



 **AES ENVIRONMENTAL**



# **MICRO SEAL-SERIES**

HEPA Holding Frames and Housings

# VOKES



## Three reliable retaining systems for absolute air filters

### Applications

The AES Environmental HEPA filter retaining systems are used to accommodate Email Air Handling Absolute filters with efficiency ranges of 95%, 99.97% and 99.99%, and can also be employed where high-efficiency filtration requirements exist and performance is paramount.

The Microseal™ Series frames, grids and housings should be employed in all applications where side access or built-up systems of HEPA filters are required.

### Versatility

The Microseal™ filter retaining systems are available in three distinct styles: the Microseal™ frame, the Microseal™ grid and the Microseal™ pack; designed for field assembled built-up filter banks, factory fabricated built-up banks or side access requirements, respectively, all systems are modular and sized to suit requirements.

### Broad Selection

Precision engineered for ease of installation and complete filtration integrity, each of the modular Microseal™ series systems can provide the size, capacity and flexibility to meet the toughest requirements.

All three systems are designed to meet a wide variety of applications such as field erected custom units, side access and laminar flow installations.

Performance of any filtration system is largely dependent on the quality of the seal around each filter. The Microseal™ series are engineered to ensure the best possible seal and can be employed in situations where 25mm, 50mm, 100mm, 152mm or 305mm deep filters are required. In situations where HEPA filtration is required, the unique design of the Email Air Handling retaining clip ensures uniform and constant pressure against the sealing surface of the HEPA filter.



# Sealing integrity assures filter performance

## Installation Flexibility

Microseal™ systems can be installed in a large variety of applications, from laminar flow cleanrooms to process filtration for production requirements and areas such as ceilings that may have limited access. AES Environmental is a specialist filtration engineering firm with the capacity to provide solutions to unique filtration problems.

## HEPA Filters

The Email Air Handling HEPA filters are recommended for use in clean rooms, sensitive areas of hospitals or high occupancy rooms where certain particulates are offensive. They are especially designed to be used where airborne contaminants must be removed to the maximum degree... to protect life, to recover valuable materials or to guarantee the dependability of delicate assemblies.

This would include installations in hospitals to remove bacteria, with atomic reactors to prevent emission of radioactive materials, and in industrial plants where clean air is necessary for the production of food products and drugs.

They are also the requirement for aerospace and electronics manufacturers concerned with precision products where contamination can seriously reduce reliability or cause high rejection rates.

## Microseal™ Performance

Microseal™ housings are available with a series of filter retainment configurations. It is this flexibility that ensures the Microseal™ is both serviceable and performs as per the exacting requirements of the customer.

In high efficiency applications, each filter is mounted with four retaining clamps that provide equal pressure, ensuring the best-possible filter to frame seal.

In ceiling mounted systems, or systems that require low-medium efficiency filtration, a frame-in-frame style of retaining filter retaining system is used so that the filters can be serviced quickly and easily from one point of access.

In each situation an option for pre and final filtration exists so that filters can be stacked to provide a higher level of filtration efficiency.





## Microseal™ Frame

On-site assembly of built-up banks

When it comes to reliable HEPA filter holding frames, the Microseal™ Frame is unequalled in design and service. It provides the selection, versatility and integrity to meet the toughest size, capacity and flexibility requirements.

### Rugged Construction

CNC machined, 1.2mm galvanised steel, with support braces.

### Easy to Install

Pre-punched assembly holes aid in the installation of built-up banks.

### Versatile

Available in various sizes and configurations to suit air-flow requirements.

### Positive Sealing Integrity

Each filter is mounted and sealed with the Email Air Handling HEPA retaining system that has been a proven performer in the field for over 40 years.

## Dimensions

HEPA FILTER SIZE (MM)		MICRO-SEAL FRAME DIMENSIONS (MM)	
HEIGHT	WIDTH	HEIGHT	WIDTH
609	609	622	660
609	304	622	356
609	762	622	813
304	609	318	660
762	609	775	660





# Microseal™ Grid Modules

Factory fabricated filter banks

For simplified installation, the Micro-Seal HEPA holding frame modules come completely fabricated from the factory. Saves installation time and cuts costs, while providing the highest degree of quality and dependability.

## Rugged-Precision Construction

CNC machined steel construction ensuring flanges and joins match.

## Easy to Install

Simple bolt-style assembly with either mounting feet or hangers for either floor or ceiling installation.

## Versatile

Modules range in size from 2 filters high x 2 wide, to 4 high x 6 wide. Any number of modules may be combined in height or width to meet total air handling requirements.

## Positive Sealing Integrity

Provided by its precision construction and unique filtration retention systems.

## Optional Dual Filter-Kit

Includes extended frame clamps and one standard AES Type holding frame. The frame will accept one or more pre-filters of various types, depths and efficiencies. Gaskets on both sides of the HEPA filter to assure the maximum in leak-proof performance.

## Dimensions

CONFIGURATION		DIMENSIONS (MM)	
HEIGHT	WIDTH	HEIGHT	WIDTH
2	2	1301	1346
2	2.5	1301	1692
2	3	1301	1997
2	3.5	1301	2343
2	4	1301	2648
2	4.5	1301	2994
2	5	1301	3299
2	5.5	1301	3645
3	2	1911	1346
3	2.5	1911	1692
3	3	1911	1997
3	3.5	1911	2343
3	4	1911	2648
3	4.5	1911	2994
3	5	1911	3299
3	5.5	1911	3645
4	2	2520	1346
4	2.5	2520	1692
4	3	2520	1997
4	3.5	2520	2343
4	4	2520	2648
4	4.5	2520	2994
4	5	2520	3299
4	5.5	2520	3645

For filter banks 2,3 & 4 filters high, use Standard module.  
Higher banks are constructed by joining base (extension) modules and top (standard) modules together.



# Microseal™ Pack

## Side access housings for HEPA filters

Quality construction, reliability, versatility and service ease are only four of the many reasons AES Environmental Microseal™ is the right choice for HEPA filter, side access applications.

### Quality Construction

CNC machined steel construction that is reinforced to provide an excellent performance in either positive or negative applications.

## Dimensions

(Standard Configurations)

NO. OF FILTERS HIGH	HEIGHT (MM)
1	724
2	1334
3	1943

NO. OF FILTERS HIGH	HEIGHT (MM)
1	670
2	1321
3	1972
4	2623
5	3274
6	3924

### Reliability

Positive sealing door latches and the proven Email Air Handling filter mounting device with its unique spring-loaded clamp, assure the highest degree of sealing integrity.

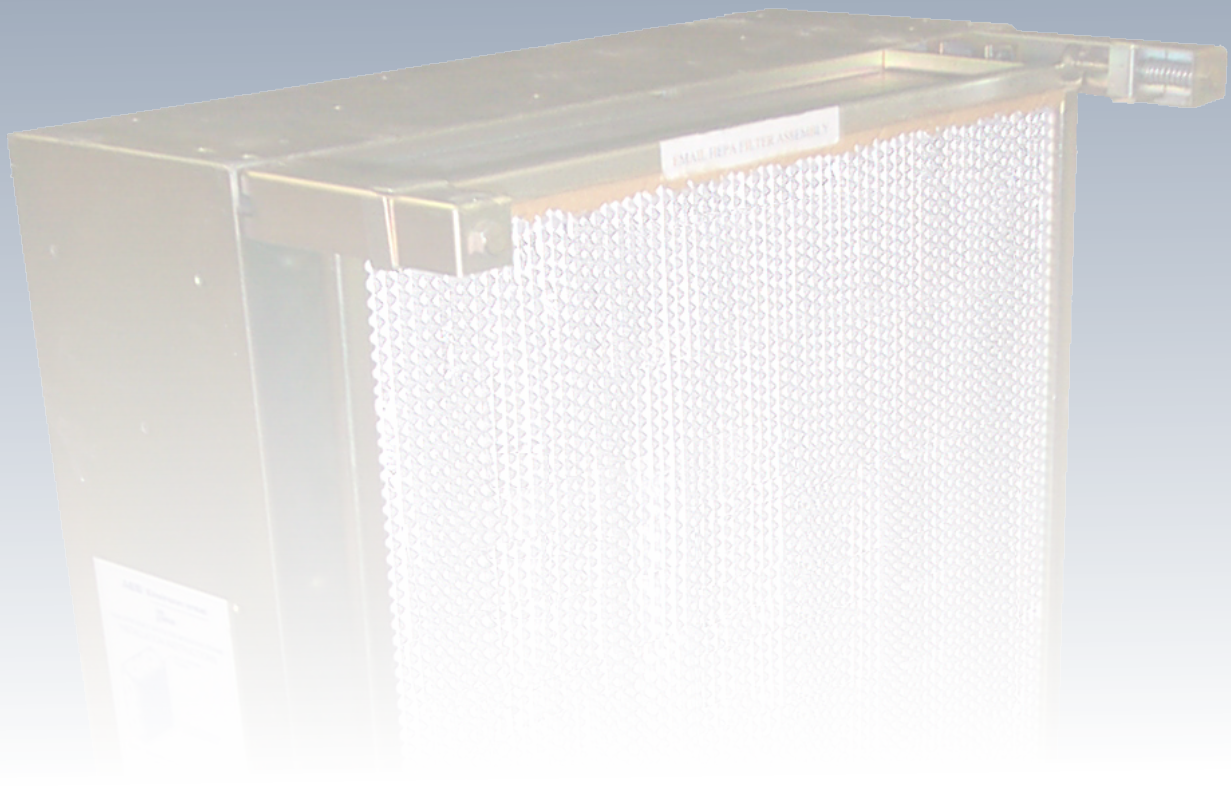
### Versatility

Special housings are available for other sizes of HEPA filters. Insulation and optional pre-filtration access and mounting systems are available.

### Service Ease

Two access doors for entry from either side of the unit provide for ease of filter service. Doors swing open on pin hinges and are also removable.





## **Absolute Filters**

AES Environmental Absolute Filters have a standard efficiency rating of 99.97% when tested in accordance with AS 4260.

The filters are available with an efficiency of 99.99%. Each filter is leak tested to assure their efficiency and a unique serial number and test certificate is affixed to the filter.

AES Environmental Absolute filters are the primary choice for removal of bacteria in hospitals, to prevent emission of radio-active contaminant, for industrial plants where clean air is necessary in the production of food products or pharmaceuticals, for aerospace and electronics manufacturers concerned with precision products, or anywhere contamination particulate matter could seriously reduce reliability or cause high rejection rates.

To extend the life of the Absolute filters, a pre-filter is always recommended.





# Pre-filters optimise the performance, life and reliability for HEPA filters

## Performance

The proper selection and staging of Rigid Media pre-filters can significantly reduce the number of sub-micrometre particles to which a HEPA is subjected. For example, the combination of an AES Interfold and AES Interfirm can reduce .3 micron particles by more than 75% ; a CompactP and Interfirm in combination, by more than 85%. This reduction similarly reduces the possibility of sub-micron penetration through HEPA filters, improving air cleanliness levels within the conditioned space.

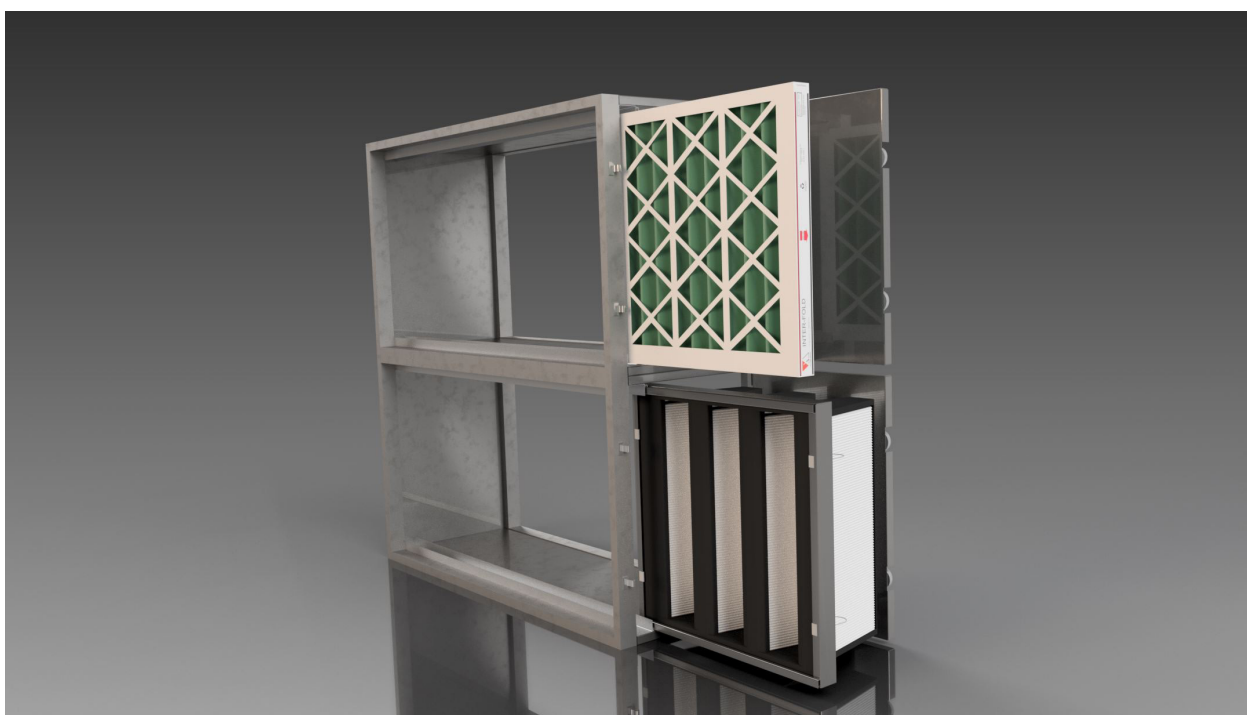
## Life

Pre-filters, selected and sized for extended maintenance cycles and higher efficiencies, ultimately provide for greater life of the cost and labour intensive HEPA filters.

Time weighted stays lower longer, too, reducing energy requirements while system maintenance downtime schedules are greatly extended. Overall system operating costs are reduced and environmental productivity is improved.

## Reliability

The total effectiveness of an air cleaning system is the sum of its filters. With the inherent broad spectrum of contaminate, choosing proper high quality pre-filters allows the HEPA filters to operate only on those particulates it was designed to capture. This method will assure near fail-safe system operation when properly installed and maintained.





# How to Specify

## Micro-Seal Frame

Holding frames shall be AES Environmental Micro-Seal Frame and shall consist of holding frame section, reinforcing flanges, annular based dimples and mounting holes, receptacle guides and removable swing bolt assemblies.

The design of the unit shall be such that it will accommodate all standard 610mm x 610mm HEPA filters in either of two depths, 149mm or 292mm.

## Micro-Seal Grid

Holding frames shall be AES Environmental Micro-Seal Grid, Model 1A, factory assembled, built-up holding frame banks called modules and shall consist of super frame members, a curb base, bracing and removable swing bolt assemblies.

The design of the unit shall be such that it will accommodate all standard 610mm x 610mm HEPA filters in either of two depths, 149mm or 292mm.

## Micro-Seal Pack

Filter housings shall be AES Environmental Model 4 Universal Micro-Seal/Pack HEPA side access units. They shall be factory fabricated and assembled.

The complete assembly shall consist of housing, two removable access doors, filter mounting grid and swing bolts with equip-bearing clamps and hex nuts. The complete housing shall be capable of withstanding 1991Pa without leakage.

The design of the unit shall be such that it will accommodate all standard 610mm x 610mm HEPA filters in either of two depths, 149mm or 292mm.

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*In keeping with our policy of continuing product improvement, we reserve the right to alter specifications without notice.*



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