



Ventilation Unit With Heat Recovery AIRFRESH



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Ventilation Unit with Heat Recovery AIRFRESH

Contents

Description	3
Construction	4
Model	4
Accessories	4
Models and dimensions	5
Dimensions	5
Dimensions of accessories	6
Technical Data	6
Dimensions	6
Weights	6
Delivery capacity	6
Noise measurement (with DC motors)	6
Characteristics of the DC motor	7
Average heat recovery efficiency (m ³ /h)	7
Specification texts	8

Ventilation Unit with Heat Recovery AIRFRESH

Description

Modern houses and apartments hardly permit any natural air balance. To ensure healthy and comfortable living conditions, steps must be taken to ensure a controlled exchange of air.

The simple solution: **AIRFRESH**

Central heat recovery unit using the "balanced ventilation" method. Fans are used to deliver a continuous supply of fresh air into living rooms. Users are able to decide which rooms require fresh air.

90% efficiency!

By using modern heat exchangers, a high degree of energy saving and comfort can be achieved even at low external temperatures. The inflow of fresh air passes through the cross-flow heat exchanger and bypasses the warm return air. The two air flows are hermetically sealed from one another. This permits considerable heat units to be reused.

The ventilation units of the AIRFRESH series are offered in two versions:

- Airfresh-GB: for high-rise apartment buildings
- Airfresh-EB: for family homes

Advantages:

- Air delivery capacity at 160 Pa 270m³/h
- Low weight, compact design, simple mounting
- Easy filter change
- High degree of heat recovery of up to 98%
- Two DC fans ensure a constant air delivery capacity even at variable pressure losses.
- Fully automatic defrosting
- All interior parts of the housing are made of sheet steel and painted with a powder coating to the RAL colour 9010 (white).
- The interior of the unit consists of hardly inflammable polystyrene for the position of the heat exchanger and the two DC motors. Two condensate drain connections are possible.
- The new concept of designing the heat exchanger as a cross-and counter-current exchanger made of polystyrene materials achieves an above-average high efficiency (90%).
- The inspection opening at the front of the unit makes for easy filter change of the supply air, return air and bypass air (the inspection opening can only be opened by using mechanical aids).
- The AIRFRESH ventilation units are delivered in 3-stage design.
- Fully automatic bypass control
- When a fan breaks down, the AIRFRESH automatically goes into the fault status.

Radial DC fans with forward bent rotors provide a constant air delivery with automatic The air flow (m³/h) remains constant at the set value independent of pressure loss (Pa) (e.g. due to a dirty filter).

Depending on the mounting version, the water of condensation hose must be connected to the underside of the ventilation device at the back or front (water of condensation hose included in the delivery). The siphon must be manufactured on-site.

For maintenance, service, retrofitting, etc., the AIRFRESH must be readily accessible.

Technical description

The bypass control has been designed ready-to-plug-in by means of a damper actuator.

Power supply 5 V DC

The bypass is equipped in-factory with a filter (G 4).

The external air and return air sensors have been installed in the ventilation device in-factory and set to +24°C.

Functional description

The external air and room air temperature values are monitored and checked by the control electronics of the bypass regulator. This function is required if the incoming external air (fresh air) is not to be warmed by the return air.

This control contains two temperature sensors, one placed in the external air (fresh air) and the other in the return air (room air). The control electronics continuously checks both temperatures and, if the return air exceeds +24°C and the external air drops below +24°C, a damper is automatically triggered and will open. Now the colder external air bypasses the warm air in the heat exchanger, cooling the apartment down again to an agreeable climate.

Fully automatic defrosting with bypass

Automatic defrosting active

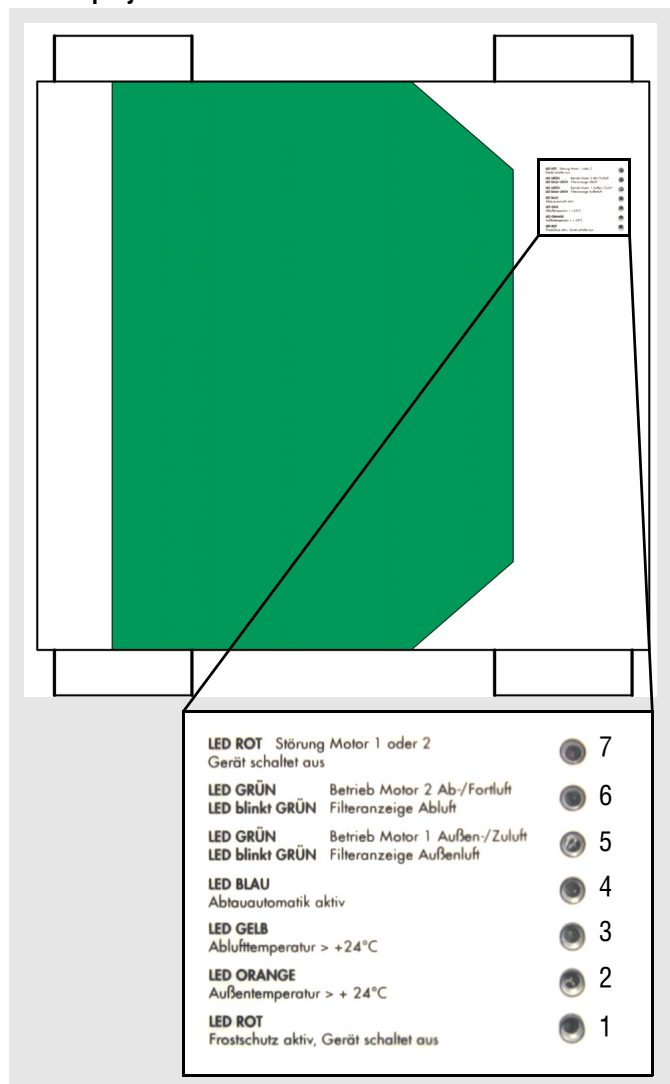
When the ventilation unit is used in apartments with fireplaces depending on the room air, the Airfresh is programmed such that the external air/supply air fan is not switched off, but the bypass damper is opened, allowing the external air to flow directly into the living area. In this function, the bypass will remain open for 3 hours, as a result of which only warm return air will enter the heat exchanger. Defrosting is now carried out. However, if the temperature of the escaping air increases from +3°C to +8°C earlier than the 3 hours set in the timer, the bypass damper is closed automatically, and the ventilation device is switched back to the heat recovery mode.

Important:

With this setting, an electric reheating damper of 1500 W is recommended.

Ventilation Unit with Heat Recovery AIRFRESH

LED display at the ventilation device



1. LED red Antifreezing active, device switches off.
2. LED orange External temperature > +24°C
3. LED yellow Return air temperature > +24°C
4. LED blue Automatic defrosting active
5. LED green Motor 1 external air/supply air running
LED flashing green External air filter indicator
6. LED green Motor 2 return air/escaping air running
LED flashing green Return air filter indicator
7. LED red Fault motor 1 or motor 2

The ventilation devices have been tested for compliance with the following directives:

Low Voltage Directive (73/23 EEC)

Machinery Directive (89/392 EEC)

EMC Directive (89/336 EEC)

General building supervisory approval, DIBt Approval No.: Z-51.3-147

Construction

Housing

- sheet steel painted to the RAL colour 9010 (white)

Inspection opening

- Sheet steel painted to the colour SCHAKO green

Heat exchanger

- Polystyrene material

Model

AIRFRESH-GB - all pipe connections (ø 160 mm) are on the upper side of the device, with bypass (standard)

AIRFRESH-EB - two pipe connections (ø 160 mm) are arranged on the upper side of the device and two pipe connections (ø 160 mm) on the underside of the device, with bypass (standard).

Accessories

3-stage switch

- Surface-mounted design
- Flush-mounted design

Remote control

- Comfort control for AIRFRESH

Reheating unit

- electric, with differential pressure detector and temperature sensor adjustable from + 0°C to + 30° C (ready-to-plug-in)

Preheating unit

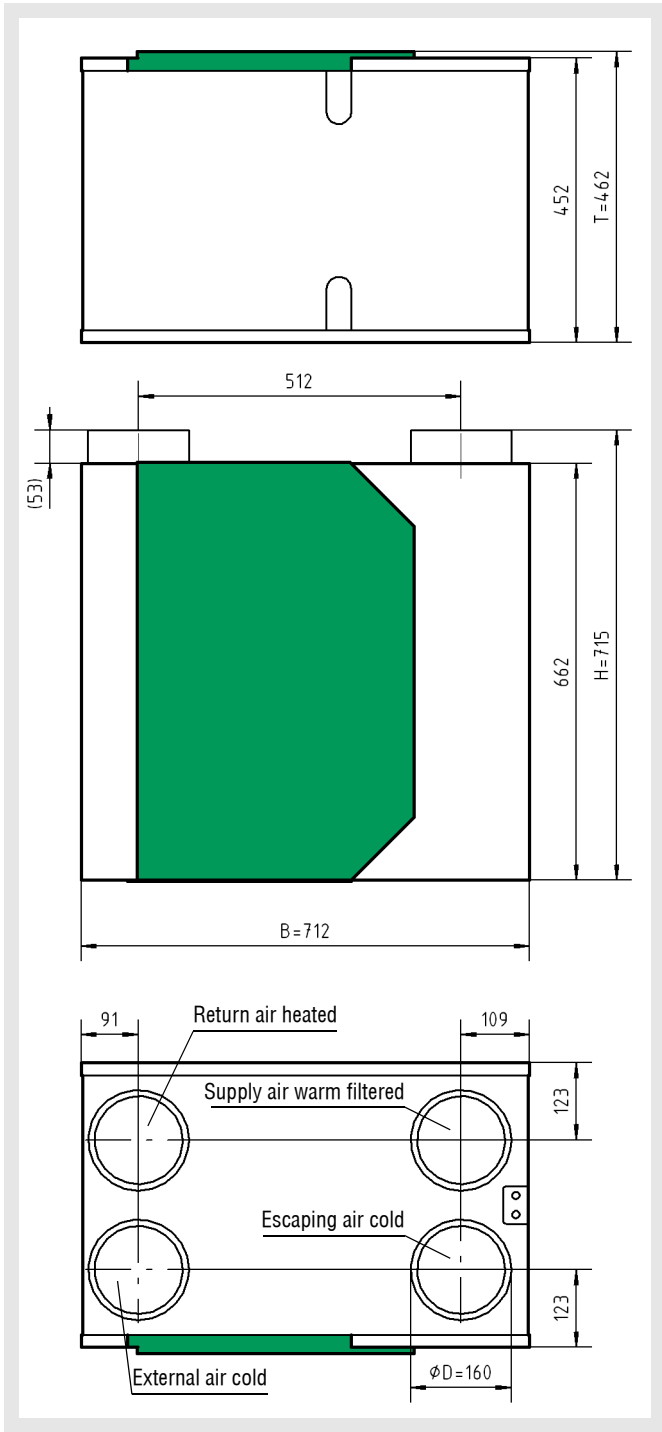
- electric, with differential pressure detector and temperature sensor adjustable from + 0°C to + 30° C (ready-to-plug-in)

Ventilation Unit with Heat Recovery AIRFRESH

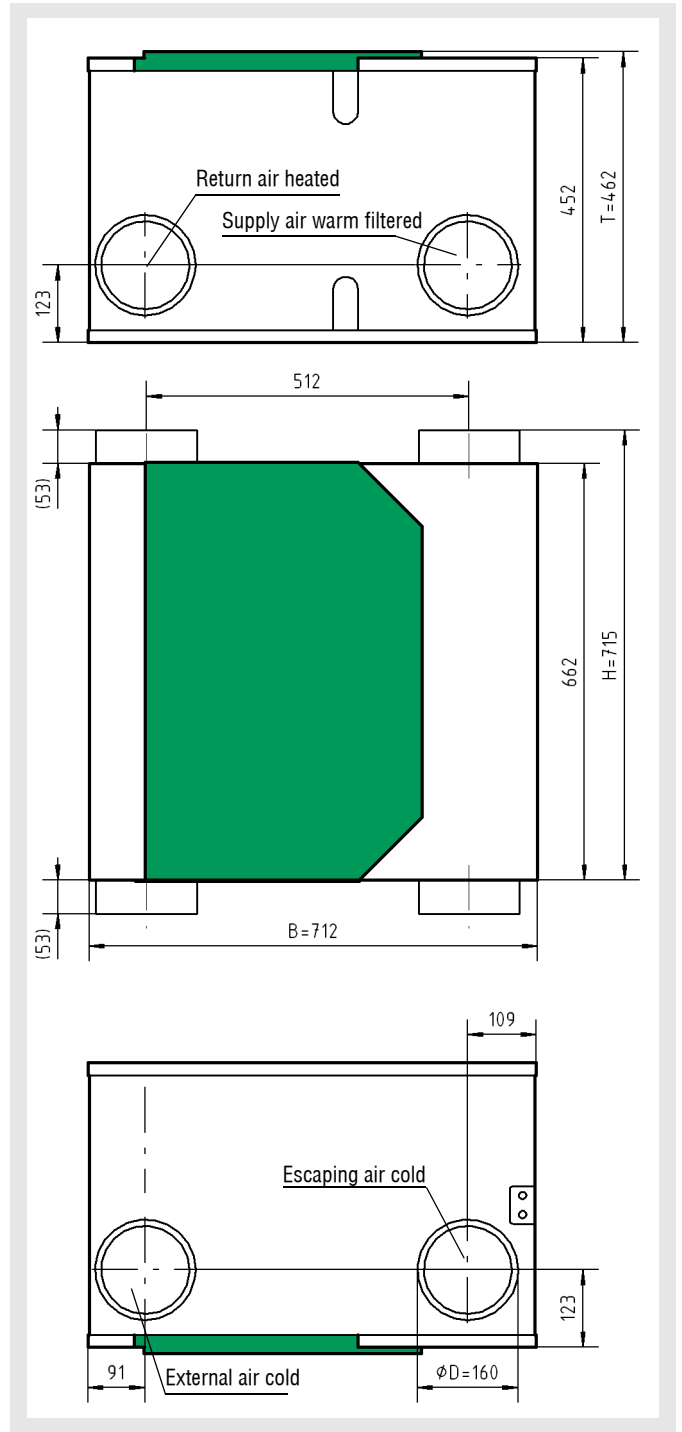
Models and dimensions

Dimensions

AIRFRESH-GB



AIRFRESH-EB



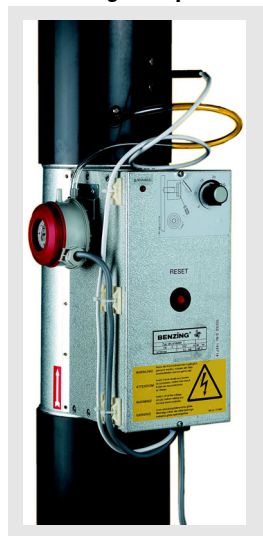
Ventilation Unit with Heat Recovery AIRFRESH

Dimensions of accessories

3-stage switch



Reheating unit/preheating unit



Control device



Technical Data

Heat recovery up to	98%
Voltage/frequency	230 V / 50 Hz
Rated current	
Rated power consumption	180 W

Dimensions	AIRFRESH-GB	AIRFRESH-EB
Width	712 mm	712 mm
Height		
- without pipe connection	662 mm	662 mm
- including pipe connection	715 mm	768 mm
Depth	462 mm	462 mm
Pipe connection diameter	160 mm	160 mm

Weights

AIRFRESH-GB:	32 kg
AIRFRESH-EB:	32 kg

Delivery capacity	Stage 1	Stage 2	Stage 3
Return air (m ³ /h)	110	175	280
Supply air (m ³ /h)	110	175	280
Pressure loss (Pa)	50	85	145
Efficiency	95%	90%	87%
Watt (W)	40	70	180
Rated current	0,33	0,55	1,25
Noise level dB(A) (at a distance of 1m)	32	40	48

Noise measurement (with DC motors)

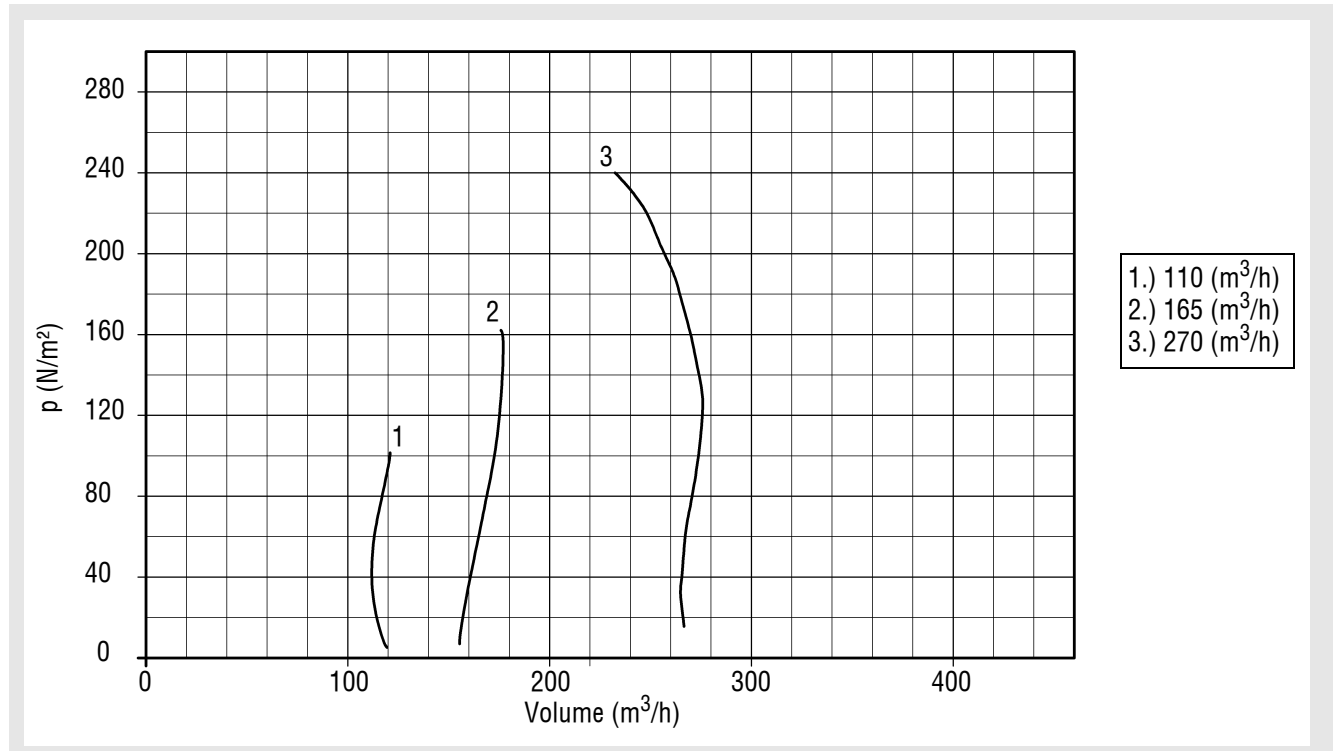
Radiated noise:	Stage	1 - 32 dB (A)	at	30 Pa
		2 - 40 dB (A)		80 Pa
		3 - 48 dB (A)		160 Pa

Intake capacity	Stage	1 - 25 dB (A)	at	26 Pa
		2 - 31 dB (A)		52 Pa
		3 - 39 dB (A)		150 Pa

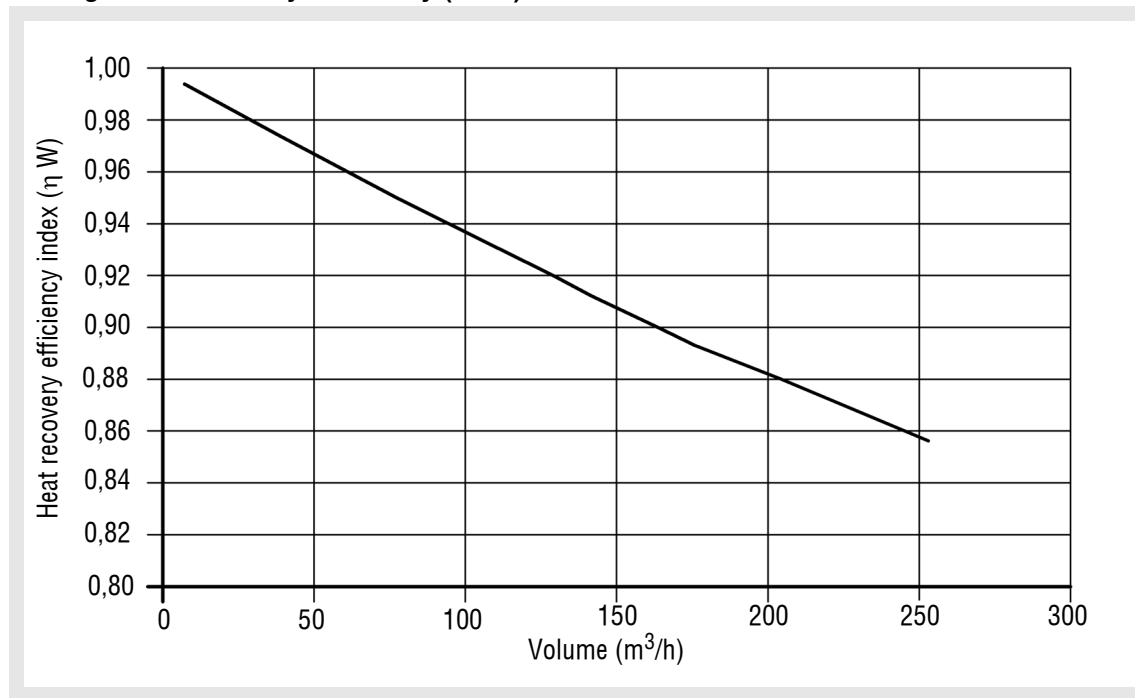
Pressure side:	Stage	1 - 46 dB (A)	at	34 Pa
		2 - 55 dB (A)		80 Pa
		3 - 62 dB (A)		160 Pa

Ventilation Unit with Heat Recovery AIRFRESH

Characteristics of the DC motor



Average heat recovery efficiency (m³/h)



The heat recovery efficiency given in percent was measured at a relative humidity (outside) of 60%, an inside temperature of 20°C and an external temperature of -10°C.

Ventilation Unit with Heat Recovery AIRFRESH

Specification texts

Ventilation unit with heat recovery

AIRFRESH-GB

High-rise buildings

Housing made of sheet steel powder-coated in two colours, housing: RAL 9010 (white), inspection opening SCHAKO green. Interior of the unit consists of hardly inflammable polystyrene. All pipe connections (160 mm in diameter) are arranged on the upper side of the unit. The cross-flow counter-current heat exchanger consists of polystyrene materials having an efficiency of up to 98%.

The inspection door at the front of the unit allows easy filter change for fresh air and return air (filter class G4). The bypass is integrated in the unit. Two energy-saving DC fans ensure a constant air delivery capacity even at variable pressure losses. Water of condensation connection at the underside of the unit. Connecting socket 5 V DC for fully automatic bypass damper actuator, fully automatic defrosting (antifreeze protection), filter monitoring function with LED diode display at the ventilation unit, automatic antifreeze protection for living rooms.

Problem-free adjustment of the different air flow rates (m³/h) in the individual stages can be done easily on-site via dip switches at the ventilation unit. (Setting range from 75 to 290 (m³/h)

Important:

Supply air/external air fan or return air/escaping air fan can be set to the desired air flow rate independently of one another.

Inspection:

The inspection of residential ventilation units with heat recovery according to DIBt LÜ-A No. 2 rev. 4, April 1997 and No. 5 Rev. 5, January 1999 was carried out at the University of Stuttgart IKE-LHR (Institute of Nuclear Energy, Department of Heating and Industrial Air Technology). Reduction factor for the required heat of ventilation according to the WschV (German Heat Protection Ordinance) 1995: 0.52

DIBt Approval No.: Z-51.3-147 (from the German Institute for Building Technology)

Technical data: factory setting

	Stage 1	Stage 2	Stage 3
Delivery volume (m ³ /h)	110	175	280
Pressure loss (Pa)	50	85	145
Noise level dB(A) at a distance of 1 m	32	40	48

Dimensions:

Product: SCHAKO type **AIRFRESH-GB**

Ventilation unit with heat recovery

AIRFRESH-EB

Family home construction

Housing made of sheet steel powder-coated in two colours, housing: RAL 9010 (white), inspection opening SCHAKO green. Interior of the unit consists of hardly inflammable polystyrene. Two pipe connections (160 mm in diameter) are arranged on the upper side of the unit and two pipe connections (160 mm in diameter) on the underside of the unit. The cross-flow counter-current heat exchanger consists of polystyrene materials having an efficiency of up to 98%.

The inspection door at the front of the unit allows easy filter change for fresh air and return air (filter class G4). The bypass is integrated in the unit. Two energy-saving DC fans ensure a constant air delivery capacity even at variable pressure losses. Water of condensation connection at the underside of the unit. Connecting socket 5 V DC for fully automatic bypass damper actuator, fully automatic defrosting (antifreeze protection), filter monitoring function with LED diode display at the ventilation unit.

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Dimensions:

Product: SCHAKO type **AIRFRESH-EB**

Ventilation Unit with Heat Recovery AIRFRESH

Accessories:

- 3-stage switch
 - Surface-mounted design
 - Flush-mounted design (standard)
- Remote control, comfort control
- Reheating unit, electric, with differential pressure detector and temperature sensor adjustable from + 0°C to + 30° C (ready-to-plug-in)
- Preheating unit, electric, with differential pressure detector and temperature sensor adjustable from + +0°C to + +30° C (ready-to-plug-in)