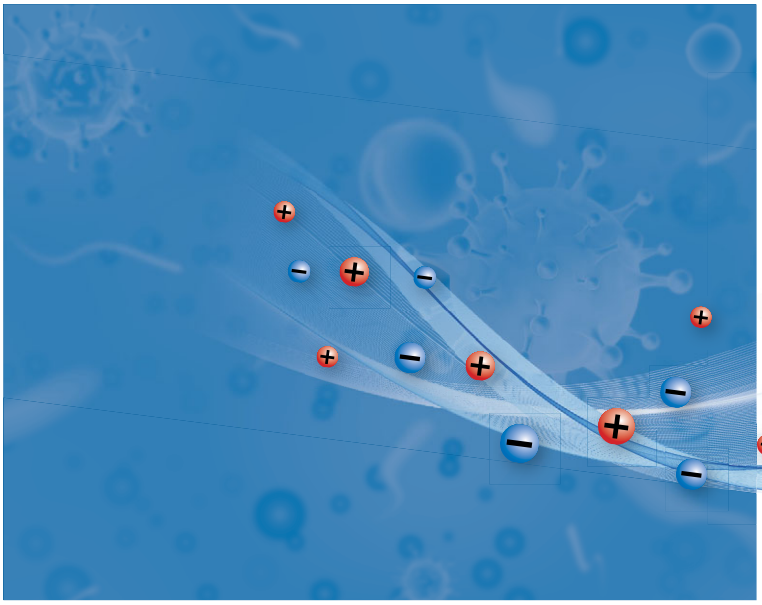
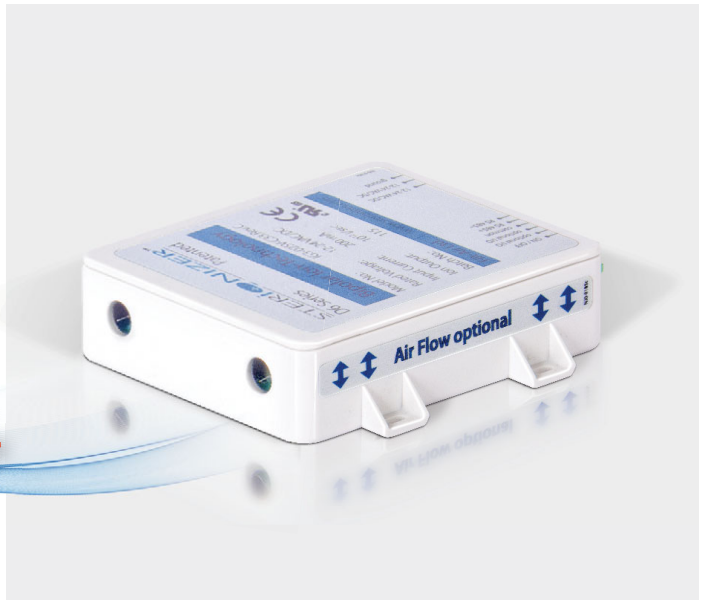
STERIONIZER™

Bipolar Ion Technology

D6 SERIES

Healthy Indoor Air...
The Way Nature Intended





Sterionizer™ D6 overview

The Sterionizer™ is a patented air purification device based upon bipolar ionization technology, specifically developed to bring the health and quality of nature's air to indoor environments.

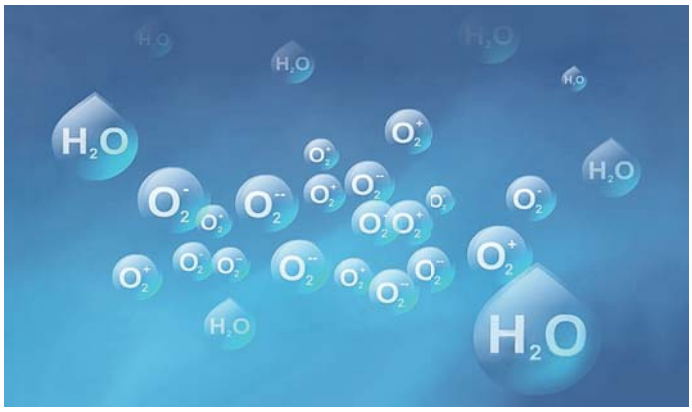
In natural habitats, solar and earth-based thermal energies create positive and negative ions that clean and renew outdoor air by removing harmful pollutants, such as bacteria, viruses, fungi, and spores.

The Sterionizer™ generates these same positive and negative ions – just like those found in nature – that purify and freshen indoor air by eliminating the harmful pollutants mentioned above.

The Sterionizer™ is a compact electronic module that can easily be integrated into various air treatment products, such as central air conditioners (duct systems), refrigerators, air purifiers, humidifiers and de-humidifiers, blowers, ventilators, cold stores and more.

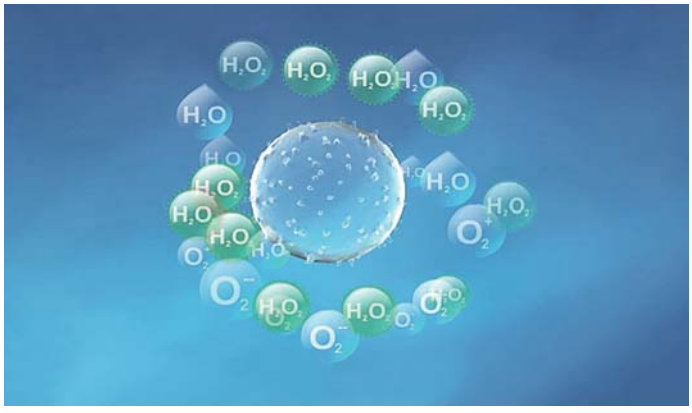
Sterionizer™ D6 – Bipolar Ionization Technology

1. The Sterionizer™ uses a plasma discharge system to generate oxygen molecules O_2+ and O_2- .



2. These molecules have very high chemical activity and when reacting with water molecules H_2O in the air, OH radicals and H_2O_2 are formed.

3. Hydrogen Peroxide H_2O_2 together with OH radicals cluster around harmful particles.



4. A chemical reaction occurs and oxidants break down the protein structure of pollutants, rendering them harmless.

Sterionizer ™ Proven Technology

Sterionizer™ bipolar ionization 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.

Substance	Substance Name	Testing Organization	Removal	Year
Bacteria	Escherichia Coli	EMSL Analytical, USA	99%	2011
	Escherichia Coli ATCC	Istanbul University, Turkey	91%	2011
	Staphylococcus aureus	EMSL Analytical, USA	81%	2011
	Pseudomonas aeruginosa	Istanbul University, Turkey	99%	2011
	Staphylococcus aureus (MRSA)	EMSL Analytical, USA	99%	2013
Fungus	Aspergillus Niger	EMSL Analytical, USA	97%	2011
	Candida albicans	EMSL Analytical, USA	36%	2011
	Dichobotrys abundans	Prof. Joe F. Boatman, USA	90%	2006
	Penicillium	Prof. Joe F. Boatman, USA	95%	2006
Mold	Cladosporium cladosporioides	EMSL Analytical, USA	97%	2011
Spores	Bacillus subtilis var niger	Istanbul University, Turkey	89%	2011
Viruses	Influenza H1N1	Kitasato Research Center, Japan	99%	2011
	Influenza H5N1	Kasetsart University, Thailand	99%	2011
	Human Corona Virus	Hy Laboratories, Israel	99%	2020

Technology Highlights

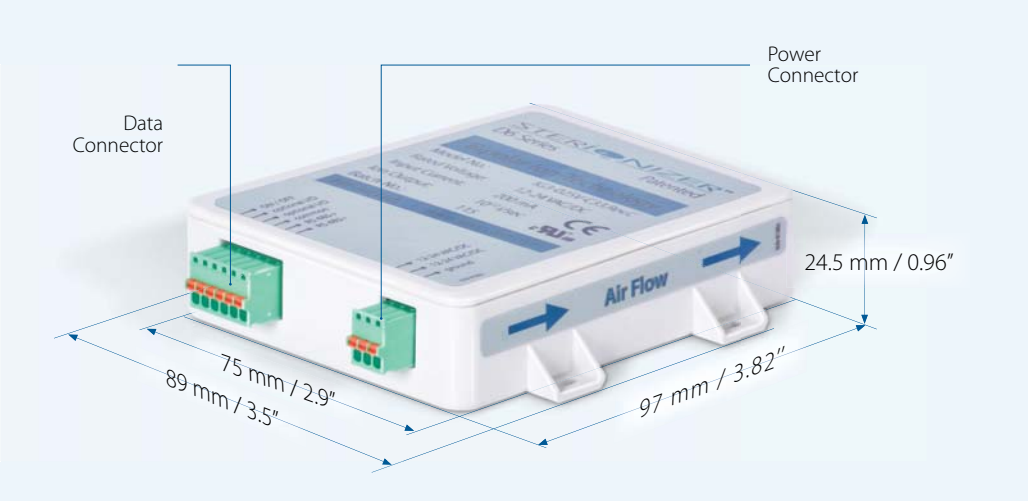
- Minimizes risk of infection from **Corona virus**
- Inactivates airborne pollutants, such as viruses, bacteria, fungus, and mold spores
- Neutralizes odors
- Reduces the allergic effects of allergy sufferers
- Discharges static electricity and prevents electrostatic build-up
- Health benefits confirmed by leading international research institutions
- Compliant with the American UL Environmental Claim Validation.
- Sterionizer™ – EMC, CE & UL certified
- Self-cleaning emitters - maintenance free
- Communication Port - can be integrated into building management systems

Applications

The Sterionizer devices are used particularly in populated areas such as:

- Educational institutions
- Hospitals
- Shopping centers
- Residences
- Hotels
- Elevators
- Dining places
- Public Transportation

Sterionizer™ D6 unit structure



Power Connector

Data Connector

Needlepoint
Ion Outlet

Installation in Ventilation Systems

Central ventilation systems are probably the largest air distribution systems available. Installing Sterionizer™ ion technology within these systems is a simple way to enrich indoor areas with valuable ions, thus creating a similar environment to the natural state of nature outdoors.

The Sterionizer™ D6 series of generators has various types of accessories and includes professional solutions for installation, reducing installation time and ensuring optimal integration for ventilation systems.

Sterionizer™ devices can be integrated into a variety of systems:

- Air conditioners — home, public buildings, automotive and aviation systems
- Air purifiers
- Blowers and ventilation systems - duct systems
- Humidifiers and de-humidifiers
- Refrigeration systems - cold storage rooms
- Static Control
- And more...

Sterionizer™ D6 technical specifications

Ion output	$10^{10} \leq 10^{12}$ Ion/sec adjustable
Emitter cleaning	Self-cleaning – maintenance free
Emitter Points	Tungsten
Input voltage	12V AC/DC ± 10%, 200 mA, isolated / 24V AC/DC ± 10%, 200 mA, isolated
Operating environment	Temp. (-10)-(+70)°C, Hum. 20-93% non-condensing
Ambient Airflow	Minimum 0.3 m/sec laminar
Ozone	< 0.005 ppm (according to UL2998)
EMI	Below background levels (rec. 80mm distance)
LED indicator	green: power "on" - orange: "operation"
Connector power	12/24 V - 0 - ground
Connector output	On/Off ; optional I/O ; optional I/O ; common
Connector interface	RS485 Modbus (up to 247 units)
Enclosure	PC-ABS plastic blend, color grey (black)
Dimensions	96 x 74 x 24.5 mm (L x W x H)
Dimensions mounting	107 x 89 x 24.5mm with bracket and connector
Weight	146 gram
Certifications	CE, UL, RoHS 2 compliant
For Static Control	
Ion Balance	Inherently self-balancing system < ± 30V
Discharge time 1	1000V – 100 V @ < 3 sec at 60cm with airflow 1m/sec
Discharge time 2	1000V – 100 V @ < 6 sec at 60cm with airflow 1m/sec
Discharge voltage 1	< 30 V at 30 cm
Discharge voltage 2	< 10 V at 60 cm
Coverage Area	150 x 150mm at 30 cm distance / 150 x 150mm at 60 cm distance
Range	50-1000 mm application / airflow dependent

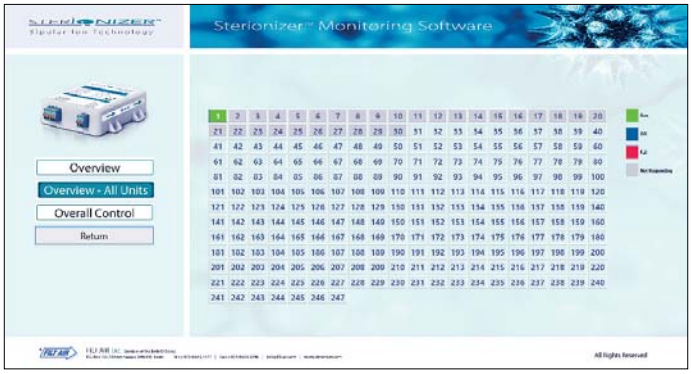
Sterionizer™ Software

Via the software you can get an individual address for each Sterionizer unit, preferably before mounting them in the system. It will make future steps and operation much easier.

You can order your units already with "running number" or re-address them with our software. The default address for all units is "1".

Selecting a specific unit - allows you to monitor and control it:

- Turn unit on/off
- Manually perform a cleaning cycle.
- Set output power
- Set cleaning schedule



MODBUS Communication:

The Sterionizer™ has a MODBUS port that enables export of the data to an external system for monitoring and controlling.

The communication uses the RS-485 standard, which has two wires: A(+), B(-). It is possible to connect a communication cable between Sterionizer™ units in order to control the units.

Maximum: 247 units. Maximum wire length: 1200 meters (if the length is longer than 500 meters, use a repeater).

At the last unit a resistor (120Ω) should be connected between the communication terminals (bus termination).

Sterionizer™ D6 products

Duct Unit

Ion Bar

Mounting Bracket

AC Unit

Combi Rack

Tube Unit

Duct Unit

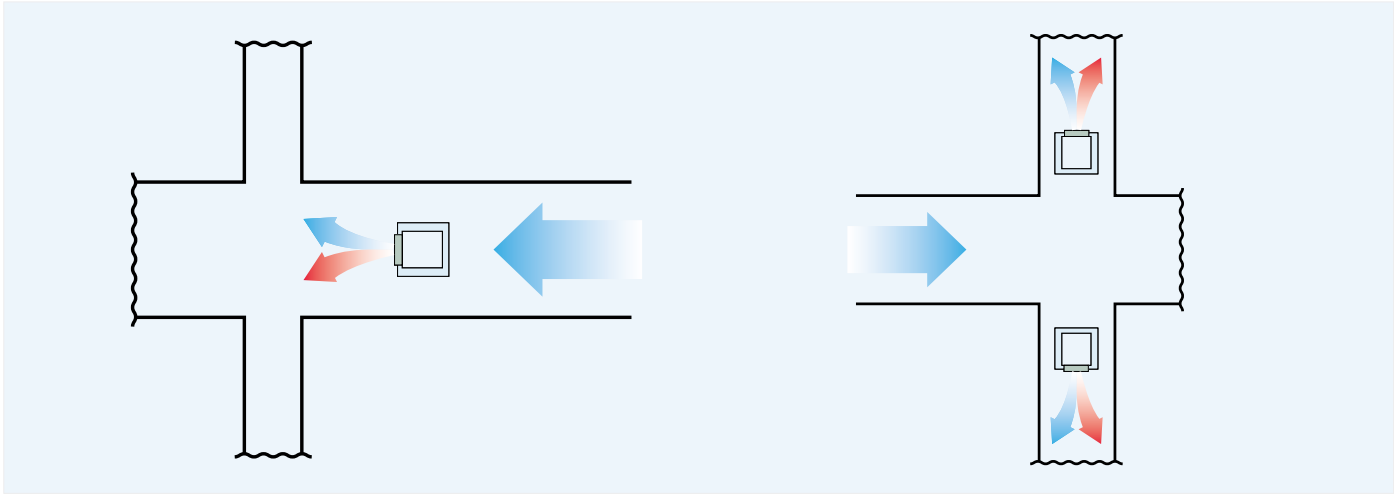
The Sterionizer™ Duct Unit is designed for adding ionizing technology into air ducts and other closed areas with an airflow.

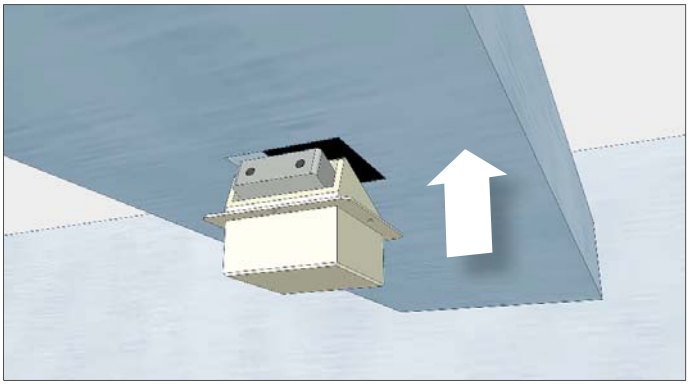
The unit is maintenance free with innovative-patented self-cleaning emitters. In addition, the unit includes a Modbus communication port that can easily be connected to any building management system.

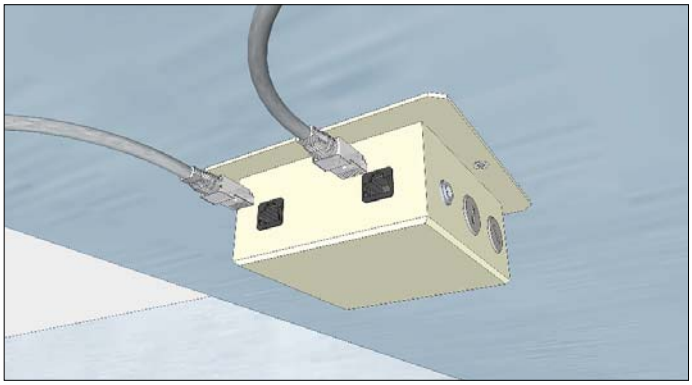
It is easy to install the unit in any duct utilizing the pre-drilled flange and factory applied gasket. When installed at appropriate points, the unit keeps the duct system clean and ensures that the air supplied is ionized.

Duct Unit Specifications	
Product number	**IP2-025V-21**
Room Size	up to 200 m^2
Recommended Air Flow	up to 6000 m^3/h
Min Air Velocity (m/s)	Min. 0.3 m/s
No. of integrated Sterionizers D6	1 unit
Operation Environment	Temp. (-10) - (+70)°C, Hum. 20-93% non-condensing
Power Supply Adapter	US Version 110 V, 1 Phase, 60 HZ EU Version 230 V, 1 Phase, 50 HZ
Duct Unit Input Voltage	12/24 V AC/DC, 200 mA, isolated
Control Network Connection	Modbus RS485
Outside Dimensions	130 x 130 x 92 mm (L x W x H)
Weight	2 kg
Recommended distance from the air outlet in a duct system	up to 15 m

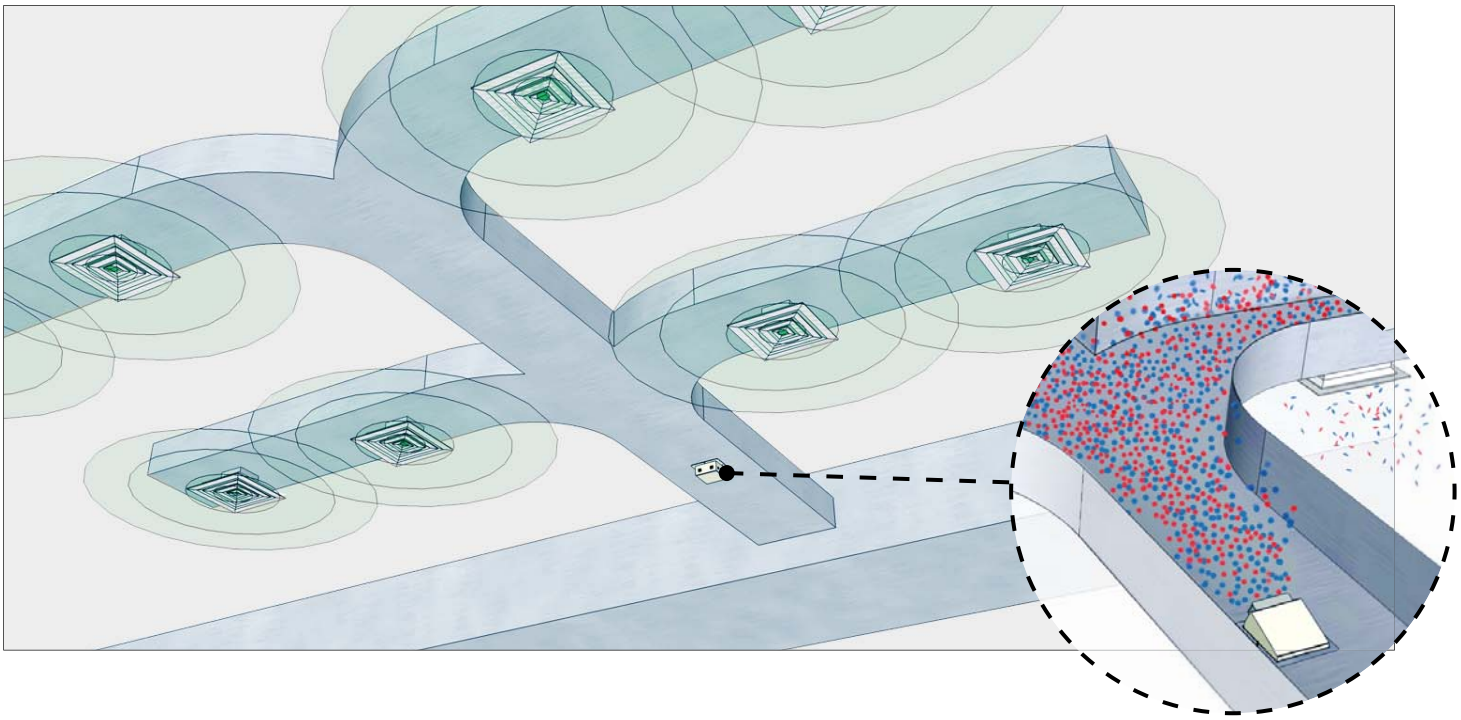
Duct Unit Installation options







The Duct Unit is placed into an opening made at the ventilation duct



AC (air conditioning) Unit

The AC Unit is a small unit designed to operate in collaboration with the indoor air conditioning unit.

The AC Unit is the perfect solution for rooms such as classrooms and kindergartens, and for every closed area measuring between 50 m^3 - 150 m^3. The system ensures reliable and consistent conditions that help reduce and to deactivate airborne germs and bacteria. The basic principal is the permanent flushing of the area with clean air reinforced with positive and negative ions.

Its rigid housing renders the AC Unit strong and durable ensuring a long life span and protection for the Sterionizer unit.

The AC Unit uses the air flow from the indoor air conditioning outlet.

AC Unit Specifications	
Product number	**IP8-025V-21**
Room Size	up to 100 m^2
Min Air Velocity (m/s)	Min. 0.3 m/s
No. of integrated Sterionizers D6	1 unit
Operation Environment	Temp. (-10) - (+70)°C, Hum. 20-93% non-condensing
Power Supply Adapter	US Version 110 V, 1 Phase, 60 HZ EU Version 230 V, 1 Phase, 50 HZ
AC Unit Input Voltage	12/24 V AC/DC, 200 mA, isolated
Control Network Connection	Modbus RS485
Outside Dimensions	91 x 71 x 51 mm (L x W x H)
Weight	3 kg
Recommended Ion Concentration	1000 to 30000 ions per cm^3 in conditioned spaces
Recommended placement of the unit	in the air flow of the air conditioner

Ion Bar 3

The Sterionizer™ Ion Bar is designed for adding ionizing technology into large air duct installations and other closed areas with an airflow.

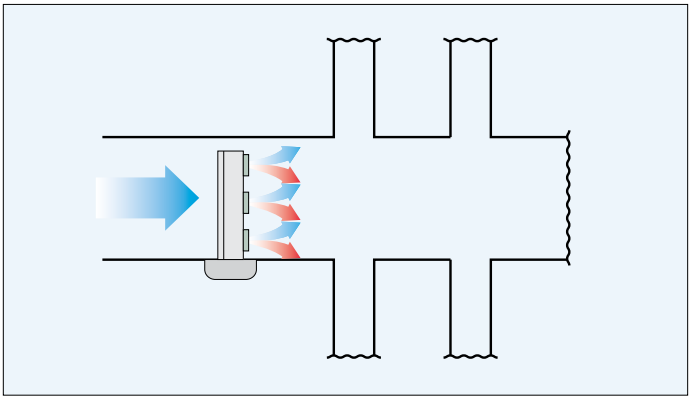
In order to treat air within a closed space, the Sterionizer™ Ion Bar must be located in front of an air outlet.

To keep the air duct or the heat exchanger in the air duct hygienic and germ free, the Ion Bar is installed at appropriate points.

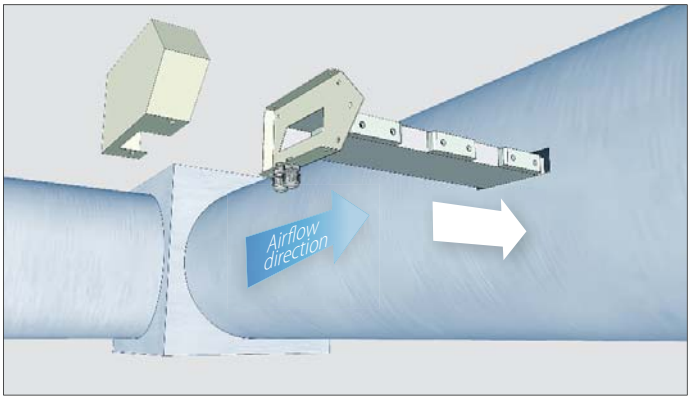
For remote control each Sterionizer™ is equipped with a Modbus interface that can be connected to the Sterionizer™ system software or to a BMS (building management system).

Ion Bar Specifications	
Product number	**IP1-25V-23**
Room Size	300-500 m^2
Recommended Air Flow	up to 15,000 m^3/h
Min Air Velocity (m/s)	Min. 0.3 m/s
No. of integrated Sterionizers D6	3 units
Operation Environment	Temp. (-10) - (+70)°C, Hum. 20-93% non-condensing
Power Supply Adapter	US Version 110 V, 1 Phase, 60 HZ EU Version 230 V, 1 Phase, 50 HZ
Ion Bar Input Voltage	12/24 V AC/DC, 600 mA, Isolated
Control Network Connection	Modbus RS485
Outside Dimensions	425 x 208 x 191 mm (L x W x H)
Weight	5 kg
Recommended Ion Concentration	1000 to 30000 ions per cm^3 in conditioned spaces
Recommended distance from the air outlet in a duct system	Max. 30 m

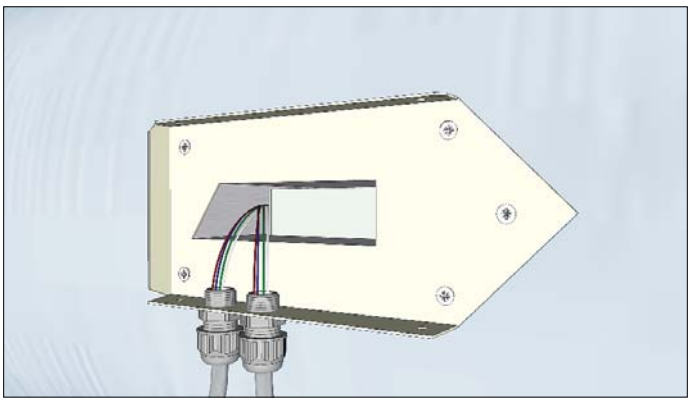
Ion Bar Installation options

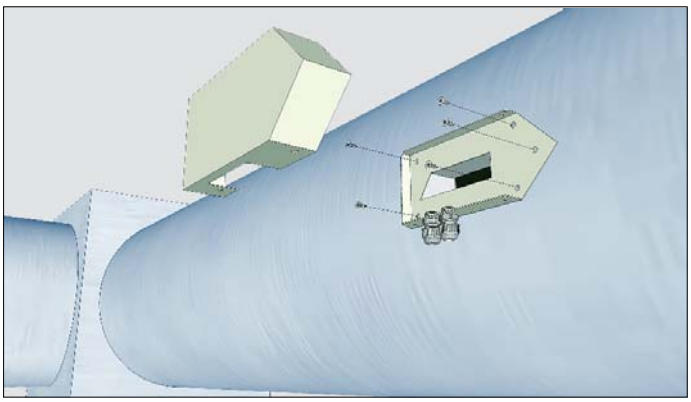


Ion Bar 3 - includes 3 x Sterionizer™ D6 units



Installing Ion Bar in an air duct pipe





Combi Rack

The Sterionizer™ Combi Rack is a modular mounting system for Sterionizer™ units, designed for the placement of Sterionizer™ in Air Handling Units (AHU's) and similar spaces with an airflow.

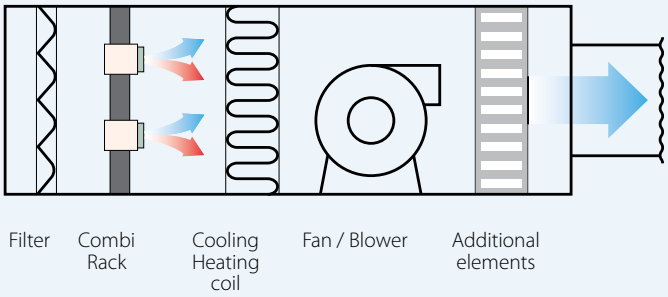
In order to keep heat exchangers and other equipment hygienic and germ free the Sterionizer™ units must be placed at relevant points. Using the modular profiles, it is easy to build an individual structure.

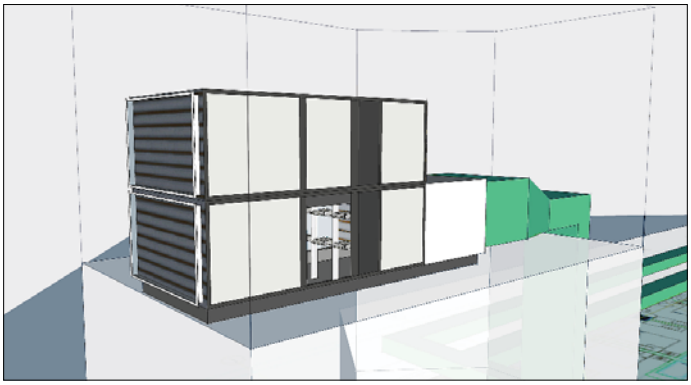
Combi Rack - includes a number of Sterionizer™ D6 units as per customer requirement, starting from 1 unit but can be adapted to hold many more.

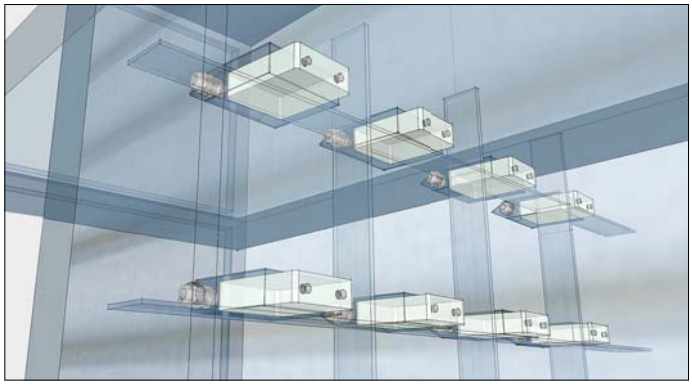
Combi Rack Specifications				
Product no.: **IP10-00-001**	Sterionizer	**Combi rack**	Profile 900 mm	With 2 brackets
Product no.: **IP6-25V-212**	Sterionizer	**D6 Pocket**	2 x M12 connector (m+f)	Set
Product no.: **IP9-231-X151**	Sterionizer	**Control box**	M12 connector	for 15 x D6

Air Flow Rate	up to 90,000 m^3/hour	
Min Air Velocity (m/s)	Min. 0.3 m/s	
No. of integrated Sterionizers D6	1-15 Units	
Operation Environment	Temp. (-10) - (+70)°C, Hum. 20-93% non-condensing	
Power Supply Adapter	**US Version:** 110 V, 1 Phase, 60 HZ	**EU Version:** 230 V, 1 Phase, 50 HZ
Combi Rack Input Power	12/24V AC/DC, 200mA, Isolated x No. of units	
Control Network Connection	Modbus RS485	
Outside Dimensions	according to the Air Handling Unit	
Recommended Ion Concentration	1000 to 30000 ions per cm^3 in conditioned spaces	
Recommended distance from the air outlet in a duct system	Max. 30 m	

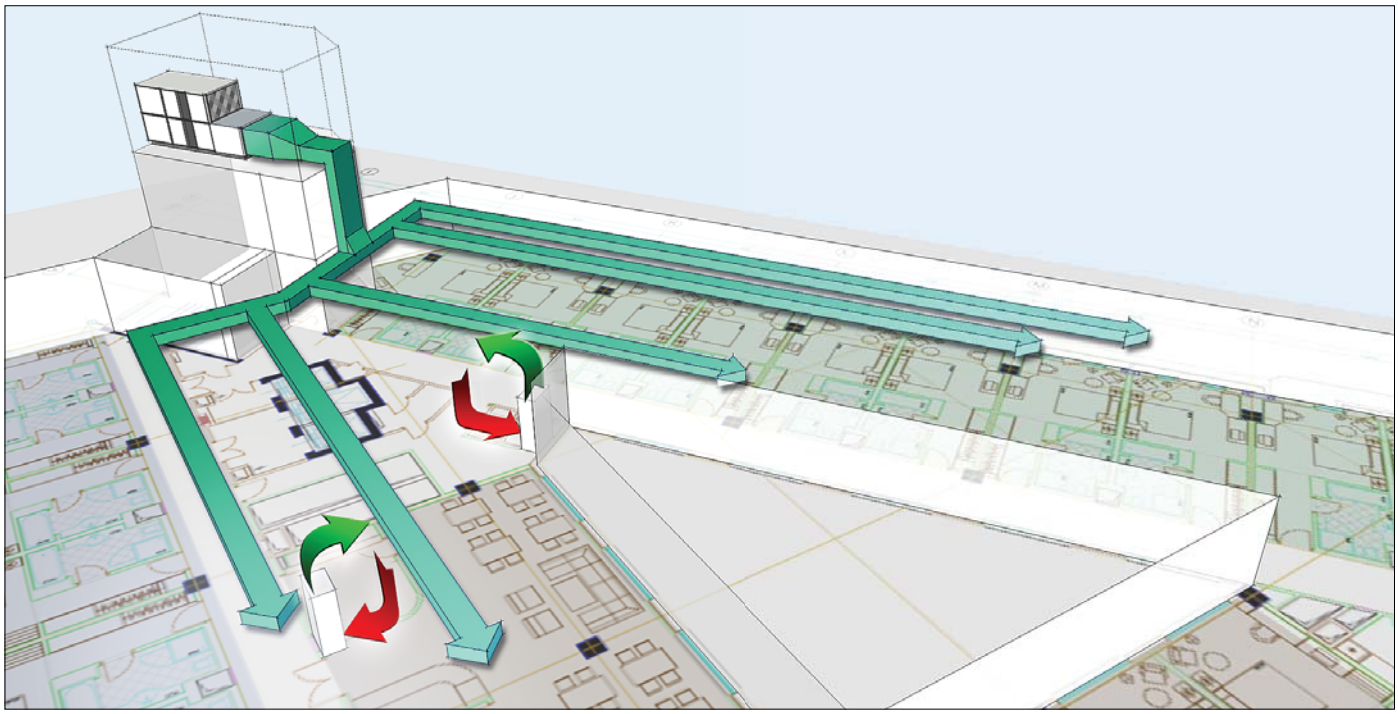
Combi Rack Installation options







Example of assembly within an AHU. Usually placed after initial filters in order to keep all components clean and provide ions to the duct system



Tube Unit

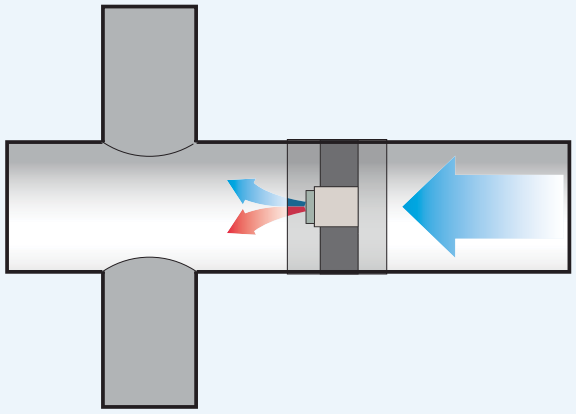
The Sterionizer™ Tube Unit is designed to add ionizing technology into round air duct systems.

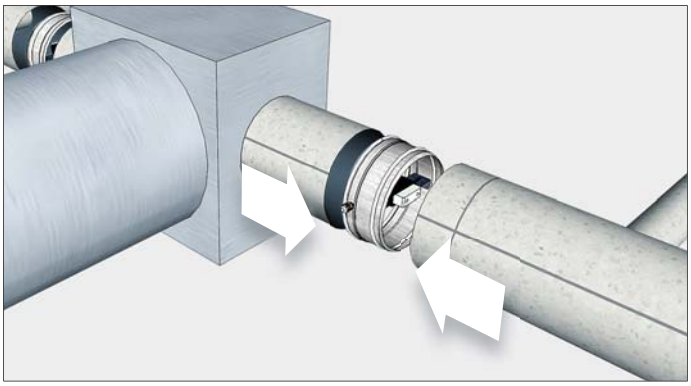
One Sterionizer™ D6 unit is located in the center of the ring and generates ions. The Tube Unit generates ions, distributes them through the airflow and sub-sections then out to the indoor space.

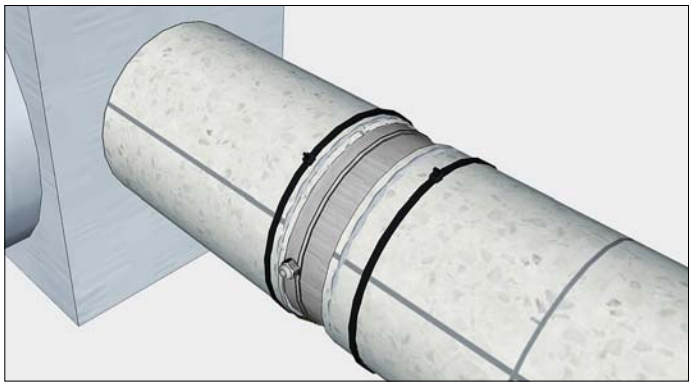
Ring size is customized per order to customer requirments. The tube is made of stainless steel.

Tube Unit Specifications	
Product number	**IP3-25V-21**
Room Size	up to 200 m^2
Recommended Air Flow	up to 6000 m^3/h
Min Air Velocity (m/s)	Min. 0.3 m/s
No. of integrated Sterionizers D6	1 unit
Operation Environment	Temp. (-10) - (+70)°C, Hum. 20-93% non-condensing
Power Supply Adapter	US Version 110 V, 1 Phase, 60 HZ EU Version 230 V, 1 Phase, 50 HZ
Duct Unit Input Voltage	12/24 V AC/DC, 200 mA, isolated
Control Network Connection	Modbus RS485
Outside Diameter Dimensions	200, 250, 300 mm
Recommended Ion Concentration	1000 to 30000 ions per cm^3 in conditioned spaces
Recommended distance from the air outlet in a duct system	up to 15 m

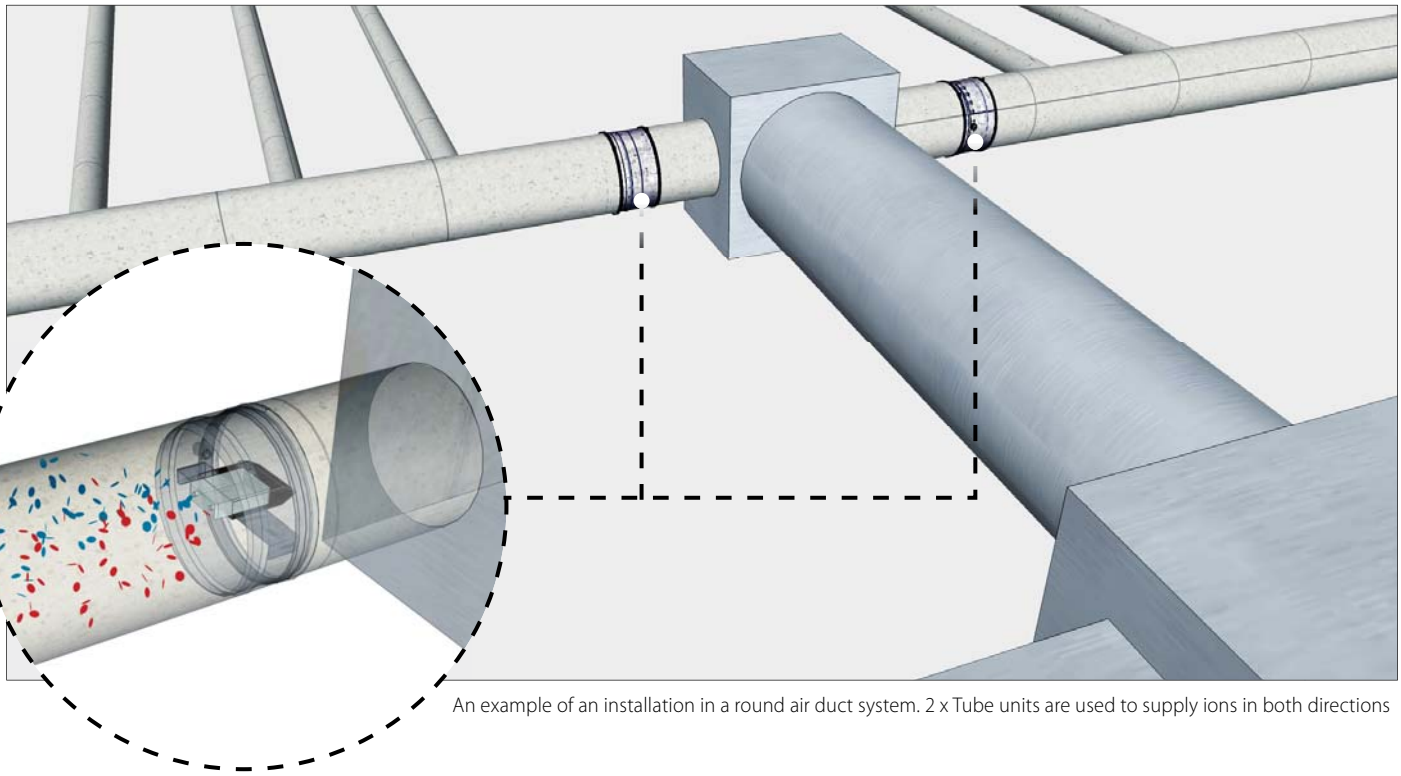
Tube Unit Installation options



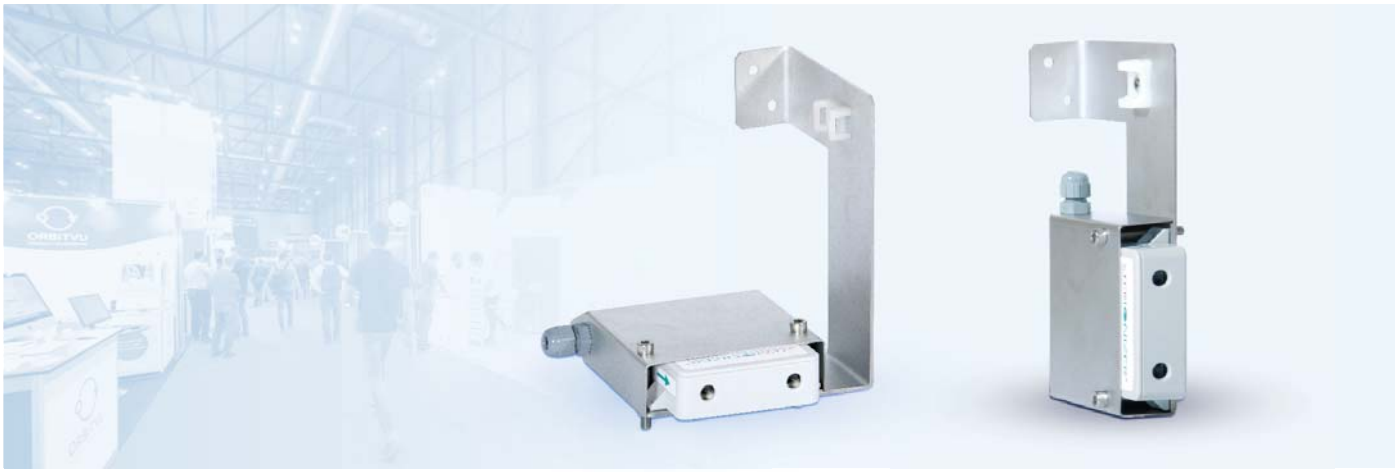




The round air duct is cut and the tube unit is placed inside. The air duct is then resealed tightly.



An example of an installation in a round air duct system. 2 x Tube units are used to supply ions in both directions



Mounting bracket

The Mounting bracket has been designed to address the installation of not Sterionizer units for all spaces where the air supply system is not standard and does not allow the installation of units intended for air ducts.

The unit includes a modular structure that allows it to be installed in ventilation systems located in refrigeration rooms and other industries with the limitation of air conditioning systems. The system ensures relible and consistent conditions that help reduce and to deactive airborne germs and bacteria.

The mounting bracket is specially made for mounting the Sterionizer units in front of evaporators, air fans or any kind of air flow.

Mounting Bracket Specifications	
Product number	**Vertical unit: IP5-025V-211** **Horizontal unit: IP5-025V-212**
Room Size	up to 200 m^2
Recommended Air Flow	up to 6000 m^3/h
Min Air Velocity (m/s)	Min. 0.3 m/s
No. of integrated Sterionizers D6	1 unit
Operation Environment	Temp. (-10) - (+70)°C, Hum. 20-93% non-condensing
Power Supply Adapter	US Version 110 V, 1 Phase, 60 HZ EU Version 230 V, 1 Phase, 50 HZ
Duct Unit Input Voltage	12/24 V AC/DC, 200 mA, isolated
Control Network Connection	Modbus RS485
Outside Dimensions	IP5-025V-211: 180 x 125 x 35 mm (L x W x H) IP5-025V-212: 129 x 123 x 160 mm (L x W x H)
Weight	IP5-025V-211: 530 g IP5-025V-212: 630 g
Recommended distance from the air outlet in a duct system	up to 15 m

FILT AIR Ltd. company profile:

Filt Air Ltd. specializes in the production of air filtration products for the supply of clean air. Our wide range of products is designed to provide superior quality, while offering both safety and reliability for product availability at an optimum price.

In 1998 Beth-El Zikhron Yaaqov Industries Ltd. separated the clean room business from the NBC filtration branch by founding the subsidiary Filt Air Ltd. Based on the knowledge and expertise of the mother company, we offer a large range of filters to suit our customer's needs for all applications.

After the company was established, the product range was expanded to meet the full range of the local market requirements.

In 2004 Filt Air Ltd. began its development and production of bipolar ionizers under the brand name Sterionizer™. The Sterionizer™ devices are well known worldwide. Over the years the company acquired many patents to protect its bipolar ion technology.

We offer advanced technologies and skilled application expertise for the supply of clean air in clean rooms for high-tech industries, such as the microelectronics and pharmaceutical industries.

Our customers include: hospitals, industrial plants, commercial buildings, and companies requiring clean air for gas turbine filtration.

Our success is based on a collaborative development process between the needs of our customers and the quality specifications of our suppliers.

This close cooperation and open dialogue is essential to achieve optimal clean air solutions.

Quality:

We have established a quality policy which aims to satisfy our customers, who are enthusiastic about our solutions for their filtration needs by providing them with the highest quality and reliability in filtration products. Since 2001 we have worked towards this goal by operating and maintaining a comprehensive quality control system based on our certified Quality Assurance System ISO 9001 (registered IQNet number IL-24203).

All of our employees have been instructed and involved in the quality achievement process because we believe that trained and qualified employees are the basis for successful operations and innovations.

Filt Air Ltd. focuses on quality assurance of the raw material, the production process, and the finished products.

Carefully selected materials, combined with quality engineering and workmanship, guarantee excellent performance, long lifetime, and long standing quality.

The products are designed, manufactured, and tested in accordance with established international standards.

STERIONIZER™

Research & Development:

In order to grow continuously with our customer's demands, our R&D department stays up-to-date with the latest standards of technological advancement. In recent years, an intense process of standardization, testing methods, and classification of systems have been developed for all types of filters.

To guarantee that our filters meet the requirements of these standards, in terms of quality and effectiveness, we send our filters to independent laboratories that work in accordance with international standards of test procedures.

Our research and development aims to produce products that are economically efficient, with low capital expenditures and minimal operating costs.

Creating an environment-friendly process is a high priority. In developing our products, we actively seek innovative ways to ensure the protection of the environment.

Sales:

The close cooperation between the customer, sales and development (R&D) departments makes it easy to meet the specific demands of each standard and the market, without undue time delay.

Our experienced personnel will guide you through the labyrinth of different filtration systems, whether choosing the right filter type or designing your system based on the requirements of your applications.

We know that the optimum clean air solution is reached, only when it is adapted to each individual case.

D6-Series-Catalog_EN_0421_001

FILT AIR Ltd. Member of the Beth-El Group

Main Office: P.O. Box 166 Zikhron Yaaqov, 3095101, Israel
Tel: +972-4-6107777 | Fax: +972-4-6350396
info@filt-air.com | www.filt-air.com | www.sterionizer.com

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