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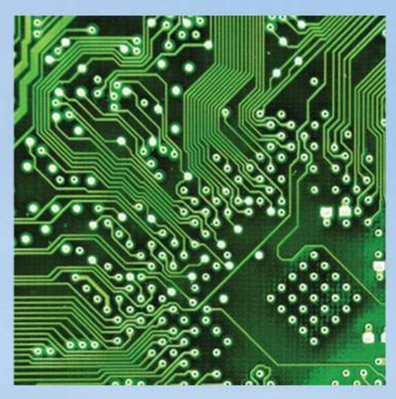
SYSTEM EQUIPMENTS

AIR FILTER TECHNOLOGY




ADVANCED FILTRATION FOR A BETTER FUTURE!

AIR FILTER TECHNOLOGY

SAFE CHANGE FILTER HOUSING - BIBO

Specifications

- Versatile modular system
- Robust and strong construction
- Self-adjusting filter sealing mechanism
- Available powder coated or stainless steel
- Differential manometer connection port for each stage filter
- Single or multiple filter stages with overall filter heights
- Optional aerosol injection and particle measurement connection

✔ Safe Change Filter Housing (USCH) designed to filtrate particles, aerosols and to protect service staff and the environment against to unsanitary conditions which may create toxics.

✔ USCH can provide a filter change free of contamination. Each housing is equipped with a fully sealed bag (BIBO) system to protect of people, process and environment. Wide range of particule and chemical filters can be used in the in the unit.

✔ Special design is available depending on filtration stage and air volume.

✔ Test groove for leak testing of the gasket seal between main filter and housing.

✔ Each USCH has its own filter changing table to change filters easily and safely by one person.

✔ Ulpatek R&D department work on safe, reliable and user friendly configurations. Our approach provide advantages to customer to reduce their total costs, to enhance system performance and to benefit human health.

✔ The highest quality Ulpatek's products offer customers air filters with the longest life, the lowest operating and maintenance costs.

Field of application

- 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

Ulpatek Code	Air Flow (m^3/h)	Pre Filtration (EN779)	Particulate (EN1822)	Min. Efficiency (0,3 µm) (%)	Min. Efficiency (MPSS) (%)
USCH-1-0PM30-0713	1.500	F7 / (F9)	H13 / (H14)	99,99	99,95
USCH-1-1PM30-0713	3.000	F7 / (F9)	H13 / (H14)	99,99	99,95
USCH-1-2PM30-0713	6.000	F7 / (F9)	H13 / (H14)	99,99	99,95
USCH-1-3PM30-0713	9.000	F7 / (F9)	H13 / (H14)	99,99	99,95
USCH-1-4PM30-0713	12.000	F7 / (F9)	H13 / (H14)	99,99	99,95
USCH-1-5PM30-0713	15.000	F7 / (F9)	H13 / (H14)	99,99	99,95
USCH-1-6PM30-0713	18.000	F7 / (F9)	H13 / (H14)	99,99	99,95

* special design available on request

USCH-1-1PM30- 0714-EX

Product Type
USCH: Ulpatek Safe Change Filter Housing

Reference Dimensions
0: 305X610
1: 610X610
Z: 610x762

Bank Number
1
2
3

Pre-Filtration
P: Pre-filter
W: Without

Main Filter Model
M30
G40
GHW

Pre-Filter Class (96mm or 292mm depth)
04: G4 05: M5
07: F7 09: F9
13: H13 14: H14

Main Filter Class (292mm depth)
13 :H13 NF : Nuclear
14 :H14

Filter Type
No mark : Standard
EX: Exproof SS: Stainless Steel

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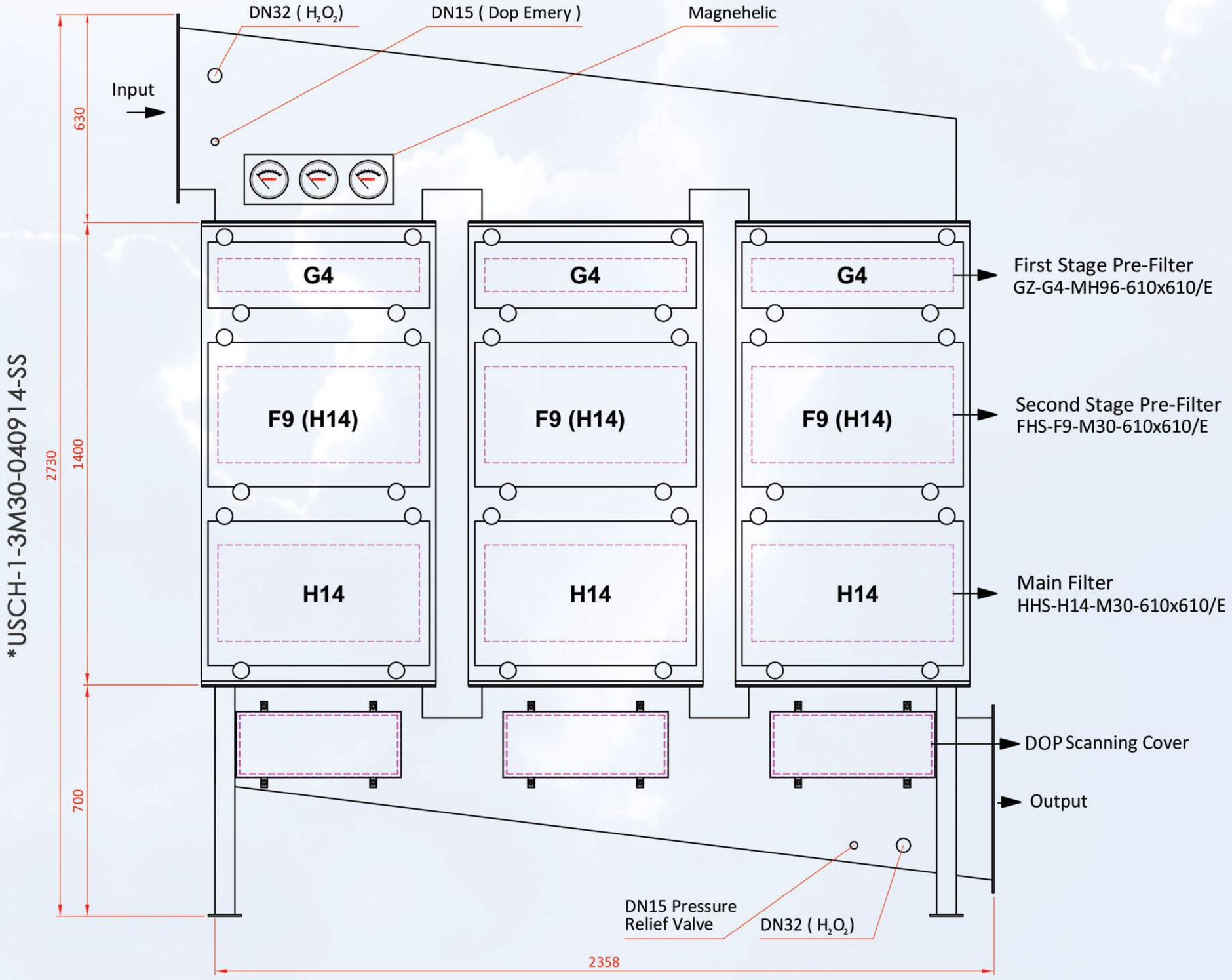
AIR FILTER TECHNOLOGY

SAFE CHANGE FILTER HOUSING - BIBO

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 prefered 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.



Ulpatek Safe Change Unit has been utilized in BSL3 & BSL4 type applications where the need for decontamination is required.

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

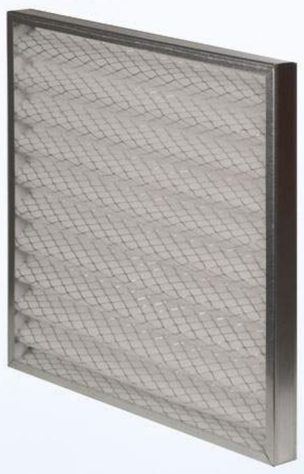
BIBO Plastic Bags and Sealing O-Rings for USCH (100mm Modul)
- USCH-Bag-100 - BIBO Plastic Bag
- USCH-Rubber-100 - BIBO O-Rings

AIR FILTER TECHNOLOGY

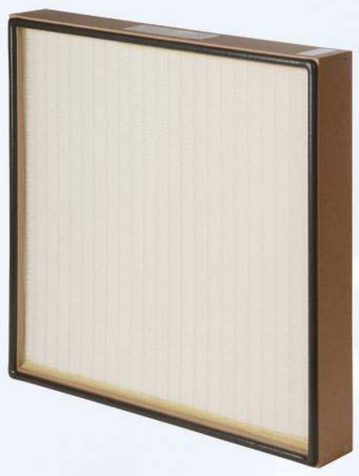
SAFE CHANGE FILTER HOUSING - BIBO

FILTER SELECTION

Pre - Filters



GZ - Z-Line Filter



FP - Panel Filter

FHS - High Capacity Single Pleat Filter

Ulpatek Filter Name	Filter EN 779	Size (WxHxD) (mm)	Media Surface (m^2)	Air Flow (m^3/h)	Pressure Drop (Pa)
GZ - Z-Line Filter	G4	305x610x96	1,5	1600	60
GZ - Z-Line Filter	G4	610x610x96	2,5	3200	60
GZ - Z-Line Filter	G4	610x762x96	3,2	4000	60
FP - Panel Filter	F7	305x610x96	6,0	1500	90
FP - Panel Filter	F7	610x610x96	12,0	3000	90
FP - Panel Filter	F7	610x762x96	15,0	3750	90
FHS - High Capacity Single Pleat	F9	305x610x292	12,0	2000	130
FHS - High Capacity Single Pleat	F9	610x610x292	24,0	4000	130
FHS - High Capacity Single Pleat	F9	610x762x292	30,0	5000	130

Main Filters

HHS - High Capacity HEPA Single Pleat Filter

HHV - High Capacity HEPA V-Modul Filter

NF - Nuclear Filter

Ulpatek Filter Name	Filter EN 1822	Size (WxHxD) (mm)	Media Surface (m^2)	Air Flow (m^3/h)	Pressure Drop (Pa)
HHS - High Capacity Single Pleat	H13	305x610x292	13,0	1500	250
HHS - High Capacity Single Pleat	H13	610x610x292	26,0	3000	250
HHS - High Capacity Single Pleat	H13	610x762x292	32,5	3750	250
HHV - High Capacity V-Modul	H14	305x610x292	20,0	2000	300
HHV - High Capacity V-Modul	H14	610x610x292	40,0	4000	300
HHV - High Capacity V-Modul	H14	610x762x292	50,0	5000	300
NF - Nuclear Filter	H13	305x610x292	18,5	1700	300
NF - Nuclear Filter	H13	610x610x292	37,0	3400	300
NF - Nuclear Filter	H13	610x762x292	46,3	4250	300

- ✔ Carbon Chemical Filters are available to eliminate various gases
- ✔ Special filters designs are available on request

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AIR FILTER TECHNOLOGY

FAN FILTER UNIT (FFU)

Specifications

- Easy installation into cleanroom grids
- Snap-in, washable prefilter for easy replacement and maintenance
- Guaranteed leak-free
- Self-contained ceiling fan filter unit
- Low operating cost, low wattage
- AC or EC fans optionally
- Silent operation (<65 dBA)
- Uniform air velocity
- Diffrential pressure gauge available on request
- test aerosol inlet nozzle (DOP/EMERY test)
- Adjustable airflow with variable speed controller on request
- Replacement HEPA Filter from room side or ceiling side

Filter Media; High Quality Glass Fiber
Design; Compact, Seperated and Gel type
Fan Motor; AC or EC fan options
Recommended Prefilters; G4, F7 (EN779-2012)

Filter Seperators; Hotmelt
Max. Operating Temperature; 75°C
Final Pressure Drop; 400 Pa
Unit Frame Type; Aluminium, Galvanized or Stainless Steel

Applications

Medical technology / Pharmaceutics / Microelectronics / Nanotechnology / Micromechanics / Bio-engineering and Genetic engineering / Laboratories / Pharmaceutical Industry / Automotive Industry / Food and Beverage Industry and also suitable for all sterile applications.

Filter Model	Dimensions (mm)	Prefilter (EN779)	Nominal (m^3/h)	Filter Initial H14 (Pa)
FFU-H14-ASM-610x610/4	610x610x360	G4	600	125
FFU-H14-ASM-610x915/4	610x915x360	G4	900	125
FFU-H14-ASM-610x1220/4	610x1220x360	G4	1200	125

FFU-H14-ASM-610x1220/4S

Unit Type
FFU :Fan Filter Unit

Filter Class
H13 H14 U15

Design
ASM: Seperated
ANJ: Gel Type
No Mark Compact

Widht x Lenght (mm x mm)
W x L

Prefilter
4: G4 (EN779)
7: F7 (EN779)

Unit Frame
No Mark: Standard Aluminium
S: Stainless Steel
G: Galvanised Steel (powder coated)

Unit Model	Seperated	Gel Type	Compact
Filter	HEPA / ULPA	HEPA / ULPA	HEPA / ULPA
Nominal Air Velocity	0,45	0,45	0,45
Filter Type	ASM	ANJ, AJ,AMJ,ALJ	Special
Motor Type	AC / EC	AC / EC	AC / EC
Differantial Pressure Gauge	Optional	Optional	Optional
Variable Speed Controller	Optional	Optional	Optional
Recommended Prefilters	G4 / F7	G4 / F7	G4 / F7
Filter Replacement Side	Ceiling	Room	Ceiling

FFU-H14-ASM-610x610/4		
Unit Model	Fan Filter	FFU
Filter Class	H14 (EN1822)	H14
Design	Seperated	ASM
Filter Dimensions	WxH (mm)	610x610
Prefilter	G4	4
Unit Frame	Aluminium	No Mark

AIR FILTER TECHNOLOGY

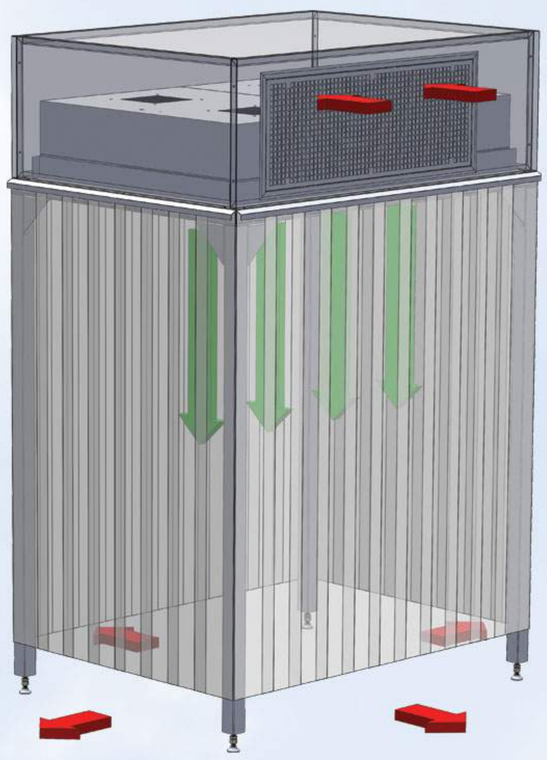
LAMINAR FLOW UNITS with FFUs

Introduction

Laminar Flow Cabin with FFUs is made of special aluminum profiles and stainless steel frames. Cabins are either designed to be hanged from ceiling or comes with rolling wheels. Transparent hygenic curtains, variable speed controller, differential pressure gauges, test aerosol nozzles are some of the standard accessories. LF units achieve Class 100 conditions according to U.S. Federal Standard 209E or ISO Class 5 according to ISO 14644-1 with speed controlled fans, pre-filter and HEPA filter (H14).
Clean-air velocity is about 0,45 m/s (±%20) measured 15-20 cm under the air distributor. Laminar flow cabins with FFU supply laminar flow achieving positive pressure in the unit.

Specifications

- Test aerosol inlet nozzle (DOP/EMERY Test)
- Replacement HEPA filter from room side or ceiling side
- Perforated stainless steel diffuser ensures uniform air distribution
- Modular design with Compact, Separated and Gel type FFUs
- Silent operation (<65 dBA)
- Body structure fully made in stainless steel AISI 304
- Provide laminar air from the LF unit @ 0.45 m/s ±%20
- Ceiling suspended or free-standing with support legs
- Ceiling or side wall mounted lighting
- Portable or ground mounted
- Adjustable airflow with variable speed controller
- High technology AC or EC fans
- Anodized aluminium frame filter with protective grid
- Improved plenum design for better air flow distribution with lower noise level
- Available in various dimensions
- Excellent LED lighting



Operation principle

The LF Unit takes the air from surrounding environment of the unit. Air passes through the perforated grilles and prefilter. 100% of overal air goes through HEPA Filter and perforeted SS air distributor into the entire of working space. It ensures positive pressure inside the unit with laminar flow.

Standard Accessories

- Variable Speed Controller
- AC Fan
- Magnehelic Manometer
- G4/H14 Filters
- Display for air velocity (m/s)
- DOP/EMERY Test ports
- Fan Start/Stop
- IQ&OQ Documents

Optional Accessories

- FlowGrid (Silencer)
- Constant Speed Controller
- EC Fan
- Explosion Proof Design
- Fan malfunction indicator

ULAF-FFU-ANJ-2A2C-EC

Product Type
ULAF: Ulpatek Laminar Flow Unit

LAF Type
FFU: Design with FFU

Filter Frame Model
ASM: Knife Edge Profile
ANJ: Gel Type (80mm)
AMJ: Gel Type (104mm)
AS: Ceiling Type (69mm)

Fan Motor Type
No mark: Standard AC
EC: EC **EX**: Exproof

Reference FFU Dimensions
A: 610x1220 **D**: 457x610 **G**:457x915
B: 610x915 **E**: 457x4570 **H**: 610x762
C: 610x610 **F**: 762x1220 **K**: 762x915

FFU Quantity
1: 1 pc. **3**: 3 pcs.
2: 2 pcs. **N**: N pcs.

AIR FILTER TECHNOLOGY

LAMINAR FLOW CABINS for WEIGHING and SAMPLING

Introduction

- LF provides the highest levels of operator protection from potentially harmful airborne contaminants generated during manual powder handling operations such as weighing, sampling, charging and dispensing.
- Unit provides product protection (Class ISO 5) from surrounding area contamination by creating a clean processing zone minimizing cross contamination risk from other products/processes.
- Class ISO 5 according to ISO EN 14644-1 (Class 100 according to Fed. Std. 209 E)
- A negative pressure inside the unit prevents the escape of fine powders from the work area towards the external environment.
- LF cabins consist of two stage pre-filters, fans, HEPA filters (H13/H14), lighting fixtures, electric and automatic control systems, PVC curtains, front legs or parts for hanging from ceiling.
- Flexible PVC strip curtains and/or rigid walls increase the protection by separating the working area and external environment between each other.
- Airflow filtered by a two stage of pre-filters. Also partially exhausted to create inside negative pressure after HEPA filtration.
- Airflow recycled through the HEPA filters to generate the laminar flow.

LF Unit;

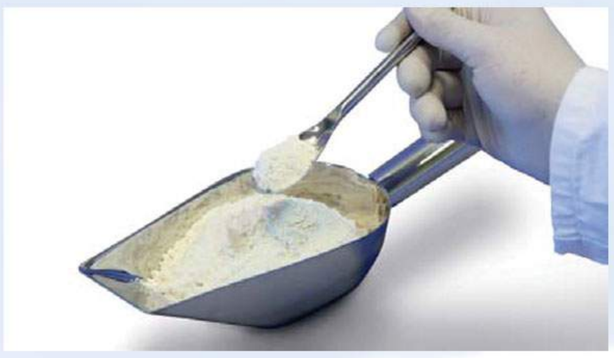
- protects the product and the operator
- protects the inner and external environment
- reduces operating and maintanence costs
- saves energy with the advanced equipments

Specifications

- Laminar airflow velocity of 0.45m/s ± 20% measured 150 mm from HEPA filter or diffuser face
- Used for production, weighing, sampling and packaging
- Custom filtration systems to suit each application including HEPA filter
- Leakage test with test aerosol according to ISO 14644-3 for HEPA filters
- Optional cooling coil systems for temperature regulations
- In various dimensions and safe working zones
- Test aerosol inlet nozzle
- Fan FlowGrid to reduce noise level
- Safe change filter configurations and internally or externally change available
- cGMP modular design with minimized joints and seams
- Airflow configurations allowing use for powder or solvent applications
- Ceiling or side wall mounted LED lighting, UV lighting available
- Available in a variety of construction materials, including 304/316 stainless steel

Application Area

LF units are used in the pharmaceutical, fine chemical, cosmetic and food industries for operations such as sampling, weighing, and filling which generate airborne particles; when processes involve hazardous, toxic or hormonal materials. Operators, adjoining areas require protection from exposure to aerosols of the process materials.



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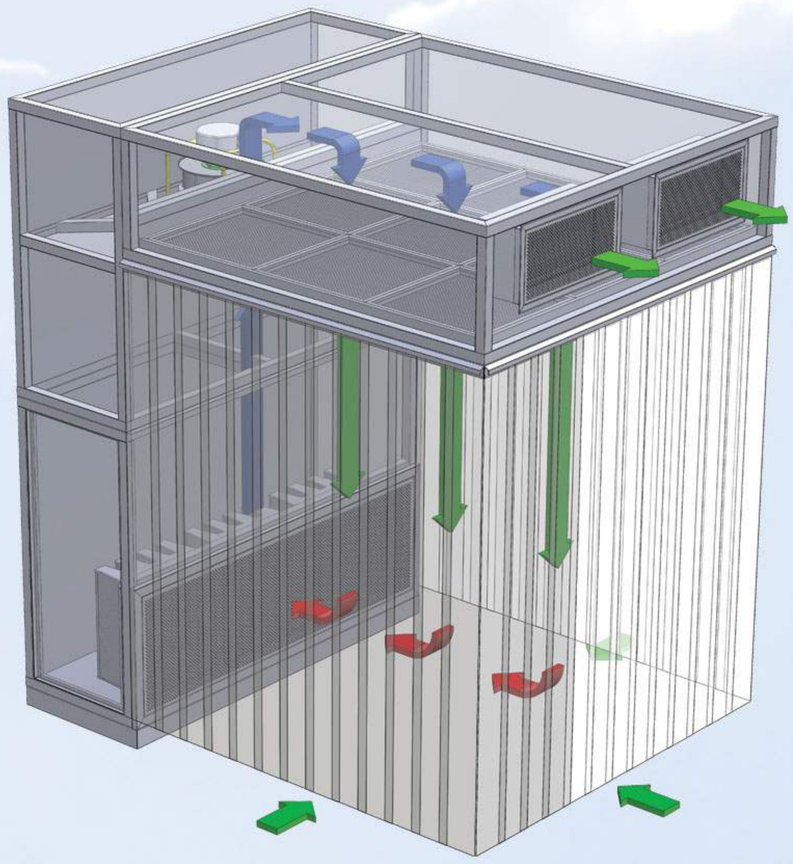
AIR FILTER TECHNOLOGY

LAMINAR FLOW CABINS for WEIGHING and SAMPLING

Operation

- The LF Unit operates on a recirculatory push-pull airflow principle providing containment by air movement.
- 85-90% of overall air quantity evenly goes through HEPA filter into the entire of the working space pushing any respirable dust clouds generated during open powder processing, removing and capturing airborne particles and away from the operator's breathing zone.
- The contaminated air passes through the perforated return grilles and two stages prefilter before returning through the unit ceiling plenum.
- The rest of air, 10-15% is exhausted through HEPA filter into surrounding environment to create the working space under negative pressure, minimizing airborne contamination breakout. This air quantity is being made up by drawing air from external environment.



Airflow Control

- The airflow control is made with an automatic regulation of the fan speed obtained by airflow sensors that control the value and allow to keep the airflow to its nominal value.
- There are differential pressure gauges for pre filters and main filter. The filters should be changed when they reach the recommended final pressure drop for protecting system and saving energy.

Advantages of System

- The LF design has no impact on the existing HVAC or room pressures
- Low noise levels due to advanced fan and isolation inside the ceiling plenum
- Capability to integrate additional process equipment
- Unrestricted operator access to the target operation
- Reduced installation and comissioning times
- User friendly and ready to easy use

The control panel and the electrical cabinet are placed on the vertical backside wall or outside of the unit that is made of AISI 304 stainless steel (IP55). The system starts by turning the main switch on position "I".

On the panels there are the following components:

- Display for air velocity (m/s)
- Fan START/STOP push button
- Lighting ON/OFF push button
- Differential Pressure Gauges
- Visual alarm (Acoustic optional)
- Emergency Stop
- Remote START/STOP contacts for BMS connection

Control Panels

Ulpatek Filtre Ticaret San. A.S.
Orhan Gazi Mahallesi Tunç Cad.
No :6-2/1 34538 Esenyurt-İstanbul /TURKEY

Tel : (0212) 623 03 00
Fax : (0212) 623 03 03

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CONTENTS

FR.025 / 00

Documentation

The following documentation will be supplied:

- Offer Details
- LF Unit Technical Data
- LF Unit Technical Drawings
- Final Quality Control Form
- Electrical Drawings
- Supplier List
- Operation and Maintenance Manual
- Certificates
- Installation and Operation Qualification Forms (IQ and OQ)
- Catalogues

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MOBILE LAMINAR FLOW UNITS

Operation

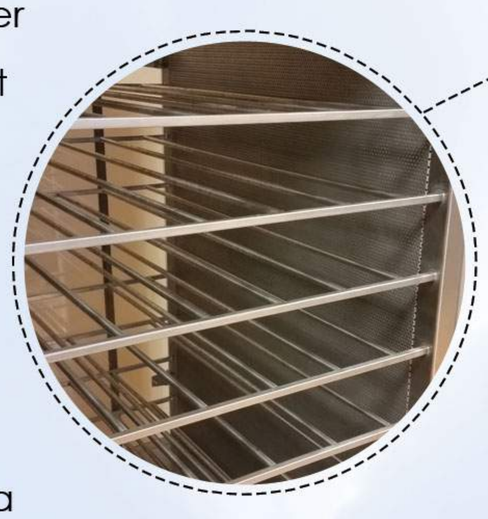
• Mobile Laminar Flow Unit is made of stainless steel metal that is movable with its wheels. Units are designed for transferring sterile products under Class 100 conditions according to U.S Federal Standard 209E or ISO Class 5 according to ISO 14644-1

• The ventilation design creates a clean environment inside the working zone with positive pressure that prevents cross contamination risk from surrounding environment of unit.

• The unit has built-in UPS (Uninterruptible Power Supply) so it can work at power cuts and mobile applications.

Specifications

- Working zone under positive pressure
- Body structure fully made in stainless steel AISI 304
- Available in various dimensions
- Improved design for better air flow distribution
- High technology AC and EC fans
- Adjustable airflow with variable speed controller
- Constant speed controller available on request
- A horizontal airflow passes along each cage
- Stainless steel solid shelfs
- Easy movable to any sides with wheels
- High quality HEPA Filter with gel type gasket
- Replacement HEPA filter easily
- PVC transparent doors restrict the opened area
- Built-in UPS (for 30 minutes)
- Magnehelic Manometer for HEPA filter
- Nozzle for supplying test aerosol for DOP (EMERY) Test
- IQ & OQ Documents



ULAF-M-1D-AC

Product Type

ULAF: Ulpatek Laminar Flow Unit

LF Type

M: Mobile (UPS for 30 min.)

Fan Module Quantity

1: 1pc.

N: N pcs.

Fan Motor Type

AC: AC **EC**: EC

EX: Exproof

Reference FFU Dimension

A: 610x1220 **C**: 610x610

B: 610x915 **D**: 457x610

AIR FILTER TECHNOLOGY

HEPA FILTER BOX

Introduction

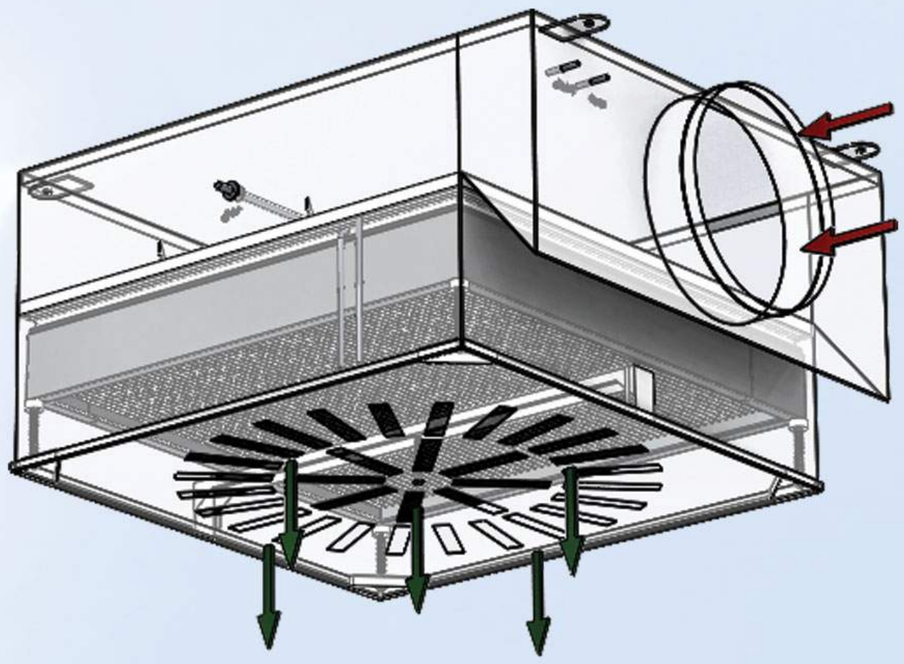
Main demands of the clean room technology and especially in pharmaceutical applications are the air-conditioning and also accordingly the air quality. Air distribution is generally made through the HEPA filter installed to its housing. Therefore, selection and assembling the HEPA filter to its housing without leakage is very important.

HEPA Filter Housing consists of three main parts, which are the box, filter and the diffuser. Box has a duct connection port for air inlet at the top or at the sides. Filters can be chosen according to the room Class from E10 to U17.

All HEPA Filter boxes with test groove system are tested for leakages. Test grooves that face the HEPA filter gasket achieves air tightness according to DIN 1946-4 and ISO 14644-3 Inside of the housing can be easily disinfected and will not be effected from disinfection chemicals.

To track filter working conditions, HEPA boxes have nozzles for differential manometer connections. Test aerosol inlet nozzle is standard for DOP/EMERY Test.

*Please check the fitting of diffuser, box and ceiling before order to provide tightness.



Application

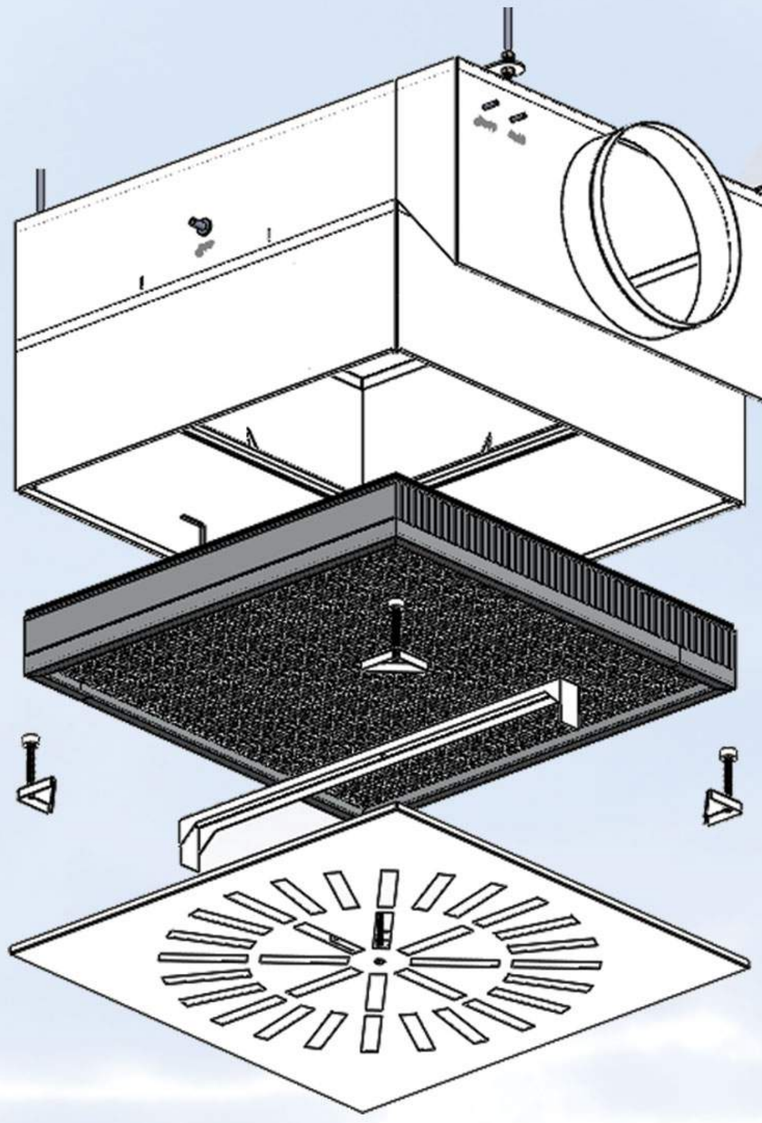
Hospitals ; Operating theatres and operating side rooms, intensive care, isolation areas, sterile zones etc.
Laboratories ; Clean zones and working places, exhaust air filtration of toxic aerosols.
Industry ; Electronic, optical, pharmaceutical, food and chemical industries.

Specifications

- Filter seal-leak test (DIN 1946-4 and ISO 14644-3)
- Test ports for pressure drop, test groove and aerosol injection
- Available air flow adjustment damper fitted to the spigot
- Available in various construction and dimensions
- Simplified maintenance and disinfection
- Easily removable air outlets
- Available powder coated or stainless steel
- Central fixing for diffuser
- Duct Connection Type: Top, side, Z
- Powder coated in any RAL Code
- Special production with low construction height

Box Components

Hinges
Box
Filter
Fastening Clips
Diffuser Hanger
Diffuser



AIR FILTER TECHNOLOGY

HEPA FILTER BOX

FILTER

Check the catalogue to select optimal filter to decrease the energy consuption. Check the intial pressure drop from curves according to pleat heights. For rated airflow choosing the optimum pleat height decrease the energy consumption with low intial pressure drop.

Gasket

EPDM Flat, PU Foam or Gel Gasket can be use on Filter

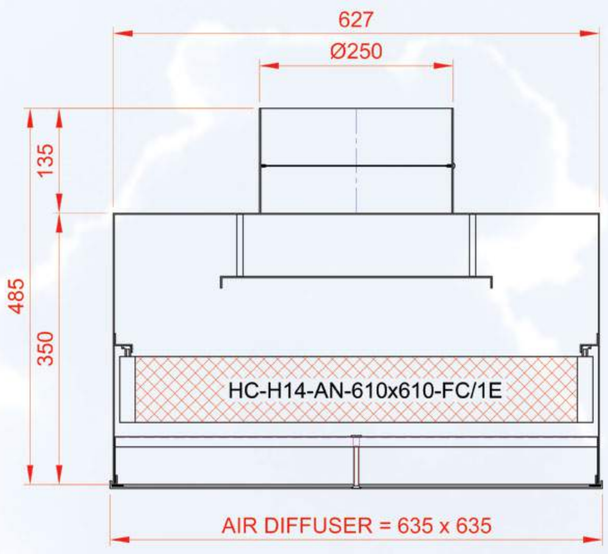
EPDM Flat

Pu Foam

Gel

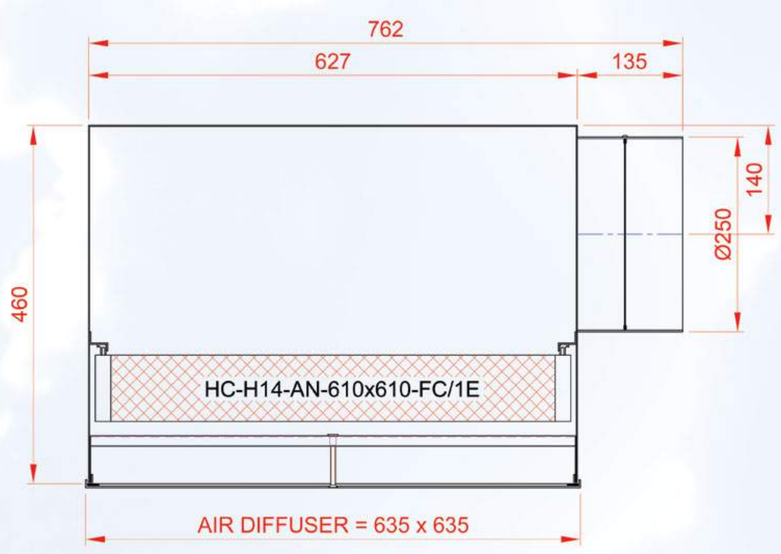
Duct Connection Types

Top Inlet



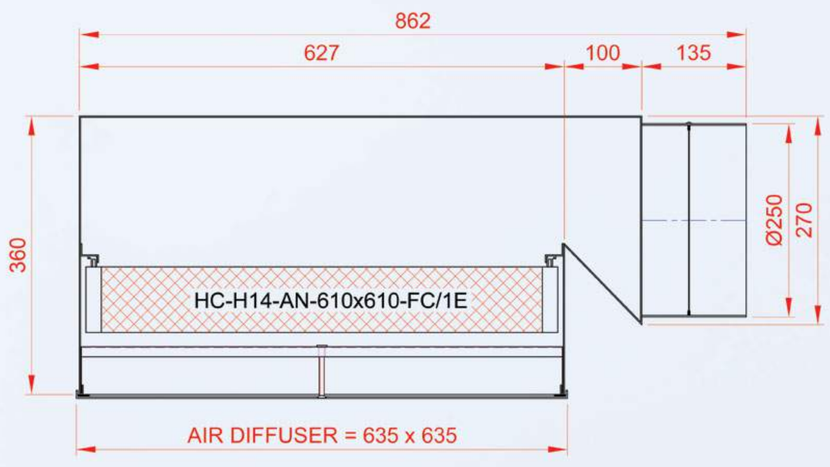
HFB-SX-E1A-627x627x350-TD/S

Side Straight Inlet



HFB-SY-E1A-627x627x460-TD/S

Z Inlet



HFB-SZ-E1A-627x727x360-TD/S

ULPATEK CODE	Box Dimension			HEPA Filter Dimension			Diffuser Dimension	
	Width mm	Length mm	Height mm	Width mm	Length mm	Height mm	Width mm	Length mm
HFB-SZ-E1A-627x727x400-T/S	627	727	400	610	610	78	650	650
HFB-SY-D2A-474x474x400-T/S	474	474	400	457	457	78	500	500
HFB-SY-C3A-322x322x400-T/S	322	322	400	305	305	78	350	350

HFB-SY-E1A-627x627x400-TD/S

Product Type
HFB: HEPA FILTER BOX

Box Mateial
S: Stainless steel
P: Powder coated sheet steel

Spigot Side
X: Top Inlet
Y: Side Straight Inlet
Z: Side "Z" Inlet

Spigot Diameter (mm)
A: 125 **E:** 250
B: 150 **F:** 300
C: 160 **G:** 315
D: 200

Filter Dimensions (WxLxD) (mm)
1: 610x610x78 **6:** 557x557x78
2: 457x457x78 **7:** 535x535x78
3: 305x305x78 **8:** 610x610x150
4: 592x592x78 **9:** 610x610x292
5: 575x575x78 **10:** Special

Diffuser Type
S: Swirl **P:** Perforated

Damper
D: Exist
W: Without

Leaf Proof gasket surface
T: Test groove system
F: Flat surface

Box Dimensions (WxLxH) (mm)
Filter Dimension +17mm

Filter Frame Type
A: Aluminium
M: MDF
J: Gel type Aluminium

AIR **FILTER** TECHNOLOGY

ADVANCED FILTRATION FOR A BETTER FUTURE!

Upatek Filtre Ticaret Sanayi A.Ş.

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