# 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:

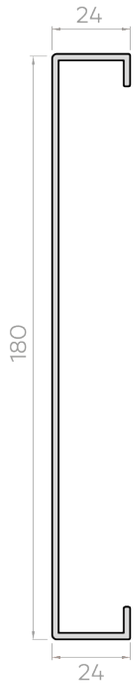
- **Microelectronics:** Protects sensitive electronic components from particulate contamination.
- **Laboratories:** Maintains particle-free environments for research and development.
- **Life Science:** Ensures sterile conditions for biotechnological and pharmaceutical production.
- **Healthcare:** 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

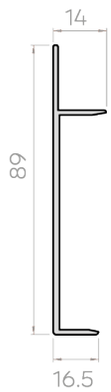
Fan Filter Units are ensuring a leak-proof design that offers superior performance and durability. Review the detailed profile drawings to understand the precise dimensions and innovative design features of our filter frames. This information will help you confidently choose a filter that fits seamlessly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

G



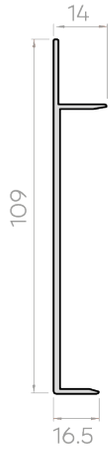

Fan Filter Unit's main body profile is used with "G" frame code .

A-SM



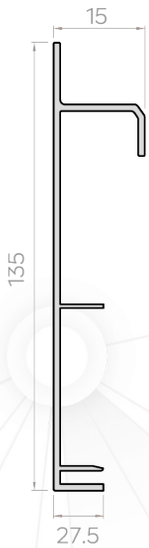

Filter frame suitable for Fan Filter Unit (FFU) G profile.

A-SL




Filter frame suitable for Fan Filter Unit (FFU) G profile.

GF




Fan filter Unit(FFU) with gel filter main body profile used with "GF" frame code suitable for Gel Type HEPA Ceiling filter 104 mm depth.

104 mm



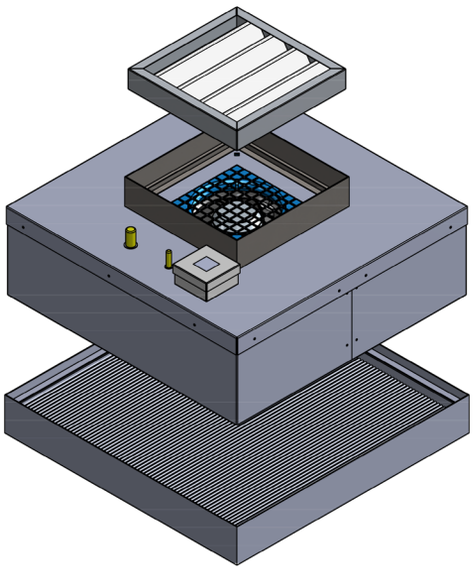

Filter frame suitable for Fan Filter Unit's "GF" profile.

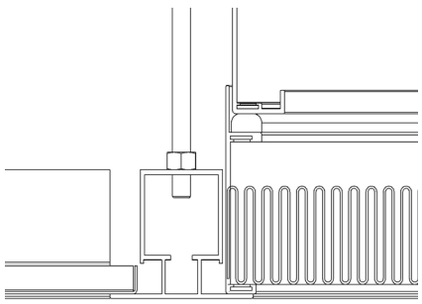
# FAN FILTER UNIT (FFU)

## Filter Replacement Methods

### 1. Top Side Change (TSC) - SM (Seperated ) 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**

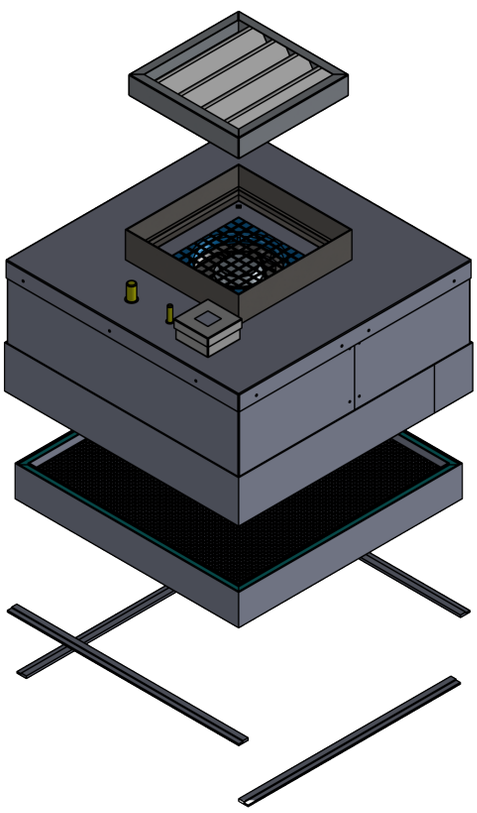


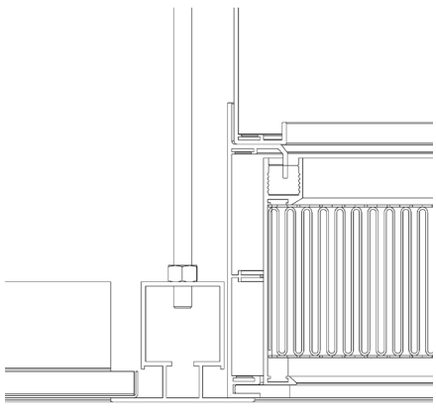
**Knife Edge Profile HEPA Filter**

# 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.

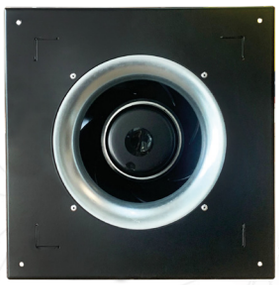


In AC fans, a variable speed controller allows for manual adjustment of fan speed to meet operational needs, enhancing airflow control.



**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 )



**Constrant 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.



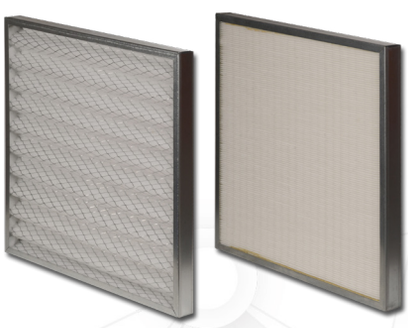

### 3.Presostat

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.

