

# Certificate

valid until Dec 31<sup>th</sup>, 2010

Passivhaus  
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**Component  
suitable for**

**Passive Houses: Heat recovery unit**

**Manufacturer: Paul Wärmerückgewinnung GmbH**

**Name of product: climos 100 DC**

## The following criteria were checked for the award of this certificate:

The criteria are valid for the cool temperate climate.

### 1) Passive House Thermal Comfort Criterion:

A minimum supply air temperature of 16.5 °C is achieved at an ambient temperature of -10 °C.

**Reasoning:** In Passive Houses there is no need to install radiators on exterior walls. In order to avoid discomfort due to exposure to cold air, the supply air temperature must not sink below a minimum value.

### 2) Efficiency Criterion (heat):

The effective dry heat recovery rate, determined at an ambient air temperature between -15 and 10 °C, dry extraction air (21 °C) and with balanced mass flows, must be greater than

$$\eta_{HR,t,eff} \geq 75\% \quad (\text{in this case: } 82 \%).$$

### 3) Efficiency Criterion (electricity):

The unit's total specific electric power consumption for the operating levels applied in Passive Houses must not exceed **0,45 W/(m³/h)**, for the supply air delivered at design mass flow (in this case: **0,41 W/(m³/h)**, under conditions described in the appendix).

### 4) Air-tightness and thermal insulation:

The interior and exterior air leakage flow rates must not exceed 3 % of the nominal extraction air flow rate. (Requirements and verification are described in the certificate's appendix.)

### 5) Balancing and controllability:

Look at appendix; area of application of the (heat recovery) unit in regulary operation: from 86 to 100 m³/h.

### 6) Sound insulation: The certificate is only valid with the restriction of installation in a separate room for building services.

The required sound pressure level of 35 dB(A) in the installation space with an equivalent absorption area of 4 m² is met, sound levels of < 25 dB(A) in living spaces and < 30 dB(A) in functional spaces are achieved with sound absorbers. (Requirements and verification are described in the certificate's appendix.)

### 7) Room air hygiene:

If the unit and all components are installed and operated according to the manufacturer's instructions, the unit will provide perfectly hygienic supply air. (Requirements and verification are described in the certificate's appendix.)

### 8) Anti-freeze protection: (Requirements and verification are described in the certificate's appendix.)

The certificate is to be used as follows:

**COMPONENT  
suitable for  
PASSIVE  
HOUSES  
Dr. Wolfgang Feist**



**Heat recovery unit:  
Heat recovery rate  
(effective): 82 %  
Electric efficiency: 0,41 Wh/m³**