



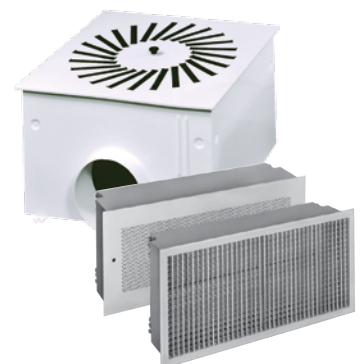
# VOKES AIR

Taking small steps together, always ahead, towards a better world



## Filtrasept Installation

Installation and maintenance instructions  
for Filtrasept ceiling and wall air outlets





# Filtrasept Installation

Installation and maintenance instructions for Filtrasept ceiling and wall air outlets

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## APPLICATIONS

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Clean Air



Power Generation



Clean Room



Industrial

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# NOTES AND SAFETY REQUIREMENTS

## 1. Important Notes

The operating instructions for Filtrasept ceiling and wall air outlets include the following:

Part 1 - Sales documentation

Part 2 - Installation and maintenance instructions

The sales documentation contains information required for the correct use and installation planning for the Filtrasept ceiling and wall air outlets described therein.

The installation and maintenance instructions contain information required for the correct installation, maintenance and disposal of the Filtrasept ceiling and wall air outlets described therein.

An understanding of the data, instructions, safety regulations and warnings contained in these documents, as well as their proper technical implementation, are essential to the safe installation and operation of Filtrasept equipment. For any specific case, only appropriately qualified personnel have at their disposal the technical knowledge required to correctly interpret the general instructions, safety regulations and directives contained in this document, and implement them in practice.

These documents cannot anticipate the precise circumstances of every conceivable installation. Should you desire further information, or if there are special problems that, in your view, are not adequately covered by this documentation, please request the necessary assistance from Vokes Air.

Furthermore, we state that the content of this documentation neither constitutes nor alters any prior or existing written or verbal agreement, consent or legal relationship. All obligations on the part of Vokes Air are stated in the respective sales contract, which also contains complete and exclusive guarantee conditions. This documentation neither extends nor limits the contractual guarantee terms and conditions.

This documentation is regularly checked for correctness and validity, and can be subject to change at any time without separate notification.

## 2. Safety requirements

### Operator responsibilities

The operator of the ventilation plant shall be responsible for ensuring that all persons involved in Filtrasept planning, installation and maintenance adhere strictly to the safety requirements and directives contained in the relevant documentation.

The operator of the ventilation plant shall bear special responsibility for the protection of individuals and prevention of material damage.

Filtrasept ceiling and wall air outlets are constructed according to the technological state of the art and recognised EU technical safety standards. Nonetheless, their use may entail risks to life and limb for installation and maintenance personnel or third parties, and represent a hazard to end-users. Filtrasept ceiling and wall air outlets may only be operated in a fault-free condition (air-tight equipment attachment, air-tight filter fitting, no leaks after installation). Faults that could affect safety must be attended to immediately. All maintenance work must be carried out promptly, according to the maintenance schedule.

It is essential that all planning work prior to Filtrasept installation and use, as well as installation and maintenance work, be carried out by qualified personnel and verified by accountable professionals. Special care is required with regard to:

- ▶ local plant-specific requirements and specifications at the place of use
- ▶ directives regarding appropriate use
- ▶ general workplace safety regulations
- ▶ appropriate and professional use of tools and measuring instruments
- ▶ local regulations with regard to the appropriate disposal of the filter and packaging material

Qualified personnel are deemed to be those individuals who, on the basis of their training, experience, and instruction, as well as their knowledge of the applicable standards, directives, accident-prevention regulations and operational conditions, have been authorised by the operator of the ventilation plant to perform their duties with due recognition and avoidance of potential risks.

## Product-specific risks

Directives concerning safety and operational protection are highlighted as follows:

**Danger** - Work and operational procedures that, if not precisely observed, might lead to death or severe bodily injury.

**Warning** - Work and operational procedures that, to avoid severe risks to people, processes and/or the environment, must be followed precisely.

**Caution** - Work and operational procedures that, to avoid minor bodily injury, pollution and material damage, must be followed precisely.

## 3. Product Description

### 3.1 Introduction

Filtrasept air outlet casings are available in various sizes for ceiling mounting with a perforated plate, diffuser or swirl diffuser, or for wall mounting with a perforated plate or louvres, and with various filter types.

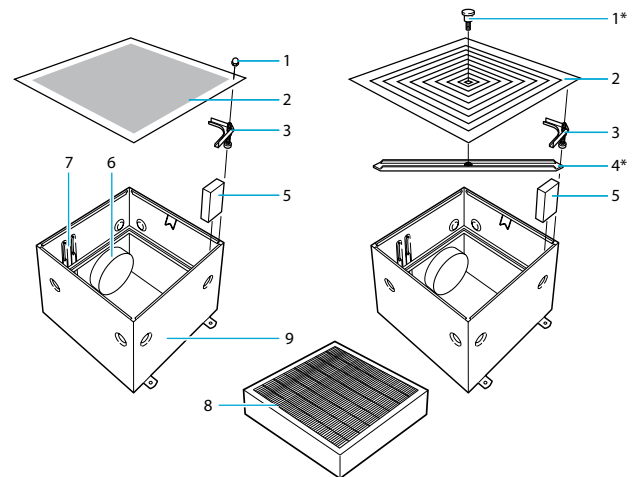
Filtrasept ceiling air outlet casings weigh between 12 and 47 kg depending on size and construction; wall outlet casings weigh between 10 and 17 kg. See the sales documentation for detailed descriptions of the various models, together with their designated field of application and technical data.

### 3.2 Filtrasept ceiling outlet

Filtrasept ceiling outlets comprise:

- ▶ Filtrasept casing (9), made of steel sheet
- ▶ Press-on corners with screws (3), preassembled with spacer (5)
- ▶ Mounting beam\* (4)
- ▶ Circular or rectangular air inlet (6)
- ▶ Air distribution element: diffuser or swirl diffuser with central mount\* (1) or perforated plate (2) with 4 fixing screws (1)
- ▶ Pressure measurement and test groove connectors (7)
- ▶ Filter (8) (usually supplied separately)

*\*) for diffuser and swirl diffuser only*

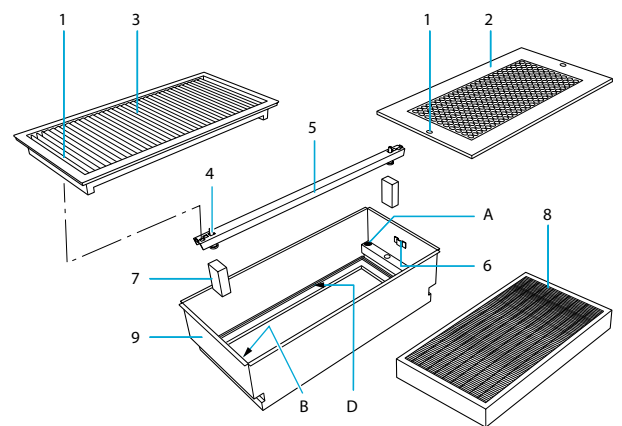


**Fig. 1 Filtrasept ceiling outlet**

### 3.3 Filtrasept wall outlet

Filtrasept ceiling outlets comprise:

- ▶ Filtrasept casing (9)
- ▶ Air distribution element: perforated plate (2) or louvred grille (3), each with 2 fixing screws (1)
- ▶ Mounting beam (5) with assembly screws (4)
- ▶ Holder (6)
- ▶ Wooden block (7)
- ▶ Filter (8) (usually supplied separately)
- ▶ Test groove (D)
- ▶ Connector for seal test (A)
- ▶ Connector for pressure drop measurement (B)



**Fig. 2 Filtrasept wall outlet**

### 3.4 Special tools and measuring instruments

- ▶ Special tool (1) for louvre adjustment for Filtrasept wall outlets with grille
- ▶ U- or bent-tube manometer (2) for pressure drop measurement
- ▶ Measuring instrument with connecting tube and hand pump (3) for seal testing the built-in filter (for operating instructions, see sales document).

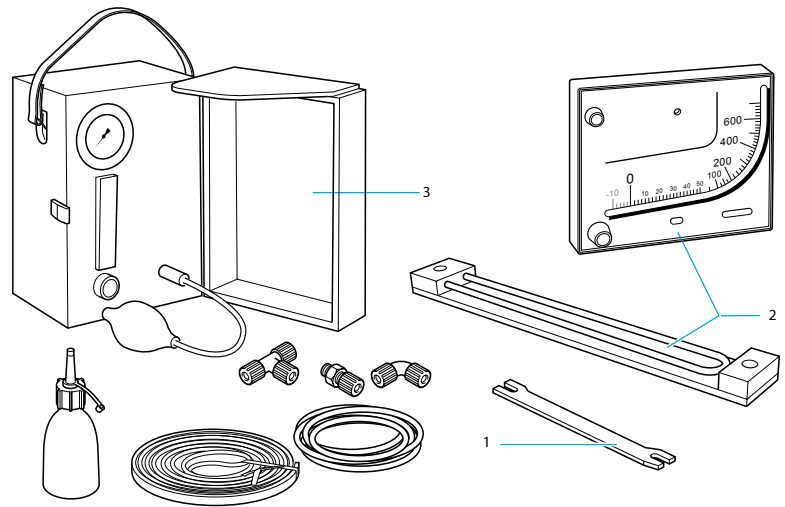


Fig. 3 Special tools and measuring instruments

## 4. Installation – Ceiling Air Outlet

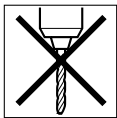
### Caution

- ▶ Each filter is packed in a closed plastic bag, with surfaces covered by protective cardboard.
- ▶ Prior to fitting, ensure that filters are stored in a dry place, indoors.
- ▶ Ensure that filters remain in their original packaging during transport to the point of fitting.
- ▶ Only remove the filters from their original packaging immediately prior to fitting.
- ▶ Before fitting the filters, connect the Filtrasept casing, and vent the complete ventilation system for at least 24 hours.
- ▶ Remove the filters from their packaging without touching the delicate filter material. Handle filter units by the edge frame only.
- ▶ Visually inspect each filter for possible transport damage. A damaged filter may not be fitted, and must be replaced by a new one.

### 4.1 Filtrasept ceiling air outlet



**Danger** - Filtrasept casings must on no account be mounted on a suspended (false) ceiling; instead, screw Filtrasept casings directly to the structural ceiling. Ceiling sections can, however, be supported against the angle- or U-profiles on the Filtrasept casing (see Fig. 6c), when supplied.



**Warning** - For functional reasons, do not drill additional fixing holes in the Filtrasept casing above the filter.

Note

Filtrasept ceiling outlets must be fitted with a minimum separation from walls, uprights and adjacent Filtrasepts (see Fig. 4). For models with diffusers and swirl diffusers, also observe the dimensions of the outlet element and the technical instructions of the diffuser manufacturer regarding minimum separation.

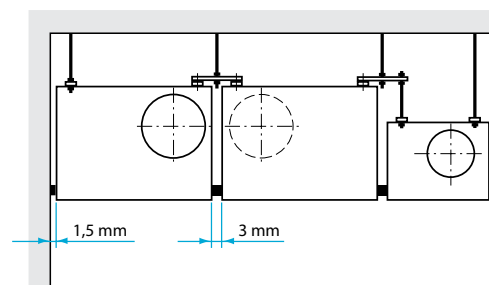
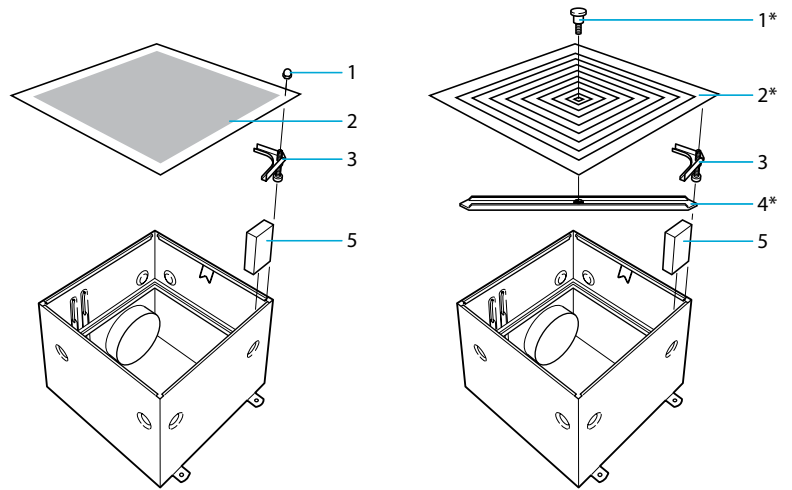


Fig. 4 Ceiling mounting

### 4.1.1 Preparing the Filtrasept

- ▶ Remove the 4 plastic nuts (1) or the centrally located knurled nut\* (1)
- ▶ Lift off the air distribution element\* (2)
- ▶ Loosen the 4 assembly screws with press-on corners (3) and put them aside together with the mounting beam\* (4)
- ▶ Remove and dispose of the spacers (5)

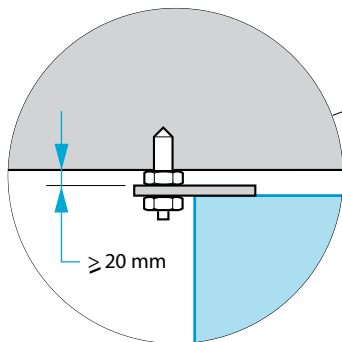
*\*) for diffuser and swirl diffuser only*



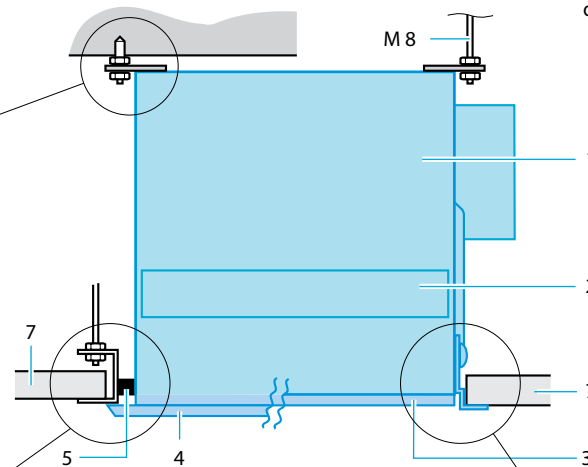
**Fig. 5 Filtrasept as ceiling outlet**

### 4.1.2 Installation variants

**Fig. 6a Installation as close to the ceiling as possible**

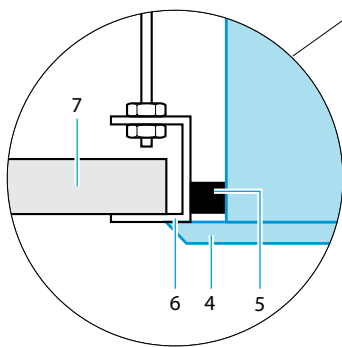


**Fig. 6b Installation at a distance from the ceiling**

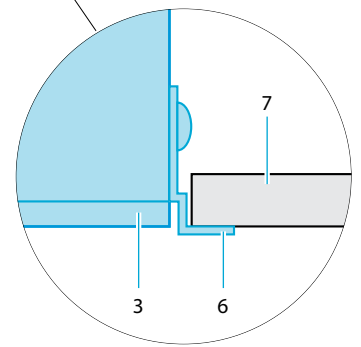


**Fig. 6 Filtrasept ceiling outlet, mounted in false ceiling**

- 1 Filtrasept casing
- 2 Filter
- 3 Air distribution element (perforated plate)
- 4 Air distribution element (diffuser)
- 5 Seal or sealant
- 6 Support profile
- 7 Ceiling tile (existing structure)

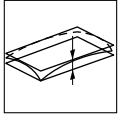


**Fig. 6d Suspended ceiling tiles (gypsum or metal) supported independently of the Filtrasept**



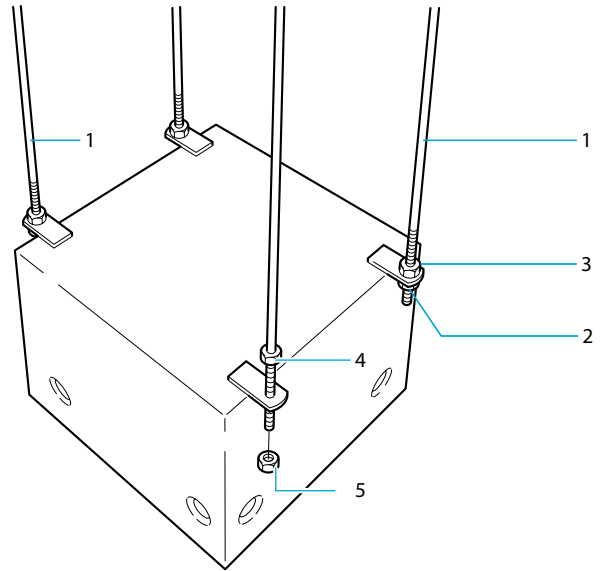
**Fig. 6c Suspended ceiling tiles (7) (gypsum or metal) supported on the Filtrasept angle-bracket**

### 4.1.3 Mounting the Filtrasept casing



**Caution** - Suspend the Filtrasept flat and horizontal. It is essential to avoid distortion, otherwise the filter will not seal properly.

- ▶ Fit the mounting elements (1), e.g. M8 threaded rods, to the ceiling
- ▶ Hang the Filtrasept casing by 3 points, then level it by adjusting the nuts (2) and secure by tightening the lock nuts (3)
- ▶ Now assemble and tighten the remaining nuts (4+5), without moving the casing
- ▶ Check the seal frame for level alignment (without distortion)

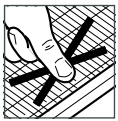


**Fig. 6 Mounting the Filtrasept casing**

### 4.1.4 Fitting the filter

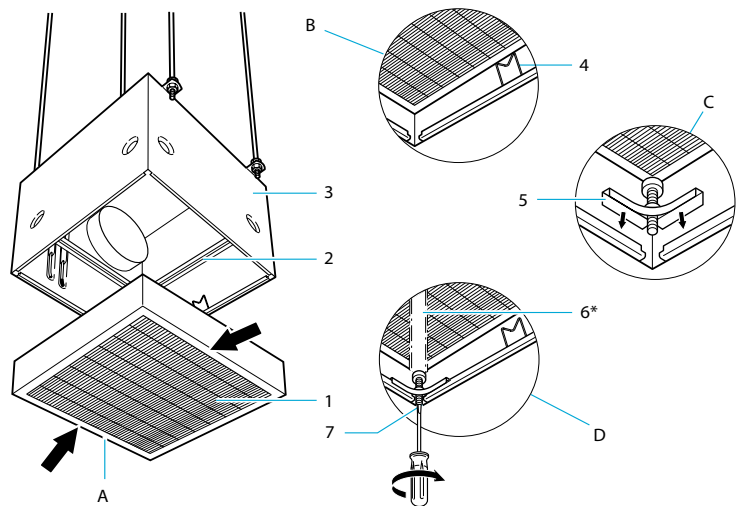


Prior to installing the filters, vent the complete ventilation system, including the connected, empty Filtrasept casings, for at least 24 hours.



**Caution** - Do not touch the filter surfaces. Handle filters by the frame (A) only.

- ▶ Unpack the filter. Check the filter surfaces for mechanical damage; if damaged, use a new filter
- ▶ Clean the seal surfaces (2)
- ▶ Push the filter (1), with its gasket side upwards, into the Filtrasept casing (3) until the spring clips (4) engage (B)
- ▶ Fit the two press-on corners (5) for fixing the filter only (C)
- ▶ Fit the mounting beam\* (6) (D) and (where applicable) the cross bar
- ▶ Fit the other two press-on corners (5) for fixing the filter and the mounting beam\*
- ▶ Gently and evenly tighten all press-on screws (7), until the filter (1) is seated
- ▶ Turn all press-on screws (7) an additional 180 degrees (to pre-load the seal)



**Fig. 7 Fitting the Filter**

*\*) for Filtrasepts with diffuser and swirl diffuser only*

## 4.1.5 Functional checks

### Seal test

When correctly fitted, the filter seal also seals the test groove.

- ▶ Fit the connecting tube (1) to the measuring instrument (2) and the test groove connector (3)
- ▶ Fill the air reservoir using the hand pump (4)
- ▶ Purge the air reservoir down to the lower notch of the level gauge by briefly pressing the button (5)
- ▶ The flow meter (6) now displays the leakage flowrate in  $\text{cm}^3/\text{min}$
- ▶ Compare the leakage flowrate with the table of permissible leakage flowrates (see the instructions for use of the measurement instrument)

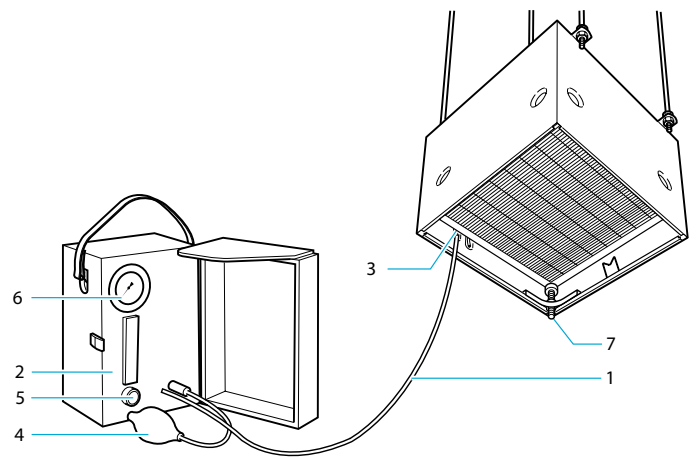


Fig. 8 Seal test

If the seal is inadequate:

Tighten all four corner screws (7) a further 180 degrees (to increase the seal pressure) and perform the seal test again. Repeat this procedure no more than once. If the seal test is unsuccessful after 2 attempts (1½ turns), remove the filter and check the test groove and gasket for damage.

### Pressure drop measurement

Note:

Pressure drop measurements must be performed while the ventilation system is operating.

- ▶ Remove the protective cover (1) from the pressure measurement connector
- ▶ Connect a U- or bent-tube manometer (3) using the tube (2)

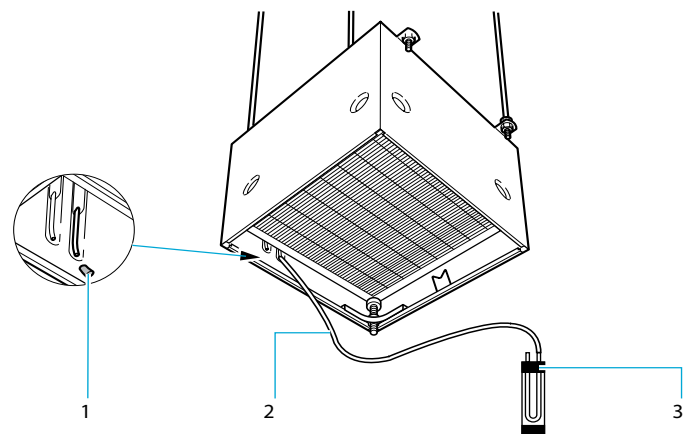


Fig. 9 Pressure drop measurement

Note the initial value and compare it with the specification in the filter documentation.

If  $\Delta p$  is twice the initial value, or reaches the maximum permissible pressure difference for the filter, fit a replacement filter (the old filter is soiled).

**Warning** - Always refit the protective cover (1) after measuring the pressure drop (leakage!).

## 4.1.6 Assembling the air vent

- ▶ Fasten the perforated plate (1) using the 4 plastic nuts (3)
- ▶ Fasten the diffuser (2) using the centrally located knurled nut

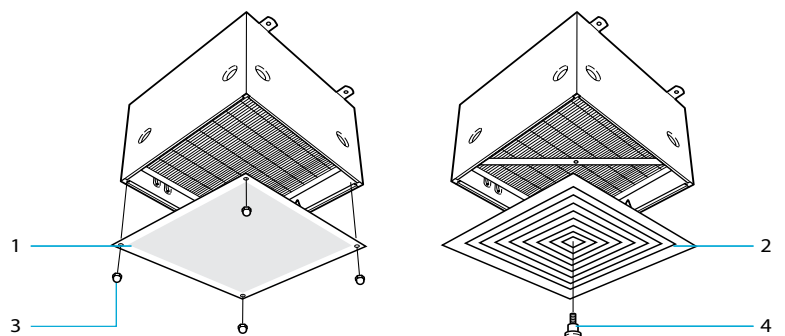


Fig. 10 Assembly



## 4. Installation

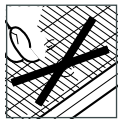
### – Wall Air Outlet

#### 4.2 Filtrasept wall air outlet

Filtrasept wall air outlets are braced on or anchored within a wall, and then drilled and screwed to the air duct to give an airtight seal. Mounting is achieved by threaded plates attached to the casing, together with the supplied fixing brackets.

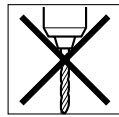
##### 4.2.1 Preparing the Filtrasept

- ▶ Release both screws (1). For models with a grille (3), use the special tool to adjust the louvres so that the screws (1) are accessible
- ▶ Lift off the air distribution element (perforated plate (2) or grille (3))
- ▶ Loosen the assembly screws (4) so that the mounting beam (5) can be removed from its holder (6)



**Caution** - Do not touch the filter surfaces. Handle filters by the edge frame only.

- ▶ Remove and dispose of the spacers (8)



**Warning** - For functional reasons, do not drill additional fixing holes in the Filtrasept casing on the unfiltered ("dirty") side of the air filter, except for the purpose of attaching the unit to the air duct.

#### Note:

In walls thicker than 50 mm, the Filtrasept casing must be installed using the wall frame (see chapter 4.2.2 or 4.2.3).

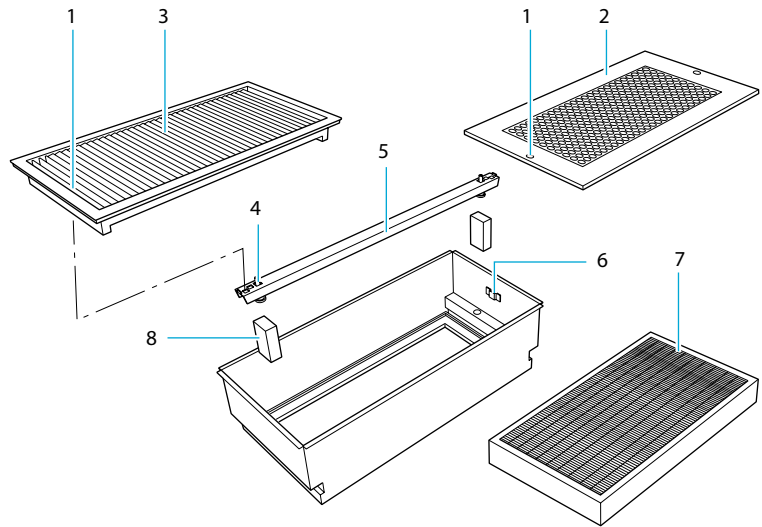
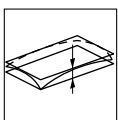


Fig. 11 Filtrasept as wall air outlet

##### 4.2.2 Installing a Filtrasept casing without wall frame

For wall thicknesses under 50 mm.



**Caution** - The Filtrasept casing must lie flat (without distortion).

- ▶ Slide the Filtrasept casing (1) into the opening
- ▶ Attach the 4 mounting brackets (2) to the Filtrasept casing (1)
- ▶ Attach the Filtrasept casing at 3 points, using threaded rods (3) and plates (10) to protect the wall surface. Adjust and tighten the nuts (11), then insert and tighten the fourth threaded rod (3)
- ▶ Check that the seal frame is level before and after mounting the fourth threaded rod.

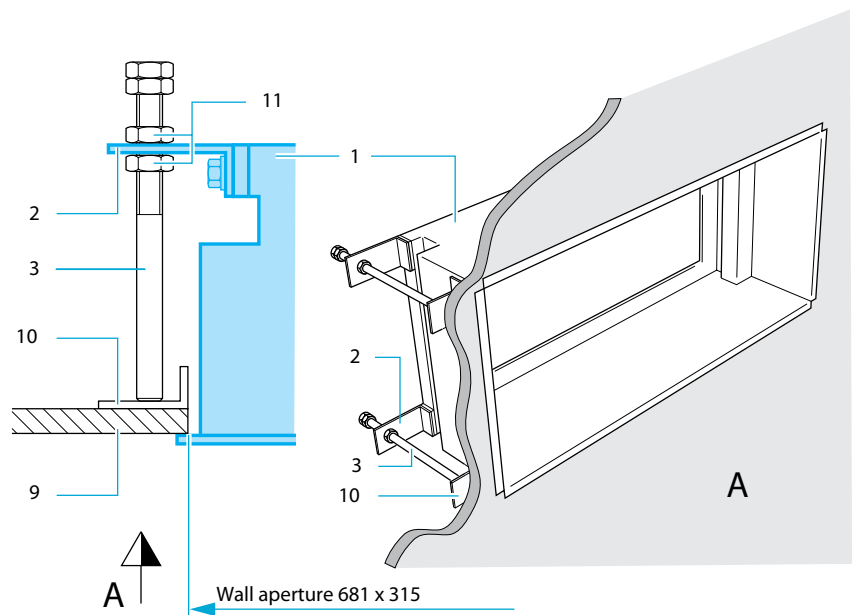
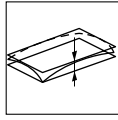


Fig. 12 Installation variant: Filtrasept casing without wall frame

### 4.2.3 Installing a Filtrasept casing with wall frame

#### Fitting the wall frame

A wall frame must be used in walls thicker than 50 mm. The frame is preferably fitted by a plasterer, and the gap between the front of the frame and the wall filled with a flexible sealant.



**Caution** - The wall frame must lie flat (without distortion).

- 4 Wall frame
- 5 Flexible sealant
- 6 Wall
- 12 Mortar/gypsum

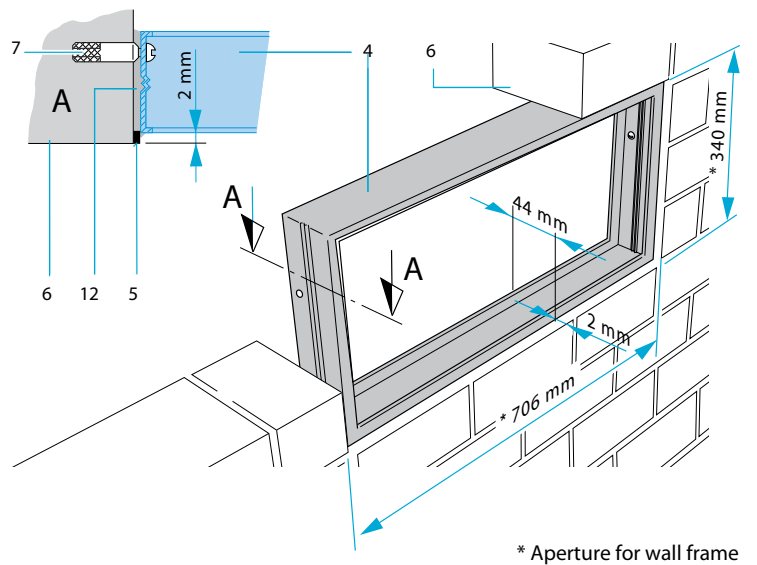


Fig. 13 Installing the wall frame

#### Installing the Filtrasept casing

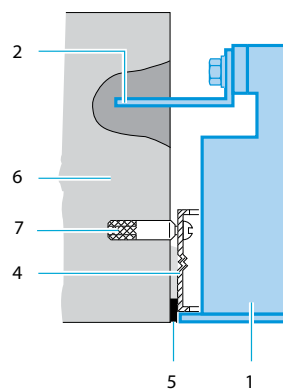
Installation variant: wall thicker than the Filtrasept casing.

Installation procedure analogous to 4.2.2.

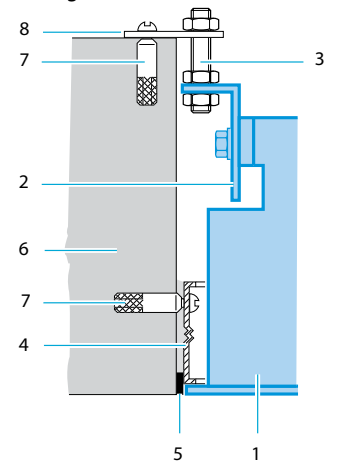
Installation variant: wall thinner than the Filtrasept casing

Installation procedure analogous to 4.2.2.

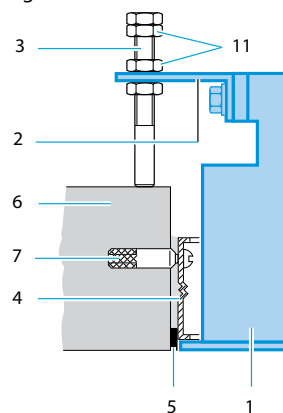
Casing set into the wall



Casing braced on wall



Casing braced on wall



- 1 Filtrasept casing
- 2 Mounting bracket
- 3 Threaded rod M8
- 4 Wall frame
- 5 Flexible sealant
- 6 Wall
- 7 Dowel
- 8 Connecting plate
- 9 Wood or metal sheet
- 10 Protective plate
- 11 Nuts
- 12 Mortar/gypsum

Fig. 14 Installation variants for Filtrasept casings with wall frames

#### 4.2.4 Connecting the duct

- ▶ For attachment of the supply air duct (1), approx. 10 holes must be drilled on-site in the rear of the casing (4) (for dimensions, see the sketch in the sales documentation). Screws or rivets (2) may be used for fastening.
- ▶ In either case, it is important that the seal (3) between the casing and the air duct is placed outside the holes.
- ▶ Attach the pressure measurement connector components (5) and (6) to the air duct. Ensure that they are attached upstream of the filter in an area of smooth air flow (no turbulence, no kinks or cross-sectional changes).

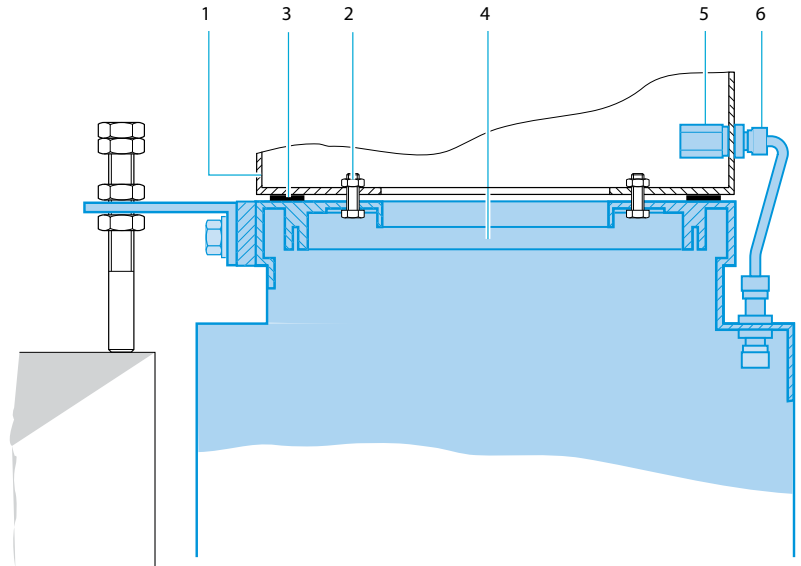


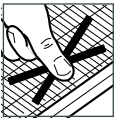
Fig. 15 Air duct connection

#### 4.2.5 Fitting the filter



**Note:**

Prior to installing the filters, vent the complete ventilation system, including the connected, empty Filtrasept casings, for at least 24 hours.



**Caution** - Do not touch the filter surfaces. Handle filters by the frame (A) only.

- ▶ Remove the protective cardboard. Check the filter surface for mechanical damage; replace the filter if necessary
- ▶ Clean the seal surfaces (D)
- ▶ Push the filter (1), with its gasket side facing inwards, as far as possible into the Filtrasept casing (2)
- ▶ Unscrew the assembly screws (4) from the mounting beam (5) until the last 3mm approx.
- ▶ Fit the mounting beam (5) in its holder (6)
- ▶ Gently and evenly tighten the assembly screws (4), until the filter is seated
- ▶ Give the assembly screws (4) one additional turn (to pre-load the seal)

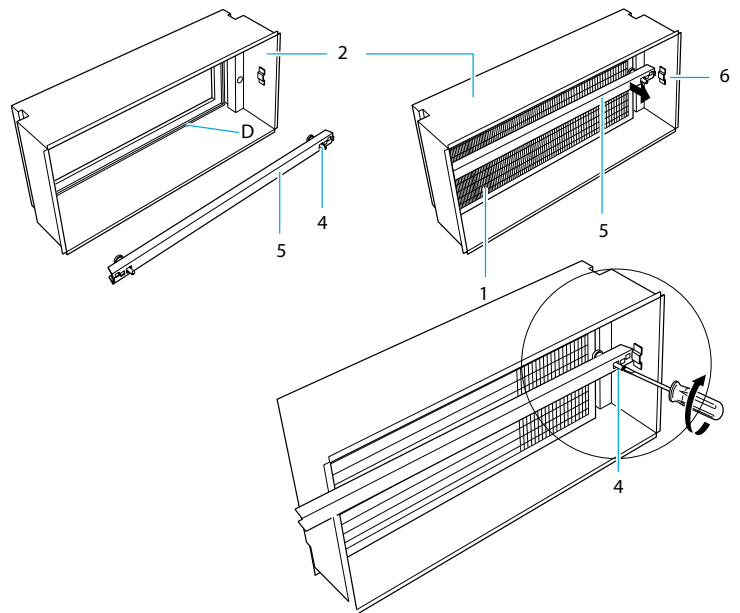


Fig. 16 Fitting the filter

For Filtrasepts without a test groove connector: Give the assembly screws one additional turn.

## 4.2.6 Functional checks

### Seal test

When correctly fitted, the filter seal also seals the test groove.

- ▶ Fit the connecting tube (1) to the measuring instrument (2) and the test groove connector (3)
- ▶ Fill the air reservoir using the hand pump (4)
- ▶ Purge the air reservoir down to the notch of the level gauge by briefly pressing the button (5)
- ▶ The flow meter (6) now displays the leakage flowrate in cm<sup>3</sup>/min
- ▶ Compare the leakage flowrate with the table of permissible leakage flowrates (see the instructions for use of the measurement instrument)

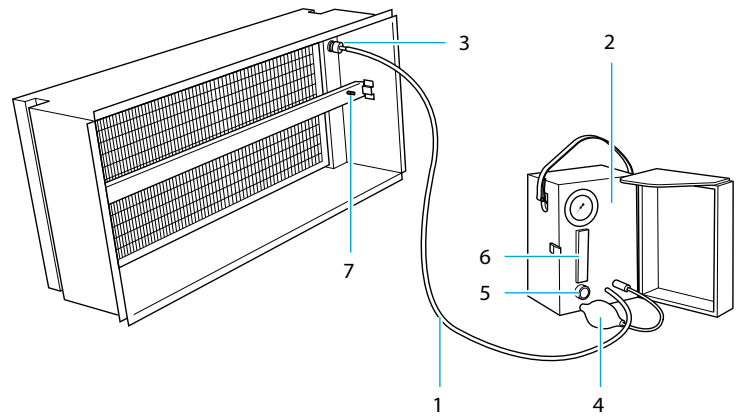


Fig. 18 Seal test

If the seal is inadequate, tighten the assembly screws a further 180 degrees (to increase the seal pressure) and perform the seal test again. Repeat this procedure no more than once (2 turns in total). If the seal test is unsuccessful after 2 attempts, remove the filter and check the test groove and gasket for damage.

### Pressure drop measurement

Note:

Pressure drop measurements must be performed while the system is in operation.

- ▶ Remove the protective cover (1) from the pressure measurement connector
- ▶ Connect a U- or bent-tube manometer (2) using the tube (1)

Note the initial value and compare it with the specification in the filter documentation. If  $\Delta p$  is twice the initial value, or reaches the maximum permissible pressure difference for the filter, fit a replacement filter (the old filter is soiled).

**Warning** - Always refit the protective cover (1) after measuring the pressure drop (leakage!).

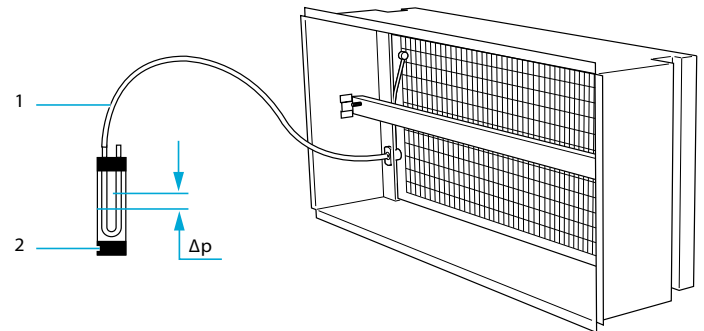


Fig. 19 Pressure drop measurement

## 4.2.7 Assembling the air vent

- ▶ For models with grille (3), use the special tool to set the louvres vertical.
- ▶ Tighten both screws (1) securing the air distribution element (perforated plate (2) or grille (3))

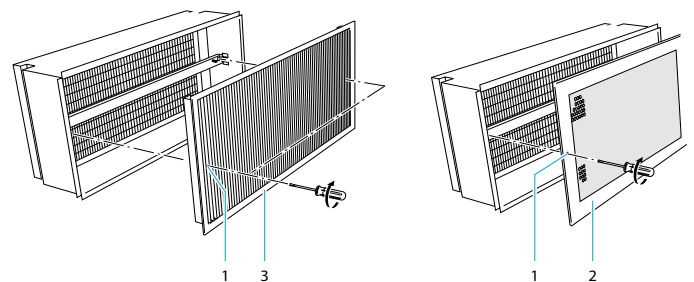


Fig. 20 Assembling the air vent

## 5. Maintenance and disposal

### 5.1 Maintenance

#### Maintenance schedule

The interval between filter changes depends on the air flowrate and the concentration of airborne particles in the unfiltered ("dirty") air. The interval must be determined by periodic pressure drop measurements (at least 4 times a year) under operating conditions.

The filters are intended for very longterm use, generally 1–2 years, often 2–4 years or more.

Filter cleanliness is determined indirectly by measuring the pressure drop. Filters should be replaced at the latest:

- ▶ when the pressure drop across the soiled filter is approximately twice that when new;
- ▶ when the pressure drop reaches the filter's max. permissible value;
- ▶ for reasons of hygiene; or
- ▶ every 5 years at the latest.

#### Carrying out maintenance

For disinfection work, pressure drop measurements or seal tests, it is sufficient to remove the air distribution elements such as the perforated sheet, grille, diffuser or swirl diffuser.

#### Checking filter cleanliness

See pressure drop measurement: chapters 4.1.5 or 4.2.6.

### Changing the filter

#### Caution

- ▶ Filters should only be changed when the ventilation plant is switched off.
- ▶ Replacement filters must be brought to the point of fitting in their original packaging.
- ▶ Only remove filters from their original packaging immediately prior to fitting.
- ▶ When removing filters from their packaging, do not touch the delicate filter material. Handle filter units by the edge frame only.
- ▶ Visually inspect each filter for possible transport damage. Do not fit a damaged filter. It must be replaced by a new one.

### 5.2 Storage

- ▶ Replacement filters may only be stored in their original packaging with the glass symbol pointing upwards.
- ▶ Filters must be stored in a dry place, indoors.
- ▶ Cartons must not be stacked more than four high.

### 5.3 Disposal

- ▶ Defective, unused filters can be disposed of in the same way as normal household refuse.
- ▶ Filters soiled by exterior air can be disposed of in the same way as normal household refuse.

#### Warning

- ▶ Filters soiled by bacterial, toxic and/or radioactive material must be disposed of as hazardous waste in accordance with local regulations.

## OUR LOCATIONS

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