



# AIR **FILTER** TECHNOLOGY



ADVANCED FILTRATION FOR A BETTER FUTURE



### ULPATEK Product Family

ROLL FILTERS  
POLYURETHANE FILTERS  
METAL FILTERS  
Z-LINE FILTERS  
BAG FILTERS  
PANEL FILTERS  
RIGID FILTERS  
V-COMPACT FILTERS  
HEPA CEILING FILTERS  
GEL TYPE HEPA CEILING FILTERS  
HEPA TERMINAL HOOD FILTERS  
HIGH CAPACITY HEPA FILTERS  
COMPACT FILTER WITH ALUMINIUM SEPERATOR  
NUCLEAR HEPA FILTERS  
FAN FILTER UNITS  
CHEMICAL FILTERS  
V-COMPACT TYPE ACTIVATED CARBON FILTERS  
CARTRIDGE TYPE ACTIVATED CARBON FILTERS  
CYLINDRICAL FILTERS  
SAFE CHANGE HOUSINGS  
HEPA FILTER HOUSINGS  
LAMINAR FLOW UNITS FOR OPERATING THEATRES  
LAMINAR FLOW UNITS WITH FFUS  
MOBILE LAMINAR FLOW UNITS  
LAMINAR FLOW CABINS FOR WEIGHING AND SAMPLING  
PASS BOXES



## About ULPATEK

The founders of ULPATEK company has been active in the field of cleanroom air conditioning in pharmaceutical, health and food sectors for more than 40 years. They know the importance of clean air and filtration from experience. Having the cleanroom filtration requirements in their mind, they established the new company to produce wide range of filters to answer the demands of air conditioning systems from simple AHU's to cleanrooms.

ULPATEK is manufacturing at their modern production facility in a closed area of 12.650 m<sup>2</sup> in Istanbul. Coarse, Medium, Fine, EPA, HEPA and ULPA filters are produced in cleanroom environment according to European standard ISO 16890 and EN 1822 by most advanced machines in the field of filtration. ULPATEK has ISO 9001 certificate from TUV NORD of Germany to ensure quality operations since the day production started and the most important certificate according to ISO 16890 called "Eurovent" has been received on the March of 2014. ULPATEK has exported their filters more than 70 countries up to the present.

In the R&D facility inside the plant dedicated research engineers work on product support, new product development and application engineering. The company plans to pass its technical knowledge through training programs and with comprehensive literature to educate customers on filtration and IAQ.

Industrialization, population increase in cities as well as the protection of people during an airborne chemical and/or biological attack enhance the importance of filtration everyday more than before.

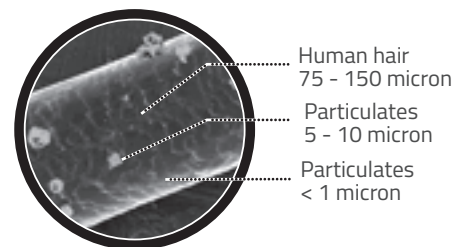
ULPATEK employees take the role in the solution of this global problem as a world citizen .



## Classification Standard ISO 16890

ISO 16890 standard is used as a new standard for air filter instead of EN 779 and ASHRAE 52.2. Measuring the efficiency of an air filter at a particle size range of 0,3 µm to 10 µm. The classification is carried out according to new standard for particle size range 0,3-1,0 µm, 0,3-2,5 µm and 0,3-10 µm.

The process is considered while choosing filters according to more detailed and global standard.



### ISO 16890 TEST PROCEDURE STEP BY STEP



#### Step 1

Test procedure of the ISO 16890 standard begins with measuring the efficiency of an air filter at a particle size range of 0,3 µm to 10 µm.



#### Step 2

The Filter is subjected to an isopropanol vapor atmosphere to eliminate efficiency of electrostatic mechanism.



#### Step 3

Isopropanol vapor atmosphere conditioned Filter tested again to measure the minimum efficiency ePM<sub>1,min</sub> and ePM<sub>2,5,min</sub>



#### Step 4

Efficiency for each PM size is calculated by the mean of both conditioned and the conditioned filter.



#### Step 5

The efficiencies for ePM1 are calculated for the particle size 0,3 - 1 µm, ePM2,5 for the particle size range of up to 2,5 and ePM10 for the particle size range of up to 10 microns.



#### Step 6

The efficiencies for ePM1 are calculated for the particle size 0,3 - 1 µm, ePM2,5 for the particle size range of up to 2,5 and ePM10 for the particle size range of up to 10 microns.

#### Particulate Matter

#### Size Range

PM <sub>10</sub>	0,3 - 10 µm
PM <sub>2,5</sub>	0,3 - 2,5 µm
PM <sub>1</sub>	0,3 - 1 µm

ISO 16890 standard considers for the particle size (Particulate Matter = PM) between 0,3 µm and 10 µm for efficiency evaluation.

#### EN ISO 16890 Classification

	ePM <sub>1</sub>	ePM <sub>2,5</sub>	ePM <sub>10</sub>	ISO Coarse
ePM <sub>1</sub> min	≥ 50%	-	-	-
ePM <sub>2,5</sub> min	-	≥ 50%	-	-
ePM <sub>10</sub> min	-	-	≥ 50%	< 50%

### OLD STANDARD EN 779

Filter classes  
F7-F8-F9  
M5-M6  
G2-G3-G4

The evaluation is carried out with a particle size of only 0,4 µm.

Determining of average efficiency/arrestance after loading synthetic dust. Mean of test measurements at 0,4 µm particulate size.

Dust holding capacity for synthetic test dust  
ASHRAE

Test final Δp  
G1, G2, G3, G4 = 250 Pa  
M5, M6, F7, F8, F9 = 450 Pa

### NEW STANDARD ISO 16890

Four ISO groups  
ISO ePM<sub>1</sub>  
ISO ePM<sub>2,5</sub>  
ISO ePM<sub>10</sub>  
ISO Coarse

The evaluation is carried out with a particle size from 0,3 µm- 10 µm.

The efficiency is measured according to the particle range. Measuring efficiencies after 24 hours of IPA process. Calculating the ePMx efficiency with mean of test measurements.

Dust holding capacity for synthetic test dust  
ISO A2/AC Fine

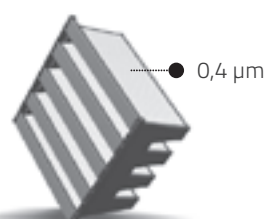
Test final Δp  
ePM<sub>10</sub> < 50% = 200 Pa  
ePM<sub>10</sub> ≥ 50% = 300 Pa

European Association of Air Handling and Refrigerating Equipment Manufacturers, Eurovent's certification tells our clients that Ulpatek fine filters are tested by independent research laboratory and that Ulpatek's published product information must be accurate. Ulpatek has also ISO 9001 certificate from TUV NORD of Germany to ensure quality operations since the day production started.

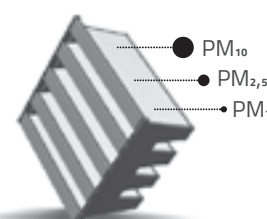


EN 779:2012	EN ISO 16890 – range of actual measured average efficiencies		
Filter Class	ePM <sub>1</sub>	ePM <sub>2,5</sub>	ePM <sub>10</sub>
M5	5%-35%	10%-40%	40%-70%
M6	10%-40%	20%-50%	60%-80%
F7	40%-65%	65%-75%	80%-90%
F8	65%-90%	75%-95%	90%-100%
F9	80%-90%	85%-95%	90%-100%

#### EN 779:2012



#### ISO 16890



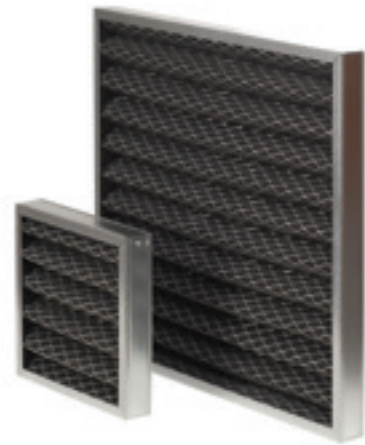
Reference particle sizes according to EN 779: 2012 and ISO 16890 standards

## Polyurethane Filter

<b>Filter Class (ISO 16890)</b>	ISO Coarse
<b>Filter Class (EN 779)</b>	G2
<b>Media</b>	Polyurethane
<b>Frame Type</b>	Galvanized steel
<b>Standard Depth</b>	20 - 48mm
<b>Max. Operating Temperature</b>	75°C
<b>Application</b>	Pre-filter for HVAC

### Specifications

- Open cells polyurethane filter media
- Small transport volume
- Grid at both sides
- Various frame sizes with any dimensions
- Easy installation
- Washable
- Low pressure drop

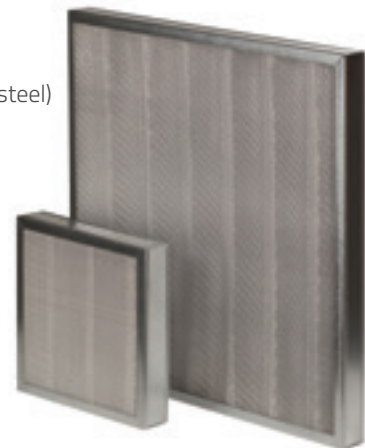


## Metal Filter

<b>Filter Class (ISO 16890)</b>	ISO Coarse
<b>Filter Class (EN 779)</b>	G2, G3
<b>Standard Depth</b>	20 - 48mm
<b>Media</b>	Expanded metal, wire mesh (stainless or galvanized steel)
<b>Frame Type</b>	Aluminium, stainless or galvanized steel
<b>Application</b>	Grease or oil mist separation

### Specifications

- Long service life
- Long maintenance intervals
- Easy to handle and install
- Multiple layers of media
- Various frame sizes with any dimensions
- Small transport volume
- Resistance to high temperatures
- Low pressure drop
- Mechanical strength



## Z-Line Filter

<b>Filter Class (ISO 16890)</b>	ISO Coarse
<b>Filter Class (EN 779)</b>	G3, G4, M5
<b>Media</b>	Polyester
<b>Frame Type</b>	Galvanized steel
<b>Standard Depth</b>	20 - 48 - 96mm
<b>Max. Operating Temperature</b>	75°C
<b>Application</b>	Pre-filter for HVAC

### Specifications

- Lightweight
- Grid at both sides
- Changeable synthetic media
- %100 hot deep galvanized frame
- Fire retardant certified
- Various frame sizes with any dimensions
- Long maintenance intervals
- Easy installation
- High dust holding capacity





## Synthetic Z-Line Filter

<b>Filter Class (ISO 16890)</b>	ISO Coarse
<b>Filter Class (EN 779)</b>	G3, G4
<b>Media</b>	Synthetic
<b>Frame Type</b>	Synthetic, cardboard, plastic
<b>Standard Depth</b>	48 - 96 mm
<b>Max. Operating Temperature</b>	75°C
<b>Application</b>	Pre-filter for HVAC

### Specifications

- Nature friendly
- Easy destructible
- Disposable
- Lightweight
- Various depths and with any dimensions
- High filtration area



## Cardboard Z-Line Filter

<b>Filter Class (ISO 16890)</b>	ISO Coarse
<b>Filter Class (EN 779)</b>	G3, G4
<b>Media</b>	Synthetic
<b>Frame Type</b>	Cardboard
<b>Standard Depth</b>	48 - 96 mm
<b>Max. Operating Temperature</b>	75°C
<b>Application</b>	Pre-filter for HVAC

### Specifications

- Nature friendly
- Moisture resistant cardboard frame
- Disposable
- Long maintenance intervals
- High filtration area
- Lightweight
- High dust holding capacity
- Easy destructible



## G3-G4 Bag Filter

<b>Filter Class (ISO 16890)</b>	ISO Coarse
<b>Filter Class (EN 779)</b>	G3, G4
<b>Media</b>	Polyester
<b>Frame Type</b>	Galvanized steel, plastic (25 mm)
<b>Max. Operating Temperature</b>	75°C
<b>Application</b>	Pre-filter for HVAC and power plants

### Specifications

- Self-supporting pockets
- No special mechanical support required
- Polyester bags
- Low pressure drop
- Long service life
- Small transport volume
- Rigid bag model available (RB)
- Easy installation



## Bag Filter

<b>Filter Class (ISO 16890)</b>	ISO ePM1 - ISO ePM10
<b>Filter Class (EN 779)</b>	M5 - F9
<b>Media</b>	Synthetic, glass fibre, nano
<b>Frame Type</b>	Galvanized steel, plastic (25 mm)
<b>Max. Operating Temperature</b>	75°C
<b>Application</b>	HVAC systems

### Specifications

- Wide range of application area
- High quality filtration
- Standard pocket filter frames
- Special mechanical support
- Low pressure drop
- Long service life
- Small transport volume
- Easy installation



## Panel Filter

<b>Filter Class (ISO 16890)</b>	ISO ePM1 - ISO ePM10
<b>Filter Class (EN 779)</b>	M6 - F9
<b>Media</b>	Glass fibre
<b>Frame Type</b>	Galvanized steel, plastic
<b>Standard Depth</b>	48 - 96mm
<b>Max. Operating Temperature</b>	75°C
<b>Application</b>	HVAC systems

### Specifications

- Small transport volume
- Airflow and installation in any direction possible
- Self-supporting and rigid
- Easy installation, long service life
- Plastic and galvanized frame
- High quality glass fibre media
- Large surface area, low pressure drop
- Production of any dimensions
- Any gasket type and faceguard available



Filter Model		P48 / G48 (6 m³)			
Filter Class (ISO 16890)		ePM10 75%	ePM1 55%	ePM1 75%	ePM1 85%
Filter Class (EN 779)		M6	F7	F8	F9
Nominal Air Flow*	m³/h	2000	2000	2000	2000
Initial Pressure Drop	Pa	60	80	100	145
Filter Model		P96 / G96 (12 m³)			
Filter Class (ISO 16890)		ePM10 75%	ePM1 55%	ePM1 70-75%	ePM1 85%
Filter Class (EN 779)		M6	F7	F8	F9
Nominal Air Flow*	m³/h	3000	3000	3000	3000
Initial Pressure Drop	Pa	70	90	110	150

\* According to 592 x 592 mm

## Rigid Filter

Filter Class (ISO 16890)	ISO ePM1 – ISO ePM10
Filter Class (EN 779)	M6 – F9
Media	Glass fibre
Frame Type	Aluminium, plastic
Standard Depth	100 – 130mm
Max. Operating Temperature	75°C
Application	HVAC, pre-filter for cleanrooms



Filter Model		A100 (10 m³)			
Filter Class (ISO 16890)		ePM10 70%	ePM1 55%	ePM1 75%	ePM1 85%
Filter Class (EN 779)		M6	F7	F8	F9
Nominal Air Flow*	m³/h	3000	3000	3000	3000
Initial Pressure Drop	Pa	100	125	150	170
Filter Model		A130L / P130L (6,5 m³)			
Filter Class (ISO 16890)		ePM10 75%	ePM1 55%	ePM1 75%	ePM1 85%
Filter Class (EN 779)		M6	F7	F8	F9
Nominal Air Flow*	m³/h	2250	2250	2250	2250
Initial Pressure Drop	Pa	75	100	130	170
Filter Model		A130H / P130H (13 m³)			
Filter Class (ISO 16890)		ePM10 75%	ePM1 55%	ePM1 75%	ePM1 85%
Filter Class (EN 779)		M6	F7	F8	F9
Nominal Air Flow*	m³/h	3000	3000	3000	3000
Initial Pressure Drop	Pa	90	110	140	160

\* According to 592 x 592 mm

### Specifications

- Low pressure drop; less energy consumption
- Anodized aluminium and plastic frame
- Airflow and installation in any direction possible
- Header depths are 20 and 25mm
- Easy installation
- Faceguard available

## V-Compact Filter

Filter Class (ISO 16890)	ISO ePM1 – ISO ePM10
Filter Class (EN 779)	M6 – F9
Media	Glass fibre
Frame Type	Plastic, polycarbonate, metal
Max. Operating Temperature	75°C
Model	HVAC, Energy, Temperature
Application	HVAC, power plants and pre-filter for cleanrooms



### Specifications

- Header depth is 25mm
- %100 recycled plastic frame
- Less maintenance and energy consumption
- Nature friendly
- Any gasket type and faceguard available
- Both sides can be used for any air flow directions
- Large surface area; low pressure drop
- Self-supporting and rigid
- High temperature model up to 120°C

Filter Model		V-Compact (14 m³)				V-Compact Energy / Temperature (18 m³)			
Filter Class (ISO 16890)		ePM10 75%	ePM1 55%	ePM1 75%	ePM1 80%	ePM10 75%	ePM1 55%	ePM1 75%	ePM1 85%
Filter Class (EN 779)		M6	F7	F8	F9	M6	F7	F8	F9
Nominal Air Flow*	m³/h	4250	4250	4250	4250	4250	4250	4250	4250
Initial Pressure Drop	Pa	108	130	150	185	100	110	130	150

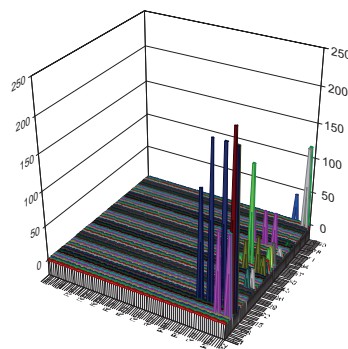
\* According to 592 x 592 mm



## Classification Standard EN1822 / TS EN ISO 29463

Efficient air filters (EPA), high efficiency air filters (HEPA) and ultra low penetration air filters (ULPA) are classified and tested according to EN 1822 standard for ventilation and air conditioning systems such as cleanroom applications.

New ISO 29463 standard formed as global standard with 5 sections, adapted from EN 1822 called "High-efficiency filters and filter media for removing particles in air".



Each HEPA and ULPA filters are tested and certified individually according to European and American Standards by Ulpathek. Prefiltering with close subclass filters to increase the service life of HEPA and ULPA filters is recommended.

### Filter Classes and Equivalents

ISO 29463	Efficiency	IEST*	EN 1822
ISO 15 E	>95%	-	H 11
ISO 20 E	>99%	-	
ISO 25 E	>99.5%	-	H 12
ISO 30 E	>99.9%	-	
ISO 35 H	>99.95%	-	H 13
-	>99.97%	A,B,E,H,I	-
ISO 40 H	>99.99%	C,J,(K)	
ISO 45 H	>99.995%	K	H14
ISO 50 U	>99.999%	D	
ISO 55 U	>99.9995%	F	U15
ISO 60 U	>99.9999%	G	
ISO 65 U	>99.99995%	G	U 16
ISO 70 U	>99.99999%	G	
ISO 75 U	>99.999995%	G	U 17

IEST Type A, B, C, D, and E are classified per test result using photometers (Mil Std 282).  
Types F, G, H, I, J, and K are classified per test result using particle counters.

## 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  $\mu\text{m}$  to 5  $\mu\text{m}$  are considered for classification purposes.

### Cleanroom Classification

ISO Class Number	Maximum allowable concentrations (particles/m <sup>3</sup> ) for particles equal to and greater than the considered sizes (a)						Fed Std. 209 (Class)
	0,1 $\mu\text{m}$	0,2 $\mu\text{m}$	0,3 $\mu\text{m}$	0,5 $\mu\text{m}$	1,0 $\mu\text{m}$	5,0 $\mu\text{m}$	
ISO 1	10	(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)	1
ISO 4	10.000	2.370	1.020	352	83 (b)	(e)	10
ISO 5	100.000	23.700	10.200	3.520	832	(d), (e), (f)	100
ISO 6	1.000.000	237.000	102.000	35.200	8.320	293	1.000
ISO 7	(c)	(c)	(c)	352.000	83.200	2.930	10.000
ISO 8	(c)	(c)	(c)	3.520.000	832.000	29.300	100.000
ISO 9	(c)	(c)	(c)	35.200.000	8.320.000	293.000	-

#### Notes:

- All concentrations in the table are cumulative, e.g. for ISO Class 5, the 10.200 particles shown at 0,3  $\mu\text{m}$  include all particles equal to and greater than this size.
- These concentrations will lead to large air sample volumes for classification. Sequential sampling procedure may be applied; see Annex D.
- Concentration limits are not applicable in this region of the table due to very high particle concentration.
- Sampling and statistical limitations for particles in low concentrations make classification inappropriate.
- Sample collection limitations for both particles in low concentrations and sizes greater than 1  $\mu\text{m}$  make classification at this particle size inappropriate, due to potential particle losses in the sampling system.
- 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 (See C.7.).

## HEPA Ceiling Filter

Filter Class	H13 - H14 - U15
Media	High quality glass fibre
Frame Type	Aluminium, MDF
Faceguard	Painted aluminium
Gasket	EPDM, PU foam
Sealant	Two component polyurethane
Separators	Hotmelt
Max. Operating Temperature	75 °C
Max. Final Pressure Drop	600 Pa

### Specifications

- Optimized velocity distribution
- Clean/both sides faceguard available
- Special gasket available
- Production of any dimensions
- With individual test certificate
- Low pressure drop, less energy consumption

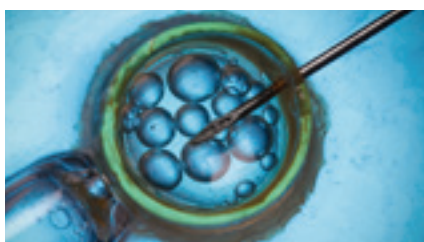
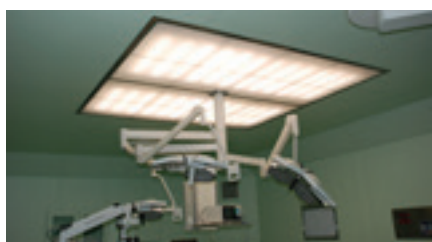


Filter Model / Pleat Code		MN/1	AN/1	AN/1	AN/1	AM/3	AM/3	AL/6	AX/7
Filter Class (EN 1822)		H13	H13	H14	U15	H13	H14	H13	H13
Pleat Height	mm	50	50	50	50	75	75	100	125
Initial Pressure Drop @ 0,45 m/s	Pa	100	100	125	140	75	90	65	55

Frame Depth Code		AC	AS	AN	AD	AM	AF	AK	AL	AX
Available Standard Depth	mm	66	69	78	90	100	110	117	125	150
Available Pleat Heights Interval	mm	50	50	50	50-65	50-75	50-85	50-90	50-100	50-125

Pleat Code	Pleat Height	Filter Class	Min. Efficiency @ MPPS (EN 1822) (%)	Min. Efficiency @ 0,3µm (DOP) (%)	Filtration Area per Face Area (m²/m²)	Pack Resistance @ 0,45 m/s (Pa)	Available Frame Code for Pleat	Available Frame Depth for Pleat (mm)
1	50	H13	99,95	99,99	24,2	100	AC, AS, AN, ASM, AD, AM, AF, AK, AL, AX	66, 69, 78, 89, 90, 100, 110, 117, 125, 150
		H14	99,995	99,999	25,3	125		
		U15	99,9995	-	26,9	140		
2	65	H13	99,95	99,99	31,4	85	AD, AM, AF, AK, AL, AX	90, 100, 110, 117, 125, 150
		H14	99,995	99,999	32,8	110		
3	75	H13	99,95	99,99	36,3	75	AM, AF, AK, AL, AX	100, 110, 117, 125, 150
		H14	99,995	99,999	37,9	90		
4	85	H13	99,95	99,99	41,1	70	AF, AK, AL, AX	110, 117, 125, 150
		H14	99,995	99,999	43,0	85		
5	90	H13	99,95	99,99	41,1	70	AK, AL, AX	117, 125, 150
		H14	99,995	99,999	43,0	85		
6	100	H13	99,95	99,99	48,4	65	AL, AX	125, 150
		H14	99,995	99,999	50,5	80		
7	125	H13	99,95	99,99	60,5	55	AX	150
		H14	99,995	99,999	63,2	70		

High efficiency HEPA Ceiling filters protect people, equipment and processes from airborne particulate contamination. They are designed for cleanroom ceilings and laminar flow units requiring high or very high levels of air purity.



## Gel Type HEPA Ceiling Filter

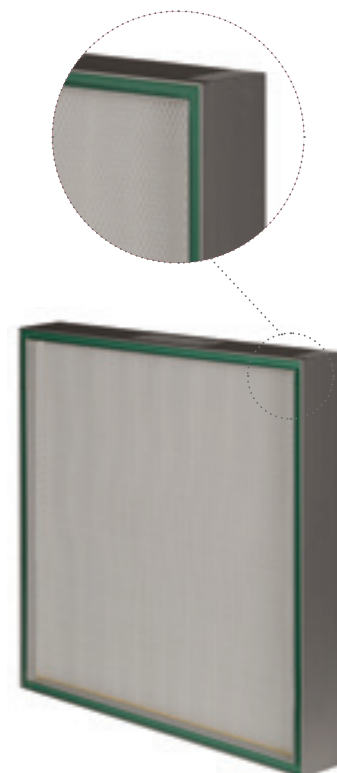
Filter Class	H13 - H14 - U15
Media	High quality glass fibre
Frame Type	Aluminium
Faceguard	Painted aluminium
Gasket	Gel (liquid) gasket
Sealant	Two component polyurethane
Separators	Hotmelt
Max. Operating Temperature	75°C
Max. Final Pressure Drop	600 Pa

### Specifications

- Optimized velocity distribution
- Excellent sealing
- Faceguard on both sides
- Production of any dimensions
- With individual test certificate
- Low pressure drop, less energy consumption
- Suitable for knife edge frame systems

Filter Model		ANJ/N		AJ/J		AMJ/M		ALJ/L	
Filter Class (EN 1822)		H13	H14	H13	H14	H13	H14	H13	H14
Initial Pressure Drop @ 0,45 m/s	Pa	100	125	90	115	85	100	65	80
Frame Depth	mm	80		91		104		128	
Filtration Area	m <sup>2</sup>	9	9,4	10,7	11,3	12,4	13,1	18	18,8

\* According to 610 x 610 mm



## HEPA Terminal Hood Filter

Filter Class	H13 - H14 - U15
Media	High quality glass fibre
Frame Type	Aluminium
Faceguard	Painted aluminium
Sealant	Two component polyurethane
Separators	Hotmelt
Max. Operating Temperature	75°C
Max. Final Pressure Drop	600 Pa

### Specifications

- Optimized velocity distribution
- EMERY (DOP) and ΔP nozzles included
- Easy installation for the low ceiling
- With fixed air distribution plate and without divider option
- With adjustable air distribution plate and divider option
- With individual test certificate
- Low pressure drop, less energy consumption
- Production of any dimensions
- Special gasket depends on application
- Spigot of any standard dimensions



HEPA Terminal Hood Filter Model		Disposable Filter Model			Changeable Filter Model		
HEPA Terminal Hood Filter Code		AL/1			AMJ/M		
Filter Class (EN 1822)		H13	H14	U15	H13	H14	U15
Initial Pressure Drop @ 0,45 m/s	Pa	90	115	135	85	100	115
Filtration Area	m <sup>2</sup>	11	11	11	11	11,6	12,4

\* According to 610 x 610 mm HEPA Terminal Hood Filter

### Disposable Filter Model

- Single module
- Frame depth; 125 and 175 mm

### Changeable Filter Model

- Gel type filter (AMJ; 104 mm)
- Filter; 33mm less than module
- Frame depth; 175 mm



## High Capacity HEPA Filter with Single Pleat

<b>Filter Class</b>	E10 - E11 - E12 - H13 - H14
<b>Media</b>	High quality glass fibre
<b>Frame Type</b>	Galvanized steel, stainless steel, aluminium, MDF
<b>Faceguard</b>	Painted aluminium sheet metal
<b>Gasket</b>	EPDM, PU foam
<b>Sealant</b>	Two component polyurethane
<b>Separators</b>	Hotmelt
<b>Max. Operating Temperature</b>	75 °C
<b>Max. Final Pressure Drop</b>	600 Pa

### Specifications

- Suitable for high air flow rate
- Clean/both sides faceguard available
- Special gasket available
- With individual test certificate
- Low pressure drop, less energy consumption
- Production of any dimensions



Filter Model		M20 / G20		M30 / G30	
Filter Class (EN 1822)		H13	H14	H13	H14
Nominal Air Flow*	m³/h	2000	2000	3000	3000
Initial Pressure Drop	Pa	240	250	250	270
Filtration Area	m²	18	20	26	30

\* According to 610 x 610 mm

## High Capacity HEPA Filter with V-Modul Design

<b>Filter Class</b>	E10 - E11 - E12 - H13 - H14
<b>Media</b>	High quality glass fibre
<b>Frame Type</b>	Galvanized steel, stainless steel, aluminium, plastic
<b>Gasket</b>	EPDM, PU foam
<b>Sealant</b>	Two component polyurethane
<b>Separators</b>	Hotmelt
<b>Max. Operating Temperature</b>	75 °C - 120 °C
<b>Max. Final Pressure Drop</b>	600 Pa

### Specifications

- Suitable for high air flow rate
- Special gasket option
- Low pressure drop, less energy consumption
- With individual test certificate
- Use for air velocities up to 3m/s
- High temperature model up to 120 °C
- Compact and strong construction



Filter Model		G30		G40	
Filter Class (EN 1822)		H13	H14	H13	H14
Nominal Air Flow*	m³/h	3000	3000	4000	4000
Initial Pressure Drop	Pa	250	250	290	300
Filtration Area	m²	26	30	37	40

\* According to 610 x 610 mm

## Compact Filter with Aluminium Separator

<b>Filter Class</b>	E10 - E11 - E12 - H13 - H14
<b>Media</b>	High quality glass fibre
<b>Frame Type</b>	Galvanized steel, stainless steel, MDF
<b>Gasket</b>	EPDM, PU foam, Silicon
<b>Sealant</b>	Two component polyurethane and silicon
<b>Separators</b>	Corrugated aluminium separator
<b>Max. Operating Temperature</b>	75 °C - 120 °C - 220 °C
<b>Max. Final Pressure Drop</b>	600 Pa

### Specifications

- Suitable for high operating temperatures
- High dust holding capacity
- With individual test certificate
- With single, double or without flange
- Low pressure drop, less energy consumption
- Clean/both sides faceguard available



Filter Class (EN 1822)		H13	H14
Nominal Air Flow*	m³/h	2500	2200
Initial Pressure Drop	Pa	250	250
Filtration Area	m²	22	22

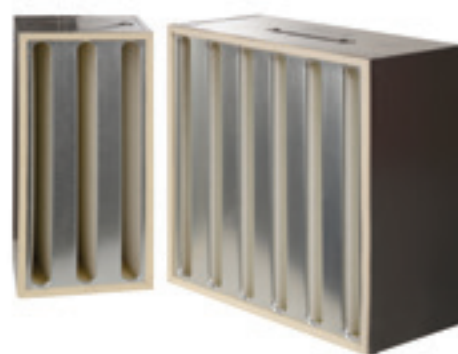
\* According to 610 x 610 mm

## Nuclear HEPA Filter

<b>Filter Class</b>	Nuclear type H13
<b>Media</b>	High quality glass fibre
<b>Frame Type</b>	Galvanized sheet metal, stainless sheet metal
<b>Gasket</b>	Silicon
<b>Sealant</b>	Two component polyurethane
<b>Separators</b>	Hotmelt
<b>Max. Operating Temperature</b>	120 °C
<b>Max. Final Pressure Drop</b>	600 Pa

### Specifications

- Suitable for high air flow rate
- Compact and strong construction
- With individual test certificate
- Accordance with standard of ASME AG-1
- Low pressure drop, less energy consumption



The glass fibre accordance with standards of ASME AG-1 and EN1822.

Filter Model		G26	G34
Filter Class (EN 1822)		H13	H13
Nominal Air Flow*	m³/h	2600	3400
Initial Pressure Drop	Pa	250	300
Filtration Area	m²	26	37

\* According to 610 x 610 mm

### V-Compact EPA and HEPA Filters

<b>Filter Class</b>	E10 - E11 - E12 - H13 - H14
<b>Media</b>	High quality glass fibre
<b>Frame Type</b>	Plastic, galvanized steel
<b>Frame Depth</b>	292 - 430mm
<b>Gasket</b>	EPDM, PU foam
<b>Sealant</b>	Two component polyurethane
<b>Separators</b>	Hotmelt
<b>Max. Operating Temperature</b>	75 °C
<b>Max. Final Pressure Drop</b>	600 Pa

#### Specifications

- Faceguard on clean side available
- Both sides can be used for any air flow directions
- High filtration area available (430mm)
- Suitable for HVAC systems and power plants



Filter Model		EPA & HEPA V-Compact			
Filter Class (EN 1822)		E10	E11	E12	H13
Nominal Air Flow*	m³/h	4000	3400	3000	2500
Initial Pressure Drop	Pa	200	190	270	250

\* According to 592 x 592 mm

### Cylindrical Filter

#### Specifications

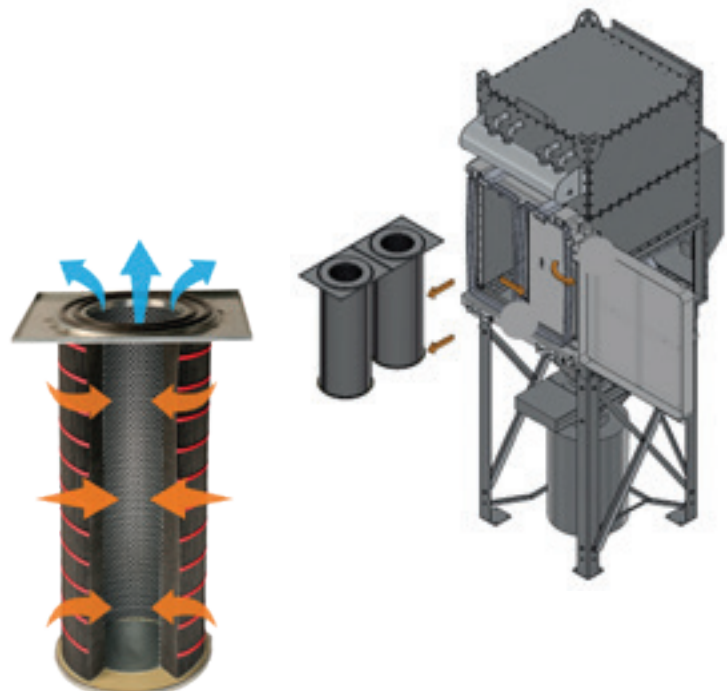
- Standard and special installation solutions
- Inner/outer faceguard option
- Both sides can be used for any air flow directions
- High filtration area available
- Special gasket depends on application

#### Filter Paper Types

- Glass fibre
- Synthetic fibre
- Synthetic - Cellulose fibre blend
- Different type of antistatic media
- Various polyester solutions

#### Application Areas

- Dust collection systems
- Power plants
- Compressors
- Pharmaceutical industries
- Food industries
- Welding applications

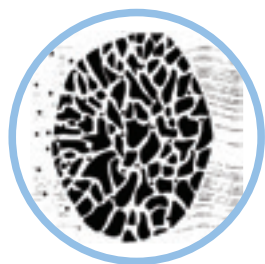




## GAS PHASE FILTERS

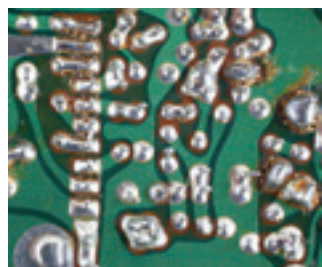
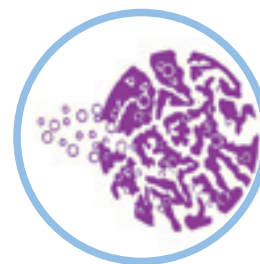
Gas phase filter media is made up of pellet pieces that chemically absorb pollutants gases from the air. Chemical filtration media is not based on a carbon adsorption process as other air filtering systems. Media is instead specifically created to neutralize specific gases.

This means that the pollutants gases are actually converted into harmless particles inside the filter and most filters will not become dangerous to handle. Ulpatek has a wide range of media granules each of which reacts to a specific pollutant. After a needs analysis, custom media mixes can be created to deal with a facility's healthy air and may be used to control corrosion.



Gas pollutants are filtered on media surface with weak van der Waal's forces in physical method. That works also reversible after the removal capacity saturate.

Gas pollutants reacted to media's surface via chemical bonds in chemical method. Chemical adsorption is irreversible.



Corrosion Problems



Odor Problems



Toxic Problems



IAQ Problems

Product Family	Gas Phase Pollutants											
	CxHy	Cl <sub>2</sub>	Odor	VOC's	H <sub>2</sub> S	SO <sub>2</sub>	NO <sub>2</sub>	HCHO	HCl	Hg	R.active Iodine	NH <sub>3</sub>
ULP-Bi-On AC Active Max	✓		✓	✓								
ULP-Bi-On +11%					✓	✓	✓	✓				
ULP-Bi-On +11% / AC	✓		✓	✓	✓	✓	✓	✓				
ULP-Bi-On KOH		✓			✓	✓			✓			
ULP-Bi-On KI4%					✓	✓		✓		✓	✓	
ULP-Bi-On ACPA												✓
ULP-Bi-On Cl		✓							✓			
ULP-Bi-On S										✓		
ULP-Bi-On Triple Blend	✓	✓	✓	✓	✓	✓	✓	✓	✓			



ULP-Bi-On KOH



ULP-Bi-On Cl



ULP-Bi-On KI4%



ULP-Bi-On +11%



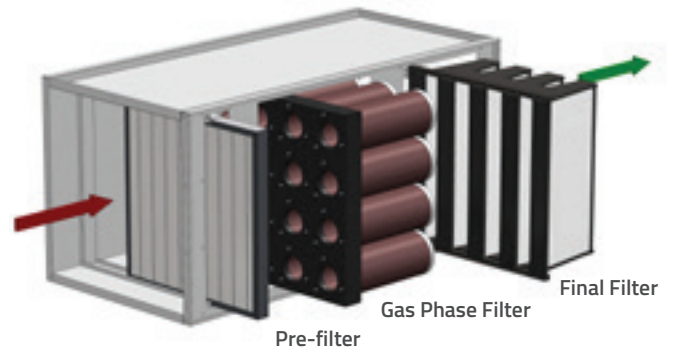
ULP-Bi-On AC  
Active Max



ULP-Bi-On Triple  
Blend

## Use of Gas Phase Filter

Gas phase filtration and particulate filtration must work together for acceptable indoor air quality in controlled environments. Gas pollutants are filtered with Ulpatek's gas phase air filters which are produced from one or mix filter media.



## Commercial Applications

People usually spend their time in closed spaces like offices, schools, shopping malls, restaurants, cafes, hospitals, hotels, factories etc. That's why controlling airborne pollutants is critical to maintaining sufficient indoor air quality. Particulate and gas pollutants must be filtered for sufficient indoor air quality.



Hospital



Office



Airport



Museum

## IAQ & Energy Conversation According to ASHRAE Standard 62.1



Indoor contaminants are controlled with minimum required airflow " $34\text{m}^3/\text{h} \times \text{person}$ " according to ASHRAE's "Ventilation Rate Procedure".

Outdoor air requirement can be reduced to " $8,5\text{m}^3/\text{h} \times \text{person}$ " according to the IAQ Procedure of ASHRAE's Standard 62.1 by using gas phase filtration.

## Sick Building Syndrome

Some buildings are surrounded with sick building syndrome due to the change of user requirements and insufficient HVAC designs.

Inadequate ventilation's reasons depend on many parameters, but the most important parameter is the contamination control. Gas phase and particulate filtration can help the buildings for recovering from the sick building syndrome.



## Use of Gas Phase Filters According to ODA and SUP Categories

Following the provisions of EN 16798-3:2017, it is recommended to apply additional gas filters to complement particle filtration for the following combinations of outdoor air quality (gaseous) and supply air quality classes:

Outdoor Air Quality	Supply Air Quality				
	SUP 1	SUP 2	SUP 3	SUP 4	SUP 5
ODA (G) 1	Recommended				
ODA (G) 2	Required	Recommended			
ODA (G) 3	Required	Required	Recommended		

ODA: Outdoor air according to particulate matter concentration  
SUP: Supply air according to particulate matter concentration

## Industrial Applications

### Corrosion Control



Petrochemical Refinery

Process control systems, data centers and other rooms that have instrumentation which has to be environmental controlled must appropriate to G1 classification according to ISA requirements. Achieving room ventilation design requirement must supply a minimum room pressurization of 1-3 air changes per hour and recirculation of 6-12 air changes per hour. Temperature is typically 22°C (±2°C) with humidity less than 50% relative humidity. Tightness of the room is also another parameter while defining the design parameters. In addition to these parameters, hazardous pollutants are main parameter which must be removed from the enclosed space. According to the ANSI/ISA 71.04, contamination concentration levels are defined as follows.



Corrosion

Severity Level Contaminant		Gas	G1 / Mild	G2 / Moderate	G3 / Harsh	GX / Severe
			Concentration (ppbv)			
		H <sub>2</sub> S	<3	< 10	<50	≥50
	Group A	SO <sub>2</sub>	<10	<100	<300	≥300
Reactive Species		Cl <sub>2</sub>	<1	<2	<10	≥10
		NO <sub>x</sub>	<50	<125	< 1,250	≥ 1,250
		HF	<1	<2	< 10	≥10
	Group B	NH <sub>3</sub>	<500	< 10,000	< 25,000	≥25,000
		O <sub>3</sub>	<2	<25	<100	≥100

**Passive Monitoring:** It is made with copper-silver coupons which must be used at the site with 30-90 days periods for defining remaining life and design parameters.

**Online Monitoring:** It has an instant measurement of gas contamination.



Copper-Silver Coupon

Severity Level	G1 / Mild	G2 / Moderate	G3 / Harsh	GX / Severe
Copper reactivity level (angstroms)	<300	<1000	<2000	≥2000
Silver reactivity level (angstroms)	<200	<1000	<2000	≥2000



Online Monitoring Device

### Odor and Toxic Gas Control



Odors are generally formed from commercial and industrial facilities like biogas, waste water treatment plants, etc.

Toxic gas scrubbing is generally needed for filtration and neutralizing of chlorine (Cl<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>) or ammonia (NH<sub>3</sub>).



Waste Water Treatment Plant



Drum Scrubber



## V-Compact Type Activated Carbon Filter

<b>Media</b>	Carbon media between synthetic layers
<b>Frame Type</b>	Plastic, galvanized steel
<b>Frame Depth</b>	292 mm
<b>Sealant</b>	Two component polyurethane
<b>Max. Operating Temperature</b>	50°C

### Specifications

- General gas phase applications
- Both sides can be used for any air flow directions
- Low pressure drop, energy saving

### Application Areas

- Public buildings
- Airports
- Hospitals
- Food and Pharmaceutical industry
- Comfort air conditioning systems
- Dining hall ventilation



## Cartridge Type Activated Carbon Filter

<b>Media</b>	Virgin and enriched pellets
<b>Frame Type</b>	Galvanized steel, stainless steel, plastic
<b>Cartridge Height</b>	400-450-500-600 mm
<b>Gasket</b>	EPDM
<b>Max. Operating Temperature</b>	50°C

### Specifications

- Powder coated cartridge in any RAL code
- Sealed cap with robust pin
- High efficiency in gas filtration
- Mounting frame with special plaster
- Easy assemble with podger
- Recommended pre-filtration

### Application Areas

- Public buildings
- Airports
- Hospitals
- Food and Pharmaceutical industry
- Comfort air conditioning systems
- Kitchen ventilation



Filter Model	Filter Class	Dimensions (WxHxD) (mm)	Nomial Air Flow (m³/h)	Initial Pressure Drop (Pa)	Cartridges Quantity (pcs.)	Cartridge Volume (dm³)
AC-H8-305x610x400	Cartridge Filter	305x610x400	1200	<150	8	4,7
AC-H16-610x610x400	Cartridge Filter	610x610x400	2400	<150	16	4,7
AC-H8-305x610x450	Cartridge Filter	305x610x450	1280	<150	8	5,3
AC-H16-610x610x450	Cartridge Filter	610x610x450	2560	<150	16	5,3
AC-H8-305x610x600	Cartridge Filter	305x610x600	1700	<150	8	7,0
AC-H16-610x610x600	Cartridge Filter	610x610x600	3400	<150	16	7,0

Cartridge Model	Cartridge Type	Cartridge Volume (dm³)	Cartridge Air Flow (m³/h)
CR-145N-400-P	N	3,9	150
CR-145N-450-P	N	4,4	160
CR-145N-600-P	N	5,9	212,5
CR-145H-400-P	H	4,7	150
CR-145H-450-P	H	5,3	160
CR-145H-600-P	H	7	212,5

\* P: Powder coated cartridge  
\* Volume; N: Normal, H: High

Frame Model	Dimensions (WxHxD) (mm)	Cartridges Quantity (pcs.)
UCF(N)-16-610x610-P	610x610x70	16
UCF(N)-12-508x610-P	508x610x70	12
UCF(N)-8-305x610-P	305x610x70	8
UCF(N)-4-305x305-P	305x305x70	4

\* P: Powder coated frame  
\* Frame Model: UCFH, UCFN

# ULPALAB

ULPATEK Filter Testing Laboratory



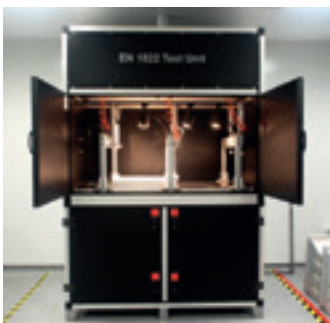
ISO 16890 Test System - FTS 3401



HEPA / ULPA Filter Test System - HUF-SCAN 4002



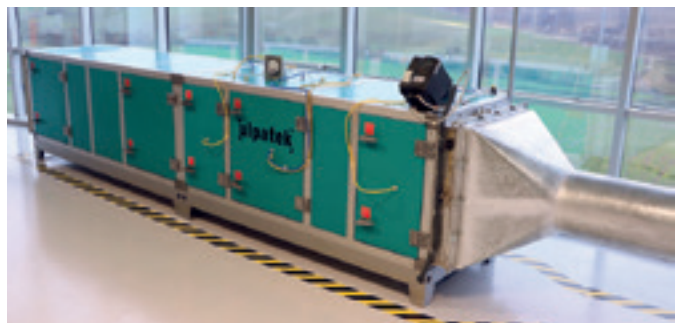
HEPA / ULPA Filter Test System - HF-SCAN 3004



HEPA / ULPA Filter Test System  
HF-OIL MIST 1200



Filter Media Test System  
FMT 102



Performance Test System - PTS 5002



# AIR FILTER TECHNOLOGY

ADVANCED FILTRATION FOR A BETTER FUTURE

**Ulparek Filtre Ticaret Sanayi A.Ş.**

Yassiören Mahallesi Hadımköy Caddesi No:158 34555 Arnavutköy / İstanbul

+90 212 623 03 00 | [info@ulparek.com](mailto:info@ulparek.com) | [www.ulparek.com](http://www.ulparek.com)