



## Design & Commercial Insights for

- Architects,
- MEP Consultants
- Developers
- Government Institutions



## In the GCC Region

- Sales Representative: Clean Air Associates
- Distributor: Bahwan Engineering Company
- Installer: Bahwan Engineering Company
- Service and Spare Parts: Bahwan Engineering Company



## Making an Impact Over Four Decades



### Clean Air Group:

- Headquartered in Fairfield, CT, USA.
- Bioclimatic Air Systems Established in 1982 in NJ, USA
- AtmosAir brand Established in 2004
- 50M+ M<sup>2</sup> Installed Base
- Granted 10+ technology patents with 20+ pending patents.
- Offices in Arizona, London, Dubai, Shanghai



# ASHRAE Participation & Activity

**Tony Abate is Clean Air Group's Co-Founder and Chief Technology Officer.**

**Dan Mason is Clean Air Group's Senior Product Specialist and is an ASHRAE Life Member.**

Working with ASHRAE within the air filtration category for over 20 years.

Tony and Dan remain members, liaisons, and/or voting members on various ASHRAE committees, most recently working on:

- **ASHRAE Funded Research Study on Air Cleaners including Bi-Polar Ionization | Fresno State University (2022)**
- **Chairman SSPC 145 | NEW Standard 145.2 now includes electronic air cleaners including BPI technologies**
- **Member TRG2.RAST | NEW standard and test procedure around electronic air cleaning technologies**
- **Voting member TC2.3 | Gaseous Air Contaminants and Gas Contaminant Removal Equipment**
- **Voting Member TRG 4 IAQP | NEW Committee developing guidance to allow users to apply the ASHRAE 62.1 IAQP method)**
- **Member SSPC 185 | Developing NEW 185.3 test method (Laboratory Test Method of Testing In-Room Devices and Systems for Microorganism Removal or Inactivation in a Chamber)**
- **Member AHAM AC-5 | NEW Microbial Reduction Task Force Committee**
- **Voting Member of TC4.3 | Ventilation and Filtration in buildings**
- **Committee member | ASHRAE Position on Filtration Document**
- **Member ASHRAE 2.9 | Ultraviolet Air and Surface Treatment**
- **ASHRAE's Epidemic Task Force for Schools Recommended Bi-Polar Ionization Systems in July 2020.**



**Tony Abate (CIE)**  
**ASHRAE Committee Chair**  
**Chief Technology Officer**

# CAG's Indoor Air Purification Solutions Portfolio

Established leader in solutions for healthier indoor air, our active air solutions work to measure and sanitize the air.

CAG products include revolutionary technology:

- *DBD Ionization*
- *Needlepoint Corona Discharge Ionization*
- *IoT based air quality monitoring,*
- *HE powered filtration*
- *Compact ceiling units*
- *Custom air handling and filtration assemblies*



*Leaders In Dielectric Barrier  
Discharge Ionization*



*The Choice in Integrated  
IAQ*

## Making an Impact over three decades

*In the USA, 95% of the top 30 MEP firms  
by revenue have specified AtmosAir.*



**125M+**

Square Feet Installed

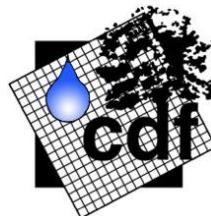
**200M+**

Square Feet Installed



## Design Community Allies

Architects and Mechanical Engineering Consultants Specifying Bi-Polar Ionization:



## Experience in multiple markets

- Commercial Office Buildings
- Healthcare
- Convention Centers
- Grocery Stores
- Government
- Performing Arts
- Schools (K-12)
- Colleges & Universities
- Hospitality
- Sports
- Airports



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# Bi-polar Ionization and Monitoring Solutions

## Not all bi-polar ionization is the same

There are multiple ways to generate the energy needed to create air ions.

### **AtmosAir's technology uses dielectric barrier discharge (DBD)**

#### **Most Comprehensive & Powerful Form of BPI Air Purification**

Occurs when voltage is applied to a cathode tube, where the inner metal is a cathode, and a stainless-steel outer screen is an anode. The voltage causes a non-thermal plasma discharge on the surface of the tube, which then produces ions in an alternating fashion, negative, positive, switching polarities 60 times per second.



### **Bioclimatic's ActiveOx technology uses a corona discharge**

#### **More Limited & Affordable Form of BPI Air Purification**

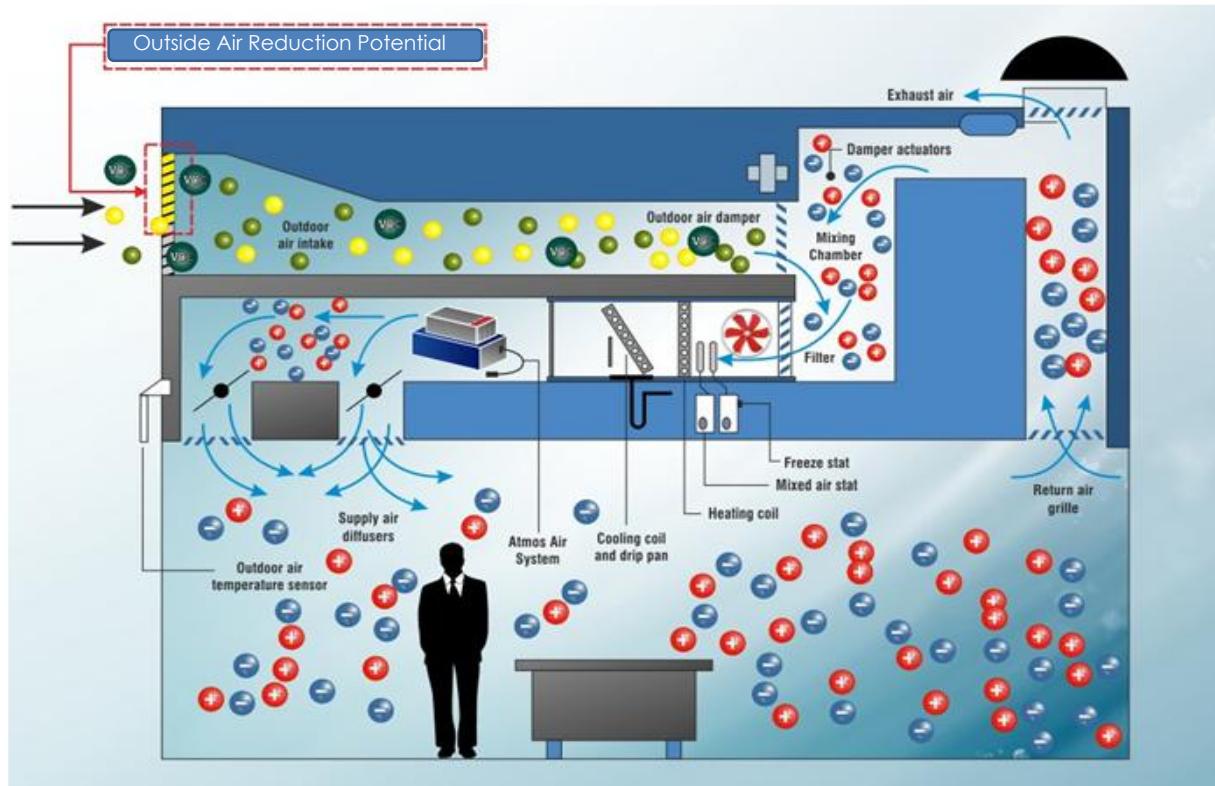
Occurs when voltage is applied to rows of nickel coated steel pins recessed in electronic modules. Each module has two pins, one will produce a positive charge or form a positive ion and the other a negative charge or negative ion.



## AtmosAir's DBD Bi-polar Ionization

- Purifies the air through **Agglomeration** of particles, **Oxidation** of VOC compounds and **Sterilization** which inactivates microorganisms including bacteria, viruses, and mold in the air and on surfaces.
- Uses an ionization energy of 12.60 eV. At an eV of 12.53 or higher, ozone that can be created is quickly converted back to neutral oxygen (**UL 2998 compliant**).
- The ability to ionize oxygen creates the superoxide anion. Superoxide is the most stable ion (lasting up to 300 seconds) and will create hydroxyl radicals on the surface of an organism such as bacteria, virus and molds. This inactivates the organism and renders it non-viable or disinfected.
- The ions are produced in an omni-directional flow around the entire surface of the ion tube alternately switching polarities 60 times per second. This causes them to scatter which results in superior ion persistence allowing them to saturate large spaces and airflows.
- Tested by independent laboratories to standardized ASTM, ANSI/ AHAM and ISO protocols and shown effective.
- Product has documented lifespan of 20+ years.

# Bi-Polar Ionization (DBD) in an HVAC System

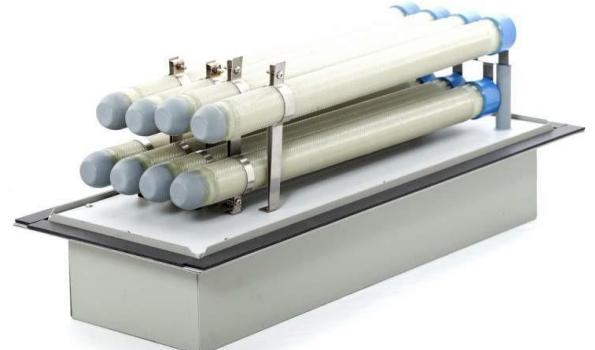


## Large In-duct/In-AHU Systems

### Electrical

**Voltage**.....110/250V  
**Frequency**.....50/60 hz  
**Power Consumption**.....49 Watts  
**Current Draw**.....240 mA  
**Internal Fuse**.....500 mA  
**Field Electrical Connection**.....Junction Box

Large In-Duct Systems		
	508FC	500FC
Number of Tubes	8	5
CFM	15,000	10,000



## Small In-duct/In-AHU Systems

### Electrical

**Voltage**.....110/250V  
**Frequency**.....50/60 hz  
**Power Consumption**.....8 Watts  
**Current Draw**.....370 mA  
**Internal Fuse**.....500 mA  
**Field Electrical Connection**.....Junction Box or 110V  
**Receptacle**

Matterhorn 1000



Matterhorn 1002



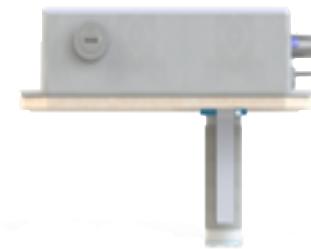
Small In-Duct Systems			
	MH1000	MH1002	FC400
Number of Tubes	1	2	1
CFM	2,500	5,000	1,400

## Small In-duct/In-FCU Systems

FC400/ FC400FM (24 VAC)

### Electrical

<b>Voltage</b>	110/250V
<b>Frequency</b>	50/60 hz
<b>Power Consumption</b>	8 Watts
<b>Current Draw</b>	500 mA
<b>Internal Fuse</b>	1.0 Amps
<b>Field Electrical Connection</b>	Junction Box or 110V
<b>Receptacle</b>	



FC100



Small In-Duct/In-FCU Systems			
	FC400	FC400FM	FC100
Number of Tubes	1	1	1
CFM	1400	1400	2000

# AtmosAir Standalone Air Cleaners

## PRODUCT SUBMITTAL

### Everest



#### APPLICATION

The AtmosAir Everest ionization system is intended to be a standalone unit. The unit will be calibrated at the factory per AtmosAir recommendations or the contractor will calibrate the ionization setting to attain ion level readings between 350 and 1,500 negative ions/cm<sup>3</sup> in the space.

#### 6-State Filtration System

1. Particle Filter (washable)
2. Carbon Filter
3. HEPA Filter
4. Antimicrobial Coating on HEPA
5. BPI
6. UV



#### SPECIFICATIONS

<b>Air Flow Capacity</b>	Up to 200 CFM
<b>Model</b>	AtmosAir Everest
<b>Color</b>	White
<b>Package Size</b>	469.9mm (18.5") W x 279.4mm (11") D x 736.6mm (29") H
<b>Product Dimension</b>	370.8mm (14.6") W x 195.5mm (7.7") D x 650.2 mm (25.6") H
<b>Net Weight</b>	796 kg (17.6 lbs)
<b>Fan Speed</b>	Manual & Automatic Modes
<b>Power</b>	60 Watts
<b>Rated Voltage</b>	120 VAC or 220 VAC
<b>Frequency</b>	50/60 Hz
<b>Filtration Efficiency</b>	99.97%
<b>Clean Air Delivery Rate(s)</b>	320 CADR - 3716 SQ. M (400 SQ. FT)
<b>Noise Level</b>	17.4 dB
<b>6-Stage Filtration</b>	Aluminum Filter (washable), Bi-Polar Ionization, Antibacterial Filter, Honeycomb Activated Carbon Filter, High Efficiency HEPA Filter
<b>Touch Screen IAQ Sensor</b>	Filter Replacement Reminder, Child Lock, Clock, Active Display of PM2.5, Touch Screen
<b>Sterilization</b>	Ultraviolet Light, Bi-Polar Ionization, Antibacterial Filter
<b>Control Operation</b>	Panel Buttons & Remote Control
<b>Certificates</b>	FDA, CE, CB, ROHS, ERP approval by SG, BSCI & ISO 9001

Figure 1



Figure 2





SPECIFICATIONS	
<b>General Product Information</b>	
Air Flow Rating	Up to 1,200 CMH
Coverage Area	<100m <sup>2</sup>
Weight	30 kg
Maximum Noise Level	60dB (Standard Mode) 75dB (Turbo Mode)
Filter	HEPA H13 (Change Every 6 Months)
<b>Electrical</b>	
Voltage	120 V/ 240 V
Frequency	50-60 Hz
Power Consumption	60 Watts
<b>Ionization Tube</b>	
Material	Multi-Core Composite
Number	One (1)
Size	F (558.8mm)
Tube Life	17,600 Hours (2 Years)

# Freestanding Unit

- Up to 100 sqm
- Up to 700 CFM (4 ACH)
- BPI Technology built in
- HEPA H13 Filter
- Eliminates: MS2 (99.9%), H1N1 (99.9%),  
Coronavirus (99.9%), VOC's (95.6%), E Coli  
(99.9%), Staphylococcus (99.9%)



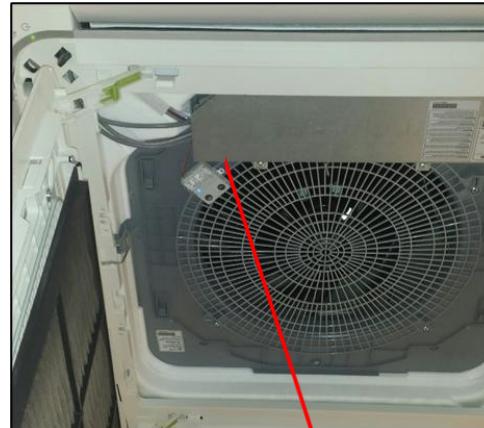
## Needlepoint: 'ActiveOx' Product

- **Improved durability and reliability:** The latest enclosure design protect the internal components and the product design incorporates a robust product life-cycle.
- **Tested and Validated:** UL2998 verified zero ozone and UL 867 certified.
- **Power Supply Options:** range from 24V to 120/240V depending on product type
- **BMS flexibility and capability:** Communication module is separate for greater integration options.
- **Corrosion resistant:** The emitters are specifically made from a corrosion resistant material that will last longer than carbon fiber brushes.
- **Recessed emitters:** The HVAC airflow will not directly impinge dirt and debris on the emitters causing less maintenance and fouling of the emitter. The recessed emitters prevent damage from inadvertent contact during service, a risk with exposed brushes or pins.
- **Options:** Ion detector is available when specified or requested

## Needlepoint: 'ActiveOx' Product

### Modular product design:

- **Rail mount:** for larger applications
- **Duct mount** for compact installations
- **Fan coil** for smaller CFM and VRF applications
- Optional: Continuous Ion Monitoring



Ceiling VRF



Rail-mount



Duct-mount

# AtmosAir & ActiveOx are Certified – Ozone Free

***UL2998 Certified***



VERIFIED  
ZERO OZONE

## Certificate Appendix

### ATMOSAIR

Certificate Number: 104404620GRR-001

Product Category	Air Cleaner
Model Name(s)	M880, M882, M1000, M1002
Product Restrictions	None



***UL867 and UL867A Certified***



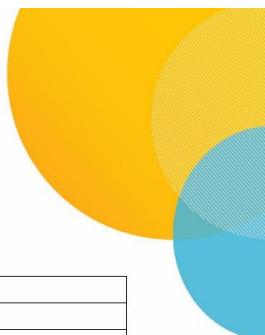
VERIFIED  
ZERO OZONE

## Certificate Appendix

### CLEAN AIR GROUP

Certificate Number: ZOZ-90111-2022a

Product Category	Needlepoint Ionization Unit
Model Name(s)	Active-Ox
Product Restrictions	Certification only applies to model with all of the below characteristics: - 100/240 VAC, 50/60 Hz, 0.5 W.



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Intertek Testing Services NA, Inc.

29 September 2020

2 of 2

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Intertek Testing Services NA, Inc.

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## Monitoring Solutions

### Real-time Indoor Air Quality Monitoring Options



**AtmosAir AWAIR**



**AtmosAware Mini**



**AtmosSmart**

## Indoor Air Quality Monitoring

Awair Omni's sophisticated sensor technology measures the temperature, humidity, carbon dioxide (CO2), chemicals (TVOCs), and fine dust (PM2.5) in your space. Each sensor is calibrated twice to ensure accuracy, and their internal layout with the casing facilitates natural airflow and consistent readings.

### Measures:

- Carbon Dioxide (CO2)
- Particulate Matter (PM2.5)
- Total Volatile Organic Compounds (TVOC)
- Temperature
- Relative Humidity
- Light
- Noise



## AtmosAir & Fitwel Partnership

This Fitwel data partnership will directly integrate Awair Omni's commercial-grade IAQ sensor data with Fitwel's certification platform, enabling performance-based verification of indoor environmental quality (IEQ) strategies while significantly reducing the documentation burden on building owners and operators.

This alliance delivers the industry's most comprehensive indoor air quality solution, combining Awair's proven sensor technology with Fitwel's rigorous, research-backed certification framework.



## Indoor Air Quality Monitoring

Measures and validates indoor air quality in real time.

Same as AtmosAware - without a screen.

### Extra Features:

- Stores the last hour of information
- Dashboard & app plus an open API, cloud storage, wi-fi, ethernet modbus option
- Option for an O3 sensor

*Checks current measurements & analyzes historical levels to detect important changes. Provides data reports on air quality*



# IoT Sensor

- Monitors 10 parameters of air quality plus outdoor AQI
- RESET Certified
- Cellular Gateway for independent communication
- No Wi-Fi or ethernet needed
- BMS compatible via BACNET; BTL Certified
- Fully remotely programable
- Actively controls BPI levels to conform with changes in air quality (patent pending)
- Field serviceable to replace individual sensor cards or sensor bank tray



# IoT Platform

- All-in-one equipment installation monitoring, maintenance and service device
- Users access their IAQ data and control devices from any Internet connected device
- Web/mobile app view for IAQ data and device administration
- Manage connected device alert and exports data reports



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