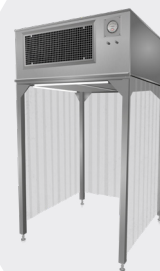




CLEANROOM EQUIPMENT

Fan Filter Unit - Laminar Flow with FFU - Containment Booth - HEPA Filter Box -
Safe Change Housing (BIBO) - Mobile Laminar Flow Units - Return Air Grille



"Advanced Filtration for a better future"

www.ulpatek.com

ADVANCED FILTRATION FOR



Advanced Equipment Solutions for Cleanroom Applications

At ULPATEK, our focus is on engineering state-of-the-art equipment that enhances cleanroom functionality in the life sciences and healthcare industries. Leveraging over four decades of expertise, our team designs and manufactures a comprehensive range of cleanroom equipment, including sophisticated air filters such as EPA, HEPA, and ULPA, essential for maintaining stringent cleanliness standards in pharmaceutical production and healthcare facilities.



TECHNOLOGY A BETTER FUTURE!

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Our Core Strengths Include:

- **Tailored Engineering:** We craft our equipment to meet the specific requirements of highly regulated environments, ensuring compliance and operational excellence.
- **High-Performance Filters:** Our filters are designed to deliver superior air purification, meeting the strictest industry standards and contributing to safer, more controlled environments.
- **Energy Efficiency:** We prioritize energy-saving technologies that reduce operational costs without compromising performance.
- **Trusted Quality:** Durable and reliable, our equipment provides consistent performance, essential for critical healthcare and pharmaceutical operations.
- **Quick Assistance:** Understanding the urgency of our industries, we offer rapid delivery options to meet tight schedules and critical demands.

With ULPATEK, you gain a partner dedicated to supporting the critical needs of your cleanroom facilities with advanced, reliable equipment solutions. Our commitment to innovation and quality ensures your environment remains pure, safe, and compliant.

Ensuring Compliance and Quality : Advanced Filtration in Cleanrooms

In the pharmaceutical industry, where standards and regulations are exceptionally stringent, the integrity of HEPA/ULPA filters is crucial. These filters must be completely leakproof, possess adequate filtration area, and operate within their designated capacities to ensure safety and compliance. Manufacturing techniques in this sector must strictly adhere to the cGMP (Current Good Manufacturing Practice) standards, which are critical for

maintaining product quality and safety. Additionally, compliance with ISO 14644 standards and FDA (Food and Drug Administration) regulations is imperative. These guidelines and requirements set the minimum levels necessary to protect both the product and the human health, emphasizing the critical role of effective cleanroom filtration in pharmaceutical production.



At **ULPATEK**, we specialize in providing high-performance filtration solutions that meet the strict standards of cleanroom environments in the pharmaceutical industry. Our filters are designed for optimal performance, ensuring compliance with the most stringent health and safety regulations. In addition to our advanced filters, our product lineup includes Laminar Flow (LF) units equipped with Fan Filter Units (FFUs) and specialized HEPA Boxes. We also offer Containment booth and BIBO (Bag-In Bag-Out) systems, which are essential for maintaining contamination control

and safe filter replacement in sensitive environments. For facilities dealing with particulate-heavy processes, our custom dust collection systems offer a reliable solution, helping to maintain the integrity of both products and workspace.

ULPATEK is proud to provide solutions to a multitude of international pharmaceutical factories, underscoring our commitment to innovation and excellence across the global pharmaceutical industry.

Crafting Excellence in Cleanroom Applications

Cleanroom Classification

Classification Standard EN ISO 14644-1

ISO 14644-1 defines the classification of air cleanliness in cleanrooms and associated controlled environments exclusively in terms of concentration of airborne particles.

Only particle populations having cumulative distributions based on threshold (lower limit) particle sizes ranging from **0,1 µm to 5 µm** are considered for classification purposes.

ISO Classes of Air Cleanliness by Particle Concentration

ISO Class Number (N)	Maximum allowable concentrations (particles/m ³) for particles equal to and greater than the considered sizes, shown below ^a					
	0,1 µm	0,2 µm	0,3 µm	0,5 µm	1,0 µm	5,0 µm
ISO 1	10 ^b	d	d	d	d	e
ISO 2	100	24 ^b	10 ^b	d	d	e
ISO 3	1 000	237	102	35 ^b	d	e
ISO 4	10 000	2 370	1 020	352	83 ^b	e
ISO 5	100 000	23 700	10 200	3 520	832	d, e, f
ISO 6	1 000 000	237 000	102 000	35 200	8 320	293
ISO 7	c	c	c	352 000	83 200	2 930
ISO 8	c	c	c	3 520 000	832 000	29 300
ISO 9 ^g	c	c	c	35 200 000	8 320 000	293 000

Notes:

- ^a All concentrations in the table are cumulative, e.g. for ISO Class 5, the 10.200 particles shown at 0,3 µm include all particles equal to and greater than this size.
- ^b These concentrations will lead to large air sample volumes for classification. Sequential sampling procedure may be applied; see Annex D.
- ^c Concentration limits are not applicable in this region of the table due to very high particle concentration.
- ^d Sampling and statistical limitations for particles in low concentrations make classification inappropriate.
- ^e Sample collection limitations for both particles in low concentrations and sizes greater than 1 µm make classification at this particle size inappropriate, due to potential particle losses in the sampling system.
- ^f In order to specify this particle size in association with ISO Class 5, the macroparticle descriptor M may be adapted and used in conjunction with at least one other particle size.
- ^g This class is only applicable for the in-operation state.

FAN FILTER UNIT (FFU)



ULPATEK's Fan Filter Units are carefully designed to integrate seamlessly into cleanroom grids, providing a leak-free and whisper-quiet operation. Engineered for versatility and high efficiency, these units are ideal for a range of applications including microelectronics, laboratories, life sciences, healthcare, and the food and beverage industry.

Key Features:

- **Effortless Installation:** Designed for easy integration into existing cleanroom grids.
- **Maintenance Simplicity:** The design enables quick and easy replacement of the filter.
- **Leak-Free Guarantee:** Constructed to ensure a completely sealed operation, enhancing system integrity.
- **Quiet Operation:** Operates silently at less than 65 dBA, minimizing noise in sensitive environments.
- **Energy Efficient:** Low operating costs with low wattage consumption.
- **Customizable Airflow:** Offers both AC and EC fans with options for adjustable airflow to suit diverse application needs.
- **Uniform Air Distribution:** Designed to promote even air velocity, supporting consistent cleanroom environments.

Applications

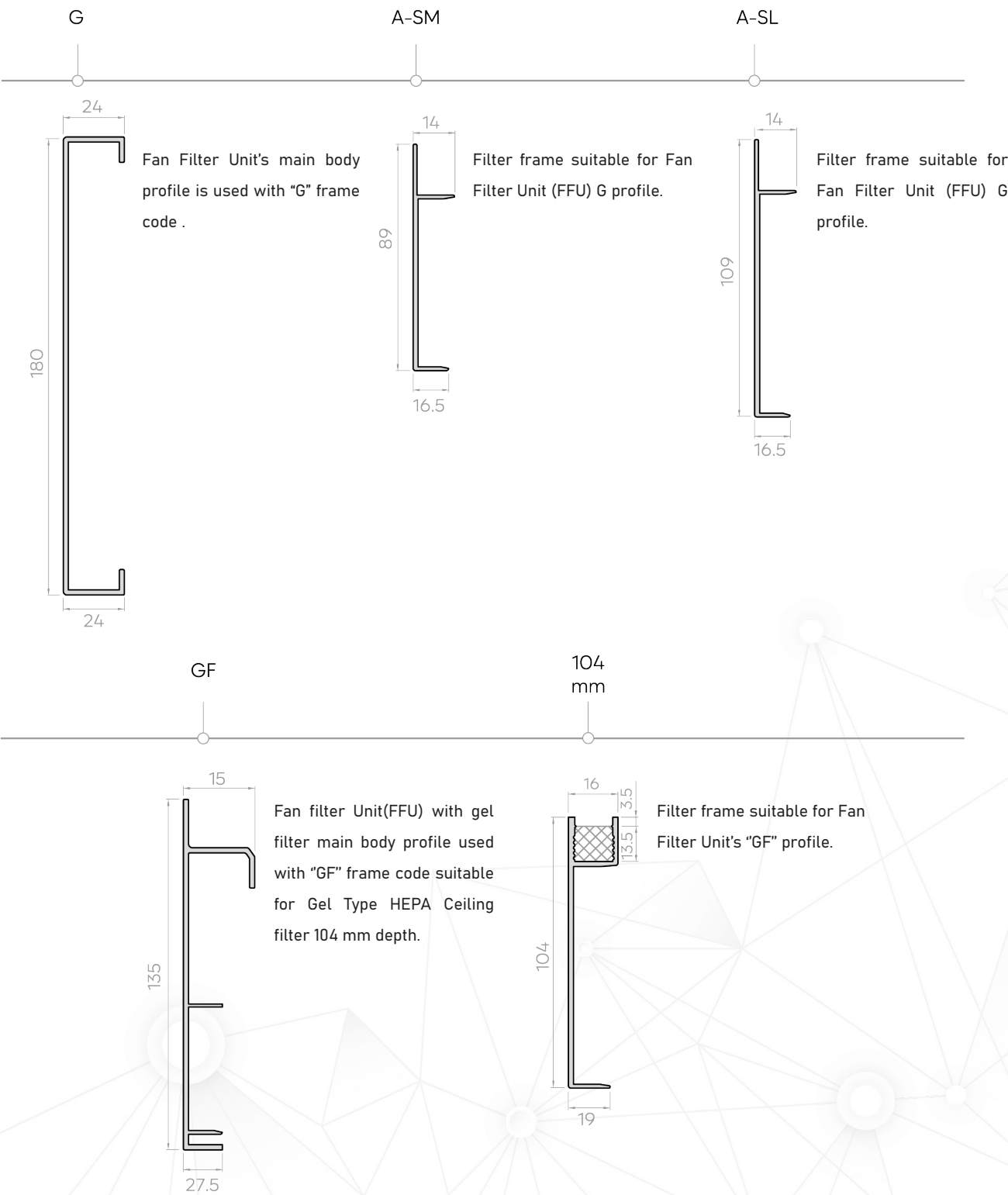
ULPATEK Fan Filter Units are designed to meet the stringent requirements of industries where clean and controlled environments are crucial. They are perfectly suited for:

- **Microelectronics:** Protects sensitive electronic components from particulate contamination.
- **Laboratories:** Maintains particle-free environments for research and development.
- **Life Science:** Ensures sterile conditions for biotechnological and pharmaceutical production.
- **Healthcare:** Provides contaminant-free environments crucial for medical and surgical areas.
- **Food and Beverage Industry:** Keeps spaces free of contaminants that could affect food safety and quality.

FAN FILTER UNIT (FFU)

Secure and Seal: Fan Filter Units in Leak-Proof Design

Fan Filter Units are ensuring a leak-proof design that offers superior performance and durability. Review the detailed profile drawings to understand the precise dimensions and innovative design features of our filter frames. This information will help you confidently choose a filter that fits seamlessly into your setup, enhancing operational effectiveness and maintaining stringent cleanliness standards.

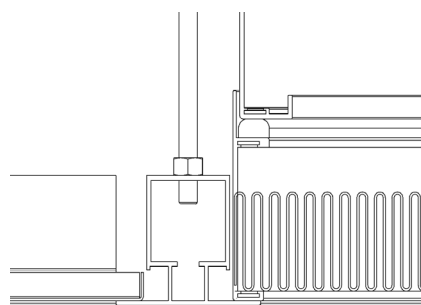
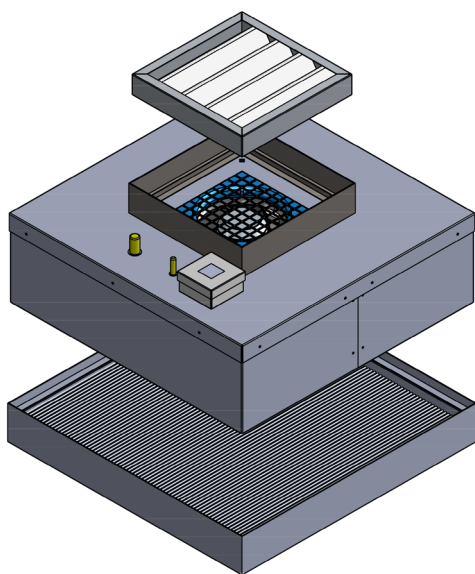


FAN FILTER UNIT (FFU)

Filter Replacement Methods

1. Top Side Change (TSC) - SM (Separated) Model

This type of Fan Filter Unit (FFU) allows for filter replacement from the technical area above the ceiling. This approach is advantageous for setups where the ceiling configuration allows easy access to the FFU components, facilitating straightforward maintenance. It is particularly suitable for structures with accessible overhead spaces, enabling easier and faster filter changes from above, minimizing downtime.



Section view of FFU-ceiling installation

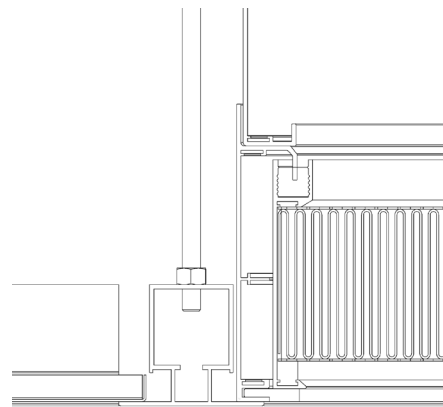
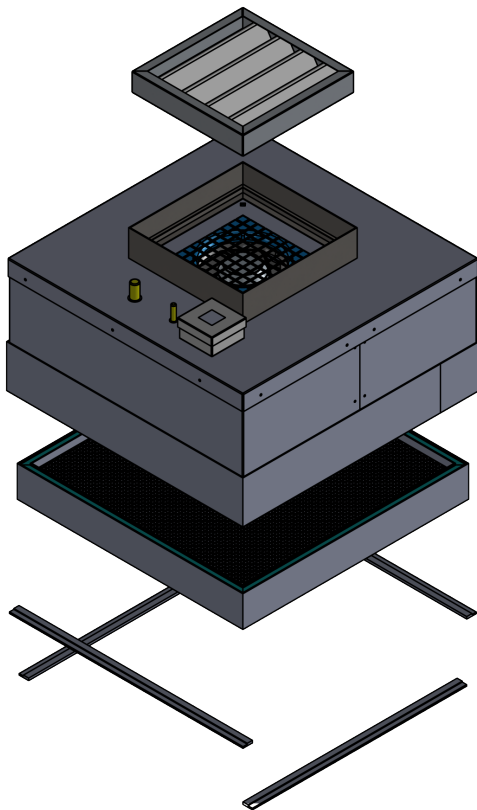


Knife Edge Profile HEPA Filter

FAN FILTER UNIT (FFU)

2. Room Side Change (RSC) - J (Gel Type) Model

For facilities that require more frequent maintenance or where ceiling access is limited, our FFUs with room side filter replacement are an ideal choice. This design allows for quick and simple filter changes directly from the cleanroom side, ensuring that the unit remains in place during the process. This method is perfect for environments with lower ceiling clearances or where minimizing maintenance impact on the surrounding area is crucial.



Section view of FFU-ceiling installation



Gel Type HEPA Filter

FAN FILTER UNIT (FFU)

Fan

1. AC motor-driven

AC motor-driven fans operate with alternating current and run at a fixed speed. While their traditional design means they have lower energy efficiency, they require additional components for speed control. However, their robust construction ensures a long lifespan and low maintenance requirements.



In AC fans, a variable speed controller allows for manual adjustment of fan speed to meet operational needs, enhancing airflow control.



Variable Speed Controller

2. EC motor-driven



EC motor-driven fans use alternating current but convert it to direct current through integrated electronic circuits. This allows for electronic speed control, providing high energy efficiency and quieter operation. Additionally, EC motors can easily integrate with Building Management Systems (BMS) and other smart control systems, offering flexibility and automation in HVAC applications. A MODBUS fan option is also available for enhanced control and communication capabilities.



Variable Speed Controller

In EC fans, manual speed control is achieved using a potentiometer. This allows for precise and efficient adjustment of fan speed to meet specific operational requirements. (0-10 V)



Constant Speed Controller

For automated control, our Constant Speed Controller, utilizing a Differential Pressure Controller (DPC), maintains a steady fan speed regardless of operational conditions. This system compensates for the pressure loss that occurs as the filter becomes dirty, increasing the fan's power to ensure that the desired airflow remains constant. This feature is crucial for applications where maintaining a consistent airflow is essential.

FAN FILTER UNIT (FFU)

Accessories

1. Magnehelic Manometer

The Magnehelic manometer is used to measure the differential pressure across the fan filter unit. This precise device indicates the filter's clogging level, helping to determine maintenance needs and ensuring efficient system operation.



2. Pressure Transmitter

A differential pressure sensor that monitors the pressure drop across the filter and converts it into an analog signal for transmission to control systems.



3. Presostat

This pressure switch monitors the pressure levels within the FFU and activates or deactivates the unit based on preset thresholds.



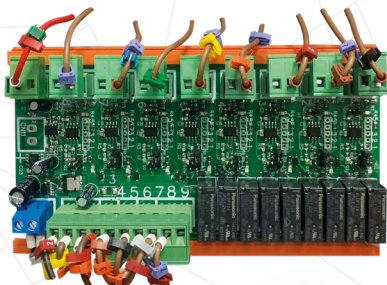
4. Pre-Filter

The pre-filter provides the initial stage of filtration by capturing larger particles, thus extending the life of the main filter in the fan filter unit. This ensures the main filter operates more efficiently and reduces maintenance requirements.



5. Fan Failure Card

The fan failure card triggers an alert if any fan in the unit stops working. This allows for quick identification of issues and helps maintain safe system operation.



LAMINAR FLOW with FAN FILTER UNIT (FFU LF)

UNIDIRECTIONAL AIR FLOW (UDAF)

Laminar Flow units are essential for maintaining sterile and particle-free environments across various industries. These units provide a continuous stream of HEPA-filtered air, ensuring unidirectional airflow that protects sensitive processes and products from contamination. In the pharmaceutical industry, Laminar Flow units are indispensable for maintaining sterility. Beyond pharmaceuticals, these units are extensively used in microelectronics, healthcare, food and beverage production, aerospace, optics, biotechnology, medical device manufacturing, and research and development laboratories. They offer the highest standards of cleanliness and contamination control, making them vital for any setting that demands stringent air quality management.



LAMINAR FLOW with FAN FILTER UNIT (FFU LF)

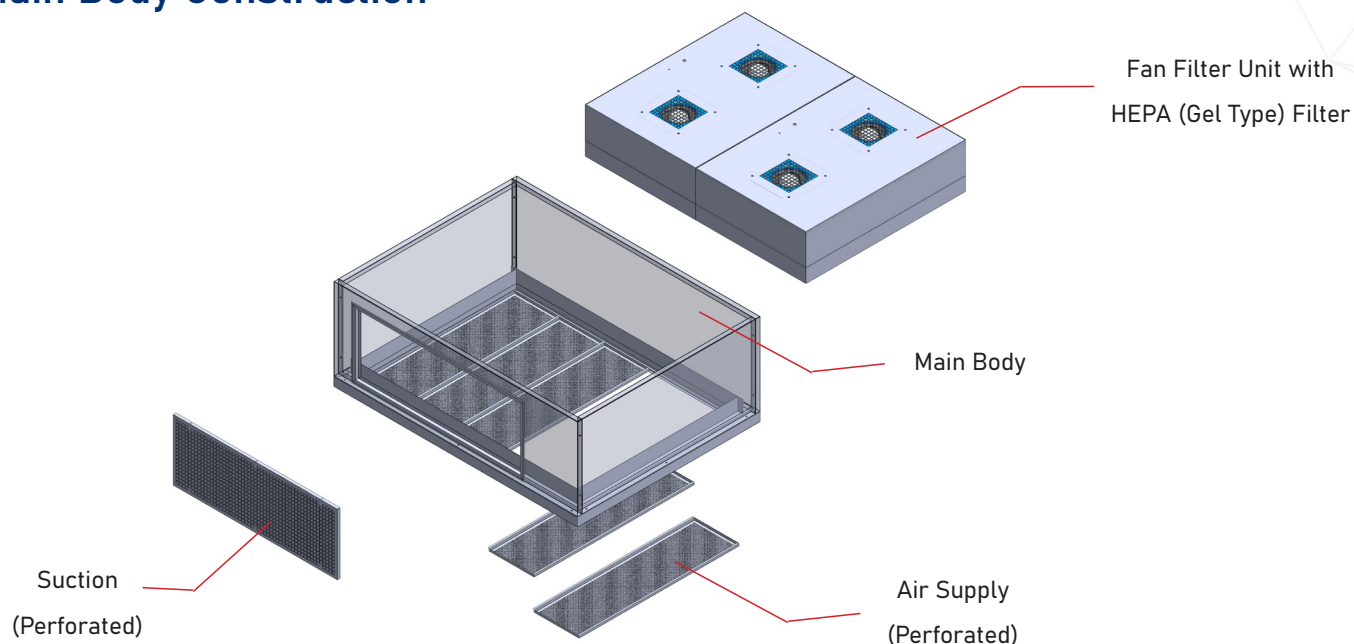
Crafted with precision by Ulpatek, the LAMINAR FLOW with FAN FILTER UNIT (FFU LF) systems are constructed using specialized aluminum profiles and stainless steel frames. These units are designed for versatility, capable of being suspended from the ceiling or equipped with rolling wheels. Standard accessories include transparent hygienic curtains, variable speed controllers, differential pressure gauges, and test aerosol nozzles. LF units meet Class 100 conditions according to ISO Class 5 according to ISO 14644-1, featuring speed-controlled fans, prefilters, and HEPA filters (H14). The clean air velocity is approximately 0.45 m/s ($\pm 20\%$) measured 15-20 cm below the air distributor. The FFU LF systems ensure laminar flow, creating positive pressure within the unit.



Filling Line

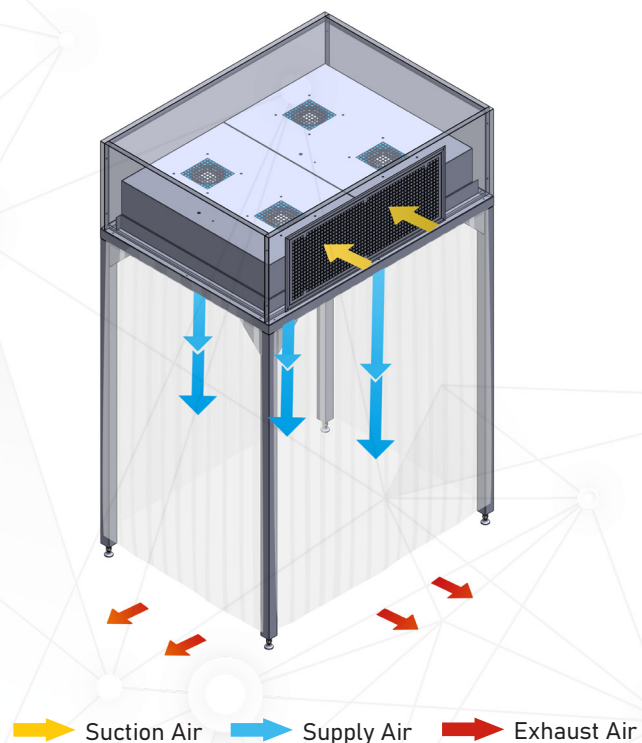
LAMINAR FLOW with FAN FILTER UNIT (FFU LF)

Main Body Construction



Operation Principle

The Laminar Flow (LF) Unit operates by drawing air from its surrounding environment. This air first passes through perforated grilles and a prefilter, which capture larger particles and contaminants. Subsequently, 100% of the filtered air is directed through a high-efficiency HEPA filter, ensuring the 99.995% efficiency at the most penetrating particle size (MPPS).



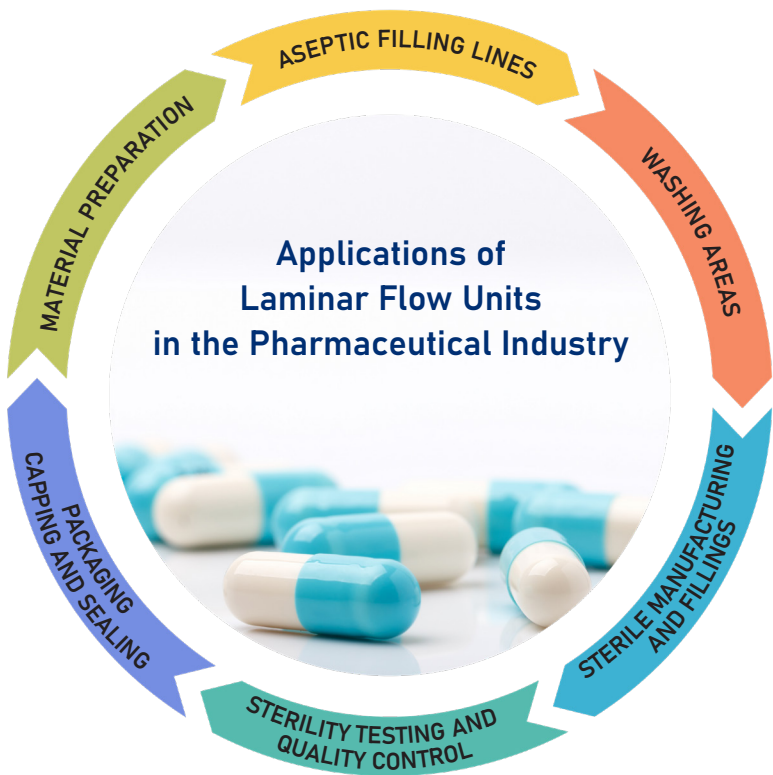
After passing through the HEPA filter, the clean air flows through a perforated stainless steel air distributor. This design ensures uniform distribution of laminar airflow across the entire working space, creating an environment with minimal turbulence and consistent air quality.

The positive pressure within the unit is maintained by the laminar flow of air, which continuously pushes contaminants away from the protected area. This positive pressure prevents the infiltration of unfiltered air and ensures that the workspace remains sterile and particle-free, making it ideal for critical processes in cleanrooms, laboratories, and other controlled environments.

By maintaining a constant and controlled flow of HEPA-filtered air, the LF Unit effectively creates a barrier against airborne particles and microorganisms, providing a reliable solution for environments requiring stringent air quality control.

LAMINAR FLOW with FAN FILTER UNIT (FFU LF)

Laminar Flow units play a crucial role in the pharmaceutical industry by providing sterile and particle-free environments necessary for various critical processes. These units ensure the highest standards of cleanliness and contamination control, which are essential for maintaining product integrity and safety. Here are some of the key applications of Laminar Flow units in the pharmaceutical industry.



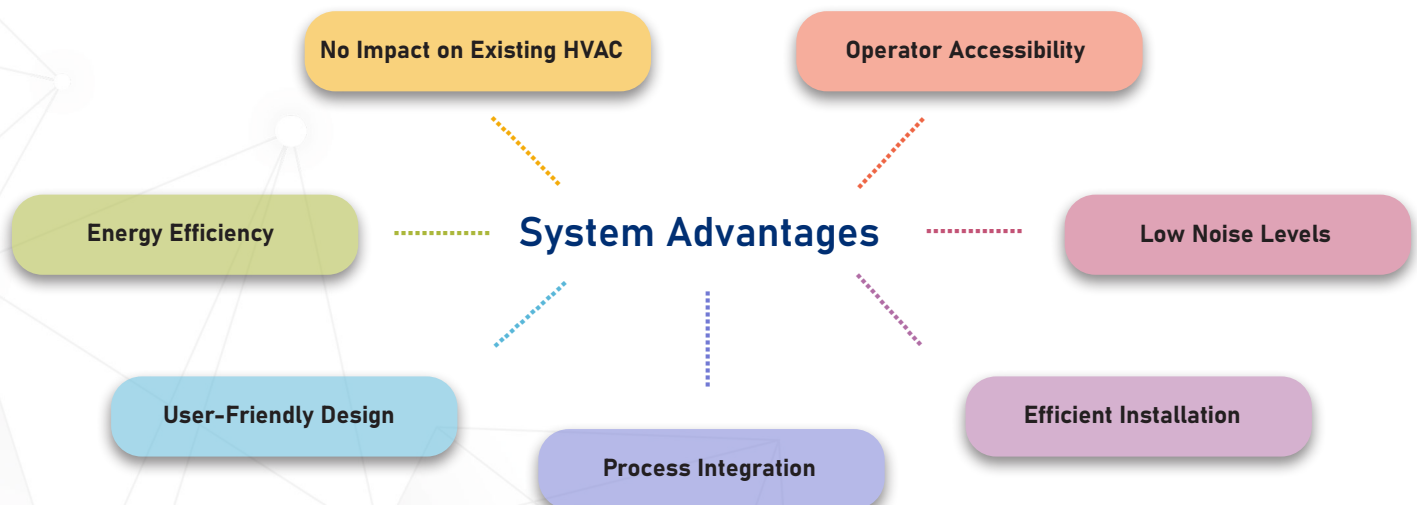
CONTAINMENT BOOTH (DFB)

Downflow Booth - Dispensing Booth - Laminar Flow Unit for Weighing and Sampling

Our Containment Booth (DFB) is designed to ensure that weighing, sampling, and other processing activities are carried out in ISO Class 5 cleanroom conditions, protecting the product from external contaminants. Additionally, the booth prevents particles from the processed product from spreading outside the unit. This is achieved by maintaining the unit at a negative pressure relative to the room it is placed in, ensuring that the cleanroom conditions outside the unit remain uncompromised.

Specifications

- **Laminar Airflow Velocity:** 0.45m/s $\pm$ 20% measured 15-20 cm from HEPA filter or diffuser face.
- **Applications:** Suitable for production, weighing, sampling.
- **Filtration Systems:** Custom filtration systems, including HEPA filters, designed to suit each application.
- **HEPA Filter Testing:** Leakage test with test aerosol according to ISO 14644-3.
- **Temperature Regulation:** Optional cooling coil systems available.
- **Dimensions:** Available in various dimensions and safe working zones.
- **Noise Reduction:** Fan FlowGrid to reduce noise levels.
- **Safe Change Filters:** Configurations available for both internal and external filter changes.
- **Design:** cGMP modular design with minimized joints and seams.
- **Airflow Configurations:** Suitable for powder or solvent applications.
- **Lighting:** Ceiling or side wall-mounted LED lighting, with optional UV lighting.
- **Construction Materials:** Available in epoxy-coated zintec steel, 304/316L stainless steel, or a combination of both.
- **Additional Features:** PVC strip curtains available.



Quality Assurance

Every Containment Booth (DFB) undergoes rigorous quality controls, detailed in our FAT (Factory Acceptance Test) protocols, complying with ISO 14644 standards. Each unit is delivered with comprehensive documentation, including user and maintenance manuals, spare parts lists, CE certificates, individual filter certificates, and electrical diagrams.

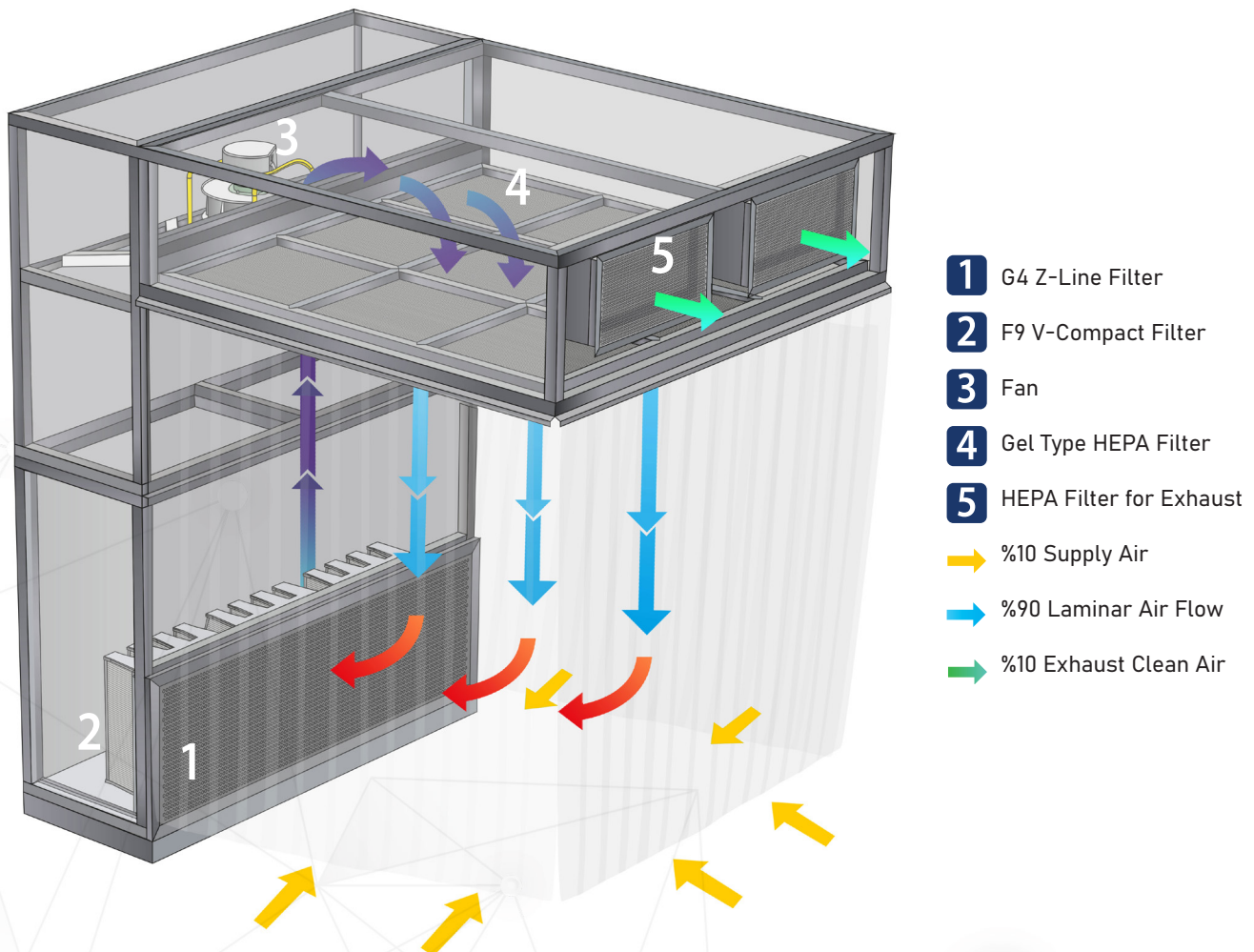
CONTAINMENT BOOTH (DFB)



CONTAINMENT BOOTH (DFB)

Operation Principle

The LF Unit operates on a recirculatory push-pull airflow principle, providing effective containment through controlled air movement. Approximately 85-90% of the overall air volume passes evenly through the HEPA filter into the working space, pushing any respirable dust clouds from the product being processed away from the operator's breathing zone and capturing airborne particles. Contaminated air passes through perforated return grilles and two stages of prefilters before returning through the unit's ceiling plenum. The remaining 10-15% of the air is exhausted through a HEPA filter into the surrounding environment, maintaining negative pressure within the working space to prevent contamination breakout. Airflow control is automatically regulated by fan speed sensors to ensure consistent performance.



CONTAINMENT BOOTH (DFB)

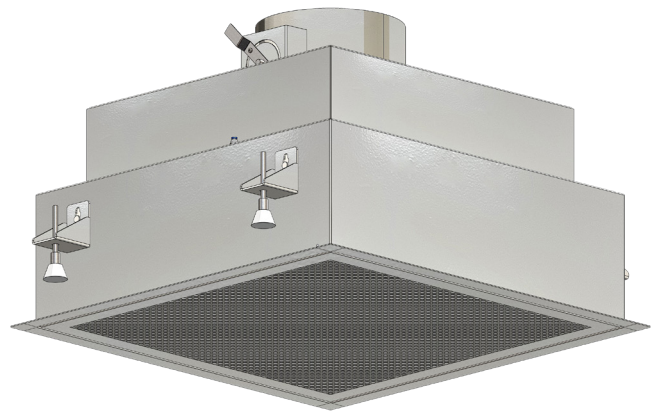
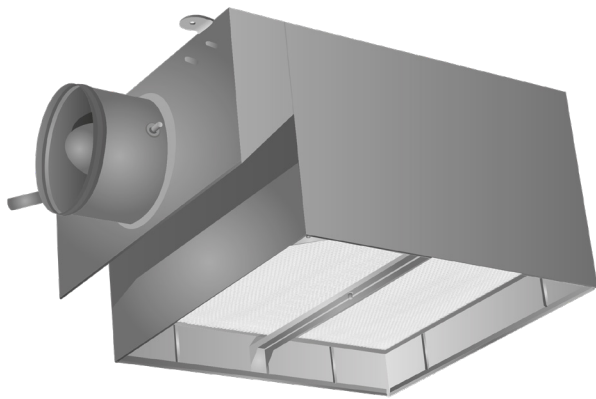


HEPA FILTER BOX

HEPA Filter Box (HFB), main demands of the clean room technology and especially in its pharmaceutical applications is the air-conditioning and accordingly the air quality.

Air distribution is generally made through the HEPA Filter installed to its housing. Therefore, selection and assembling the HEPA Filter to its housing without leakage is very important. HEPA Filter Box consists of 3 main parts, which are the box, filter and the diffuser. HFB has an inlet duct connection port for air inlet at the top or at the sides.

Filters can be chosen according to the room Class from H13 to U17. There are three different type of HEPA Filter Box's surface according to HEPA Filter gasket type which are surface with test groove system, flat surface, and knife edge surface.



Field of Application

HEPA Filter Boxes are widely used across various industries, including pharmaceutical, electronic, optical, food, and chemical sectors. In hospitals, these boxes are crucial for maintaining sterile environments in operating theatres, side rooms, intensive care units, isolation solutions, and other sterile zones. Laboratories also benefit significantly from HEPA Filter Boxes, as they are used in clean zones and working areas to ensure a controlled environment free of particulate contamination.



LIFE SCIENCE



HEALTHCARE



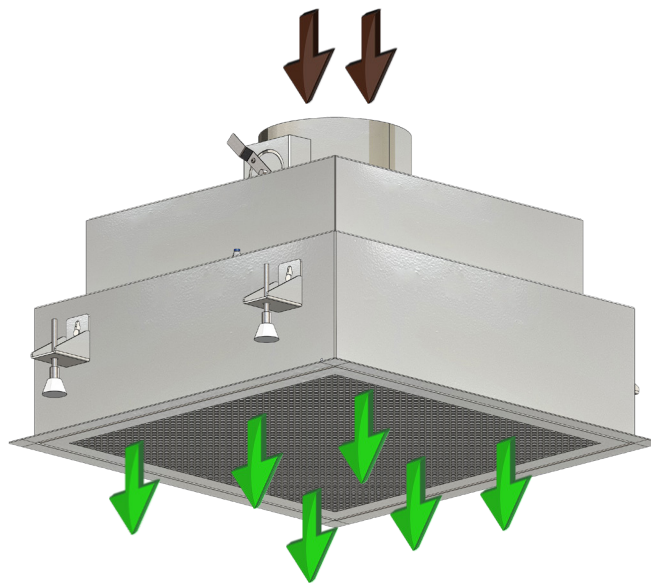
FOOD & BEVERAGE

HEPA FILTER BOX

HEPA Filter Box are hung or placed in different type of suspended ceiling (walkable panel, clip-in, plaster ceiling, etc.) for cleanroom application. Pay attention to tightness between HEPA Filter Box and ceiling type. HEPA filter and air diffuser are assembled into the HEPA Filter Box.

Accessible ports for leakage test and differential pressure drop of filter located on room side of the box.

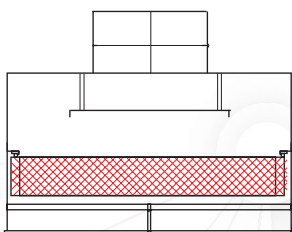
Interconnection components such as springs, stamps, nut bolts, screws required for assembly are also used on this module.



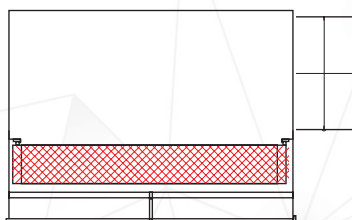
Inlet Options

The inlet ports for our HEPA filter boxes can be configured for top inlet, side inlet, or Z inlet (low ceiling) entry. Depending on the customer's ceiling space and equipment arrangement in the technical area, air can be supplied from the desired direction. Additionally, based on specific customer requirements, the inlets can also be designed in square or rectangular configurations.

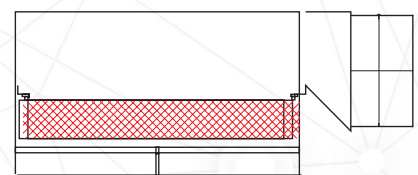
Top Inlet



Side Inlet



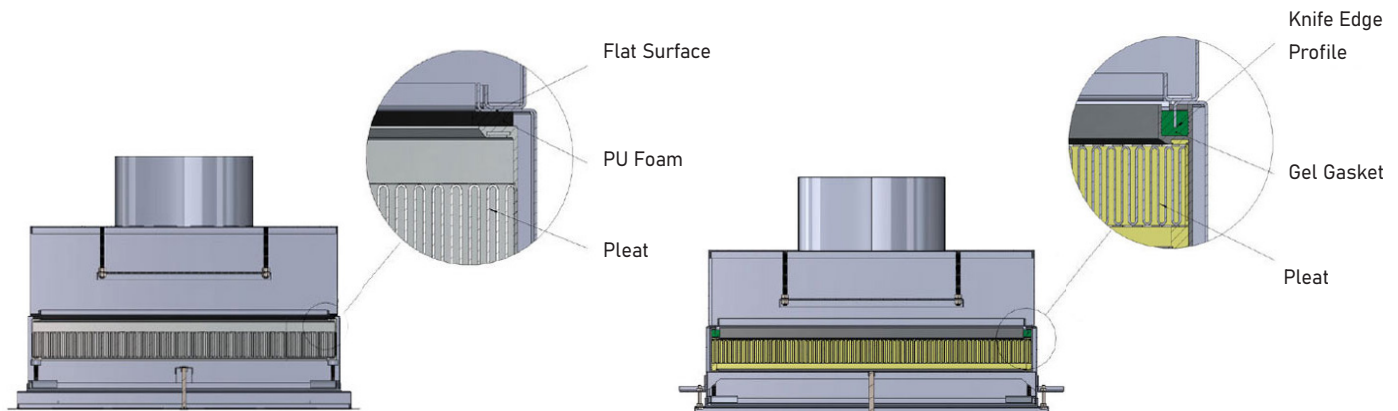
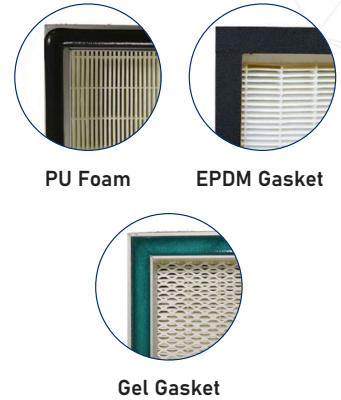
Z Inlet



HEPA FILTER BOX

Filter Gasket

For HEPA filters, three types of gaskets are used depending on the application and the gasket pressure surface of the housing: PU foam, Gel, and EPDM. These gaskets ensure airtightness between the HEPA filter and the HEPA filter box. Selecting the correct gasket type is essential for maintaining a tight seal, which prevents leaks at the filter-box interface. This tight seal ensures that commissioning tests can be performed efficiently without any leakage. Using the appropriate gasket provides a secure seal, which enhances the overall performance and reliability of the filtration system by maintaining proper harmony between the filter and the housing.



Air Diffusers

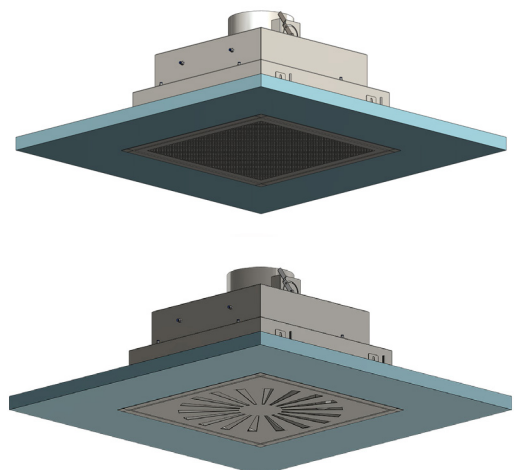
Supply air passes through the diffuser and is distributed throughout the room. Depending on the diffuser model, air distribution can be turbulent or homogeneous. Common models include perforated and swirl diffusers. Diffusers can be fixed from four corners or centrally with bolts, or assembled with two hanger pins on one side and locked with two fixing magnets on the other, based on customer request.

Perforated Diffuser

Perforated diffuser is designed to ensure that the conditioned air is distributed homogeneously.

Swirl Diffuser

Swirl diffuser is designed to ensure that the conditioned air is distributed by means of the swirling effect.



HEPA FILTER BOX (TOOL FREE MODEL)

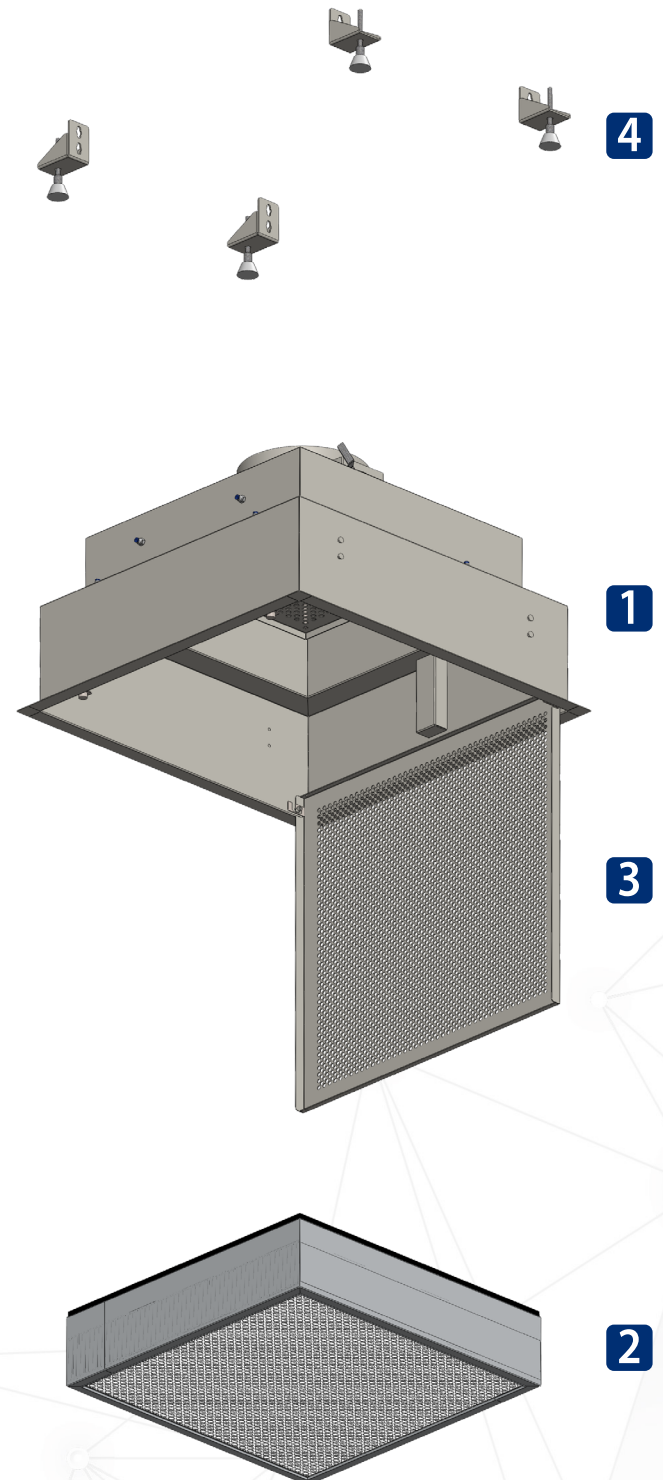
The HEPA Filter Box features an innovative “tool-free” design. With this product, filter replacement can be easily carried out by a single technician without the need for any tools.

Furthermore, its advanced features, such as easy access from the room to pressure ports, aerosol injection, and aerosol sampling nozzles, give it a unique position in the industry.

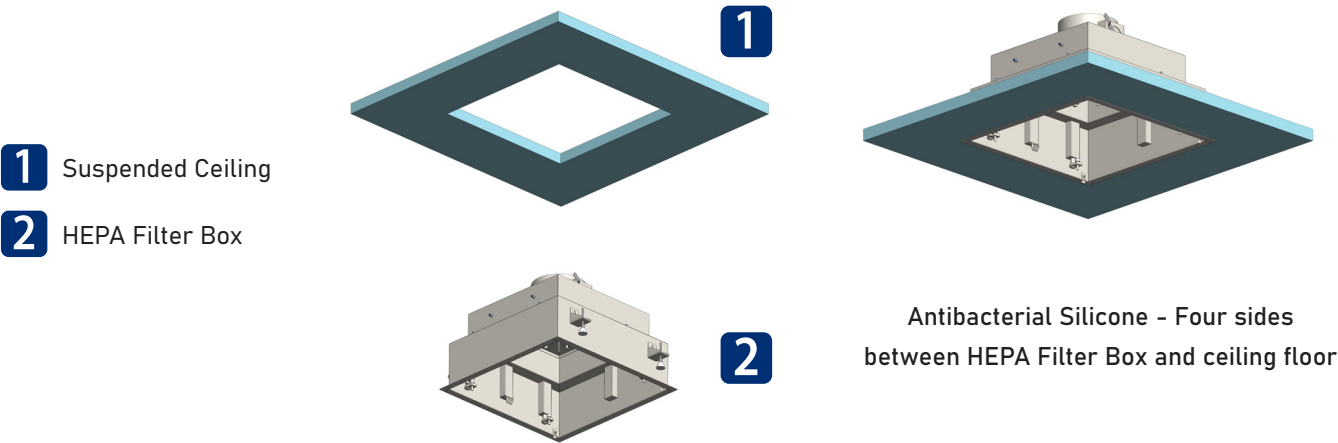
HEPA Filter Box consists of the following standard components, that can be designed and produced specially depends on customer request. Check the components detail before installation, operation, and maintenance for HEPA Filter Box.

Finished HEPA Filter Box consist of products below:

- 1** HEPA Filter Box
- 2** HEPA Filter
- 3** Air Diffuser
- 4** HEPA Filter Hanging Parts



HEPA FILTER BOX (TOOL FREE MODEL)



- 1

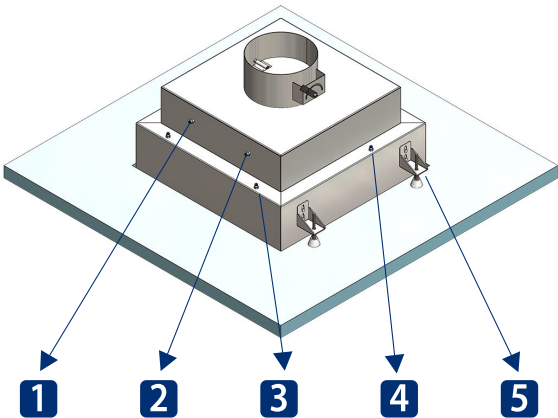
100% (DOP/Emery Sampling Port)
- 2

ΔP (+) Port
- 3

ΔP (-) Port
- 4

Aerosol Injection Port
- 5

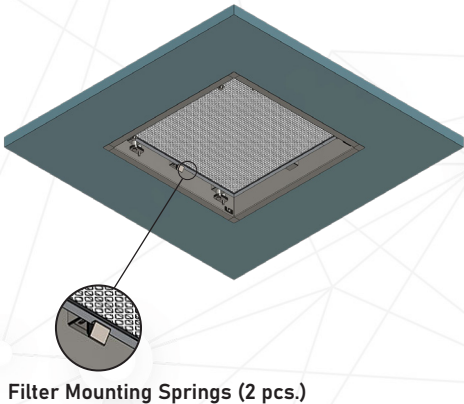
HEPA Filter Box Mounting parts (4 pcs.)



Top view of assembled HEPA Filter Box

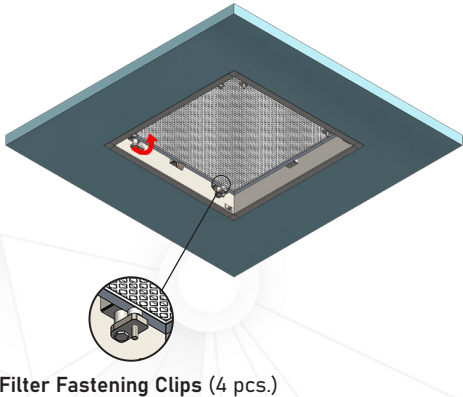
About HEPA Filter Assembling

The filter mounting springs ensure that the filter hangs in the HEPA Filter Box, prevents HEPA Filter falling down.



Filter Mounting Springs (2 pcs.)

Fixing the HEPA Filter in the HEPA Filter Box is completed by turning the filter fastening clips 90°.



Filter Fastening Clips (4 pcs.)

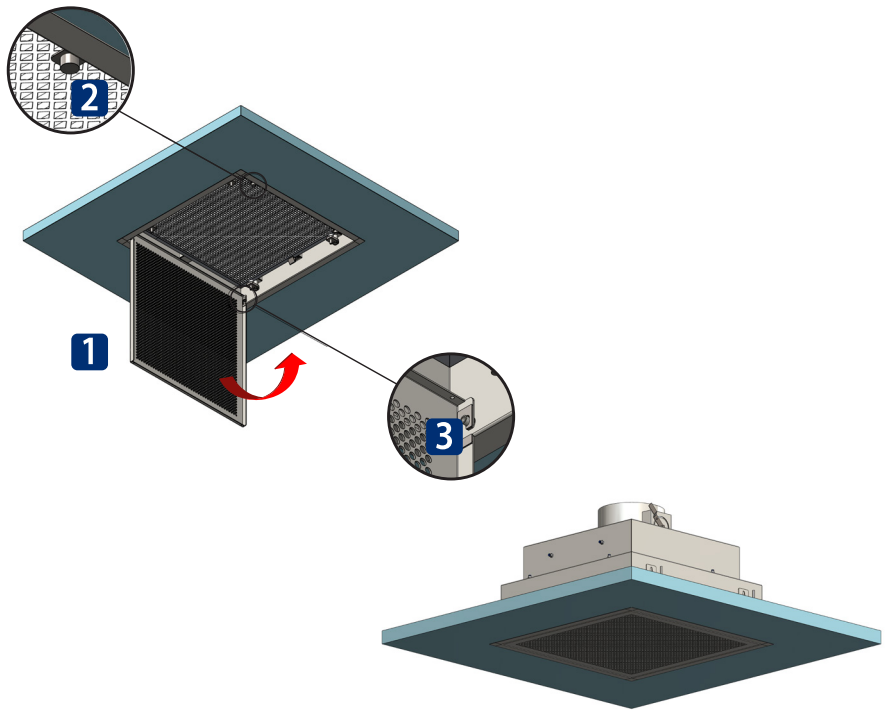
HEPA FILTER BOX (TOOL FREE MODEL)

Air Diffusers

Within the scope of this model, diffusers are assembled with a two hanger pins on one side and locked with two fixing magnets on the other side.

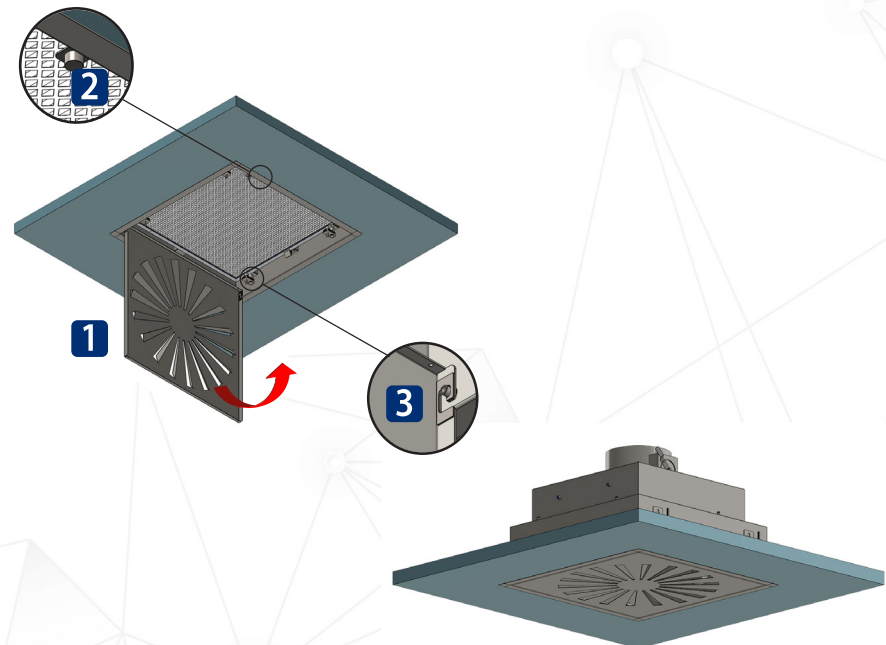
Perforated Diffuser

- 1** Perforated Diffuser
- 2** Diffuser Fastening Magnet (2 pcs.)
- 3** Diffuser Hanger Pin (2 pcs.)



Swirl Diffuser

- 1** Swirl Diffuser
- 2** Diffuser Fastening Magnet (2 pcs.)
- 3** Diffuser Hanger Pin (2 pcs.)



SAFE CHANGE HOUSING - BIBO (USCH)

The Safe Change Filter Housing (USCH) is engineered to filter particles and aerosols, providing robust protection for service staff and the environment from potentially toxic and unsanitary conditions. The USCH guarantees contamination-free filter changes through its fully sealed Bag-In Bag-Out (BIBO) system, which prevents hazardous materials from escaping during filter replacement, ensuring the safety of personnel and the integrity of the process.

Each USCH unit accommodates a wide range of particulate and chemical filters, and can be customized to meet specific filtration stages and air volume requirements. The housing includes a test groove for leak testing of the gasket seal between the main filter and the housing, ensuring a secure and leak-proof operation.

To enhance operational efficiency, each USCH is equipped with a dedicated filter changing table, enabling a single person to perform filter changes easily and safely. This design minimizes downtime and simplifies the maintenance process.



Ulpatek's R&D department is dedicated to developing safe, reliable, and user-friendly configurations. Our approach provides significant advantages to customers, including reduced total costs, enhanced system performance, and improved health and safety outcomes. By integrating advanced technologies and ergonomic designs, Ulpatek ensures that our solutions meet the highest standards of safety and efficiency.



- Pharmaceutical Plants
- Radioactive Isotope Laboratories
- Hospital installation in nuclear medicine



- Nuclear Power Plants
- Epidemic and Isolation Products
- Biotechnical Facilities

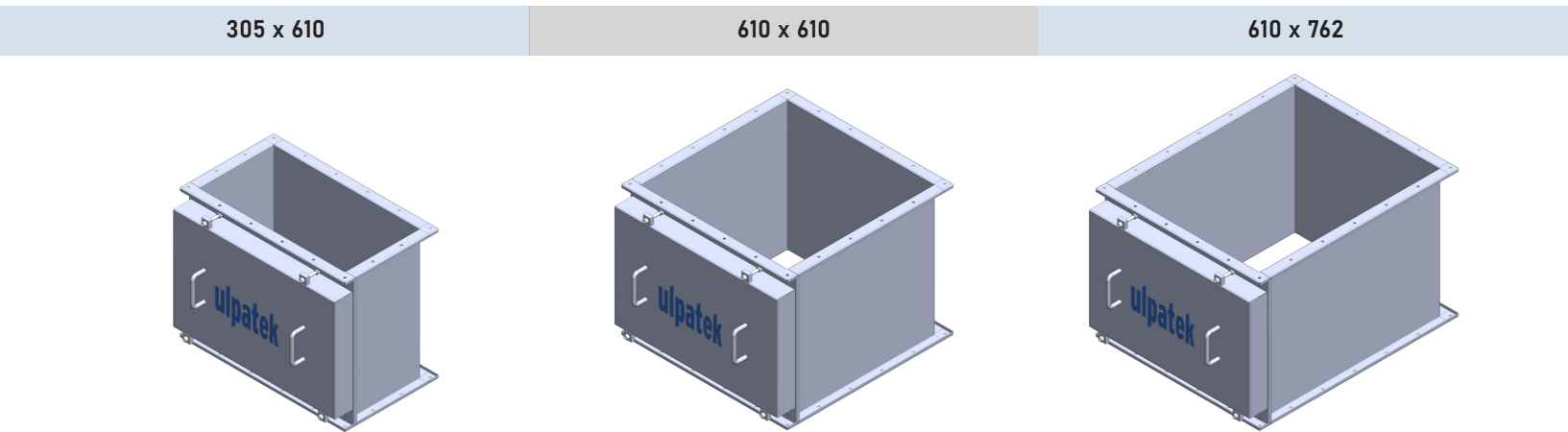


- Animal Facilities
- Chemical Industries
- Safety Laboratories

SAFE CHANGE HOUSING - BIBO (USCH)

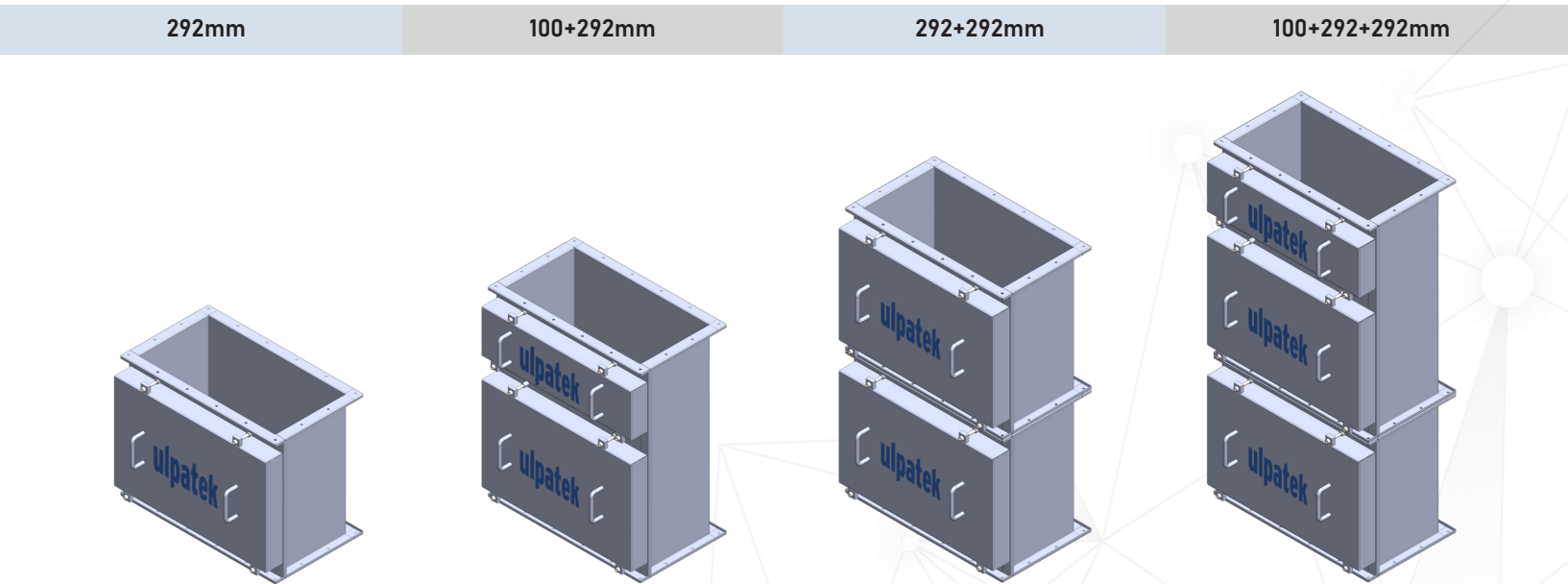
CUSTOMIZE YOUR UNIT

HOUSING SIZES



Available in 305x610, 610x610, and 610x762 sizes. Recommended capacity values for a single column are: 305x610 for 1700m³/h, 610x610 for 3400m³/h, and 610x762 for 4250m³/h. The total capacity increases with the number of columns.

FILTER STAGES

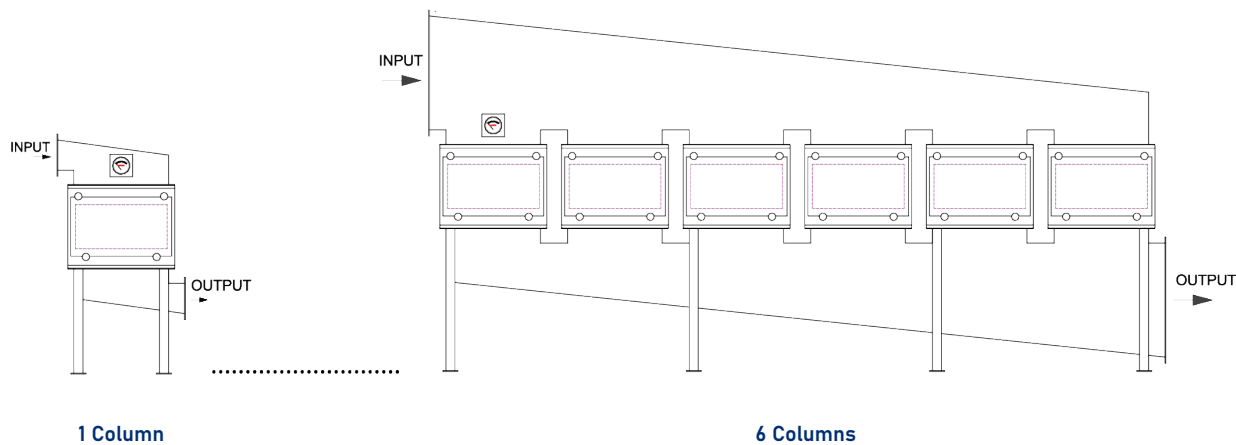


A single column can be configured with multiple filtration stages based on specific process needs. Options include a single stage with a 292mm filter, a dual stage with either a 100mm + 292mm filter or a 292mm + 292mm filter, and a triple stage with a 100mm + 292mm + 292mm filter. This allows for customized filtration efficiency to meet various requirements.

SAFE CHANGE HOUSING - BIBO (USCH)

COLUMN NUMBER : CAPACITY

The capacity of the units increases with the number of columns, based on the housing dimensions. Up to six columns can be configured in a single row.



Example Configurations

Housing Size (mm)	Number of Columns	Total Capacity (m³/h)
305x610 (1.700m³/h)	1	1.700
610x610 (3.400m³/h)	2	6.800
610x762 (4.250m³/h)	5	21.250

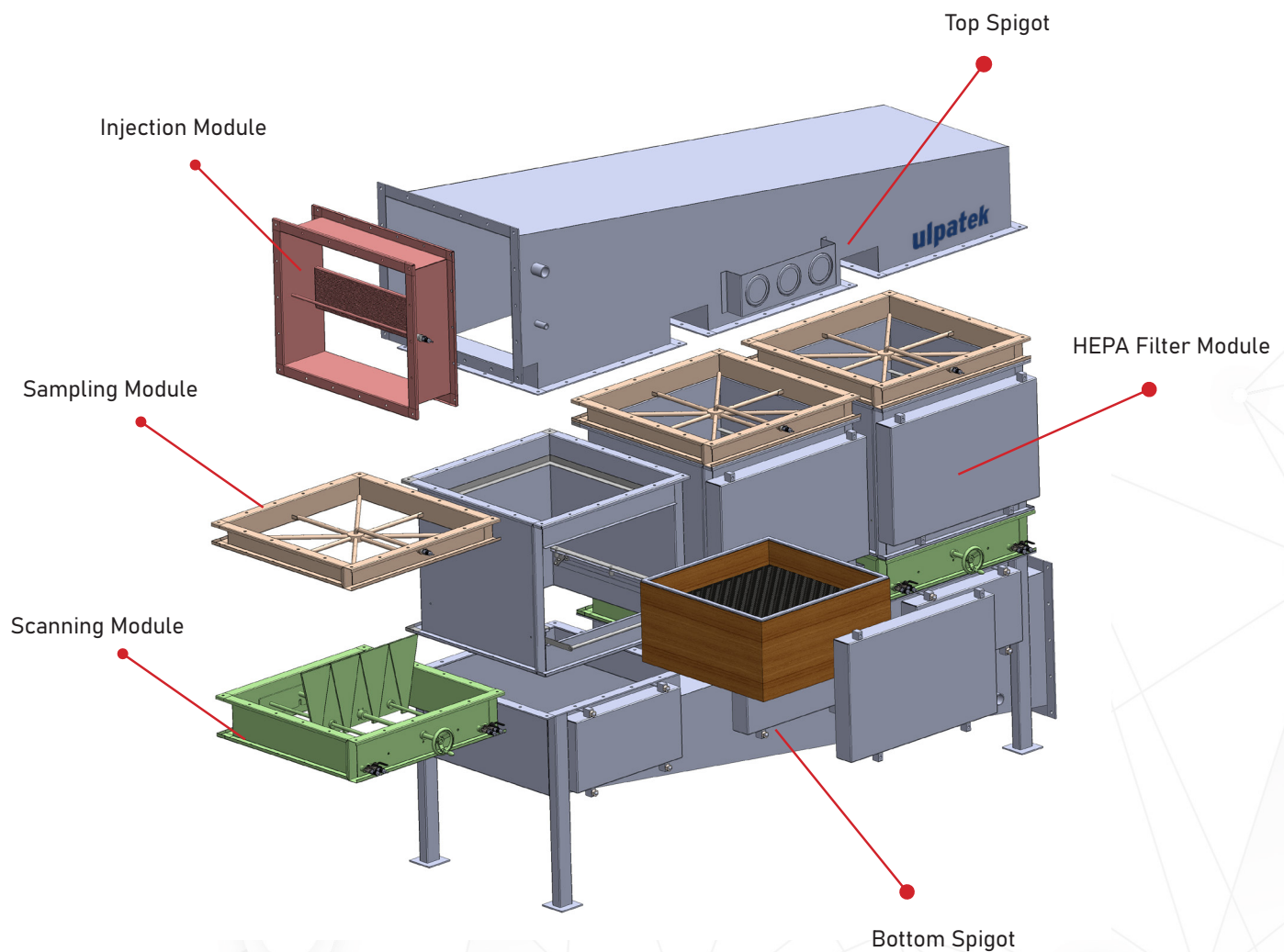
For higher capacity needs, a second row of units can be mirrored directly behind the first row, effectively doubling the capacity. Alternative designs can be created by considering physical constraints such as available space.



SAFE CHANGE HOUSING - BIBO (USCH)

Leakproof Construction

Metal body of safe change filter housing has bisulcate flange connection. This structure provides a safe tightness. Filter change is carried out untouched by human hands. Service staff do not have to touch neither filter nor inner side of cabin. **ULPATEK Safe Change Filter Housing** has a pre-filter option according to request one or multiple stages. Body surface of cabin is powder coated with a colour you preferred and can be disinfected. Service covers are closed very tightly with spline sealed bolt and cross-slotted bolt. Filter monitoring can be done by magnehelic manometers with the pressure nozzles that are located on the unit.



SAFE CHANGE HOUSING - BIBO (USCH)

DEVICE CONSTRUCTION

Finished Safe Change Filter Housing consists of products below:

- Connecting Spigot for Air Input
- Injection Module
- Sampling Module
- Main Filter Module
- Scanning Module
- Connecting Spigot for Air Output

Safe Change Filter Housing is created as requested by put together these products. For operation and maintenance, check the units in your device first and then apply processes which are required for these units.

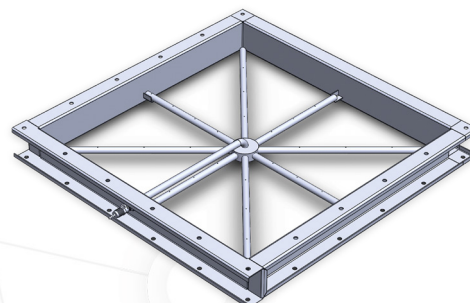
Injection Module

This section is typically located upstream of the filter bank to be tested. It is designed to inject a test aerosol, mix the aerosol and take a reference sample of the air/aerosol mixture.



Sampling Module

This section is typically located downstream of the HEPA filter bank. Its purpose is to sample the downstream penetration of the test particulate challenge. Sample test section is modular and aligns with the entire filter housing system. This housing includes a proprietary tubing system to sample any challenge particulate downstream of each individual filter element.

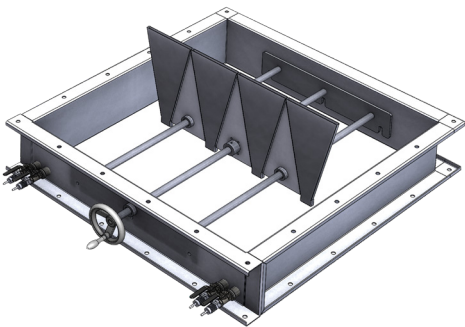


SAFE CHANGE HOUSING - BIBO (USCH)

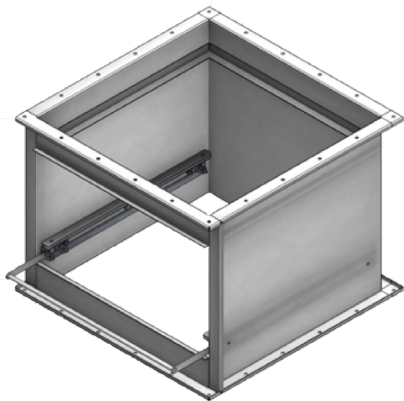
DEVICE CONSTRUCTION

Scanning Module

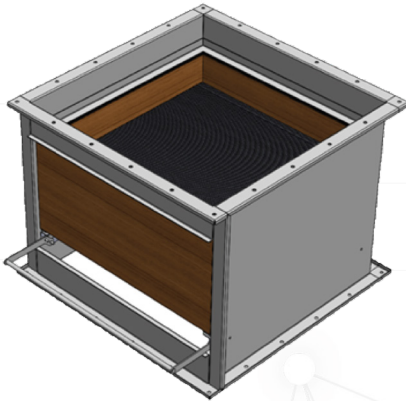
Industry's first non-intrusive manual filter scanning solution. Loss of containment due to a torn or loose scanning bag is eliminated. Accidental probe contact with the HEPA filter media is eliminated. Using a photometer or portable particle counter, the test technician can safely scan test the installed filter (even challenge the filter seal integrity).



Main Filter Module



HEPA Filter Compression Mechanism



Main Filter Module

Accessories

BIBO Bag Sealing Equipments

- Pressing Tool
- Hot Knife
- Cable Tie

BIBO Plastic Bags and Sealing O-Rings for USCH (292mm Modul)

- USCH-Bag-292
- BIBO Plastic Bag
- USCH-Rubber-292
- BIBO O-Rings

BIBO Plastic Bags and Sealing O-Rings for USCH (100mm Modul)

- USCH-Bag-100
- BIBO Plastic Bag
- USCH-Rubber-100
- BIBO O-Rings

RETURN AIR GRILLE

Return air grilles are specifically engineered for the efficient collection and, when necessary, filtration of return air. These grilles are mounted at the lower parts of side panels within controlled environments. They can be produced with or without filters, according to needs. The system consists of a suction box, grille housing, and return air grille. The grille cover features ball joints and spring-loaded filter clamps, allowing for easy removal and reattachment from within the space.

Applications

- Life science
- Microelectronics
- Laboratories
- Food and Beverage Industry

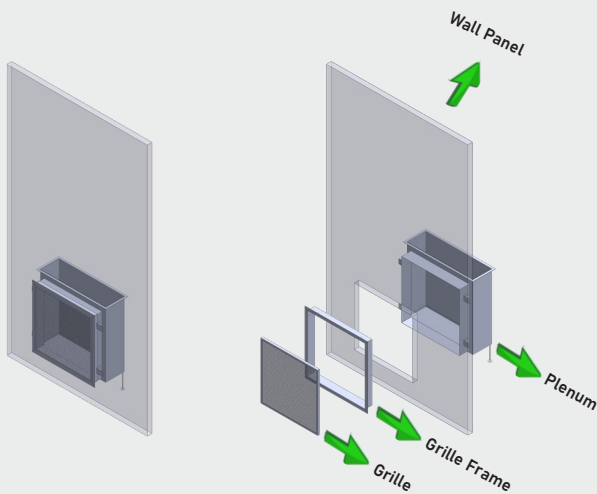
Highlights

- **Efficient Air Collection:** Optimized for the effective collection and filtration of return air, ensuring a clean and controlled environment.
- **High-Quality Material:** Manufactured using 304SS or 316SS, providing durability and resistance to corrosion.
- **Customizable Options:** Available with or without filters, and can be customized with one or two-stage filtration systems as per the requirements. Designed to accommodate HEPA filters if needed.
- **Easy Installation and Filter Replacement:** Designed for easy installation at the lower parts of side panels. The grille cover features ball joints and spring-loaded filter clamps, allowing for quick removal and reattachment for filter replacement.
- **Low Pressure Loss:** Large effective area minimizes pressure loss, enhancing overall system efficiency.
- **Aesthetic Design:** Grid structure provides an aesthetic appearance while maintaining functionality.
- **Versatile Applications:** Suitable for various controlled environments, including clean rooms, laboratories, and industrial settings.

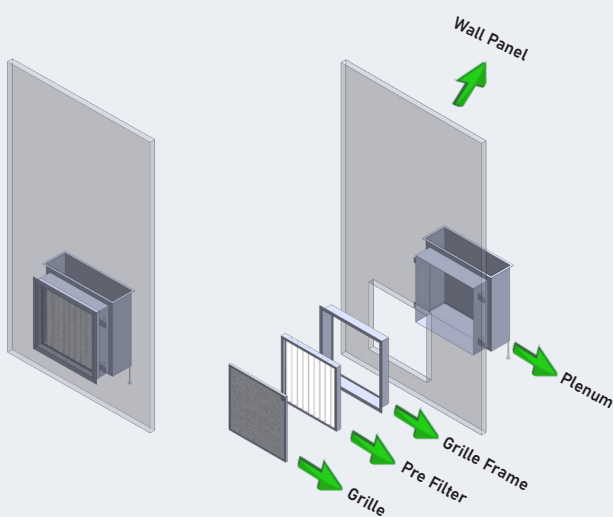


RETURN AIR GRILLE

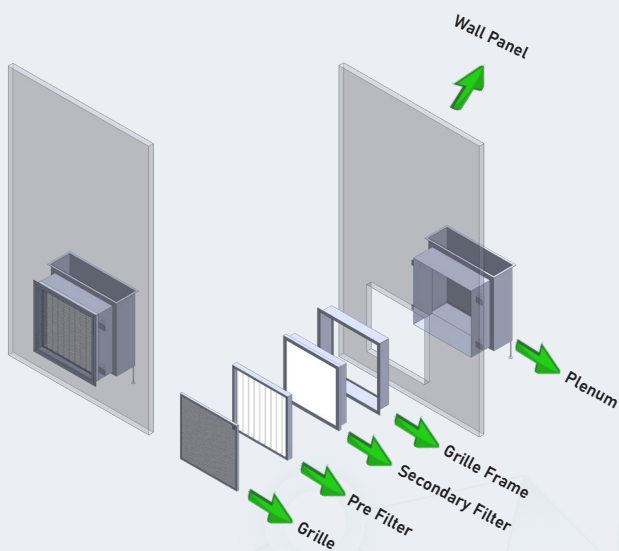
Non-Filtered Return Air Grille System



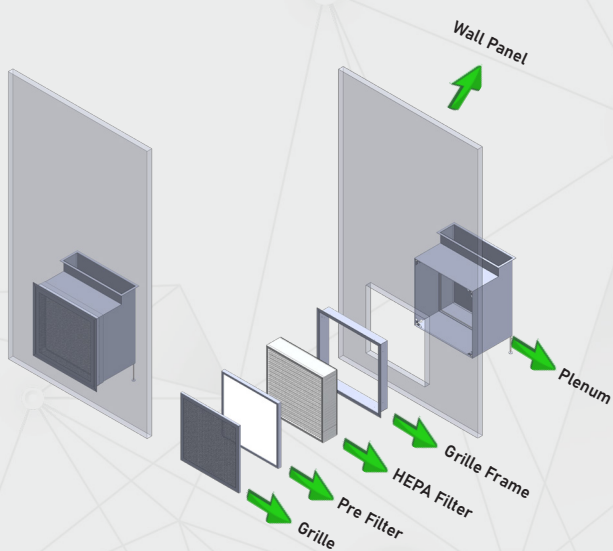
1 Stage Filtered Return Air Grille System



2 Stage Filtered Return Air Grille System



2 Stage Filtered Return Air Grille System (Suitable for HEPA Filter)



MOBILE LAMINAR FLOW UNITS

Mobile Laminar Flow Units are designed to provide sterile conditions on the move, ensuring that critical processes remain uncontaminated. These units are constructed from stainless steel and equipped with wheels for easy mobility. They are specifically designed to transfer sterile products under ISO Class 5 according to ISO 14644-1.

Key Features

- **Mobility:** The unit is made of stainless steel and is easily movable with its wheels.
- **Sterile Environment:** Designed to transfer sterile products under ISO Class 5 (ISO 14644-1) conditions.
- **Ventilation Design:** Creates a clean environment inside the working zone with positive pressure, preventing cross-contamination from the surrounding environment.
- **Lithium Battery:** Equipped with a lithium battery to ensure operation during power cuts and mobile applications.

Operation Specifications

- **Positive Pressure Working Zone:** Ensures a sterile environment by maintaining positive pressure within the working zone.
- **Stainless Steel Construction:** Body structure made entirely of AISI 304 stainless steel for durability and ease of cleaning.
- **Various Dimensions:** Available in multiple dimensions to fit different needs.
- **Improved Airflow Distribution:** Enhanced design for better airflow distribution within the unit.
- **Advanced Fans:** Equipped with high technology AC or EC fans.
- **Adjustable Airflow:** Airflow can be adjusted with a variable speed controller.
- **Constant Speed Controller:** Available upon request for applications requiring constant airflow.
- **Horizontal Airflow:** Provides a horizontal airflow along each cage.
- **Stainless Steel Shelves:** Features solid stainless steel shelves for secure storage.
- **Easy Mobility:** Easily movable in any direction with wheels.
- **High-Quality HEPA Filter:** Equipped with a high-quality HEPA filter.
- **Easy HEPA Filter Replacement:** Designed for easy replacement of the HEPA filter.
- **Lithium Battery:** Ensures operation for extended periods during power outages.
- **Magnehelic Manometer:** Monitors the differential pressure across the HEPA filter.
- **Test Aerosol Nozzle:** Includes a nozzle for supplying test aerosol for DOP (EMERY) testing.



ULPALAB

ULPATEK Filter Testing Laboratory



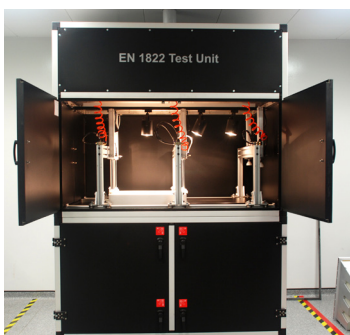
HEPA / ULPA Filter Test System - HF-SCAN 4002/2



HEPA / ULPA Filter Test System - HF-SCAN 3004



ISO 16890 Test System - FTS 3401



HEPA / ULPA Filter Test System
HF-OIL MIST 1200



Filter Media Test System
FMT 102



Performance Test System - PTS 5002

*"Advanced Filtration
for a better future"*

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