

## UNIT SPECIFICATION - DUPLEXbase PS 3500

The mechanical ventilation with heat recovery unit shall be the DUPLEXbase PS 3500 as manufactured by Airflow, shall be sized as indicated on the drawings and shall be in accordance with the specification.

Compact central ventilation unit with heat recovery, certified by the German institute Passivhaus. The unit can be installed indoors on the floor or in a ceiling-suspended configuration, or floor-standing outdoors (accessories required). Moreover, the direction of air flow can be configured upon commissioning of the unit.

As standard, the unit is equipped with control system featuring bypass of heat recovery exchanger. All other accessories are delivered as loose along with the unit and installed on site.

The unit casing consists of frameless construction with sandwich panels, manufactured without thermal bridges. The sandwich-mounted panels create a 30mm thick casing, containing the following layers, from outside to inside:

- Outer layer from painted metal sheet. Colour: grey aluminium, (RAL 9007), thickness 0,8mm. Steel sheet with aluzinc coating AZ 185 (corrosion class C4 according to EN ISO 12944-2)
  - Polyisocyanurates (PIR) 30mm – Heat transfer coefficient  $\lambda=0.024\text{W/mK}$
  - Inner layer made of galvanised metal sheet, thickness 0,8 mm
- Casing characteristics according to DIN EN 1886:

- Mechanical stability: D1
- Casing leakage: L2 (Compliant with Approved Document Part L, Volume 2, Conservation of fuel and power, Buildings other than dwellings).
- Thermal transmittance: T2
- Thermal bridges class: TB1

Class of building material according to DIN EN 13501: B-s1-d0.  
Condensate drain pan made of stainless steel (316L).

In the condensate drain pan, there is one condensate drain, the required water trap is part of the delivery.  
2-part service door on hinges allow free access to all built-in components, heat recovery core, filter guide rails, fans etc.  
Each unit goes through a final thorough check and functionality test prior to being dispatched.

### KEY FEATURES

- Extracts up to 3500 m<sup>3</sup>/h (0.97 m<sup>3</sup>/s) at 300 Pa
  - Excellent heat recovery up to 93%
  - Compact design and high flexibility in unit positioning
  - Filter access for easy maintenance
  - Passivhaus Institute certified
  - 2 year warranty\*
- \*Excluding motors. Motor warranty is one year from date of purchase.

### COMPONENTS

In order to switch off the electrical power supply, e.g., during service works, the service power switch is located next to the terminal board.

Built-in sensors: Outdoor temperature sensor: ADS TEa  
Supply air temperature sensor: ADS TU1  
Extracted air temperature sensor: ADS TEb  
Exhausted air temperature sensor: ADS TU2  
Pressure switch of supply air filter: 0 - 500 Pa (on / off)  
Pressure switch of exhaust air filter: 0 - 500 Pa (on / off)

Outdoor air filter:

Type of filter: ePM1 55% (F7) pleated cartridge  
Dimensions: 750x295x96 / 750x405x96 mm  
Number: 2 pcs

Extracted air filter:

Type of filter: ePM10 50% (M5) pleated cartridge  
Dimensions: 750x295x96 / 750x405x96 mm  
Number: 2 pcs

All filters are ISO 16890 compliant.

100% automatic summer bypass damper:

A bypass damper is fitted in the ventilation unit as standard and designed to bypass the heat exchanger during hot seasons to avoid overheating in the ventilated premises. In addition, the damper can also be used for night pre-cooling.

Moreover, the summer bypass can be used to prevent the plate heat exchanger from freezing (defrosting using bypass). If required, an option of intelligent cool recovery is also available. Frame made of zinc-coated metal (class 2, thickness 1 mm), flap with tight-closing aluminium blinds.

Heat recovery feature:

Wide-area counterflow plate heat exchanger from high-impact polystyrene (hPS) provides high efficiency of heat recovery and it is resistant against corrosion to a high extent. Furthermore, it is chemically stable when in contact with extracted air that is polluted from a wide range of applications. The exchanger is resistant against impurities, and it can be operated in the temperature range from -25°C to +80°C. It features class H1 according to DIN 13779.

Supply /Exhaust fan:

EC-fan with stepless control with backward curved blades.

- Voltage: 400 V/ 50 Hz

- IP class: IP 54

### DIGITAL CONTROL SYSTEM RD6

- Main board RD6-CL 230V-EC / 230V-EC for control and communication with following built-in or external components:
- EC fans speed control (according to selected mode)
- Automatic heat and cool recovery control (by-pass control)
- Evaluates and prevents all emergency conditions according to the measured values
- Possibility of setting basic and user scenes and weekly calendars to select modes, power, temperatures and other functions
- Ethernet connection for communication over the Internet
- Inputs for external signals - control e.g. from kitchens, toilets and similar
- Possibility of connecting air quality sensors (e.g. CO<sub>2</sub> concentration or relative humidity) either by contact, 0–10V voltage, or via bus registers.
- Outputs for continuous control of electric preheater and heater (pulse switched 10V)
- Possibility of connecting various controllers such as basic or touch screen
- Connection to supervisory control system via Modbus TCP protocol
- Communication by BACnet protocol (optional)
- Communication via KNX protocol (optional)
- Registration of multiple users
- Establishing service access
- Integrated web server enables control and monitoring of ventilation unit via LAN/internet
- Remote access via PC, notebook, tablet or smartphone
- Modbus interface is included as standard, it mediates communication with local supervising control system (BMS)

### RD6 TOUCH CONTROLLER

The RD6 touch controller, is intuitive, user-friendly with a touch screen and integrated room-temperature sensor, to be mounted on the wall. The user can set up and control all control system functions and display operational parameters of the unit, its alerts, and errors.

An intuitive user interface, as well as a service menu protected by password, are available as standard with the controller. Users can access all commonly needed functions and select operational parameters.