Fan Filter Unit

Brochure

We Just Going Control Environment

KAIZEN AIRTECH SOLUTIONS

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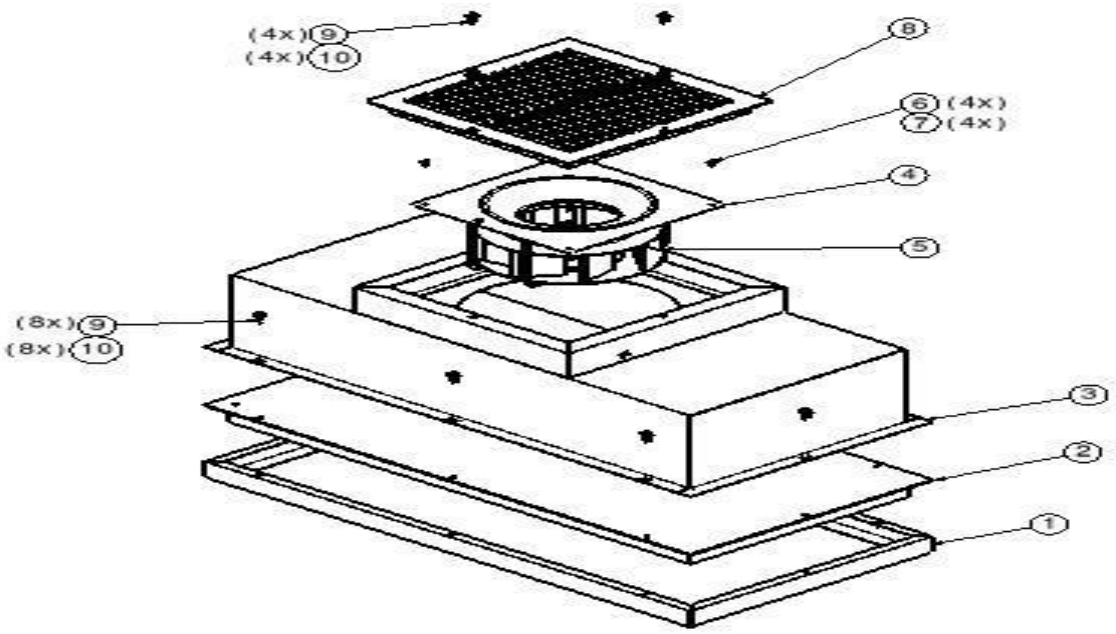
What is FFU ?

A **fan filter unit** (FFU) is a type of motorized air filtering equipment. It is used to supply purified air to cleanrooms, laboratories, medical facilities or microenvironments by removing harmful airborne particles from recirculating air. The units are installed within the system's ceiling or floor grid. Large cleanrooms require a proportionally large number of FFUs, which in some cases may range from several hundred to several thousand.often contain their own pre-filter, HEPA filter and internally controllable fan air distribution.

Structure of FFU

- FFUs come in 2'x2', 3'x2' or 4'x2' dimension metal housing. The FFU component has a pre-filter and may also feature one of the following additional filters:
- High-Efficiency Particulate Air (HEPA) filter: removes impurities that are 0.3 um (micrometer or micron) or greater in size. HEPA has a 99.99% efficiency rating.
- Ultra-Low Particulate Air (ULPA) filter: removes impurities that are 0.12 um or greater in size. ULPA filters have an efficiency rating of 99.999%

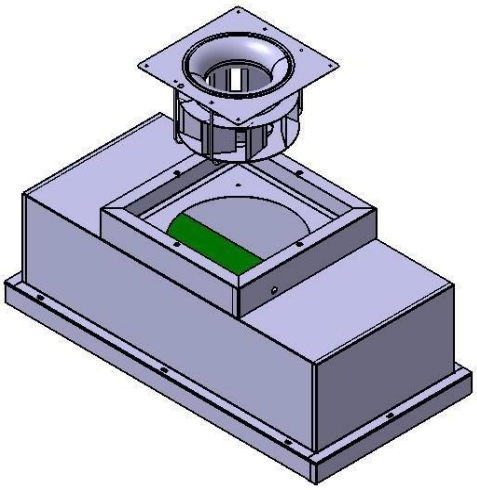


Isometric view

- Fan Filter Units direct a vertical laminar flow of filtered air downward through the enclosed cleanroom area.
- Each includes a 1100 CFM impeller blower (rated at 90 FPM with filter load) mounted in an MS housing with a plenum design that ensures ample air velocity across the entire face of the filter.
- The filtration medium consists of micro porous polyurethane mini-pleats held in place by strong, rigid plastic separators that keep the medium from nesting.
- All components of FFU enclosed in an aluminum or stainless steel box.

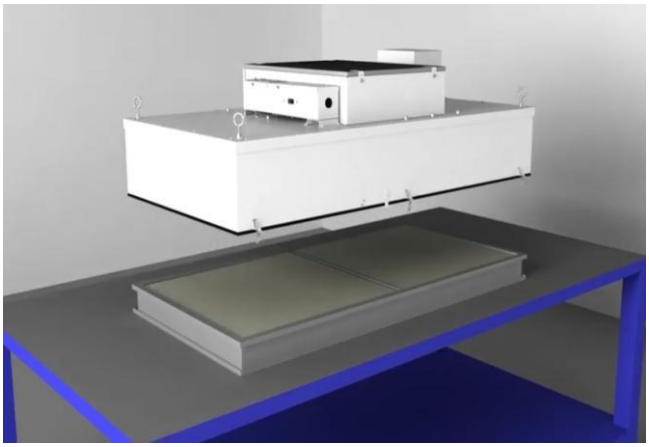
Key Benefits:

- 4' x 2' or 2' x 2' FFUs are designed to be placed in ceiling grid bays with similar dimensions.
- FFUs are the only units that can fit into smaller internal floor dimensions, because they have less height restrictions.
- FFUs are easy to install and require no retrofitting. It's easy to update contamination control systems without having to restructure walls. They easily sit above workbenches, as they are easy to move.
- Unlike traditional airflow systems, FFUs are more portable and make it easier for technicians to make quick updates.
- FFUs are less expensive compared with conventional reticulating air units.
- FFUs are engineered for laminar air flow, as is required in critical environments.



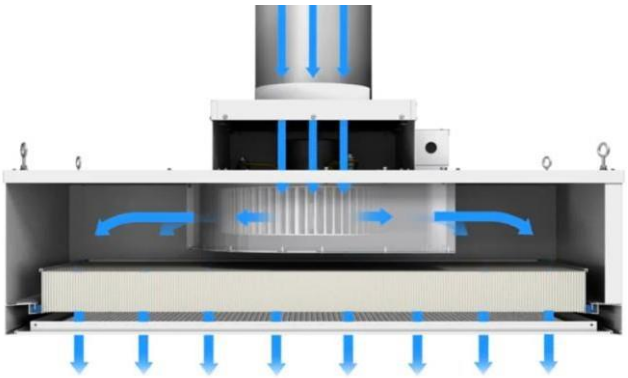
Key Features:

- Lightweight, corrosion-resistant construction is completely smooth and cleanroom-compatible.
- Industry exclusive blower technology operates at higher energy effi ciency levels with larger airfl ow volumes.
- Proprietary construction technology creates better airfl ow uniformity across the entire fi lter face for superior laminar fl ow and product protection

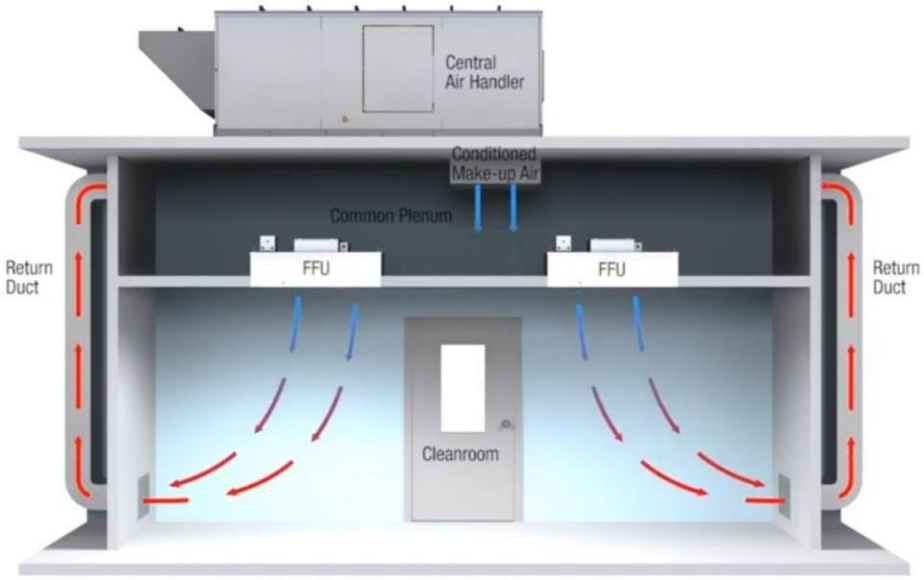


- Standard blower speed controller allows for easy adjusting of the FFU speed controller.
- Improved mounting techniques and sound insulation materials reduce blower noise for increased operator comfort and productivity.
- Unique modular one-piece blower and electrical assembly is designed be serviceable and easily replaceable at lower maintenance costs.

Operation:



- A motorized Fan Filter Unit (FFU) is designed to create an atmosphere of particle free air in the area located directly in the airstream.
- Removal of the pre-filter on top of the unit allows access to the fan assembly. The motor is internally thermally protected against overload.
- A motorized fan is used to pull air through the filters for distribution to rooms or enclosed work stations such as hoods.
- HEPA filters remove particles 0.3 um or larger at 99.99% efficiency, while ULPA filters remove particles 0.12 um or larger at 99.999% efficiency.

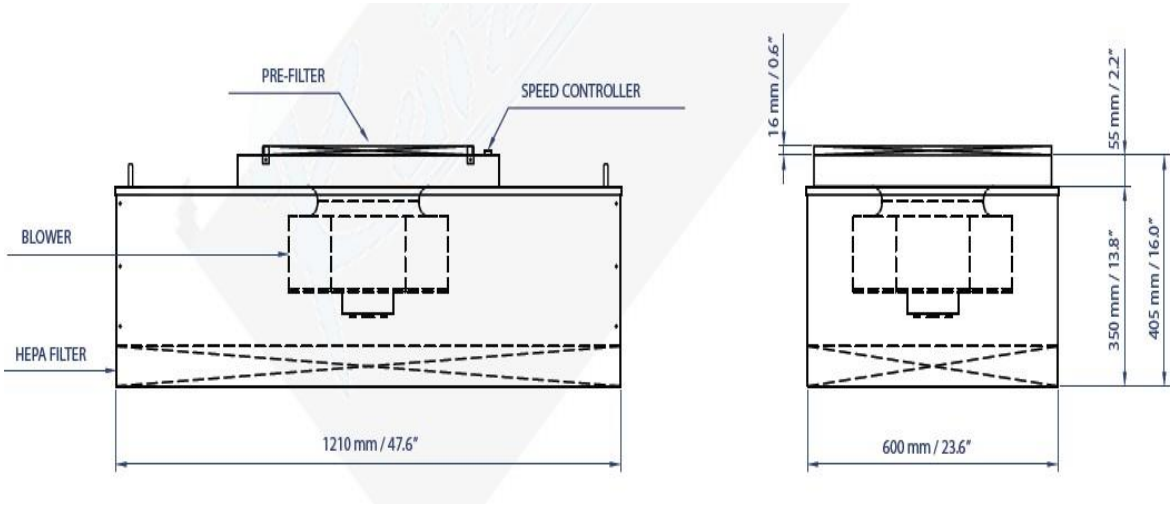


Specifications:

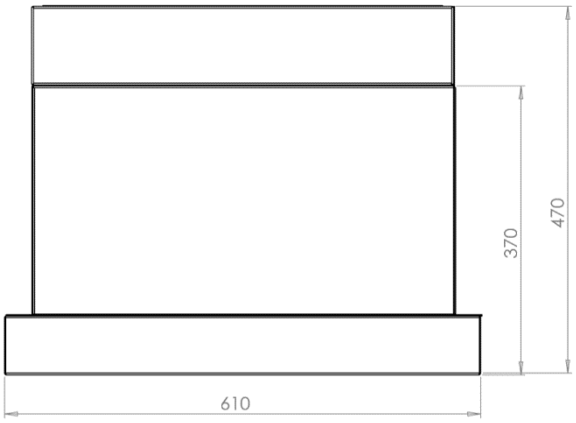
Material	SS 304,MS powder coated
Voltage	430 V
Frequency	50 / 60 HZ
Surface Finishing	matt finish,Mirror Finish,Glossy Finish,Powder Coated
Brand	Kaizen
Size	4 x 2 , 2 x 2 ft
Velocity	0.45 m/s
Efficiency	99%

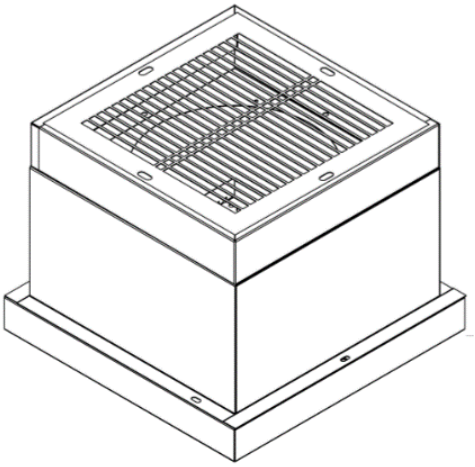
Drawing of FFU:

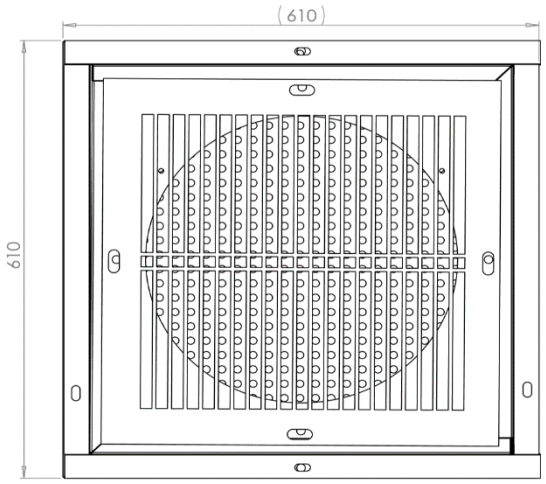
FFU- 4X2:

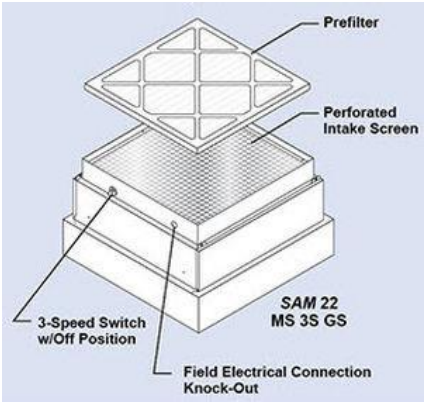


FFU-2X2:









Types of FFU:

1. **Standard FFU- A:**
   - ❖ Operation on single speed only.

2. **Semi-Smart FFU-B:**
   - ❖ Works on three different variable speeds
   - ❖ Speed can be controlled among given three speeds as per requirement.

3. **Smart FFU-C:**
   - ❖ Digital mode of operation.
   - ❖ With touchscreen.
   - ❖ Works on any different variable speeds.
   - ❖ Controller can be mounted anywhere for easy mode of operation.
   - ❖ Shows all operations and parameter changes on screen.

Models of FFU:

Model No	Description	Dimensions	Material	Mode of operation	Air Flow (CFM)
KAF2S-A	KAIZEN AIRTECH FAN FILTER UNIT	2 X 2	SS304	Standard	400
KAF2S-B	KAIZEN AIRTECH FAN FILTER UNIT	2 X 2	SS304	Semi-Smart	400
KAF2S-C	KAIZEN AIRTECH FAN FILTER UNIT	2 X 2	SS304	Smart	400
KAF2M-A	KAIZEN AIRTECH FAN FILTER UNIT	2 X 2	MS Powder Coated	Standard	400
KAF2M-B	KAIZEN AIRTECH FAN FILTER UNIT	2 X 2	MS Powder Coated	Semi-Smart	400
KAF2M-C	KAIZEN AIRTECH FAN FILTER UNIT	2 X 2	MS Powder Coated	Smart	400
KAF4S-A	KAIZEN AIRTECH FAN FILTER UNIT	4 X 2	SS304	Standard	800
KAF4S-B	KAIZEN AIRTECH FAN FILTER UNIT	4 X 2	SS304	Semi-Smart	800
KAF4S-C	KAIZEN AIRTECH FAN FILTER UNIT	4 X 2	SS304	Smart	800
KAF4M-A	KAIZEN AIRTECH FAN FILTER UNIT	4 X 2	MS Powder Coated	Standard	800
KAF4M-B	KAIZEN AIRTECH FAN FILTER UNIT	4 X 2	MS Powder Coated	Semi-Smart	800
KAF4M-C	KAIZEN AIRTECH FAN FILTER UNIT	4 X 2	MS Powder Coated	Smart	800

Applications:

- Hospital Pharmacies
- Microelectronics manufacturing
- ISO classified clean rooms
- Food processing industry
- Bio-safety laboratories.
- Operating Theatres
- Research Laboratories
- Computer Rooms.

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