parts needed and 10 – 15 year life expectancy
- Millions of positive and negative ions travel into the space and actively purify the air
- Kills mold, bacteria and viruses in the living space
- Reduces allergens, smoke and static electricity
- Cleans and disinfects surfaces





## OTHER IAQ DEVICES

### PHOTOCATALYTIC OXIDATION DEVICES

#### AIR SCRUBBER BY AERUS



##### AIR SCRUBBER ACTIVEPURE TECHNOLOGY AIR PURIFIER

- Commercial
- Air Scrubber 10,000 handles up to 10,000 sq. ft. or 250-ton duct-mount, ozone-free
- PCO / proactive oxidation with UV

<https://www.airscrubberbyaerusca.com/>

#### FRESH-AIRE UV APCO-X



##### UV SYSTEM

- Residential
- In-duct purifier with advanced V-twin evercarbon matrix
- UV

<https://www.freshaireuv.com/apco-x/>

#### FRESH-AIRE UV APCO MAG



##### UV SYSTEM

- Residential/Commercial
- Magnetic mount air purifier with carbon matrix (6 cell) 18-32V
- UV

<https://www.freshaireuv.com/apco-mag/>



## OTHER IAQ DEVICES

### SURFACE DISINFECTION

Another popular application for high-output germicidal UV light is sterilization of **(unoccupied)** room surfaces. Surface Disinfection System: Environmental Surface Disinfection System (ESDS).

<https://www.freshaireuv.com/medical/>



### MARS AIR WASH™ AND MARS AIR DOORS/CURTAINS

Mars Air Wash™ offers protection within a vertically-mounted pass-through structure engineered to gently disperse debris from visitors entering a building as it collects and kills airborne particles and pathogens in the local area. Using a trio of technologies including a True HEPA filter, MERV 7-8 rated pleated pre-filters, and the dual eradication power of a cold plasma generator and UVC bulbs with germicidal capabilities — the system is scientifically proven to destroy viruses and pathogens through repeated air cycle exposures and direct surface UVC light contact. It will also eliminate noxious odors from VOCs.



### LVP2 SERIES WITH UVC

With scientifically proven germicidal capabilities and 99.99%-100% surface kill rate via UVC/UVV bulbs, the Mars UVC® eradicates pathogens, reduces VOC odors, and provides the assurance of superior sanitation. In addition, Mars UVC® sterilizes up to 99.99% of airborne bio-contaminants with multiple passes. It reduces accumulation of pathogens on the exposed surface of the air curtain's internal components and minimizes pathogen redistribution.

### STD2 SERIES WITH UVC AND STD2 SERIES WITH UVC, HEPAC & IONIZER

Deploying the power of a true HEPA filter which captures 99.97% of microscopic pollutants and particulates (as small as 0.3 microns) and 2-inch pre-filters with a MERV 8 rating, the Mars HEPAC® offers sanitation previously not available from a major provider. Optional HEPA® filter, ULPA (Ultra-Low Penetration Air) rated 99.99% of particles 0.12 micron and MERV 13 rated 2" pre-filters for extended usage application or high particulate. Most viruses, including all SARS-CoV-2, are 0.12 micron as a single virion (unattached to any fluid droplet) but transmission is typically through liquid droplets, which are larger.

[https://www.marsair.com/products?52\\_ss=8477](https://www.marsair.com/products?52_ss=8477)



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