

## HEPA Filters (Absolute) – Deep Pleat H10, H11, H12, H13, H14 to EN1822

### Applications

Absolute (HEPA) filters are used in a wide range of applications such as clean rooms, operating theatres, research facilities, the electronic and micro-electronic industries, nuclear and pharmaceutical industries and high speed turbines.

Clean Rooms tend to employ the narrower 146mm deep filter and utilise a lower face velocity in accordance with the relevant Clean Room Standards, thus providing a laminar air flow either across the work area or across the complete room depending upon the application.

### Description

The filtration medium is provided by microfine glass fibres formed into a paper-like surface, supplied in various grades depending upon filtration efficiency required. The filter paper is formed into a close pleated package to provide a large surface area. Corrugated spacers of either kraft paper or aluminium are inserted between each pleat to provide support for the pleat and also maximise the entire surface of the filtering medium.

### Technical

These can be provided to efficiencies and performance as shown below:

Grade	Overall Efficiency	Local Value Efficiency	Suggested for ISO 14644 : 1999
H11	95%	-	
H12	99.5%	-	ISO Class 8
H13	99.95%	99.75%	ISO Class 6
H14	99.995%	99.975%	ISO Class 5
U15	99.9995%	99.9975%	ISO Class 4

### Selection of Filter Construction:

#### **Spacers:**

Aluminium spacers are used as standard in all Deep Pleat HEPA Filter constructions (up to 250°C and 100% RH for aluminium spacers).

#### **Casings:**

For temperatures up to 120°C wood cased or aluminium cased filters can be used.  
For temperatures above 120°C use galvanised or zintec steel casings (up to 250°C).

#### **Sealants:**

Standard Urethane Sealant is suitable for temperatures up to 120°C.  
For temperatures above 80C and up to 250C use cases as above and silicone sealant (2 part-pink)



## Gaskets:

Filter gaskets are closed cellular polyethylene with sealed butt joints at the corners usually 20mm x 6mm:

Suffix B - fitted both sides

Suffix C - fitted clean side

Suffix D - fitted dirty side

For temperatures above 80C and up to 250C use cases as detailed above and silicon gasket

## Grilles:

Grilles are available in either :

12 x 12 x 1.6mm galvanised mesh for 292mm deep filters

White epoxy coated steel for 75mm and 146mm filters in cleanrooms.

## Filter Paper:

Filter paper used is water repellent (i.e. suitable for 100% RH but no free moisture).

6" H14 HEPA FILTERS- Scan to BS EN 1822-:2009					STANDARD FLOW	
Actual Sizes mm			Flow Rate	PD	Part Numbers	
H	W	D	m <sup>3</sup> /s	Pa	CA/H14/C	GA/H14/C
305	305	146	0.06	250	1510130	1510201
457	457	146	0.10	250	1510131	1510202
500	500	146	0.15	250	1510132	1510203
508	508	146	0.16	250	1510133	1510204
600	600	146	0.23	250	1510134	1510205
609	609	146	0.24	250	1510135	1510206
609	762	146	0.30	250	1510136	1510207
609	918	146	0.35	250	1510137	1510208
609	1220	146	0.47	250	1510138	1510209
Non Standard					1510150	1510221

6" HEPA FILTERS Tested to EN1822-2009					HIGH FLOW	
Actual Sizes mm			Flow Rate	PD	PART NUMBERS	
H	W	D	m <sup>3</sup> /s	Pa	CA/H14/C-H	GA/H14/C-H
305	305	146	0.10	280	1510260	1510330
457	457	146	0.23	280	1510261	1510331
500	500	146	0.28	280	1510262	1510332
508	508	146	0.28	280	1510263	1510333
600	600	146	0.40	280	1510264	1510334
609	609	146	0.40	280	1510265	1510335
609	762	146	0.50	280	1510266	1510336
609	918	146	0.60	280	1510267	1510337
609	1220	146	0.80	280	1510268	1510338
Non Standard					1510280	1510350

12 " HEPA FILTERS Tested to EN1822-2009					STANDARD FLOW	
Actual Sizes mm			Flow Rate	PD	Part Numbers	
H	W	D	m <sup>3</sup> /s	Pa	CA/H14/C	GA/H14/C
305	305	292	0.12	250	1510420	1510460
457	457	292	0.27	250	1510421	1510461
500	500	292	0.31	250	1510422	1510462
508	508	292	0.33	250	1510423	1510463
600	600	292	0.45	250	1510424	1510464
609	609	292	0.47	250	1510425	1510465
Non Standard					1510430	1510470

12" HEPA FILTERS Tested to EN1822-2009					HIGH FLOW	
Actual Sizes mm			Flow Rate	PD	Part Numbers	
H	W	D	m <sup>3</sup> /s	Pa	CA/H14/C-H	GA/H14/C-H
305	305	292	0.20	280	1510520	1510560
457	457	292	0.45	280	1510521	1510561
500	500	292	0.52	280	1510522	1510562
508	508	292	0.56	280	1510523	1510563
600	600	292	0.76	280	1510524	1510564
609	609	292	0.80	280	1510525	1510565
Non Standard					1510530	1510570

6" H11 HEPA FILTERS Tested to EN1822-2009					STANDARD FLOW	
Actual Sizes mm			Flow Rate	PD	Part Numbers	
H	W	D	m <sup>3</sup> /s	Pa	CA/H11/C	GA/H11/C
305	305	146	0.06	150	1510370	1510390
500	500	146	0.15	150	1510371	1510391
508	508	146	0.16	150	1510372	1510392
600	600	146	0.23	150	1510373	1510393
609	609	146	0.24	150	1510374	1510394
Non Standard					1510375	1510395

12" H11 HEPA FILTERS Tested to EN1822-2009					STD & HIGH FLOW	
Actual Size Mm			Std. Flow	High Flow	Part Numbers	
H	W	D	m <sup>3</sup> /s @ 150 Pa	m <sup>3</sup> /s @ 200 Pa	GA/H11/C	GA/H11/C-H
288	593	292	0.21	0.35	1510661	1510771
300	600	292	0.23	0.35	1510662	1510772
305	609	292	0.23	0.35	1510663	1510773
450	600	292	0.35	0.60	1510664	1510774
593	593	292	0.45	0.75	1510665	1510775
600	600	292	0.45	0.75	1510666	1510776
609	609	292	0.47	0.80	1510667	1510777
Non Standard					1510670	1510770

## Notes

- 75mm deep filters are fitted with 20x6mm gasket on clean face, giving a 81mm deep filter
- 146mm deep filters are fitted with 20x6mm gasket on clean face, giving a 152mm deep filter
- 292mm deep filters are fitted with 20x6mm gasket on clean face, giving a 298mm deep filter

## **Holding Frames and Cases**

Holding frames and casings for HEPA Filters are available singularly or in multiples, and can be manufactured to suit non-standard sizes and special applications.

See Catalogue Section 8 (code AC8) for full information.



**Fully Welded Side Withdrawal Filter Housing  
(1840)**



**HEPA Filter Terminal Housing  
(1835)**

## ***HEPA Filters (Absolute) Requirements for clean room applications (only ISO 14644 is current)***

Federal Standard 209E	Maximum Particle Count (ft <sup>3</sup> )	Suggested Filter
10	10 greater than 0.5µm	Grade U16 to EN1822
100	100 greater than 0.5µm	Grade U15 to EN1822
10,000	10,000 greater than 0.5µm 70 greater than 5µm	Grade H14 to EN1822
100,000	100,000 greater than 0.5µm 700 greater than 5µm	Grade H11 to EN1822

BS 5295: 1989	ISO 14644:1999	Maximum Particle Count (m <sup>3</sup> )	Suggested Filter
Class D	ISO Class 4	350 greater than 0.5 µm Zero Particle Size 5µm and greater	U16 to EN1822
Class E	ISO Class 5	3500 greater than 0.5 µm Zero Particle Size 5µm and greater	U15 to EN1822
Class H	ISO Class 6	35,000 greater than 0.5 µm 200 greater than 5µm Zero greater than 10µm	H14 to EN1822
Class J	ISO Class 8	350,000 greater than 0.5 µm 2,000 greater than 5µm 450 greater than 10µm	H11 to EN1822