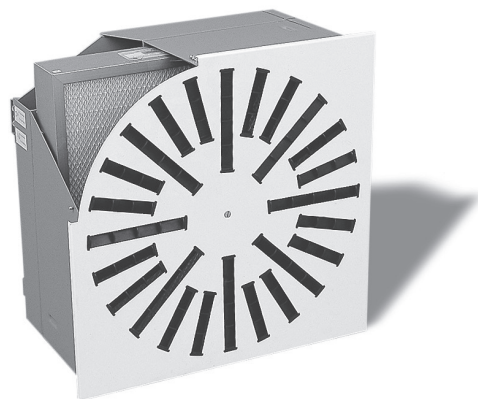


# Ceiling HEPA filter units with gel gasket AFV-8G

## Application

Ceiling HEPA filter units with gel gasket AFV-8G are installed in ventilation and air conditioning systems in rooms which require absolutely clean air. They can be used for air supply and air extraction.

- 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, pharmaceuticals and food industry,
- Air supply in film and audio tape industry,
- Air supply and extraction in nuclear technology etc.



## Description

The ceiling HEPA filter unit with gel gasket AFV-8G is made of a filter housing, standard diffusers KD-1A, KD-6, OD-8KR, OD-9KK or OD-15KK and a HEPA filter. The sheet steel housing is air tight welded according to DIN 1946. Diffusers are made of sheet steel and powder coated with epoxy paint in white (RAL 9010). The AFV-8G housing has a special sealing frame designed to fit "gasket" filters.

## Advantages of a gel gasket:

With a liquid sealant, the force necessary to hold the filter is smaller, compared with neoprene washers, permitting a lighter and cheaper housing and faster filter replacement.

## Installation

The AFV-8G unit is constructed to fit into suspended ceilings.

## Types

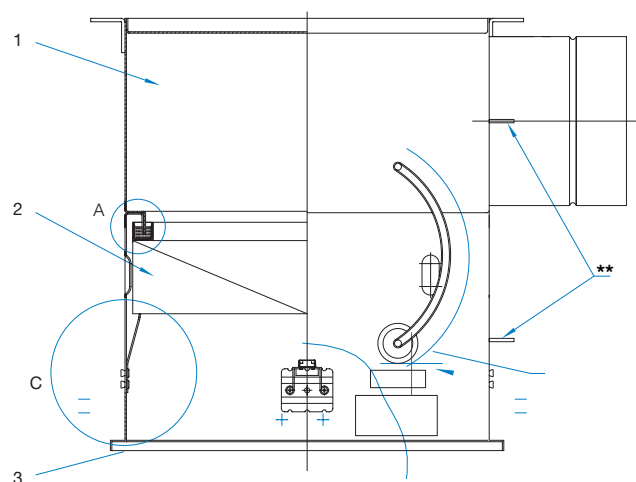
The following ceiling HEPA filter units with gel gasket are available:

- With circular side entry spigot (AFV-8G/RS) (fig. 2, table 1),
- With circular top entry spigot (AFV-8G/RV) (fig. 3, table 2),
- With rectangular side entry spigot (AFV-8G/KS) (fig. 4, table 3).

## Accessories

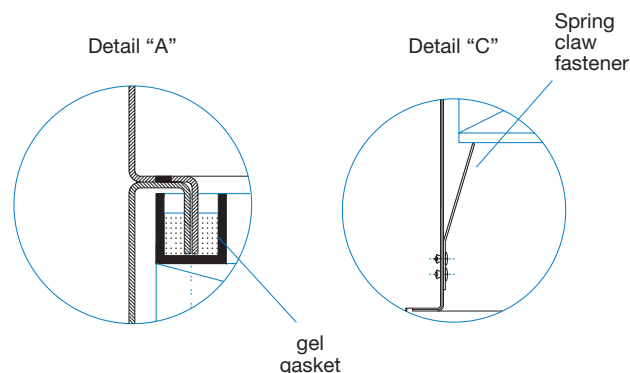
See chapter Accessories.

**Fig. 1: Overview**



\* PAO (before: DOP) connection on the housing top section  
 \*\* Pressure drop test

1. Housing
2. HEPA filter (with gel gasket)
3. Diffuser



## AFV-8G/RS circular side entry spigot

Fig. 2

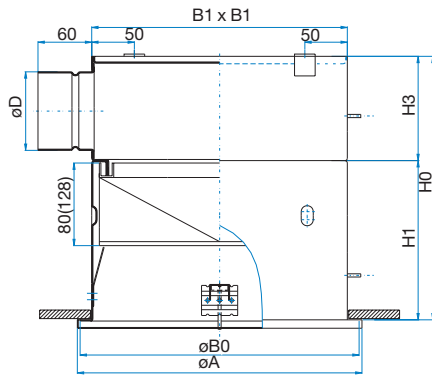


Table 1: Dimensions of AFV-8G/RS

HEPA filter unit size	HEPA filter	$\phi D$	A	B0	B1	H0	H1	H3
1	305 x 305 x 80	158	355	348	319	395	200	195
2	457 x 457 x 80	198	507	500	471	435	200	235
3A	610 x 610 x 80	198	660	653	624	435	200	235
3B	610 x 610 x 128	248	660	653	624	535	250	285
3C	305 x 610 x 80	198	355 x 660	348 x 653	319 x 624	435	200	235
4	610 x 915 x 80	313	660 x 965	653 x 958	624 x 929	550	200	350
5	610 x 1220 x 80	353	660 x 1270	653 x 1263	624 x 1234	590	200	390
6	545 x 545 x 80	198	595	588	559	435	200	235

For the data  $\phi D$ , H0, H3 for version with DTU or DTBCU add 5 mm to the basic version.

## AFV-8G/RV circular top entry spigot

Fig. 3

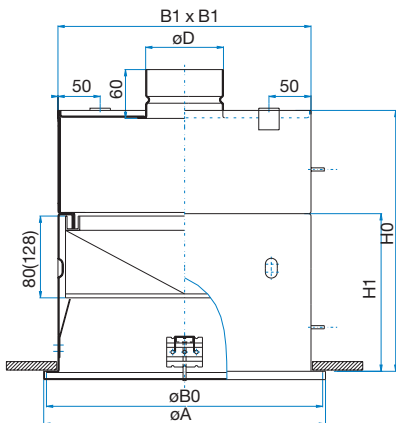
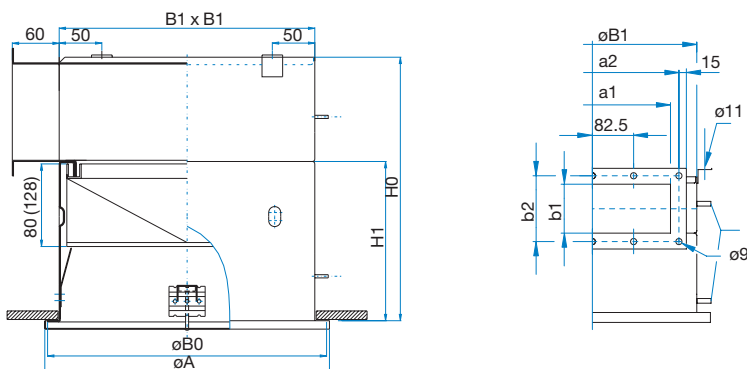


Table 2: Dimensions of AFV-8G/RV

HEPA filter unit size	HEPA filter	$\phi D$	A	B0	B1	H0	H1
1	305 x 305 x 80	158	355	348	319	280	200
2	457 x 457 x 80	198	507	500	471	280	200
3A	610 x 610 x 80	198	660	653	624	280	200
3B	610 x 610 x 128	248	660	653	624	330	250
3C	305 x 610 x 80	198	355 x 660	348 x 653	319 x 624	280	200
4	610 x 915 x 80	313	660 x 965	653 x 958	624 x 929	280	200
5	610 x 1220 x 80	353	660 x 1270	653 x 1263	624 x 1234	280	200
6	545 x 545 x 80	198	595	588	559	280	200

## AFV-8G/KS rectangular side entry spigot

Fig. 4



**Table 3:** Dimensions of AFV-8G/KS

HEPA filter unit size	HEPA filter	A	B0	B1	H0	H1	a1	b1	a2	b2
1	305 x 305 x 80	355	348	319	314	200	250	100	285	135
2	457 x 457 x 80	507	500	471	314	200	400	100	435	135
3A	610 x 610 x 80	660	653	624	314	200	500	100	535	135
3B	610 x 610 x 128	660	653	624	414	250	500	150	535	185
3C	305 x 610 x 80	355 x 660	348 x 653	319 x 624	314	200	500	100	535	135
4	610 x 915 x 80	660 x 965	653 x 958	624 x 929	314	200	800	100	835	135
5	610 x 1220 x 80	660 x 1270	653 x 1263	624 x 1234	314	200	1000	100	1035	135
6	545 x 545 x 80	595	588	559	314	200	400	100	435	135

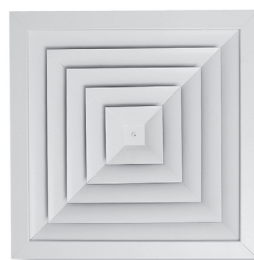
## Diffuser types

- Sheet steel coated in RAL
- Stainless sheet steel (except KD-1A)
- Standard deflector colour is black

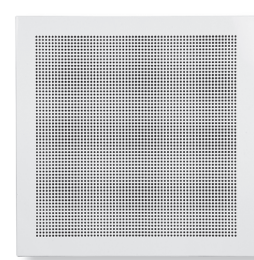
## Technical data

Available combinations of diffuser size in relation to the size of the filter unit and the HEPA filter are specified in Table 4. Mounting dimensions of diffusers to be installed in AFV-8G are specified in Tables 1, 2, 3 and in column A.

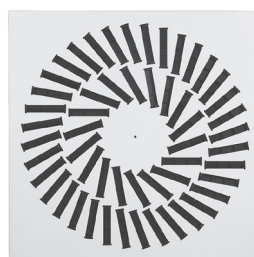
KD-1A



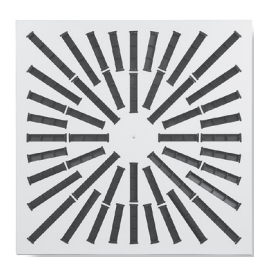
KD-6



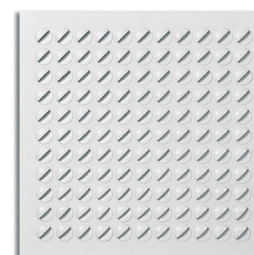
OD-8KR



OD-9KK



OD-15KK



## Technical data for HEPA filters

Size and flow characteristics of HEPA filters installed in AFV-8G are specified in the chapter Filters.

In case filters operate under the air flow volume larger or smaller than the nominal air flow, the pressure drop is increased or decreased, respectively.

**Table 4:** Combinations of HEPA filter units with different front plate types

HEPA filter unit size	HEPA filter	A*	KD-6	OD-8KR	OD-9KK	OD-15KK
1	305 x 305 x 80	355 x 355	√	-	√	√
2	457 x 457 x 80	507 x 507	√	√	√	√
3A	610 x 610 x 80	660 x 660	√	√	√	√
3B	610 x 610 x 128	660 x 660	√	√	√	√
3C	305 x 610 x 80	660 x 355	√	-	√	√
4	610 x 915 x 80	660 x 965	√	-	√	√
5	610 x 1220 x 80	660 x 1270	√	-	√	√
6	545 x 545 x 80	595 x 595	√	√	√	√

\* Outer dimension of diffuser front plate.

## Definition of symbols

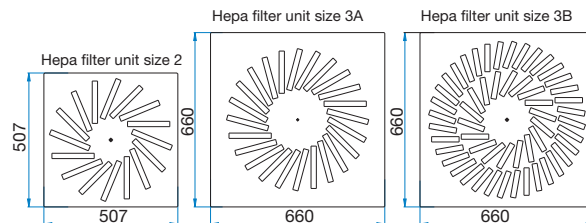
$A_{ef}$  (m<sup>2</sup>) Effective area

**Table 5:** Effective discharge area  $A_{ef}$

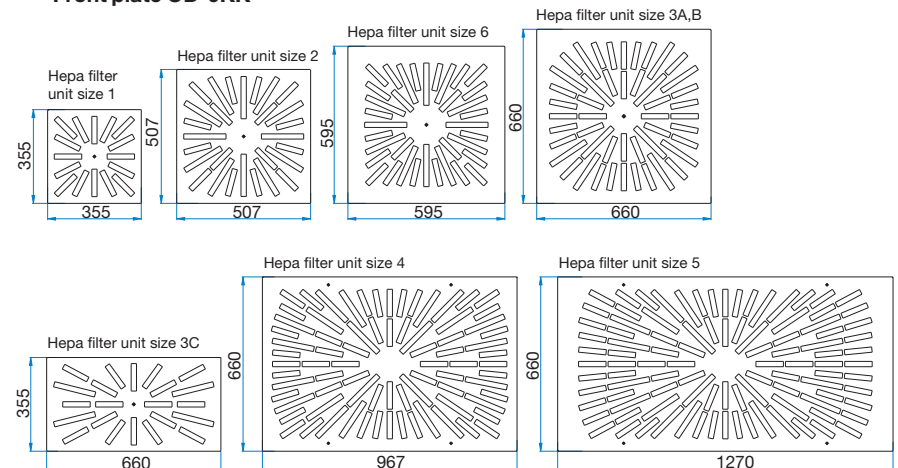
Filter unit size	KD-6	OD-8KR $A_{ef}$ (m <sup>2</sup> )	OD-9KK	KD-1A	$A_{ef}$ (m <sup>2</sup> )
1	0.0342	-	0.0189	1	0.0104
2	0.0743	0.0300	0.0414	2	0.0185
3A	0.1368	0.0450	0.0651	3	0.0279
3B	0.1368	0.0639	0.0651	4	0.0440
3C	0.0684	-	0.0288	5	0.0628
4	0.1980	-	0.1088	6	0.0728
5	0.2664	-	0.1348	7	0.1175
6	0.1095	0.0450	0.0509	8	0.1280

## Filter and front plate combinations

### Front plate OD-8KR



### Front plate OD-9KK



## AFV-8G with airtight damper ZL-3N

### Application

On the ceiling HEPA filter units with gel gasket AFV-8G a shut-off damper ZL-3N is installed in the housing connection. The shut-off damper ZL-3N conforms to the EN 1751 class 4 standard requirements.

The advantage of this combination of an HEPA filter housing and a shut-off damper is the ability to close the shut-off damper during the filter replacement procedure to prevent room air pollution. Once the filter is replaced, the shut-off damper is re-opened. This procedure eliminates the need to disinfect the room, which is mandatory in the case of replacing the filter without shutting off the inlet of non-filtered air.

### Description

A galvanised sheet steel shut-off damper is mounted with four screws on the connection of the standard AFV-8G unit. The damper can be controlled either manually or by means of an electric motor.

### Expected service life of HEPA filter and their replacement

HEPA filters are designed for single use only. The expected service life of the filter depends on airflow volume, pressure drop and amount of dust particles. When the airflow volume is reduced by 25%, the expected service life of the HEPA filter doubles. The service life can be considerably increased by installing a pre-filter. The dirtiness of the filter is controlled with a differential manometer. Connections for plastic tubes are fitted on the AFV-8G housing.

The initial pressure drop is specified in the chapter Filters. When the pressure drop reaches double its initial value, it is recommended to replace the HEPA filter. When replacing the AFV-8G filter, remove the diffuser and press the springs to unlock the filter and remove it (fig. 1, detail C). When installing the new filter, press the filter frame until mounting spring lock at the bottom of the filter frame.

Fig. 6

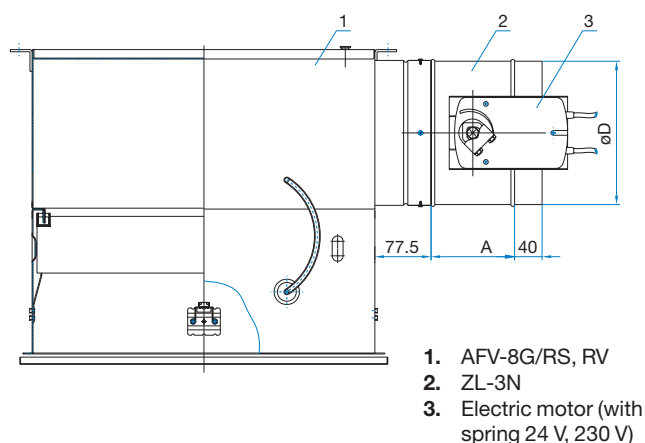


Table 6: Dimensions of AFV-8G with shut-off damper ZL-3N

HEPA filter unit size	HEPA filter	Size ZL-3N	
		øD	A
1	305 x 305 x 80	158	195
2	457 x 457 x 80	198	195
3A	610 x 610 x 80	198	195
3B	610 x 610 x 128	248	195
3C	305 x 610 x 80	198	195
4	610 x 915 x 80	313	195
5	610 x 1220 x 80	353	195
6	545 x 545 x 80	198	195

## Ordering key

### **AFV-8G / RS - 1 / R / KD-6 / RAL**

1      2a   2b   3      4      6

#### 1 Type

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**AFV-8G**      for filter with GEL (liquid) gasket

#### 2a Spigot type and placement

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**RS**      Circular side entry spigot  
**RV**      Circular top entry spigot  
**KS**      Square side entry spigot

#### 2b Adapted for filter size

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**1**      305 x 305 x 80  
**2**      457 x 457 x 80  
**3A**      610 x 610 x 80  
**3B**      610 x 610 x 128  
**3C**      305 x 610 x 80  
**4**      610 x 915 x 80  
**5**      610 x 1220 x 80  
**6**      545 x 545 x 80

#### 3 Air volume regulation

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**R**      Airtight damper ZL-3N - with manual control, adjustable from outside\*  
**Z1**      Airtight damper ZL-3N - with 24 V actuator  
**Z2**      Airtight damper ZL-3N - with 230 V actuator

#### 4 Diffuser type

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**KD-1A**      Square 4-way diffuser  
**KD-6**      Perforated diffuser  
**OD-8KR**      Swirl diffuser  
**OD-9KK**      Swirl diffuser  
**OD-15KK**      Swirl diffuser

#### 5 Finish

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**RAL**      Housing and diffuser coated in RAL 9010  
**INOX**      Housing coated in RAL 9010, diffuser made from AISI 304

#### Note:

Filter is not included and must be ordered separately.

\* Air tight damper ZL-3N is possible only with version RS and RV.