



Energy Recovery Ventilator (ERV-250 / 500)

1) **Features :**

- 1.1 CNC Manufactured 20 gauge powder coated cabinet with 16 gauge frame.
- 1.2 Siemens grey finish.
- 1.3 Molecular Sieve coated aluminium, "Ecofresh". Total Energy Recovery Wheel.
- 1.4 Compact backward curved radial fans with external rotor motor.
- 1.5 Casing insulated with 19mm closed cells, high density insulation to prevent condensation of moisture on exteriors or interiors of the unit.
- 1.6 Large panel opening for easy access to filters, & inspection of other components.
- 1.7 Remote start /stop with 1.25 mtr. Long cable.
- 1.8 200mm dia. Metallic collars for duct connections.
- 1.9 Removable, washable synthetic pre filters.
- 1.10 Factor set inbuilt purge.
- 1.11 Feather touch brush seals minimize cross contamination & ensure long life.

2) **Technical specifications:**

2.1 **CASING :**

Panel shall be made of 20 gauge CNC manufactured, powder coated steel with 16 gauge frame. Panels shall be insulated with 19mm high density insulation. Access panel to the components shall be provided. The access panel shall be easily openable and tightly sealed by means standard gaskets.

2.2 **FANS :**

Fans shall be backward curved (radial) with external rotor motor. The blades shall be designed for maximum efficiency & quiet operation. Impeller shall be statically & dynamically balanced.

2.3 TOTAL ENERGY RECOVERY WHEEL :

Rotor/wheel matrix is of *Ecofresh* make —

The substrate : The substrate or wheel matrix is of pure aluminum foil so as to allow:

- a) quick and efficient uptake of thermal energy.
- b) sufficient mass for optimum heat transfer
- c) maximum sensible heat recovery at a relatively low rotational speed of 20 to 35 rpm.

The *Ecofresh* wheel matrix does not make use of any non metallic substrates made from paper, plastic, synthetic or glass fibre media.

The substrate matrix is made from materials which are neither combustible nor support combustion.

The Desiccant : The desiccant is water molecule selective and non-migratory.

The desiccant 3Å* (Ecosorb 300) is coated/used on the aluminum substrates as it helps to limit the cross contamination to absolute minimum, and to ensure the exclusion of contaminants in the air stream, while transferring water vapour molecules. For higher diffusion rate and slightly improved latent recovery without substantially sacrificing cross contamination, desiccant coated/used as 4Å (Ecosorb 400).

The desiccant has sufficient mass, and is coated with a non masking porous binder adhesive on the aluminum substrate and it allows quick and easy uptake and release of water vapour. The *Ecofresh* matrix does not have desiccants impregnated in a non metallic substrate, such as synthetic fibre, glass fibre, etc., as the substrate is made from aluminum foil.

The rotor/wheel matrix has equal sensible and latent recovery.

The weight of desiccant coating and the mass of aluminum foil is in a specific ratio so as to ensure equal recovery of both sensible and latent heat over the operating range. The *Ecofresh* rotor matrix does not have an etched or oxidised surface to make a desiccant on a metal foil as that would result in insufficient latent recovery and hence unequal recovery; also the rotor matrix is not made by impregnating the desiccant in a synthetic fibre matrix as that would result in insufficient sensible recovery, high rotation speed, and unequal recovery, which is generally not acceptable.

Rotor : As optimum heat and mass transfer takes place via the matrix formed by desiccant, which has sufficient mass, being coated on an aluminum foil, the rotor typically rotates at lower than 20 to 35 rpm, thereby also ensuring long life of belts and reduced wear and tear of seals.

The rotor is made of alternate flat and corrugated aluminum foil of uniform width. The rotor honeycomb matrix foil is so wound and adhered that it makes a structurally very strong and rigid media which does not get cracked, deformed etc. due to change of temperature or humidity.

The surface of the wheel/rotor is specially and highly polished and ensures that the vertical run out does not exceed ± 1 mm, thereby ensuring, negligible leakage

The radial run out also does not exceed ± 1 mm, thereby minimising the leakage/drag on the radial seals, and minimising the fluctuations in the tension of the drive belt.

The number of wraps (of alternative corrugated and flat foil) for every inch of rotor radii are extremely consistent and this ensures uniform air flow and performance over the entire face in the air stream. Flute height and pitch are consistent to a very tight tolerance and this ensures uniform pressure drop and uniform airflows across the rotor face.

The rotor is a non clogging aluminum media, having a multitude of narrow aluminum foil channels, thus ensuring a laminar flow, and will allow particles upto 600 microns to pass through it.

The media is cleanable with compressed air, or low pressure steam or light detergent, without degrading the latent recovery.

2.4 ROTOR/WHEEL CASSETTE :

The rotor/wheel cassette is made of galvanised steel / powder coated sheet framework which limits the deflection of rotor/wheel due to air pressure loss.

2.5 FILTERS :

Filter shall be 25mm thick washable type.

2.6 ELECTRICALS :

Power connection requirement : 220 volt/1 ph/50 Hz.

** Currently not available in Canada & few other countries.*

Rev. No.	: 3
Updated on	: 03.04.2008
Supercedes	: 21.10.2002
Doc. Name	: ERV Specs-250&500.doc