Duct HEPA filter units AKF

Application

Duct HEPA filter units AKF are used in the network of inlet and outlet ducts used to supply or extract air from rooms with the highest air cleanliness requirements. They can be used for:

- air supply and extraction in laboratories,
- air supply and extraction in operating theatres, infection-free and sterile environments,
- air supply in electronics, precision mechanics, chemistry, pharmaceutics and food industry,
- air supply in film and audio tape industry,
- air supply and extraction in nuclear technology etc.

AKF-I

Description

The AKF unit is made of a filter housing with connection flanges and a HEPA filter. The filter housing is made of sheet metal, air-tight welded according to DIN 1946 and coated in RAL 9010. Two pressure gauge attachments for pressure drop measurements are fitted into the housing.

Bag-in/Bag-out (safe filter replacement with the use of bags)

Bag-in/Bag-out is intended for filtration of air in processes during which hazardous or toxic substances are produced. The Bag-in/Bag-out system prevents any contact with the waste filter contents during replacement. The installation of a pre-filter prolongs the life of the HEPA filter. The pre-filter replacement procedure is the same as HEPA filter replacement.

Installation and design versions

AKF housings are designed for installation of single AKF-I filter units. (Fig. 1, Fig. 2) as well as for installation of several AKF-II units (Fig. 3, Fig. 4) into the duct system. To replace the filter, 700 mm of free space is required on the front side of the unit. The AKF-II unit is made in several set-up combinations, determined by the position of connection flanges A1, A2, B1, B2 (Fig. 5, Fig. 6).

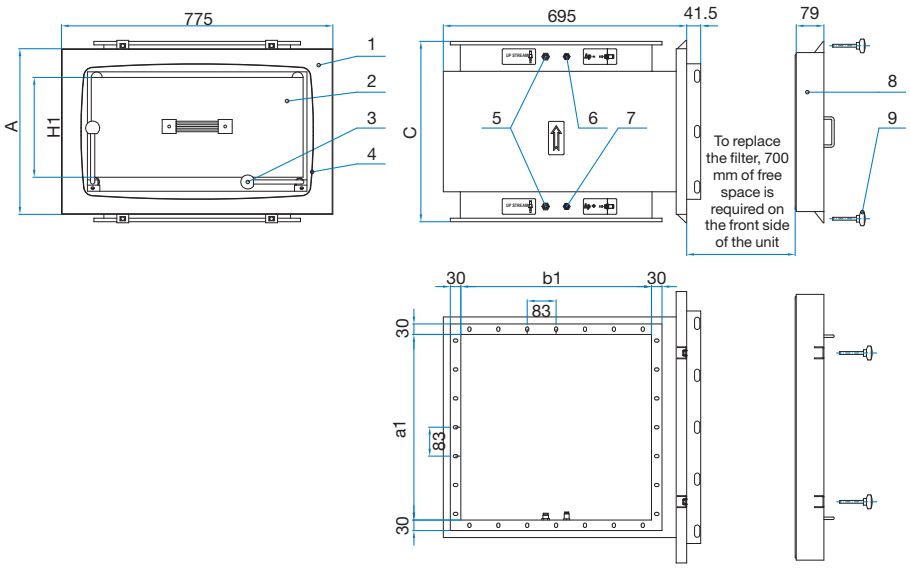
AKF-II

Accessories

See chapter Accessories.

AKF-I

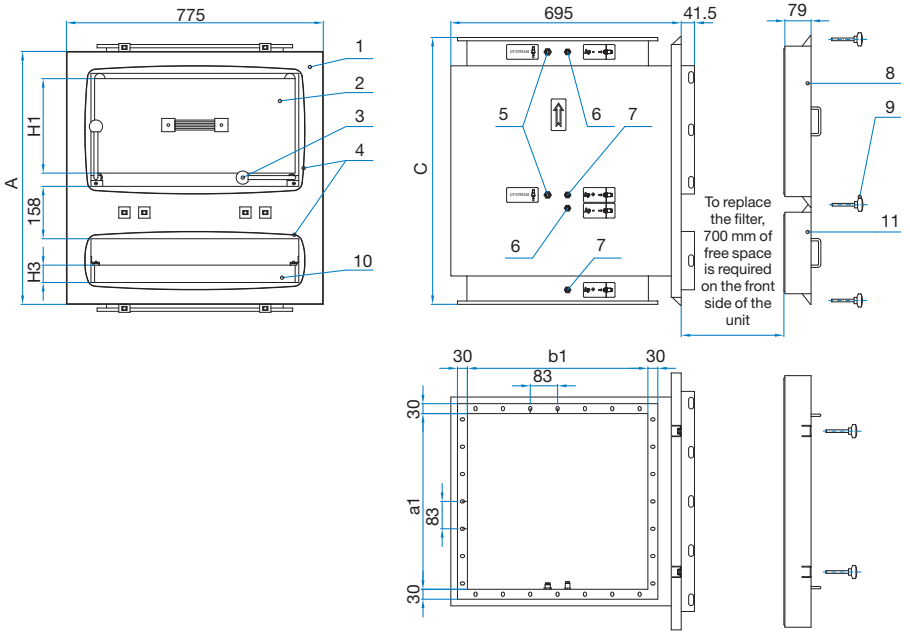
Fig. 1



1. Filter housing
2. HEPA filter
3. Filter assembly levers
4. Bag-in/Bag-out spigot (only Bag-in/Bag-out version)
5. Connection (UPSTREAM) for scan test
6. Static pressure connection after filter – Δp
7. Static pressure connection before filter + Δp
8. HEPA filter cover
9. Screw for cover fixing

AKF-I+KPF

Fig. 2



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2. HEPA filter
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5. Connection (UPSTREAM) for scan test
6. Static pressure connection after filter – Δp
7. Static pressure connection before filter + Δp
8. HEPA filter cover
9. Screw for cover fixing
10. PRE-filter
11. PRE-filter cover

Material and surface protection

Filter housing and filter covers are made from cold rolled steel. SS materials are available upon request.

The filter housing and filter co-vers are powder-coated in RAL 9010. Other RAL colours are available upon request.

Table 1: Filter housing AKF-I dimensions and weight

Designation	H1	H3	A	C	a1	b1	Weight
HEPA filter 610 x 610 x 150	150	/	331	373	530	545	25.3 kg
HEPA filter 610 x 610 x 292	292	/	473	515	530	545	30.7 kg
HEPA filter 610 x 610 x 150 + PRE-filter 610 x 610 x 50	150	50	621	663	530	545	40.9 kg
HEPA filter 610 x 610 x 292 + PRE-filter 610 x 610 x 50	292	50	763	805	530	545	46.4 kg

Note: Weight deviation is ±10 %.

AKF-II (nominal size 1, 2, 3, 4)

Material and surface protection

Fig. 3

- Connection ducts are made from cold rolled steel.
- EPDM gasket.
- Adjustable legs are made from square steel tubes.

Other materials are available upon request.

Filter housing, connection ducts, adjustable legs and filter covers are powder-coated in RAL 9010. Other RAL colours are available upon request.

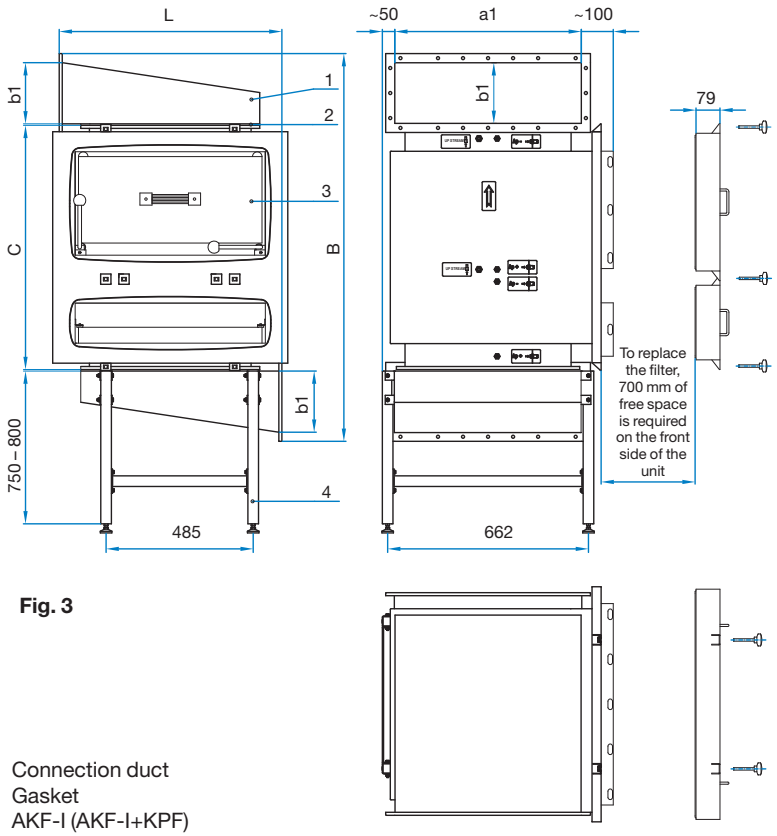
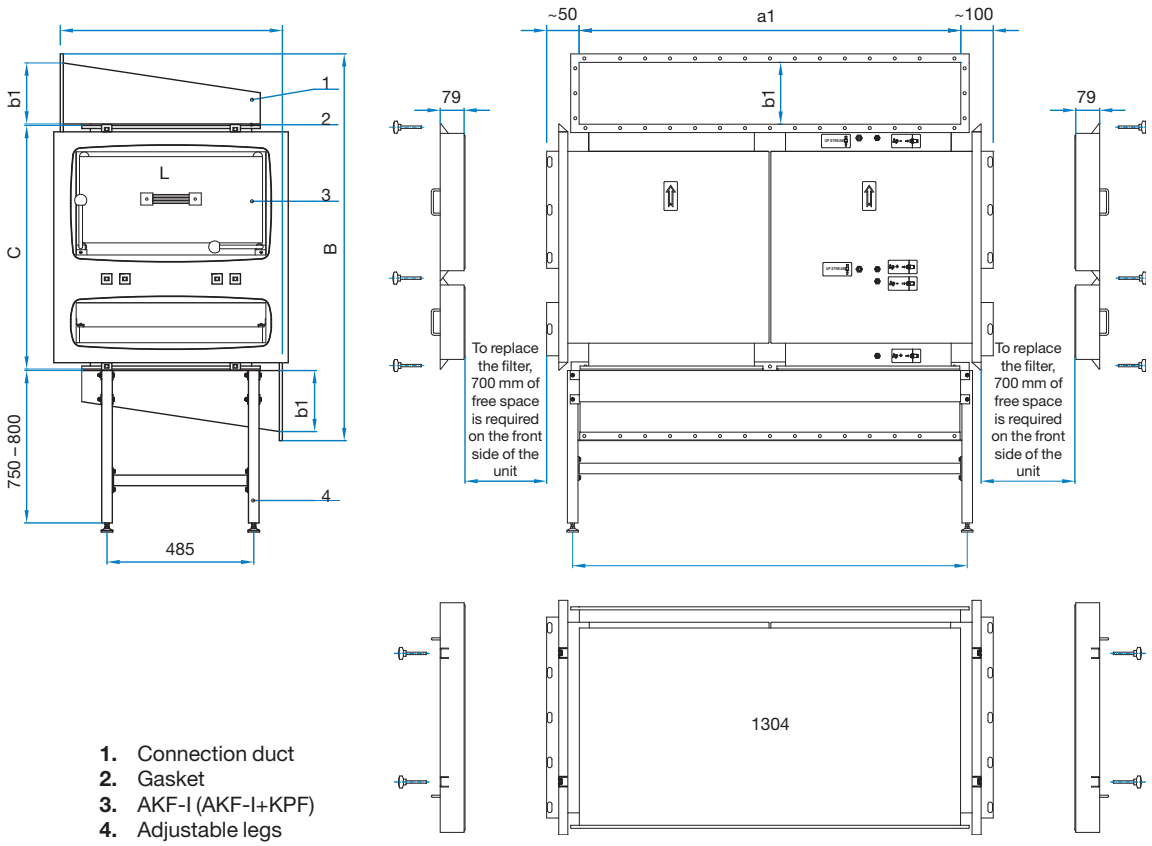


Fig. 3

1. Connection duct
2. Gasket
3. AKF-I (AKF-I+KPF)
4. Adjustable legs

AKF-II (nominal size 2D, 4D, 6D, 8D)

Fig. 4



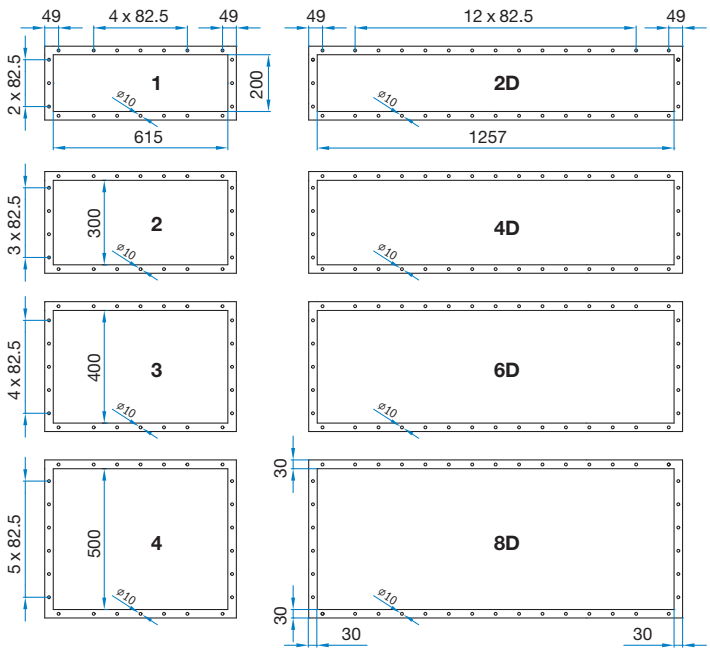
1. Connection duct
2. Gasket
3. AKF-I (AKF-I+KPF)
4. Adjustable legs

Table 2: Filter housing AKF-II dimension and weight table

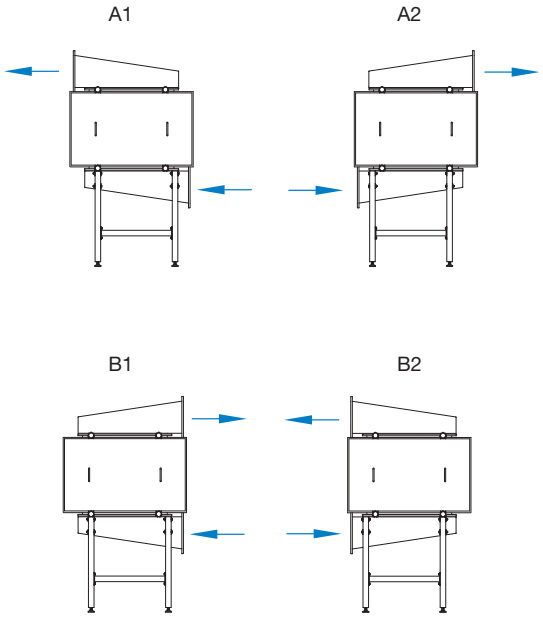
Designation		AKF-II/1, 2, 3, 4				AKF-II/2D, 4D, 6D, 8D			
Nominal size		**1**	**2**	**3**	**4**	**2D**	**4D**	**6D**	**8D**
No. of filters in length	n_L	1	2	3	4	1	2	3	4
No. of filters in width	n_W	/				2			
	L	734	1522	2312	3102	734	1522	2312	3102
Flange	a1	615				1257			
	b1	200	300	400	500	200	300	400	500
HEPA filter 610x610x150	B	846	1047	1247	1447	846	1047	1247	1447
	C	373				373			
	H1	150				150			
	weight	57 kg	123 kg	192 kg	266 kg	103 kg	217 kg	335 kg	457 kg
HEPA filter 610x610x150 + PRE-filter 610x610x50	B	1136	1337	1537	1737	1136	1337	1537	1737
	C	663				663			
	H1	150				150			
	H3	50				50			
	weight	73 kg	154 kg	239 kg	328 kg	134 kg	279 kg	429 kg	582 kg
HEPA filter 610x610x292	B	988	1189	1389	1589	988	1189	1389	1589
	C	515				515			
	H1	292				292			
	weight	63 kg	134 kg	209 kg	288 kg	113 kg	239 kg	368 kg	501 kg
HEPA filter 610x610x292 + PRE-filter 610x610x50	B	1278	1479	1679	17879	1278	1479	1679	17879
	C	805				805			
	H1	292				292			
	H3	50				50			
	weight	78 kg	165 kg	256 kg	350 kg	145 kg	301 kg	473 kg	626 kg

Note: Weight deviation is ±10 %.

AKF-II (connection flange dimensions)
Fig. 5



AKF-II (position of flange connections)
Fig. 6



Expected service life of HEPA filters and their replacement

HEPA filters are constructed for single use only. In AKF hou-sing HEPA filters with semi-circular foam gasket are to be used. The expected service life of the filter depends on airflow volume, pressure drop and amount of dust particles. Service life can be considerably increased by installing a pre-filter.

HEPA filter pollution is controlled by means of a differential manometer which can be fitted on the housing. Connections for plastic tubes are fitted on the AKF housing.

When the pressure drop reaches double its initial value, it is recommended to replace the HEPA filter. When replacing the AKF filter, remove the cover, release the lever and finally remove the frame with the used HEPA filter. When installing the new filter, use the above instructions in the opposite order.

In case of replacement of bag filters (bag-in, bag-out system), the procedure is the same with the exception of a bag attached to the extension. The waste filter is removed into a bag, which has been attached to the extension since the last replacement. The bag is then hermetically sealed so that after the separation of the part of the bag with the filter, a part of the bag remains on the extension, hermetically sealed as well. A new filter is put in a bag and then placed over the remaining part closing the duct. Upon the placement of the new bag, the remaining part of the old bag is first removed into the new bag. A new filter is installed from the new bag. The bags are attached to the extension by means of a rubber collar.

Ordering key

AKF-I / 1 / H1 / H3 / BIBO

1 2 3 4 5

1 Type

AKF-I	Duct mounted filter unit with HEPA filter
AKF-I+KPF	Duct mounted filter unit with HEPA filter and pre-filter

2 Nominal size

1	Single housing

3 HEPA filter size

H1	610 x 610 x 150
H2	610 x 610 x 292
HX	WxBxH for custom size

4 Pre-filter size

H3	592 x 592 x 50
HX	WxBxH for custom size

Note:
- Filter is not included and must be ordered separately.
- AKF units with other HEPA filter sizes are available upon request.
- Manometers have to be ordered separately.

Ordering key

AKF-II / 1 / H1 / H3 / A1 / BIBO

1 2 3 4 5 6

1 Type

AKF-II	Duct mounted filter unit with HEPA filter
AKF-II+KPF	Duct mounted filter unit with HEPA filter and pre-filter

2 Nominal size

1	Single housing
2	Housings in line
3	Housings in line
4	Housings in line
2D	Housings in back to back configuration
4D	Housings in back to back configuration
6D	Housings in back to back configuration
8D	Housings in back to back configuration

3 HEPA filter size

H1	610 x 610 x 150
H2	610 x 610 x 292

4 Pre-filter size

H3	592 x 592 x 50

5 Connection flange position

A1	
A2	
B1	
B2	

6 BIBO

BIBO	with Bag-in/Bag-out safe filter exchange system
-	without BIBO

Note:
- Filter is not included and must be ordered separately.
- Units with other HEPA filter sizes are available upon request.
- Manometers have to be ordered separately.