VVVA

Air handling unit for heat recovery

Contents

VVVA Air Handling Unit for Heat Recovery

The VVVA air handling unit for heat recovery is a complete air handling unit with supply air and extract air fans, supply air and extract air filters and a rotary heat exchanger.

The VVVA is primarily designed for energy-saving supply air and extract air ventilation in homes, newsstands, shops, small offices, shops, etc.

The VVVA air handling unit for heat recovery has capacity up to 0.13 m^3/s (470 m^3/h).

- Has an efficiency of approx. 78% when the supply and exhaust air flows are the same.
- Achieves a min. supply air temperature of approx. 17°C
- Frost cannot form inside the passages
- Easy to install, has garderob-scale modular dimensions
- Can be installed in an attic, storage room or a scullery
- Can be mounted horizontally or vertically
- Easy to service; easy to clean
- Can be controlled with a transformer
- Can be equipped with an electric reheater
- Can be equipped with complete control equipment

VVVA-6

Design

Casing

The casing, which is fabricated with inner walls made of galvanized sheet steel and outer walls made of aluminium-zinc plated sheet steel and an intervening layer of 30 mm thick mineral wool insulation, meets the provisions of Fire-resistance Class A15.

The upper side of the air handling unit serves as an inspection door.

Fans

The supply air and extract air fans are of centrifugal type, direct-driven with the supply air fan motor located in the supply air flow path. Excess heat from the motor can then contribute towards heating the rooms. The speed of the motor is variably controllable. The VVVA has an impeller with backward-curved blades.

Heat exchanger

The heat exchanger is a rotary heat exchanger. The rotor consists of alternately corrugated and flat strips of aluminium foil. This arrangement results in a large number of passages through with the air flows.

Supply air filter

The supply air filter is of polyester fibre type, conforms to Filter Class EU3 and is flame-resistant to Fire-resistance Class F1 DIN 53438 and is heat resistant up to 100°C.

Extract air filter

The extract air filter is of so-called grease filter type and consists of an aluminium mat. The filter can be cleaned in a dishwasher, for example.

Extra Accessories

Reheater

The VVVZ-16 reheater is a duct air heater made of galvanized sheet steel and has a heating element made of SIS 2337 stainless material.

The duct connections are designed for insertion into standard 160 mm dia. spiral ducts.

An overheating protector is provided inside the air heater to prevent abnormal increase in temperature inside and around the reheater. The resetting device for the overheating protector can be positioned either on the electric air heater or on an impulse pressure switch installed at an optional location.

The electric reheater is available in seven output variants: 0.3, 0.6, 0.9, 1.2, 1.5, 1.8 and 2.1 kW. Min. permissible airflow: 0.03 m^3/s. The reheater is available with or without built-in electric heating controller.

Instructions

Installation and maintenance instructions are supplied with the unit.

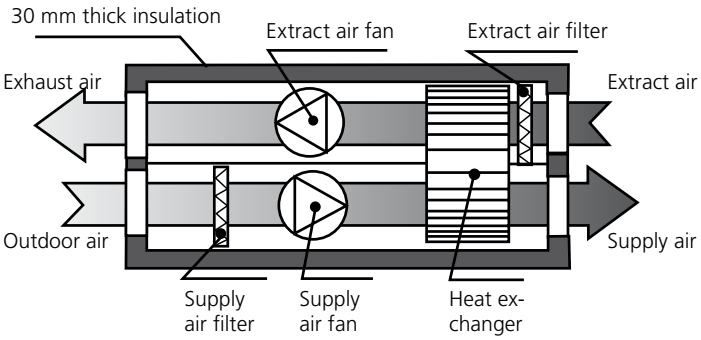
Extra Accessories

Transformer control	VVVZ-19
Reheater	VVVZ-1-16-a-b

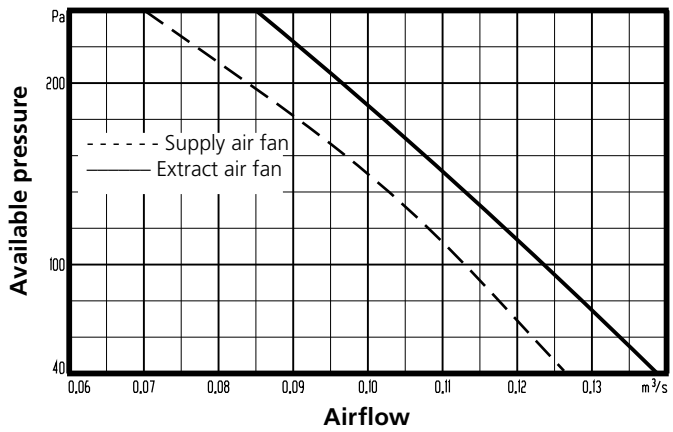
Replacement Material

Supply air filter	VVVZ-06
Extract air filter	VVVZ-07
Filter mat, supply air	VVVZ-08

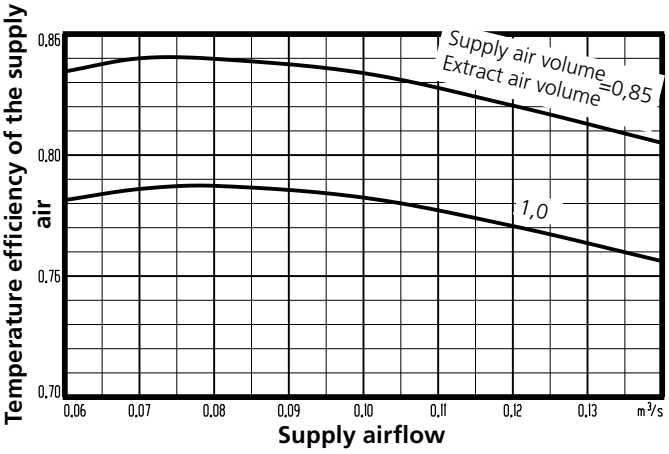
Schematic diagram



Available Airflow and Pressure



Temperature Efficiency



Motor data: 220 V, single-phase, 50 Hz supply

Type	Rated output kW	Current at rated output A
Fan motor	0.292	1.36
Heat exch. motor	0.006	0.15

Specification

Air handling unit for heat recovery **VVVA-7-4-0**

EXTRA ACCESSORIES

Transformer control **VVVZ-19**

Reheater* **VVVZ-1-16-a-b**

Capacity

0.3 kW	=03
0.6 kW	=06
0.9 kW	=09
1.2 kW	=12
1.5 kW	=15
1.8 kW	=18
2.1 kW	=21

Electric heating controller

Pulser type

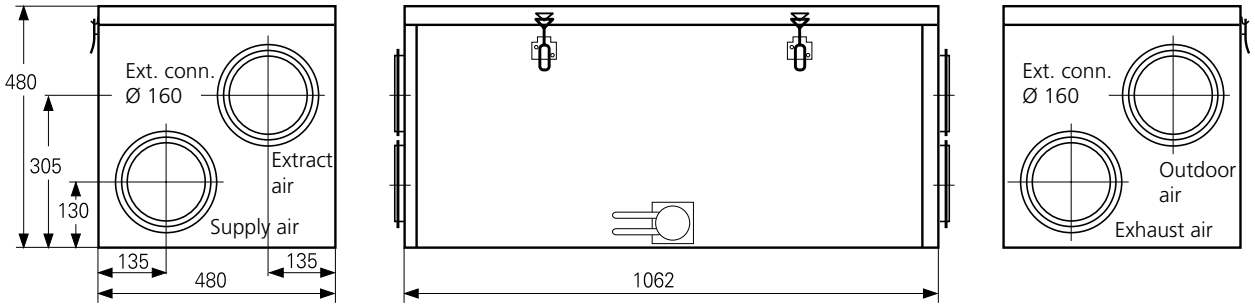
without el. heating controller	=0
with built-in capacitycontroller and set point selector switch on the electric air heater	= 1

REPLACEMENT MATERIAL

Supply air filter	**VVVZ-06**
Extract air filter	**VVVZ-07**
Filter mat, supply air	**VVVZ-08**
Control equipment, electrical and control*	**VVVZ-51**
Timer	**ELQZ-1-406-1**
Thermostat MSK 40	**VVVZ-53**
Damper actuator, LM 230	**VVVZ-54**

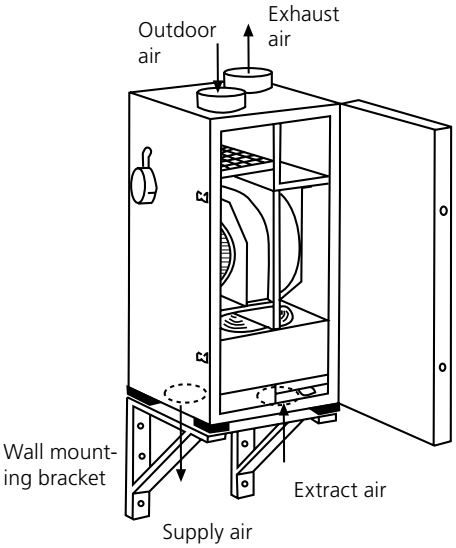
*** For the VVVZ-51, the electric heating controller for the electric air heater in the electrical equipment cubicle is included.**

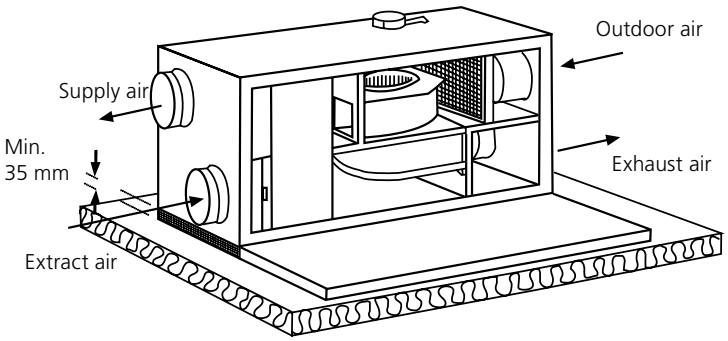
Dimensions



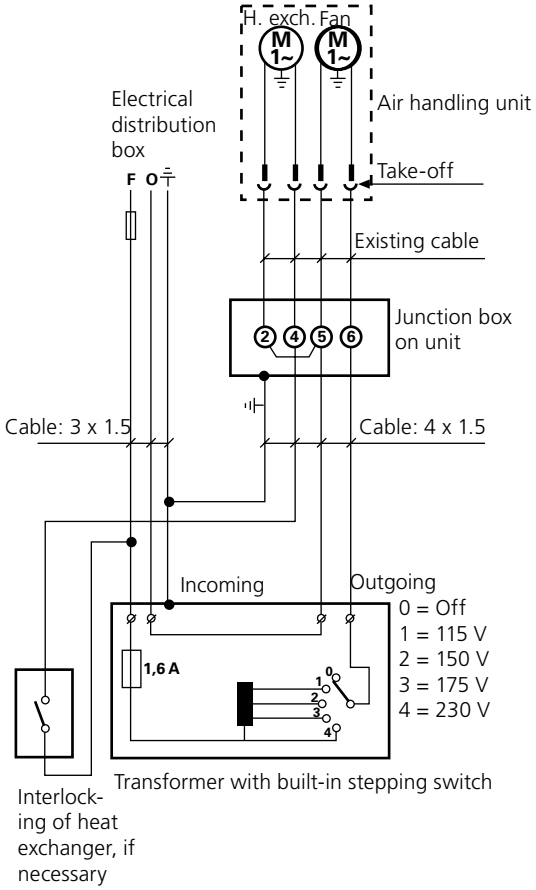
Weight: 65 kg

Installation Examples

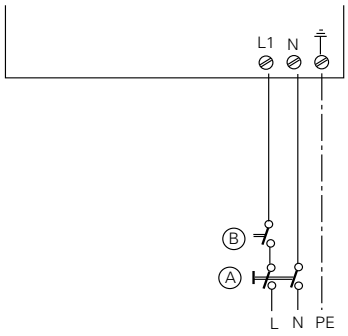




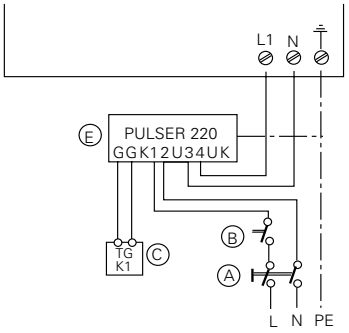
Wiring diagram for speed control of fans by means of VVVZ-09 transformer



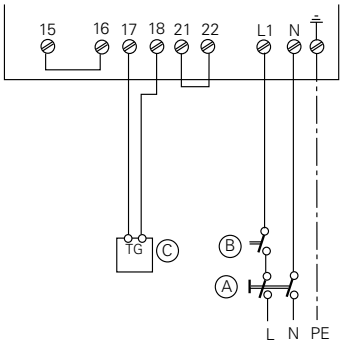
Wiring diagram for the VVVZ-16 reheater



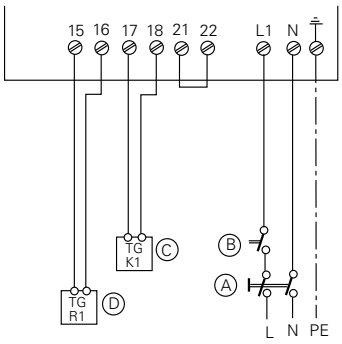
with external Pulser



with built-in Pulser and set point selector switch on electric air heater



with built-in Pulser and external set point selector switch



Ⓐ *All-pole switch
Ⓑ *Interlock
Ⓐ + Ⓑ can be united in a contactor
Ⓒ *Temp. sensor
Ⓓ *Set point resetting
Ⓔ *Ext. electric heating controller
* Not fitted in the electric air heater

VVVZ-51 Electrovent control equipment

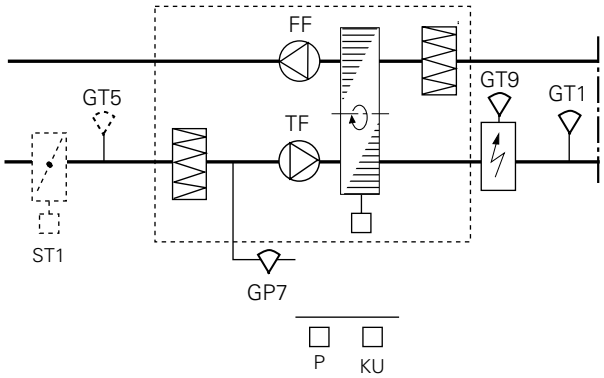
Complete electrical equipment cubicle for VVVA – a real home money saver. Max. electric output for reheater: max. 2.1 kW, max. fuse: 16 A, 1-phase.

Function

SF, EF, RX operate continuously. In response to a signal from temp. Sensor GT1, the electric heating controller P controls the reheater to reheat the supply air, if required, to maintain it at its preset temperature set point. Flow monitor GP7 switches out the electric air reheater if the airflow through the reheater drops below the min. permissible airflow set point. Overheating monitor GT9 switches out the electric air reheater if the temperature in the reheater exceeds the max. permissible set point.

The timer starts and stops the air handling unit at the preset times. One-day/one-week timer with battery back-up; min. switching time: 15 minutes. The contacts of the timer are wired to terminals in the electrical equipment cubicle for selection of functions. On-Off timer control or High speed–low speed timer control together with the VVVZ-19 (accessory).

Thermostat GT5 (accessory) starts and stops the heat exchanger at the preset outdoor temperature to avoid excessively high supply air temperature in the summer. On starting, the heat exchanger is forced to operate a moment for purging the rotor passages clean of impurities.



The transformer control, VVVZ-19 (accessory), not in the electrical equipment cubicle, must be wired in between the cubicle and the fan motor. Note that the supply airflow through the electric reheater must not be lower than the min. permissible rate.

0-6 h timer (accessory) for starting the unit or for forced ventilation together with the VVVZ-19 transformer control when the timer bypasses the transformer control.

The timer is suitable both for surface mounting and for flush mounting in the installation box.

the damper actuator (accessory) for the outdoor air damper, type for 220 V.