

THE ART OF AIR INNOVATION SINCE 1983

FOR HOMES AND BUSINESSES

ENSTO

powered by
enervent[®]

Horizontal ventilation units

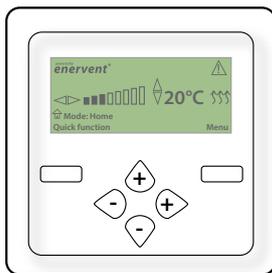
Healthy indoor air increases your well-being

Today people spend much of their life indoors. It is therefore important to take care of the quality and freshness of indoor air. With our energy efficient ventilation units, the used indoor air is removed and replaced with fresh, filtered, pre-warmed or cooled outside air. Our units incorporate unique wintertime humidity recovery with high efficiency that prevents excessive drying of the indoor air. Enervent units have been installed for over 30 years in homes and business facilities, both in Finland and other European countries.



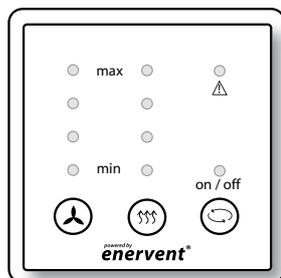
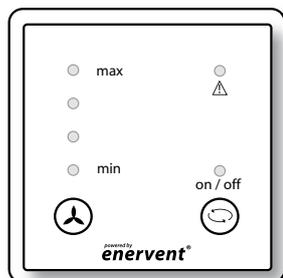
User-friendly control

User-friendly control is standard with all units in the Enervent series. There are two options: the EEC control and the more comprehensive Enervent Digital Automation (EDA).



The most important features of EDA-control are:

- Stepless control of direct current fans.
- Stepless 0-10V control of heat exchanger.
- Humidity and carbon dioxide boosting. Humidity sensing is included as standard
- Wintertime humidity recovery.
- Summer night cooling and cooling recovery.
- A and B alarms.
- Weekly and annual timer.
- Modbus RTU as standard.



The most important features of EEC-control are:

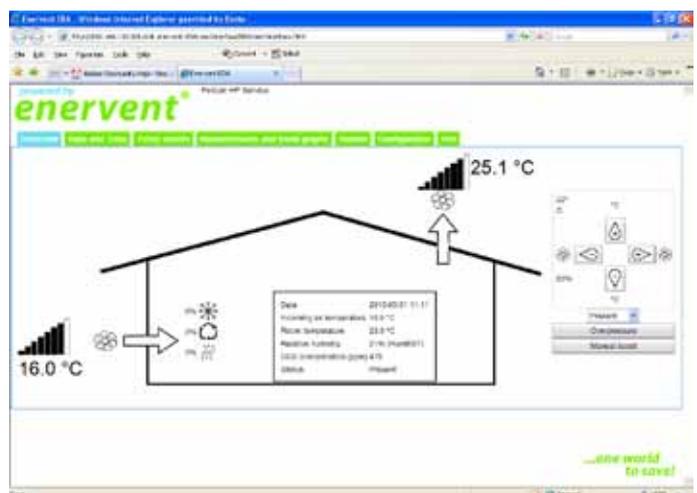
- Four fan speeds.
- Control of optional electric afterheater in four steps 17-21 °C.
- Heat recovery on/off.
- Maintenance light, which indicates the filters require changing or the unit requires inspection.
- Input and output connections, to all for external control possibilities (for example: humidity and carbon dioxide boosting).

The rotating heat exchanger

The heart of the Enervent unit is the rotating heat exchanger. Warm outgoing air is channelled through our rotating regenerative heat exchanger and heat is retained in it. When the heat exchanger rotates the warm mass moves to the incoming air side and warms up the outside air efficiently, giving up the heat from its mass. The annual heat recovery efficiency of the rotating heat exchanger is over 70 %, which is multiple compared to traditional plate and crossflow heat exchangers. This means that it saves a significant amount of the heating costs, because the heat loss through ventilation is small. The rotating heat exchanger is also useful in summer when it recovers cooling and saves cooling costs.

Freeway WEB

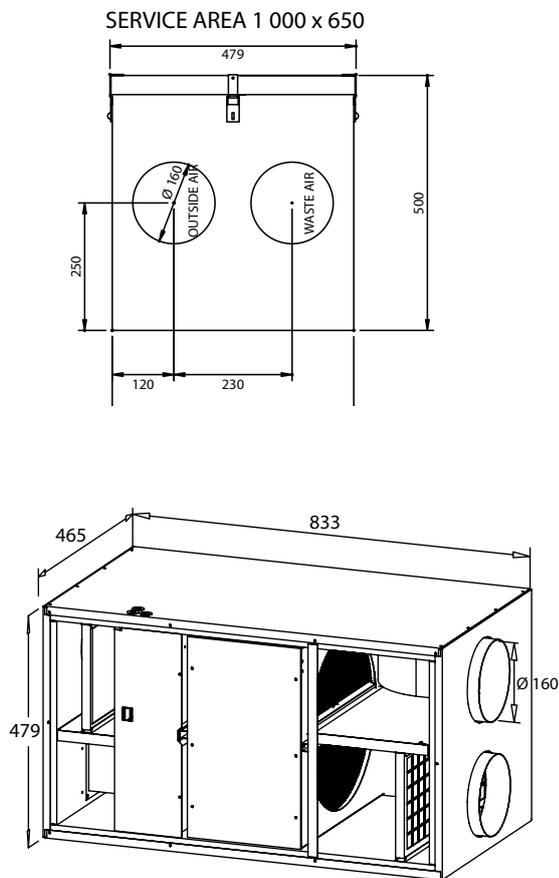
Enervent Freeway enables the control and monitoring of Enervent units using the Internet or Ethernet network. The Freeway user interface has almost all of the same functions as an Enervent EDA unit's user panel. The interface can be protected with a password. Possible alerts can be sent automatically by email. The Freeway range also includes Freeway KNX.



Greenair LTR-3

Air amount LTR-3 eco	+110 / -110 l/s
Space LTR-3 eco	0 - 606 m ³
Fans LTR-3 eco	119 / 119 W
Current	230 V ~ / 50 Hz
Fuse	10 A quick
Over heating protection	yes
Duct connections Ø	160 mm
Weight	52 kg
Filter (standard)	F5
Alternative filters	F7

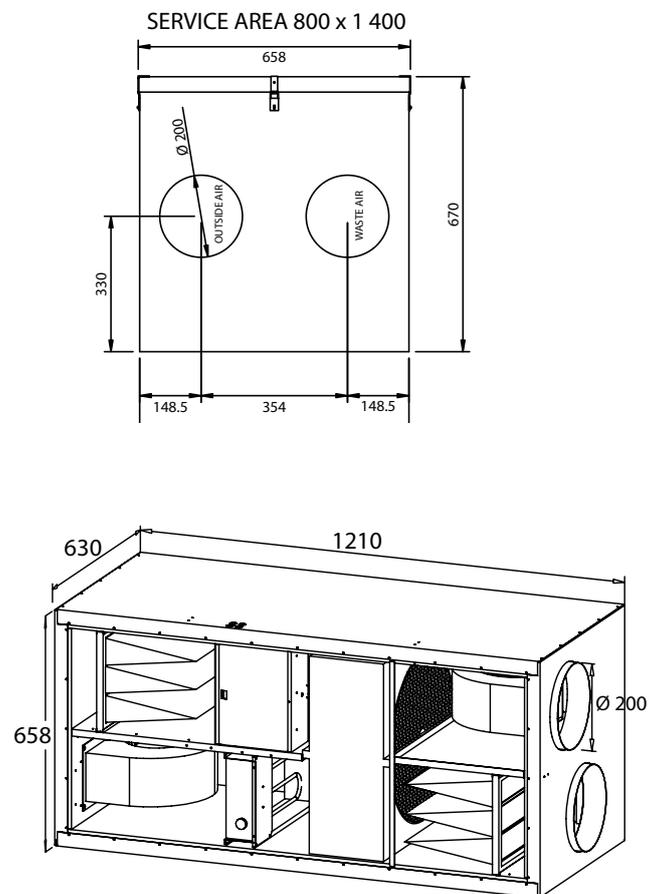
After heating with electrical or water coil.



Greenair LTR-6

Air amount LTR-6-190 eco	+190 / -190 l/s
Space LTR-6-190 eco	0 - 1 052 m ³
Fans LTR-6-190 eco	170 / 170 W
Current	230 V ~ / 50 Hz
Fuse EC, EDW	10 A quick
Fuse ECE, EDE	16 A quick
Over heating protection	yes
Duct connections	Ø 200 mm
Weight	95 kg
Filter (standard)	F5
Alternative filters	F7

After heating with electrical or water coil.



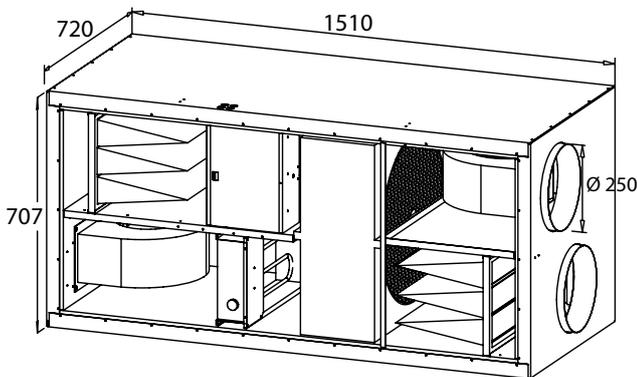
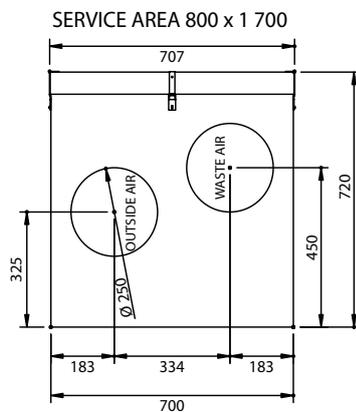
NOTE! Standard LTR-units are installed with the service hatch on top. As an alternative, the LTR-unit is also available with the service hatch to the side.

Greenair LTR-7

Air amount LTR-7 eco	+340 / -360 l/s
Air amount LTR-7 eco XL	+390 / -390 l/s
Space LTR-7 eco	0 - 1 993 m ³
Space LTR-7eco XL	0 - 2 160 m ³
Fans LTR-7-eco	520 / 520 W
Fans LTR-7eco XL	545 / 545 W
Current EC, EDW	230 V~ / 50 Hz
Current ECE, EDW	400 V 3~ / 50 Hz
Fuse EC, EDW	10 A quick
Fuse ECE, EDE	3 x 16 A quick
Over heating protection	yes
Duct connections	Ø 250 mm
Weight	130 kg
Filter (standard)	F5
Alternative filters	F7



After heating with electrical or water coil.



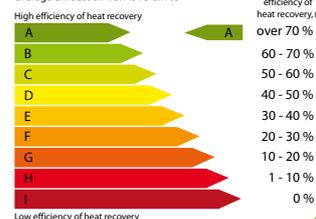
Enervent's ventilation unit has a class 'A' heat recovery

The ventilation unit Enervent® LTR-3 eco ED has been tested by VTT (Technical Research Centre of Finland) and it has been given a product certificate that proves the unit's heat recovery is class 'A'. The other products presented in this brochure has not been certificated by VTT. VTT gives results for four different climate zones in Finland. The Enervent ventilation unit also achieved class 'A' heat recovery in Sodankylä in Lapland! The heat recovery in Enervent® LTR-3 eco ED is carried out with a rotating heat exchanger, which efficiently recovers heat from the exhaust air. The test performed by VTT showed that the exhaust air annual heat recovery rate is up to 73 %.

Enervent® LTR-3 eco ED
max. air amount +110/-110 dm³/s (125 Pa)

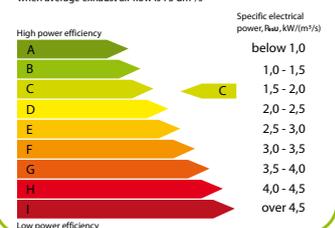
ANNUAL EFFICIENCY OF HEAT RECOVERY, η_a

Annual efficiency of heat recovery is 73 % when average exhaust air flow is 75 dm³/s



SPECIFIC ELECTRICAL POWER, P_{estu}

Specific electrical power is 1,6 kW (m³/s), when average exhaust air flow is 75 dm³/s



The complete certificate Nr VTT-C-3711-09 is on our website www.enervent.fi

Cooling with ventilation

It is getting more and more common with cooling in homes and business facilities. Cooling of the supply can be realized in many ways with an Enervent® -ventilation unit. One alternative is to use the fluid of a ground heat pump as refrigerant (CG). Another possibility is to combine the ventilation unit with an air source heat pump (HP and EDX). The supply air can also be cooled with cold water.

CG Cooling Geo - cost effective cooling of the supply air

You get virtually free cooling of the supply air during summer by using the ground source heat pump fluid as refrigerant. The coolness is stored in the drilled well or in the bedrock. Using CG Cooling Geo you achieve ecologically friendly cooling without unnecessary energy consumption. In addition the heat leaving the house is stored in the well or in the bedrock, which improves the ground heat pump efficiency in heating mode during winter.



CG Geo Cooling uses the ground source heat pump fluid to cool the supply air. CG Geo Cooling is an ecologically friendly way of cooling the indoor air.

EDX - a combination of ventilation unit and heat pump

EDX is a combination of our rotating heat exchanger and an inverter controlled heat pump. In wintertime the energy recovery of the ventilation is carried out by the rotating heat exchanger which recovers over 70 % of the exhaust air heat. In addition the technology enables the humidity of indoor air to stay at a healthy level by also recovering energy-filled humidity. The need for additional heat is taken care of by an energy efficient heat pump which heats your house efficiently. During hot summer days the supply air is efficiently cooled and the cooled air is evenly distributed throughout the house using the ventilation ducts. The rotating heat exchanger recovers coolness and makes use of summer night cooling.



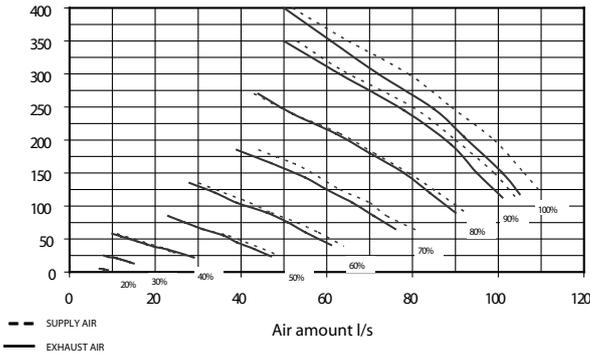
The air cooled by the EDX system heat pump is evenly distributed throughout the house using the ventilation ducts. Heat pump inside units aren't needed at all.

To be noticed when planning cooling

Careful planning is essential when building a ventilation system. The following matters should be noted when planning a ventilation system with cooling. A system that is able to support both cooling and basic ventilation is the wisest solution from an energy efficient point of view. The purpose of the cooling is to lower the room temperature and dry the supply air. The air amounts for the basic ventilation should be planned according to local regulations. The ventilation unit however, should be sized so that basic ventilation is achieved at fan speeds 50-60 % and the boosting speeds when cooling at 70-100 %. Take into consideration that boosting when cooling demands large air volumes. The duct system should be planned so that these large air amounts can be run without noise pollution. A suitable terminal device is one that functions at two operating points - one for basic ventilation and one for boosted ventilation. The duct must be adequately insulated. The insulation plays a vital role when the unit is equipped with cooling. By planning and building the system as advised above you get a well balanced and quiet solution for both basic ventilation as well as boosted ventilation when cooling.

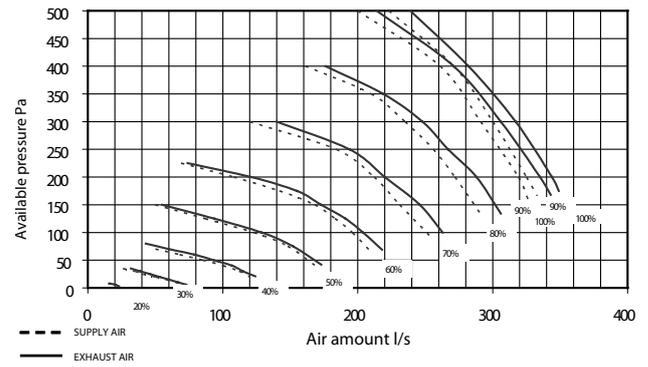
Greenair LTR-3

Characteristic curves for LTR-3 eco with F5 filters



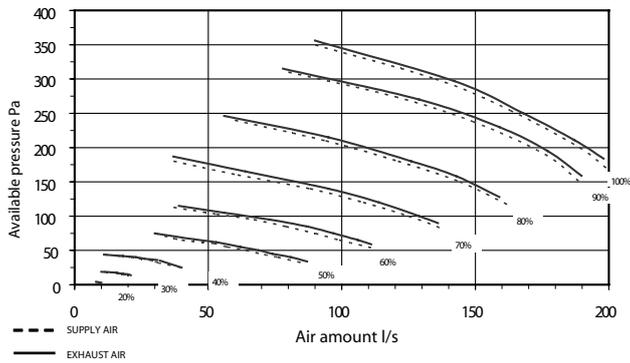
Greenair LTR-7

Characteristic curves for LTR-7 eco with F5 filters



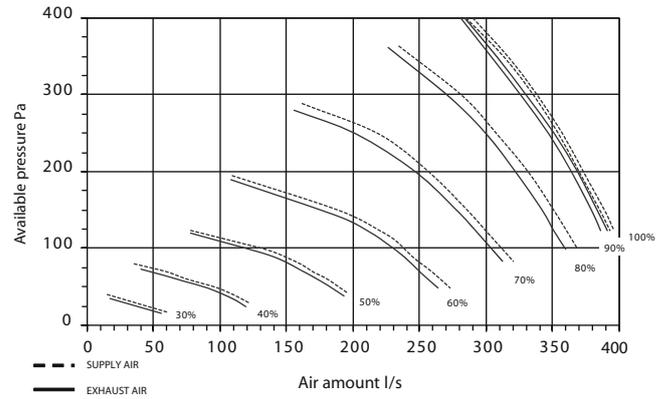
Greenair LTR-6

Characteristic curves for LTR-6 eco with F5 filters



Greenair LTR-7-XL

Characteristic curves for LTR-7 eco XL with F5 filters



Reseller:

Our energy calculation software
ENERGY OPTIMIZER
 gives you annual heat recovery rate,
 specific fan power, coil pressure drops, sound data,
 dimension drawings and lots more

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