



Public & Industrial Space Sterionizer

AIR Series



What is the Sterionizer™ Wall Unit?

The Sterionizer™ Wall Unit is designed for purification of the air, and together with the optional Ozone system integrated, can work as a highly effective air and environment sterilizer.

The system can be applied in conference halls, prayer chapels, churches, synagogues, mosques, dining rooms and any other gathering hall .

How does it work?

The Sterionizer™ Disinfection Concept is an excellent solution for all type of gathering halls with critical requirements of air purity and sterility.

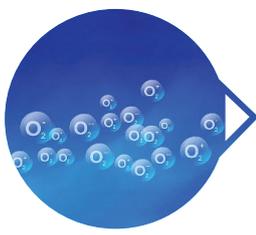
A chemical reaction occurs and oxidants break down the protein structure of pollutants, rendering them harmless. This process enables halting and controlling the growth of microbes and bacteria in a particular area.

The system ensures reliable and consistent conditions preventing the build-up of germs and bacteria.

The Sterionizer™ Disinfection system includes clean air ducts, air heat exchangers, machinery and sanitized air in a room. Each ionizing device is completely maintenance free and connected to a data-bus for supervision and monitoring.

The basic principal is the permanent flushing of the area with clean air reinforced with positive and negative ions. These charged oxygen molecules O_2^+ and O_2^- have high chemical activity and when reacting with water molecules in the air, OH radicals and H_2O_2 (Hydrogen Peroxide) are formed.

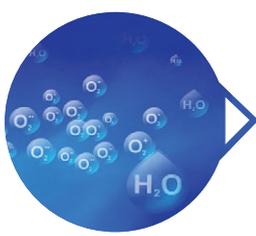
Our Sterionizer™ ion sensor continuously measures the ion-concentration in the air, and is placed at several relevant points. This gives us a reliable feedback and an overview as to the stability of the purity conditions.



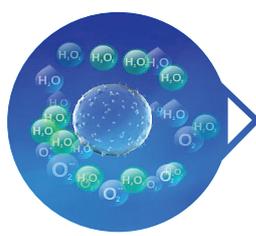
1
The Sterionizer™ uses a corona discharge system to split oxygen molecules into positive and negative ions.



3
The oxygen ions are highly volatile and react with air-borne water molecules to form Hydrogen Peroxide (H_2O_2).



2
The ions cluster around water (H_2O) molecules in the air.



4
The Sterionizer™ uses a corona discharge system to split oxygen molecules into positive and negative ions.

How does it work?

Allergens in the air may cause an allergic reaction. Avoiding allergens, however, is easier said than done. Therefore, people have been searching for a long time for something that neutralises allergens. Several studies have shown that air filtration systems and negatively ionised air may help to reduce allergic symptoms. The atmospheric air contains about 1000 - 4000 negative ions and 1200 - 5000 positive ions per cm^3 (depending on the environment).

The air inside is deionised in the absence of an ionising source. Regular air conditioners generate air free of ions. Research has proven that the absence of positive and negative ions has a highly negative impact on human health. It concluded that this deionised air causes headaches, irritability, drowsiness and fatigue.gives us a reliable feedback and an overview as to the stability of the purity conditions.

Proven Technology Sterionizer™ Efficacy Tests:

Sterionizer™ bi-polar ionisation technology was tested and proven effective in the elimination of a wide variety of harmful substances.

Testing was carried out in cooperation with world-renown research institutions.

Harmful Substance	Substance Name	Removal Rate	Testing Organisation	Year
Virus	Influenza H1N1	99%	Kitasato Research Center, Japan	2011
	Influenza H5N1	99%	Kasetsart University, Thailand	2011
Bacteria	Escherichia coli	99.43%	EMSL Analytical, USA Istanbul University, Turkey	2011
	Staphylococcus aureus	91.5%	EMSL Analytical, USA	2011
	Pseudomonas aeruginosa	99.9%	Istanbul University, Turkey	2011
Mold	Cladosporium cladosporioides	97.69%	EMSL Analytical, USA	2011
Fungus	Dichobotrys abundans	90%	Prof. Joe F. Boatman, USA	2006
	Penicillium	95%	Prof. Joe F. Boatman, USA	2006
	Aspergillus niger	97.14%	EMSL Analytical, USA	2011
	Candida albicans	36.27%	EMSL Analytical, USA	2011
Spore	Bacillus subtilis var niger	89.3%	Istanbul University, Turkey	2011



Technology Highlights:

- The Sterionizer™ Wall Unit generates naturally occurring oxygen ions that purify the air we breathe in production areas, homes, cars, and office environments
- The system contains highly effective micro particles Filter, with the option for an ULPA filter.
- The system controller enables you to control the system Ion discharge, airflow and pressure regulation.
- Inactivates airborne pollutants, such as viruses, bacteria, fungus, and mold spores
- Reduces the allergic effects of dust mite feces
- Neutralises odours
- Discharges static electricity and prevents electrostatic build-up
- Health benefits confirmed by leading international research institutions
- Compliant with the American standard for ozone generation
- Sterionizer™ - RoHS, CE, CB & UL certified

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Optional Add Ons:

Integrated Ozone Sterilization Unit :

Ozone is the fastest-acting oxidising disinfectant and the most efficient broad-spectrum, microbiological control agent commercially available. Being highly reactive and completely non-discriminating, it immediately starts oxidising anything it comes in contact with.

What is OZONE and how it's produced?

Ozone, or trioxygen, is a fast-acting oxidising disinfectant made up of three oxygen atoms, O_3 . Ozone occurs naturally in the upper atmosphere, or stratosphere, when the sun's light splits oxygen molecules, O_2 , into separate atoms. When these single atoms bond with other oxygen molecules, they form ozone, protecting us from the sun's harmful ultraviolet rays.

Commercially, ozone can be used to disinfect, deodorise, and sanitise the air, sterilise equipment, and remediate mold. Ozone also kills microorganisms, such as bacteria, in drinking water, pools, and spas.

Where and when to use the Ozone Room Sterilisation Unit?

- Disinfect air in gathering halls, prayer centers, and healthcare facilities
- Deodorize clothing and fabrics from smoke or unpleasant odors

This makes ozone a very powerful bactericide agent.

Unlike any other oxidising agent, ozone decomposes into environmentally friendly oxygen, leaving no toxic residues.

The Corona discharge method is the most common method used to generate ozone for commercial use, due to its low cost and high reliability. This method uses an electrical charge to split oxygen molecules into individual atoms. An air dryer or an oxygen concentrator will lower the amount of nitrogen in the air and reduce the risk of forming nitrogen oxides or nitric acid.

Ozone is less stable than oxygen. When ozone comes in contact with bacteria, an oxygen atom breaks away from the ozone molecule, oxidising and thereby neutralising the bacteria.

As ozone disinfects, it naturally decomposes into oxygen, O_2 , leaving no toxic residues.

Integrated ULPA filter

The ULPA - "Ultra Low Particulate Air (filter)" can remove from the air at least 99.999% of dust, pollen, mold, bacteria and any airborne particles with a minimum particle penetration size of 100 nanometres ($0.1 \mu m$).

ULPA filters are used widely in air filtration and purification systems to control airborne particulate levels and to stop the spread of toxic agents or infectious diseases.

Our filters comply with various standards from organizations such as the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE), the American Institute of Architects (AIA), and the Joint Commission for the Accreditation of Healthcare Organizations (JCAHO).



AIR 100 Sterionizer™ Wall Unit

Technical Description

The AIR 100 Sterionizer™ Wall Unit is a small unit designed to operate in collaboration with the indoor air conditioning unit.

The AIR 100 Sterionizer™ Wall Unit is the perfect solution for rooms such as classrooms and kindergartens, and for every closed area measuring between 50m³ - 150m³. The system ensures reliable and consistent conditions that help reduce the presence and to deactivate air floating germs and bacteria. The basic principal is the permanent flushing of the area with clean air reinforced with positive and negative ions. These charged oxygen molecules O₂⁺ and O₂⁻ have high chemical activity and when Reacting with water molecules in the air, OH radicals and H₂O₂ (Hydrogen Peroxide) are formed. A chemical reaction occurs and oxidants break down the protein structure of pollutants, rendering them harmless. This process enables halting and controlling the growth of microbes and bacteria in a particular area.

Its rigid metal cover gives The AIR 0100 Sterionizer™ Wall Unit strength and durability and helps to insure a long life span and protection for the its bipolar ionizing unit



AIR 100 Sterionizer™ Technical Specifications:

Air Flow Rate	50 m ³ /hour
Room Size	50 m ³ - 150 m ³
Recommended Air Flow	1000 – 3000 m ³ /h
Min Air Velocity (m/s)	Min. 1 m/s
No. of integrated Sterionizers D6	1 Units
Operation Environment	Temp. -10°c - 70°c / RH Min 20% up to 95%
Power Supply	US Version 110V, 1 Phase, 60 HZ EU Version 230V, 1 Phase, 50 HZ
Power Consumption	0,5A Connection
Control Network Connection	Modbus, optional
Control System	Siemens, optional
Outside Dimensions	182 mm W x 250 mm H x 150 mm D
Weight	2 kg
Recommended Ion Concentration	1000 to 30000 Ion per cm ³
Recommended distance from the air outlet from a duct System	Max. 20 m

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AIR 1030 Sterionizer™ Wall Unit

Technical Description

The AIR 1030 Sterionizer™ Wall Unit is meant for large occupied spaces, up to 200m³ per unit. With two powerful bipolar ionization cards, and an integrated HEPA filter, this unit is perfect for gathering halls, lobbies, food processing, food packaging, food storing areas, offices and public places with critical requirements of air purity and sterility. For industrial purposes this unit could be added a specially designed Ozone module- which enables maximum sanitation via the Ozone powerful oxidation abilities.

Each unit is completely maintenance free and connected to a data-bus for supervision and monitoring.



AIR 1030 Sterionizer™ Technical Specifications:

Air Flow Rate	570 m ³ /h
Filtration Grades	0.3 µm, optional 0.03 µm
No. of Sterionizers D6	2 Units
Power Supply	90-240 V, 1 Phase, 50 HZ / 60 HZ
Power Consumption	16 A Connection (real consumption 1KW/h by full speed)
Control Network Connection	Profinet, optional
Control System	Siemens, optional
Out Side Dimensions	700 mm W x 700 mm H x 350 mm D
Weight	30 kg
Control Cabinet	IP55
Control Cabinet Size	400 mm W x 400 mm H x 200 mm D



AIR 2060 Sterionizer™ Wall Unit

Technical Description

The AIR 2060 Sterionizer™ Wall Unit is the larger and most powerful of the Wall Unit family. This Unit is meant for very large occupied spaces, up to 400m³, per unit. With four powerful bipolar ionization cards, and an integrated HEPA filter, this unit is perfect for large gathering halls, lobbies, food processing, food packaging, food storing areas and large public places with critical requirements of air purity and sterility. For industrial purposes this unit could be added a specially designed Ozone module- which enables maximum sanitation via the Ozone powerful oxidation abilities.

Each unit is completely maintenance free and connected to a data-bus for supervision and monitoring.



AIR 2060 Sterionizer™ Technical Specifications:

Air Flow Rate	2000 m ³ /hour
Filtration Grades	0.3 µm, optional 0.03 µm
No. of Sterionizers D6	4 Units
Power Supply	380 V, 3 Phase, 50 HZ
Power Consumption	10 A Connection (real consumption 4KW/h by full speed)
Control Network Connection	Profinet
Control System	Siemens
Out Side Dimensions	1200 mm W x 1470 mm H x 400 mm D
Weight	150 kg
Washable Version	Stainless Steel Version
Control Cabinet	IP55
Control Cabinet Size	500 mm W x 500 mm H x 300 mm D

solidly built &
easy to operate

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Beth-El Machinery Product Lines Include

The AFR and ACR series High Clean Rotary Filler and Capper

With extremely high hygienic standards, our machines provide filling and capping for products with a long shelf-life. Available with an output speed of between 1000 and 6000 containers per hour, depending upon the product.

A servo driven CNC filling machine's functions are fully servo or, pneumatic driven, and controlled from the control panel.

The High Clean Continuous Bottle Cleaner

From the AWC series, these machines have a highly flexible set-up which can accommodate containers with a variety of sizes and shapes.

Incorporating a range of capabilities, the High Clean Continuous Bottle Cleaner has an output speed of up to 15,000 containers per hour.

The AFR series High Clean Filling

These machines are designed for an extremely high hygienic standard, and enable products to maintain a long shelf-life.

The Inline Filling Lines are capable of output speeds up to 3600 containers per hour.

Custom Processing Line Engineering and Manufacturing

Beth-El Machinery produces turnkey projects in the engineering and manufacturing of custom processing lines, pasteurisation, deaeration, product recovery systems, and homogenisation systems.

Applications include fermentation, carbonation, control systems, and batch and continuous mixing and blending systems for various fields in the food, chemical, and pharmaceutical industries.

Beth-El Machinery's process units, systems, solutions, and complete processing plants are a direct result of engineering expertise within core disciplines. Our goal is to apply these varied technologies in the most efficient and reliable ways to produce the highest quality process systems and plants available. Beth-El Machinery designs and manufactures the systems that, in turn, do the work for you.

Core Expertise:

- › Liquid processing
- › Mass & heat transfer
- › Controls & automation
- › Packaging machines
- › Sterilisation units
- › Ozone water units



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