AIR HANDLING

WHR 61: Mechanical Ventilation with Heat Recovery

Fresh Air and Energy Saving All Year Round

With the modern construction technologies and the widespread awareness of energy saving, the new trends promote buildings which are increasingly insulated from the thermal point of view but which are poor as for ventilation, that is to say, the natural and spontaneous air exchange in the rooms through doors, windows and walls. As a matter of fact, the goal of increasing insulation tends to make buildings "hermetically sealed", whereby the room air can no longer be renewed by "aeration" through drafts and openings but must be provided mechanically through Controlled Ventilation Systems.

Advantages:

- Application in residential and commercial sectors
- Room comfort and hygiene in every season
- Fresh, clean air
- Controlled air exchange
- Free-cooling
- Elimination of the risk of condensation and mould

Specifications:

Voltage at 50 Hz	220-240 Vac	
Power consumption	Speed 1	4.90 W
	Speed 2	6.90 W
	Speed 3	8.90 W
Air flow rate	Speed 1	30 m³/h
	Speed 2	45 m³/h
	Speed 3	60 m³/h
Noise at, 3m	Speed 1	13 dB
	Speed 2	20 dB
	Speed 3	23 dB
High-efficiency heat exchanger	~93% (products in sequence)	
Size outdoor vent	lxhxw (mm) 210x210x80	
Size indoor vent	lxhxw (mm) 215x215x80	
Size air duct	Øxl (mm) 150x250÷400	

Why is ventilation so necessary? In the "air-tight" building the air quality in confined spaces is extremely low, preventing a suitable amount of new outdoor air. The ventilation is therefore necessary both for health reasons and **to preserve the buildings from condensation and damage for moisture.**

There is another important factor to consider. The increased insulation of buildings considerably reduces heat loss thanks to the building shell, and the energy required for fresh air embodies an even more important aspect: in percentage terms it is not 10% to 15% as in the past, but it may be more than 40% of the total energy required for heating. This leads to consider heat recovery as an essential element for the energy efficiency of the building. **The output of energy available from the polluted air must be recovered** through a heat exchanger inside the ventilation unit and it shall be transferred to the new inflow air.

WHR 61

To provide fresh air rich in oxygen from outside and properly filtered all year round, while guaranteeing energy conservation, RDZ offers a very practical and effective solution for rooms where it is not possible to install a ducted system. This is a single-room device, called WHR 61, providing mechanical ventilation with heat recovery.

This unit has a **ceramic exchanger** of cylindrical shape and a reversible and very effective fan with 3 speeds. The WHR 61 by RDZ is designed to be installed in walls through a Ø 160 mm hole and has an external plastic hood painted in white to prevent water and air flows from entering the exchanger.

The unit, equipped with ABS plate and managed by remote control, can be also connected to other WHR 61 appliances by using bus cable to allow the **simultaneous operation of different units** and ensure proper air ventilation. By using one WHR 61, it is possible to have fresh air and heat recovery in two phases: an **extraction phase** in which the heat is pushed outside by the ventilation system so that it transfers thermal energy to the ceramic exchanger, and an **introduction phase** during which the direction reverses for the entry of new air, which is preheated by passing through the exchanger. In case of two or more units communicating by bus connection, one product will take out the wet air from the room and store its thermal energy. In the meantime, the other unit will take in clean and pre-heated air. At the end of this phase, the two units will reverse their operation: the former will transfer the energy previously stored in the heat exchanger to the inlet cold air, while the latter will exhaust the stale air by accumulating heat in its ceramic exchanger. In both cases, each of the two phases lasts 70 seconds.

This solution guarantees health and maximum living comfort throughout the year **without wasting energy**. Furthermore, the unit can be also set for free-cooling mode, thus allowing the user to enjoy free fresh air when the outdoor temperature is lower than the indoor temperature.