



*The Art of Air  
Innovation Since 1983*

*Enervent has developed a wide range of small ventilation units which are based on a rotary heat exchanger. The units represent the elite in their sort on the market, both due to the versatile functions and the high quality.*

*Our goal is to develop, manufacture and market, complete and ready-to-install ventilation units, which have been tested and regulated at the factory so that the installation time on the construction site will be as short as possible.*

*In all our lines of production, we constantly concentrate on product development. We continuously follow the technological development around the world seeking for new solutions for our units.*

*The main goal for Enervent is a satisfied customer.*

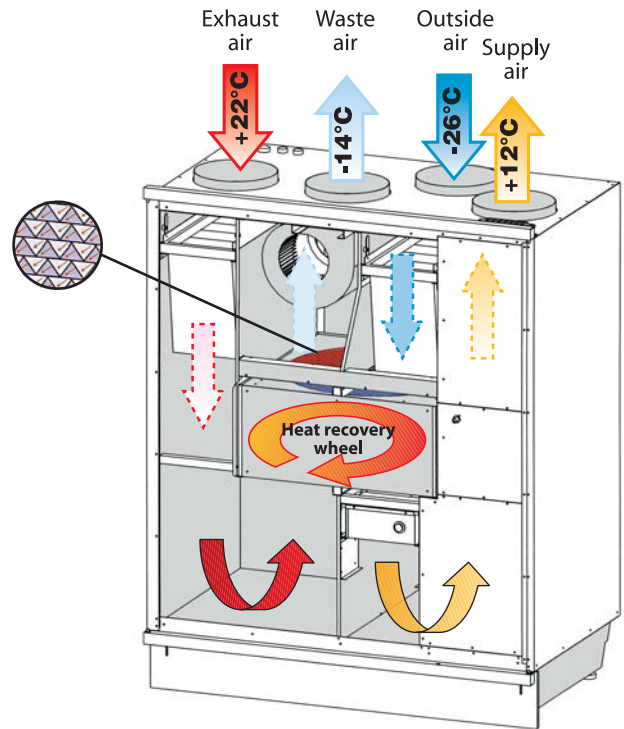
**Enervent** small ventilation units

# Controlled ventilation

We spend most of our time indoors. It is therefore very important to have good indoor air quality. With an energy recovery ventilation system, the stale indoor air is removed and replaced with fresh, filtered and pre-heated (or in summertime pre-cooled) air. Using an Enervent ventilation system we can also control the moisture level indoors. If the moisture level rises, it can be corrected by increased ventilation; in some units this function is even automatic.

## Heat recovery

Heat recovery is carried out using a rotating heat exchanger, the most energy efficient heat recovery system available, with a heat recovery rate of up to 80 %. The heat recovery rate is twice as efficient as that of a plate (or “cross-flow”) heat exchanger and can work in freezing conditions. Even when the outside air temperature drops below 0°C, the rotating heat exchanger does not require frost protection and can control the indoor moisture level. Furthermore, advantage is also taken of a substantial part of the energy stored in the humidity



The operating principal of the rotating (or “regenerative”) heat exchanger

Heat is captured by the material of the heat exchanger when the warm exhaust air passes through it. The heat exchanger then rotates the heated material into the fresh air side, efficiently warming up the fresh air by giving off the warmth stored in it.

# Heating and cooling the supply air

## Additional heating with electricity or water

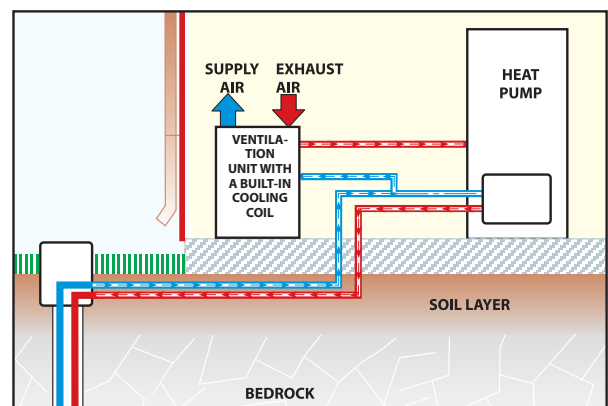
Due to the efficient heat recovery, the need for additional heating is usually eliminated, or is very small. If additional heating is needed during cold periods, the built-in electrical or water heater is used. Because additional heating is so rarely required, it is considering the total costs, cheaper to use the electrical heater. We do, however, also offer efficient water heaters for low water temperatures which can be connected to, for example, an underfloor heating system.

## Cooling of the supply air

The Enervent ventilation units can cool the fresh air using a ‘cooling coil’ containing cold water\*, a refrigerant\* or by using the fluid circulating in a geothermal heat pump as the cooling agent. In most cases, the cooling coil can be installed inside the ventilation unit, otherwise it is installed in the duct.

\* the cooling system is not included as standard

## Enervent Cooling Geo



### Enervent Cooling Geo system

In buildings equipped with a geothermal heat pump, the fluid circulating in the system can be used to cool the fresh air. The best result is obtained if the fluid circulates in an underground bore hole. The control of the heating and cooling is totally automatic.

# Using the ventilation unit

## ECC Electronic Climate Control (standard control system)

The Enervent ECC control system allows the user to adjust the basic functions of the ventilation unit: fan speed, boost heater temperature (optional) and heat exchanger. The control panel includes a service light which indicates when the filters require changing and of possible equipment faults.

The ECC control system includes an over pressure function (or "fireplace switch"), which can be activated using a separate push button (extra equipment). The exhaust air flow should be 5–10 % bigger than the supply air flow. To achieve the right proportion between the flows, the ECC control allows the user to adjust the supply air fan to run one speed setting slower than the exhaust air fan.

## AC Automatic control

We offer the demanding customer one of the most versatile control systems on the market: Enervent AC automation. With AC automation the user can adjust the ventilation rate very precisely, according to their requirements. Most of the functions are automatic. The user sets the desired value and the control system sees that it is carried out. In other words, the ventilation unit doesn't require daily supervision.

Ventilation can be regulated not only by the carbon dioxide\* and humidity level in the apartment or house, but also by the air pressure level\*\* (for instance when using a central vacuum cleaner or cooking hood). The AC also includes easy-to-use overpressure and boosting functions. The AC takes care of the heating and cooling (optional) of the fresh air. It also automatically regulates the heat recovery summer functions, such as efficiency reduction, summer night cooling and cooling recovery.

\* the sensor is extra equipment

\*\* requires control voltage

## Control panels

### The ECC panel



### The AC panel



## Features of the AC automation

- Home / office mode
- Carbon dioxide control
- Humidity control
- Constant pressure control
- Over pressure control (fireplace switch)
- Boosting
- Extended time control
- Constant pressure regulation
- Efficiency reduction
- Cooling recovery
- Defrosting of the heat exchanger
- Heat exchanger efficiency
- Constant supply air temperature
- Constant room temperature
- Constant exhaust air temperature
- Summer night cooling
- Electrical heater over heating protection
- Water heater freeze protection
- Damper motor control
- Maintenance and fault alarms
- Weekly timer
- Multiple remote controls possible
- FreeWay gateway connection possibility
- Geothermal cooling possibility

## Field BUS

**The ECC\* control** can be connected to the following field BUS: LON • EIB • IHC • Ensto Smart and other field BUS as Profibus, AS-I, Can.

**The AC automation\*\*** can be connected to following field BUS: LAN/Internet • LON • EIB • IHC • Ensto Smart and other field BUS as Profibus, AS-I, Can.

**Note!** All the field BUS do not replay all the features of the control. Check with the manufacturer which features do work through the BUS.

\* can not be directly connected, requires in and out units.

\*\* Enervent does not recommend connecting the AC control to an external control besides in office mode.

# Enervent Perfect

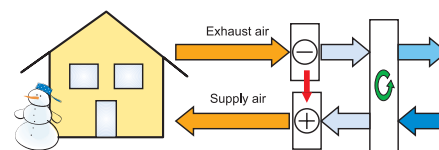
The most reliable mechanical heat recovery system during colder seasons is the rotating heat exchanger, which efficiently recovers heat all year round. By combining the rotating heat exchanger with an exhaust air heat pump we get a superb combination! Most of the heat from the exhaust air is first recovered with the heat pump. Then the air is passed through the rotating heat exchanger, and it too recovers heat from the air with a high efficiency.

## Technology and control

The Perfect unit range uses the same rotating heat exchanger as our standard units. The heat pump is 'inverter' controlled, meaning we achieve a very fine level of control over the fresh air temperature, compared to the crude control offered by 'on-off' heat pumps.

The Perfect range is controlled with our EDA (Electronic Digital Automation) control system. The new EDA control system offers easy-to-use heating and cooling functions. The system is ready for the challenges in control and regulation of the future today!

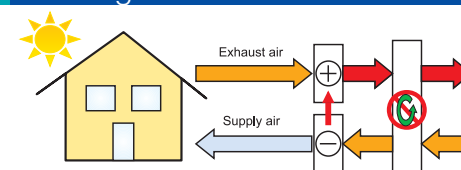
## Heating with Fresh air



### Heating with Fresh air

When air, pre-heated with the rotating heat exchanger, is heated with the heat pump, we get "over temperature" fresh air, heated very efficiently. In other words, it is possible to partly heat your house with the fresh air supplied by our Perfect unit. This form of heating is very economical.

## Cooling with Fresh air



### Cooling with Fresh air

The unit has a complete cooling system and doesn't require any external cooling units! We can cool the fresh air with the heat pump by reversing the process. The cool fresh air is supplied into your house through the ventilation ducts, without any visible cooling units inside or outside your house.

	PINGVIN	PANDION	PELICAN	PEGASOS	PEGASOS XL	LTR-3	LTR-6	LTR-7	LTR-7-XL
<b>Dimensions</b>									
• width (mm)	580	785	998	1250	1250	840	1190	1510	1510
• depth (mm)	500	543	590	677	677	470	660	707	707
• height (mm)	540	895	1270	1400	1400	500	660	720	720
<b>Air amount (l/s)</b>	-0 – 95 +0 – 87	-0 – 140 +0 – 140	-0 – 205 +0 – 190	-0 – 270 +0 – 250	-0 – 370 +0 – 370	-0 – 110 +0 – 110	-0 – 230 +0 – 230	-0 – 310 +0 – 310	-0 – 390 +0 – 390
<b>Space (m<sup>3</sup>)</b>	0–526	0–775	0–1138	0–1548	0–2050	0–606	0–1274	0–1713	0–2160
<b>Weight (kg)</b>	50	90	125	203	203	52	96	130	130
<b>Duct connections Ø (mm)</b>	160	160	200	250	250	160	200	250	250
<b>Installation</b>									
• warm place	●	●	●	●	●	●	●	●	●
• cold place						●	●	●	●

\* Dwelling space volume with 30 % boosting capacity (RAKMK D2. 2003)  
Confirm the air amount with your ventilation engineer or planner.

**Check list when purchasing a ventilation unit**

- Is the unit dimensioned correctly, i.e. the right size and capacity?
- Does the filtering level meet your requirements?
- Does the control system meet your expectations/wishes?
- Is the location of the ventilation unit optimized, considering duct installation, noise and the building itself?
- Is the heat loss and energy consumption the smallest possible in your chosen ventilation system?
- Is the humidity level of the indoor air maintained at a healthy level, even in wintertime, or is the air dried out by allowing all the humidity to be removed?
- Does the ventilation unit manufacturer have years of experience manufacturing ventilation units and making them work even in the harshest conditions?

*Enervent family ventilation units*



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