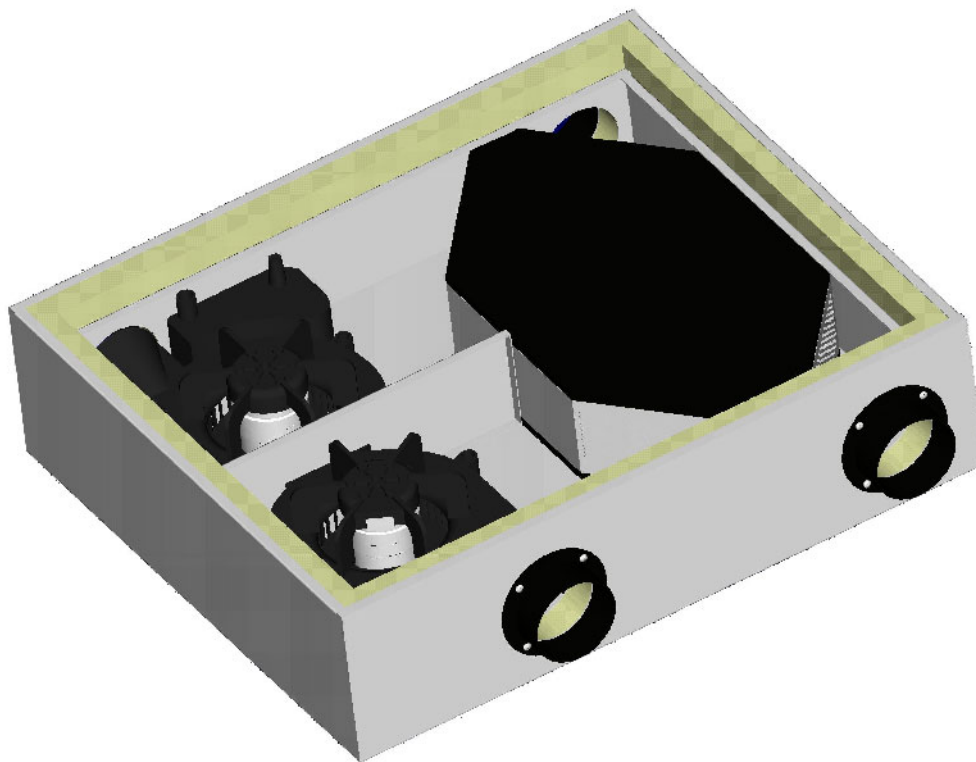




Living Space Ventilation

WRL-100



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Living Space Ventilation WRL-100

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Living Space Ventilation WRL-100

Description

The controlled living space ventilation from SCHAKO is a **complete system to ventilate and air the living space**. With this system, the rooms are aired and ventilated through a combination of supply and return air grilles, in which the supply air is cleaned with a filter. As the supply air volume for each room corresponds to that of the return air, each room forms a closed unit in itself. This means that excess pressure, overflow and reduced pressure areas are avoided. Thus, the consumed air does not flow from the excess pressure area to the overflow area and onto the reduced pressure area through the entire house, but instead the consumed air is removed by suction directly out of the room. Apart from this advantage, the controlled living space ventilation from SCHAKO does not require a two-centimetre gap on the room doors. The controlled living space ventilation is installed floor-by-floor. Therefore, no risers and fire prevention installations are required. The controlled living space ventilation can be used in detached houses or apartment buildings, smaller offices and child care facilities.

The living space ventilation component model "WRL 100" **consists essentially of a multi-leaf housing** made of galvanised sheet steel, **in which the fans for the return air/escaping air and for the external air/supply air and the cross-flow heat exchanger are installed**. In the heat exchanger integrated in the living space ventilation component "WRL 100", the heat from the return air of the individual rooms is transferred to the external air, which is heated and supplied as supply air to the individual rooms.

The fans used in the living space ventilation component "WRL-100" are radial fans equipped with AC motors having a maximum power consumption of 31 W each.

The application range of the living space ventilation component type "WRL-100" in terms of volumetric flow is between 30 m³/h und 70 m³/h. The fans can be switched between three speeds by means of an external multiple-contact switch, which is also used to switch the living space ventilation system on and off.

The housing of the living space ventilation component type "WRL-100" has one outlet and inlet each for outside air and supply air and for return air and escaping air.

Function

Fresh air is drawn in via an outer grille. A fitted insect screen prevents small objects from entering the controlled living space ventilation. Jets blow the return air far away from the house. This prevents a direct suction of the consumed return air and on the other hand it avoids that dirt particles, transported by the return air, are deposited on the house wall.

To clean the supply air, a filter subject to maintenance according to the maintenance regulations is inserted in the distribution unit.

A combined supply and return air grille airs and ventilates the rooms. The fresh supply air, cleaned by the filter, enters the room draught-free through manually adjustable nozzles. The specially shaped nozzles allow a low noise level operation and a penetration depth of up to eight metres into the room. The jet can be split by the adjustable single nozzles, so that the whole room is flushed with fresh supply air. The consumed air is effectively evacuated through the return air grille. Silencers can be installed to reduce the noise level even further.

The heat exchanger built into the WRL-100 has a degree of heat recovery of 60%. The supply and return air volume for each room can be regulated via a multiple-contact switch.

Approved by the DIBt under the approval number Z-51.3-131.

Let our know-how be your advantage:

- **Controlled, draught-free and low noise level supply air pattern.**
- **Pleasant room climate by reducing temperature levels**
- **Energy saving by heating the supply air via the heat exchanger**
- **Multiple-contact switch for individual regulation, thus saving energy**
- **Improving the air quality by evacuating polluted air**
- **Removing the humidity, thus preventing the formation of moulds.**

Cleaning and maintenance

The controlled living space ventilation must be cleaned and maintained. When doing this, the filter must also be changed regularly. Make sure that the filter is fitted such that it is readily accessible for maintenance! The cleaning and maintenance intervals depend on the contamination and pollution of the external air.

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Installation information regarding the condensate drain:

The living area ventilation component WRL 100 must be mounted at the intended locations in accordance with the planning documents. The planning documents are enclosed with the delivery.

The living area ventilation component WRL 100 has fixing lugs (BL) attached to it. The fastening material is included in the delivery.

The living area ventilation component WRL 100 must be mounted at an inclination angle of about 3° toward the condensate drain (KA).

1. Mounting to the floor (see fastening methods)
2. Mounting underneath the ceiling (see fastening methods)
3. Mounting to the wall (see fastening methods)

The condensate drain (KA) must be connected to a suitable wastewater drain system.

Construction

Housing

- multi-leaf, made of galvanised sheet steel

Condensate drain

-

Cross-flow heat exchanger

- Aluminium, blade distance approx. 4 mm

Fans

- Radial fans

Accessories

Outer air grille (-WRA)

- for supply air intake via supply air filter and escaping air filter (as one system component).

Damper register (H)

- for antifreeze protection

Y-piece (-HSE)

- Galvanised sheet steel

T-piece

- Galvanised sheet steel

Supply and return grilles (-BWV-ER-1/-BWV-ER-2)

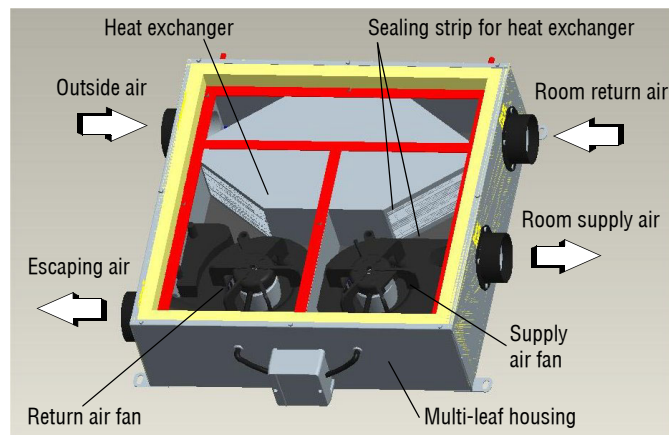
- screwed to the plaster frame ER-1/-2 made of galvanised sheet steel
- sheet steel painted to RAL 9010 (white), with supply air nozzles made of plastic

Supply and return air silencer

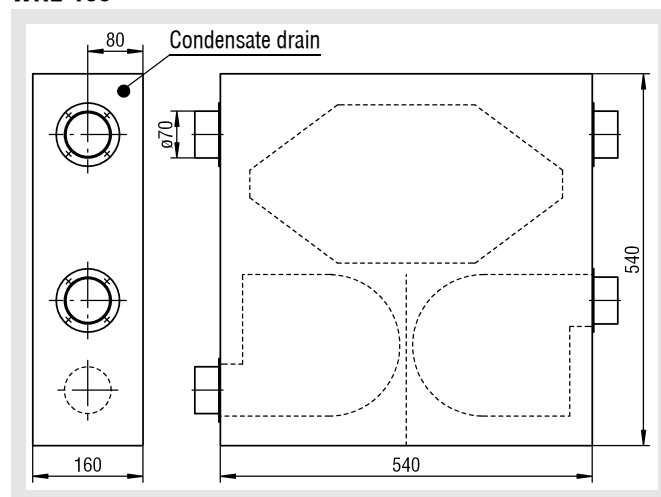
- Outer jacket made of galvanised sheet steel, with mineral wool filling.

Models and dimensions

Dimensions



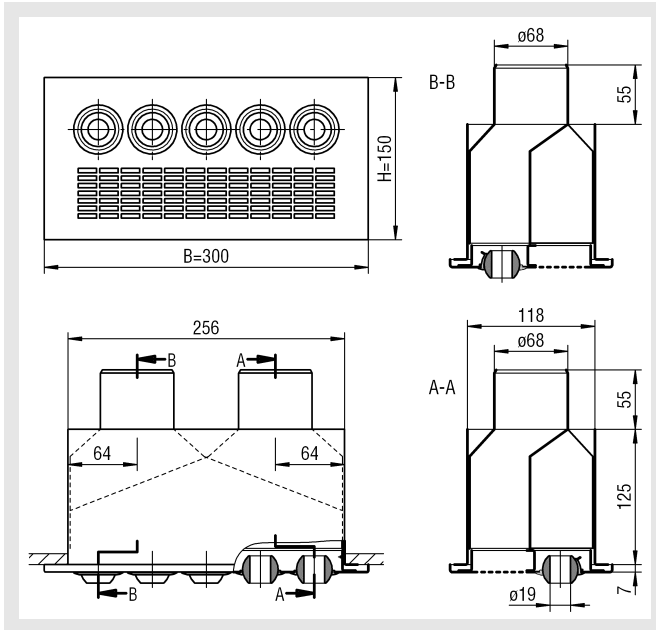
WRL-100



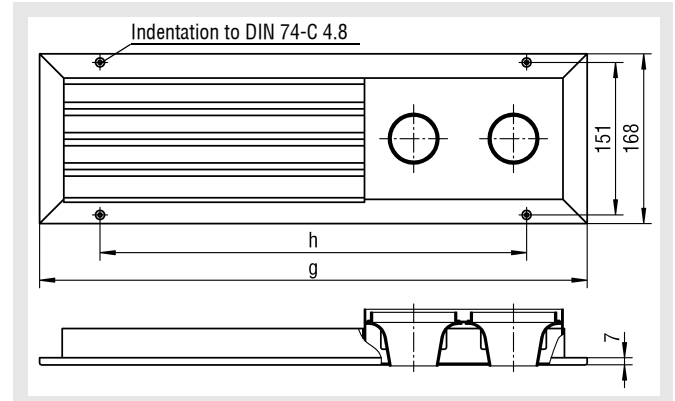
Living Space Ventilation WRL-100

Dimensions of accessories

BWV-ER-1



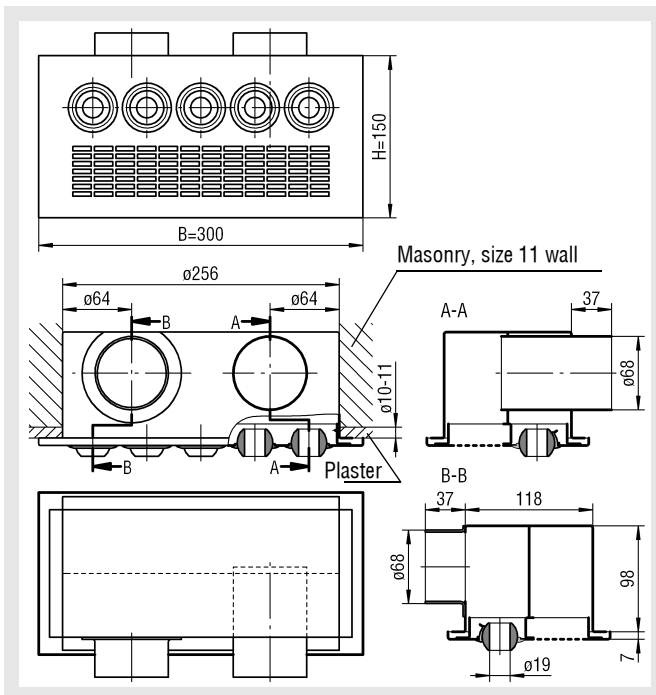
WRA



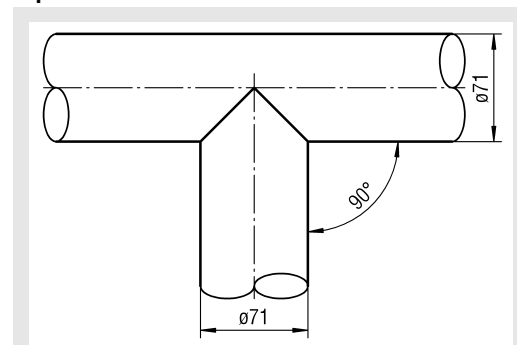
Available sizes WRA

Installation for	g	h	Number of nozzles
4 rooms	543	423	2
5 rooms	543	423	2
6 rooms	643	523	3

BWV-ER-2

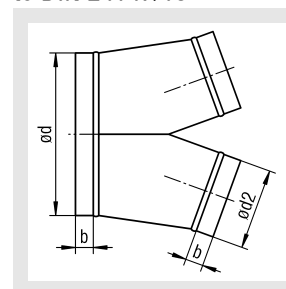


T-piece



for multiple connection of supply and return air pipes

Y-piece shape HSE to DIN 24147/13



Insert length:

$\text{ød} / \text{ød}2 = 200-224:$	$b = 40 \text{ mm}$
$\text{ød} / \text{ød}2 = 250-355:$	$b = 60 \text{ mm}$
$\text{ød} / \text{ød}2 = 400-630:$	$b = 80 \text{ mm}$
$\text{ød} / \text{ød}2 = 710-900:$	$b = 100 \text{ mm}$

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Installation

Figure 2a: Mounting to the floor

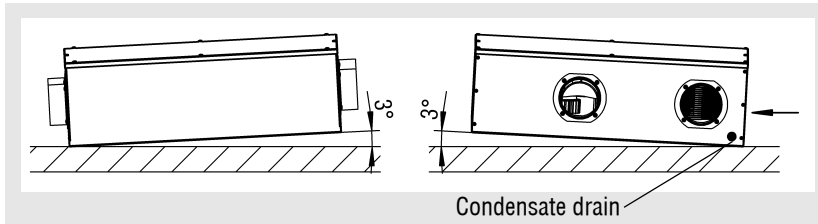


Figure 2b: Mounting below the ceiling

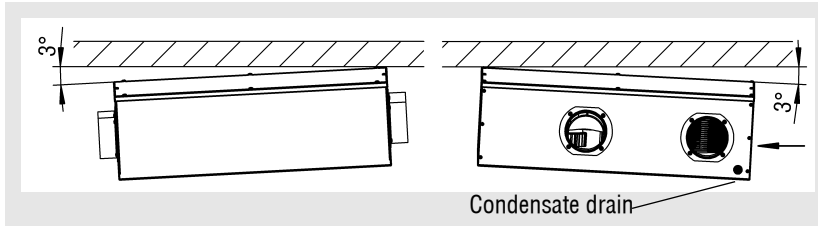
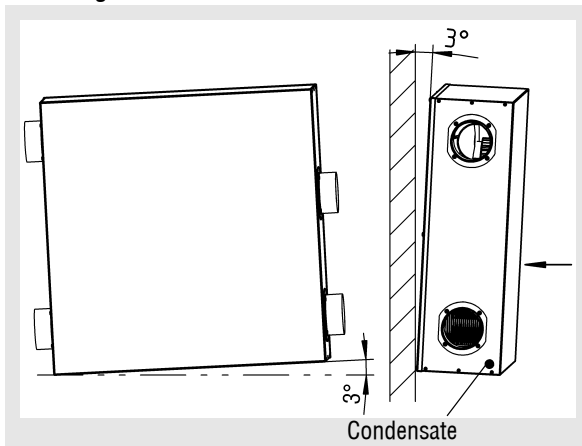


Figure 2c:
Mounting to the wall

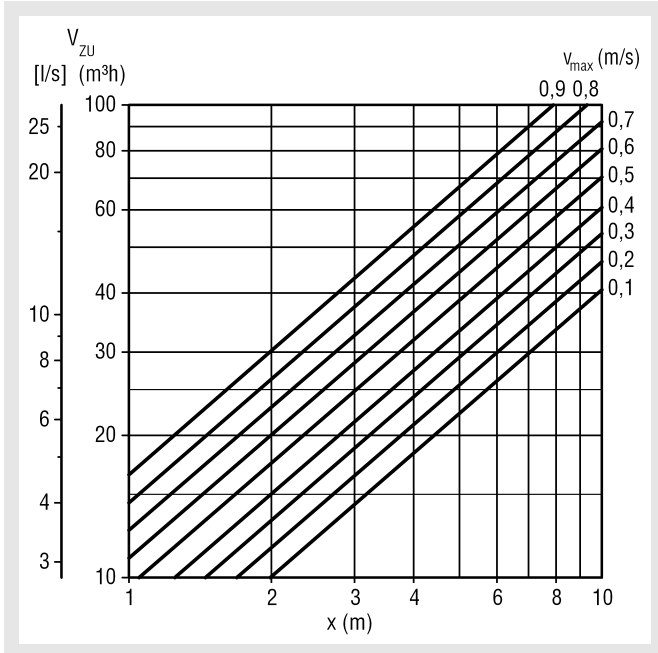


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Technical Data

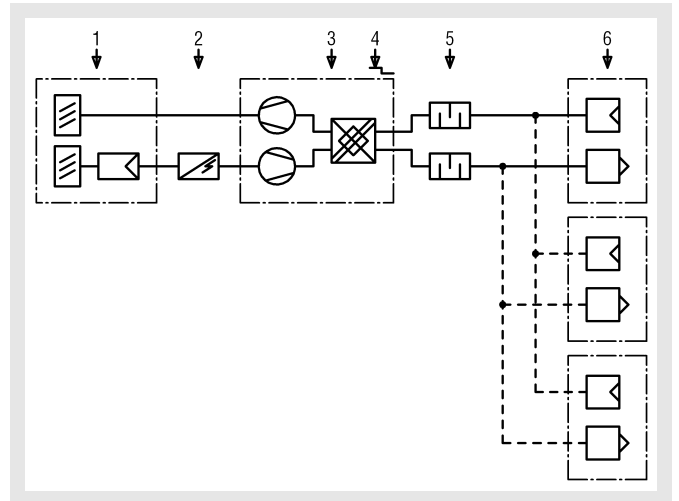
Maximum end velocity of jet

End velocity of jet (grille BWV-ER-1/2)



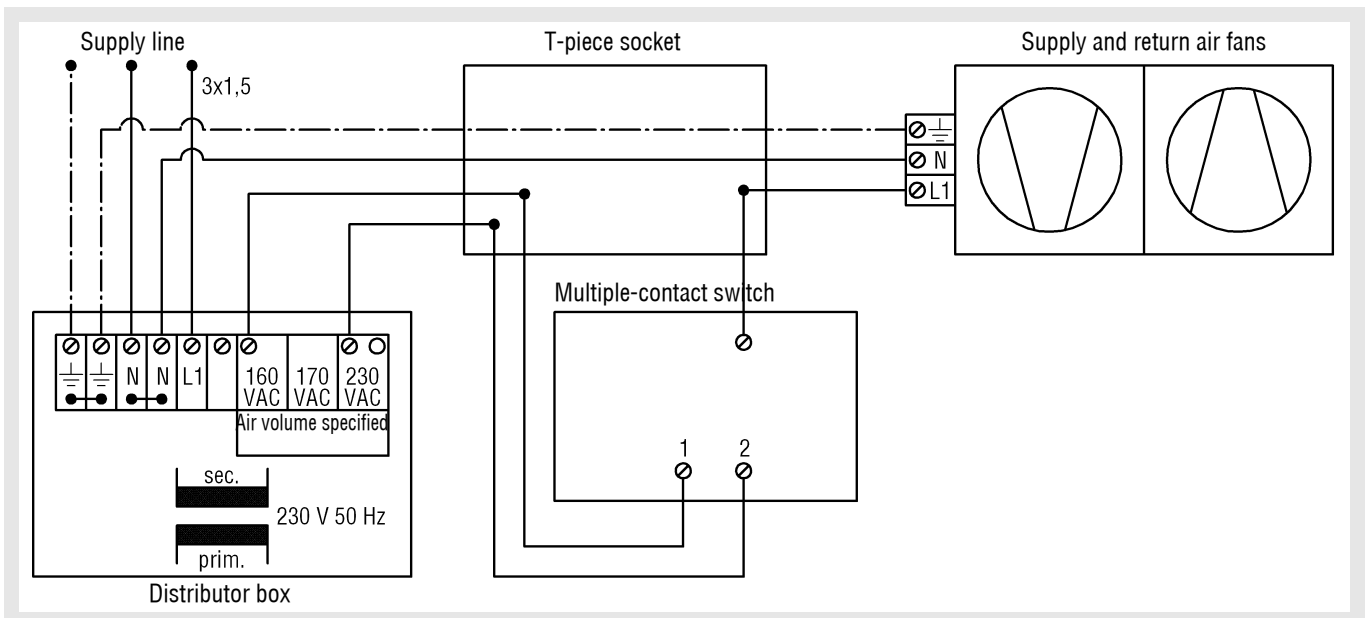
Long throws guarantee optimum room flow.

Connection to the ventilation system



- 1 Outer air grille for supply air intake and return air intake with supply air filter
- 2 Heating damper for antifreeze protection
- 3 Living space ventilation component "WRL -100"
- 4 Condensate drain
- 5 Supply and return air silencer
- 6 Combined supply and return air grille

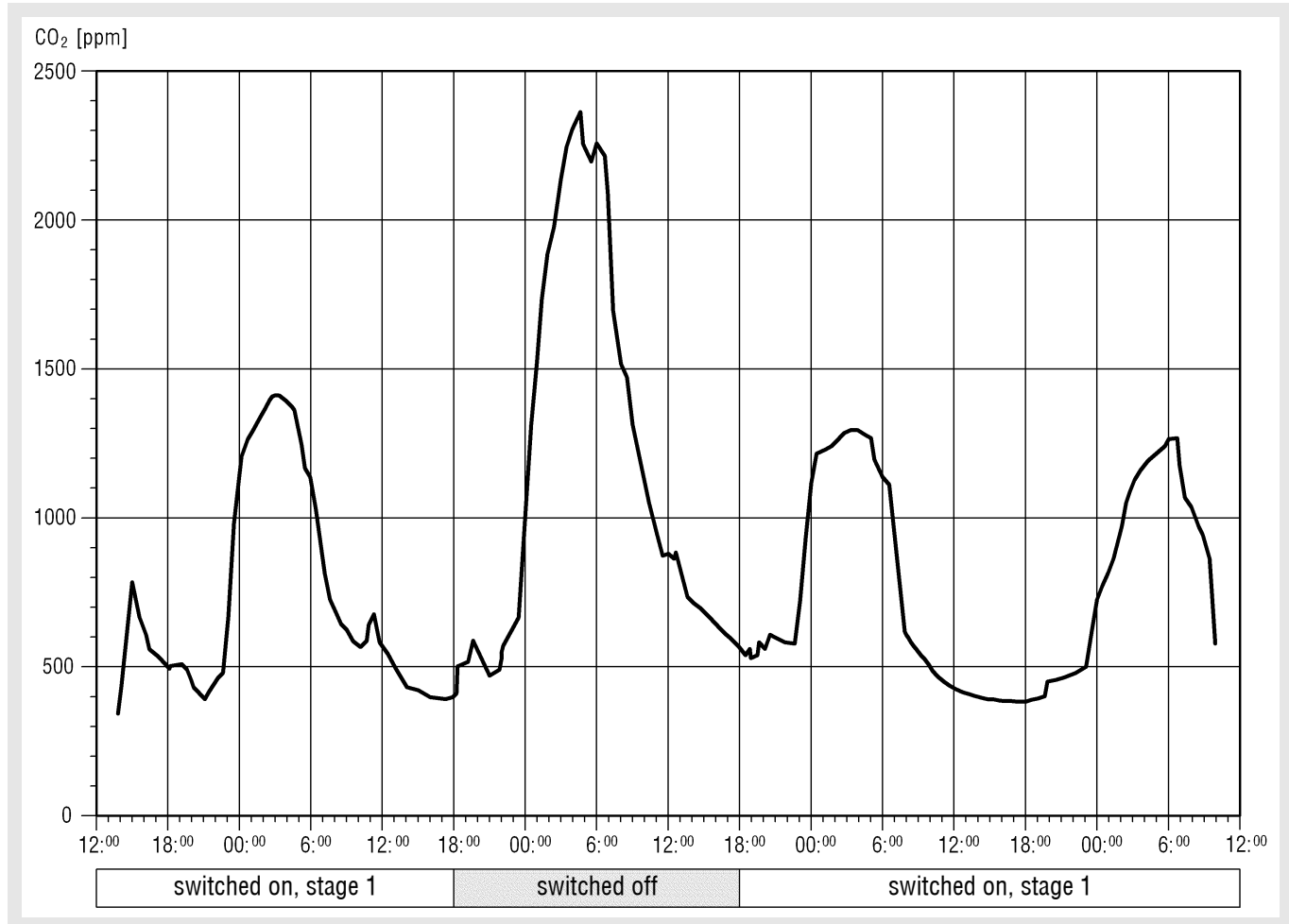
Circuit diagram



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Further data

Long-term measurements of the CO₂ concentration in a bedroom



ATTENTION:

The Federal Public Health Office recommends a standard value for carbon dioxide concentration for inside rooms of max. 1500 ppm.

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Legend

V_{ZU}	(m ³ /h)	=	Supply air volume
V_{ZU}	[l/s]	=	Supply air volume
x	(m)	=	Horizontal throw
V_{max}	(m/s)	=	Maximum end velocity of jet

Specification texts

Living space ventilation component with heat recovery consisting essentially of the multi-leaf housing made of galvanised sheet steel, radial fans and a cross-flow heat exchanger made of aluminium having a blade distance of approx. 4 mm. The fans can be switched via an external three-speed switch. The housing is protected from leaks by a permanently elastic sealing compound.

Product: **SCHAKO type WRL-100**

Accessories:

- Damper register (H)
- Supply and return air silencer
- Supply and return air grilles made of sheet steel painted to RAL 9010 (white), with integrated, manually adjustable supply air nozzles made of plastic. The grille is screwed to a plaster frame ER-1 for fastening.

The plaster frame ER-1 is made of galvanised sheet steel with a plastic connecting piece for horizontal connection of the flexible pipes.

Product: **SCHAKO type BWV-ER-1**

- Supply and return air grilles made of sheet steel painted to RAL 9010 (white), with integrated, manually adjustable supply air nozzles made of plastic. The grille is screwed to a plaster frame ER-2 for fastening.

The plaster frame ER-2 is made of made galvanised sheet steel for connection to flexible pipes from above, especially for installation in size 11 walls.

Product: **SCHAKO type BWV-ER-2**

- Weather protection grilles for fresh air intake. The return air is blown far away from the house via nozzles, to prevent it from being drawn in again through the supply air grille. This also prevents dirt particles transported in the return air from being deposited on the house wall. The outer grille and the plaster frame are made of sheet steel. The return air nozzles are made of plastic. An insect screen is fitted to the outer grille.

It is advantageous to install the grille neither on the street side nor on the weather side.

Product: **SCHAKO type WRA**

- T-piece for multiple connection of supply and return air pipes, made of galvanised sheet steel.
- Y-piece (-HSE), consisting of galvanised sheet steel