

ENDURA® DELTA

Demand and app controlled ventilation system with heat recovery





THE IMPORTANCE OF VENTILATION

As occupants, we are increasingly aware of the fact that energy-efficient construction should be a qualitative and long-term investment in a healthy and comfortable future. After all, an airtight and well-insulated construction can dramatically reduce our energy bills.

NATURAL VENTILATION: GOOD FOR BOTH OCCUPANT AND HOME

Contrary to popular belief, the indoor air quality is on average 10 times worse than the outdoor air quality. Cooking, showering, cleaning, sweating and even breathing all result in polluted air. A poor indoor air climate can, in the long term, damage the occupants' health. Respiratory problems, eye irritation, headaches, allergies and concentration loss are only a few of the potential consequences. What's more, excessively damp air can lead to bad odours, condensation and mould growth. That is why it is so important to ventilate continuously and efficiently.

DEMAND CONTROLLED VENTILATION

It is not possible for us humans to detect changes in air quality. For example, we cannot sense when certain air pollutants reach excessively high concentrations. Consequently, we cannot expect an occupant to be able to assess the level of ventilation required for a healthy indoor climate.

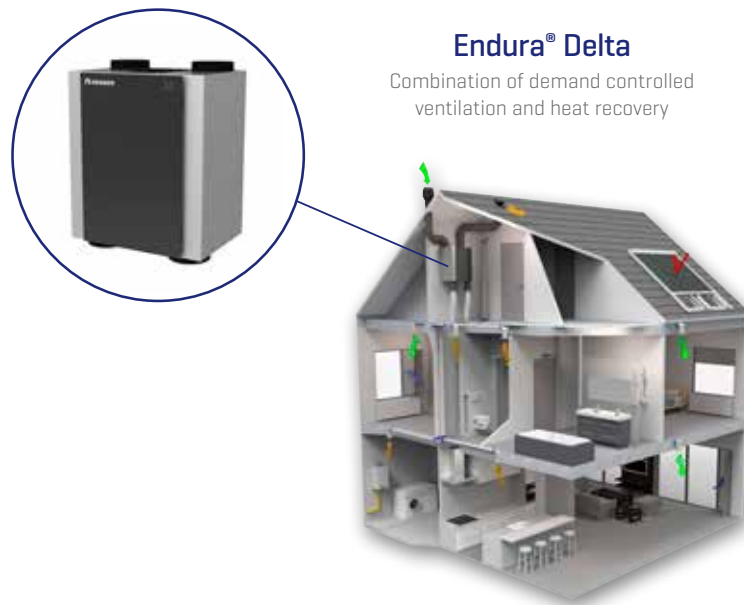
Therefore, it is important that the ventilation level is adjusted automatically according to the actual ventilation requirements. This is achieved through intelligent sensors that can adapt to different situations at any time of the day. If the air in the room is of good quality, then the extraction flow rate in that room is lowered. This automatic adjustment will result in energy savings of 30 up to 50%.





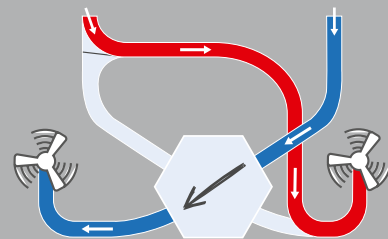
DEMAND CONTROLLED VENTILATION WITH HEAT RECOVERY

Aside from being energy efficient, a house should above all be a home where people can live in a comfortable and healthy environment. Elements such as **sun protection** (to prevent overheating), **ventilative cooling** (intensive night-time ventilation during hot summer months) and a **high-quality ventilation system** guarantee this comfortable and healthy indoor climate.



BREEZE FUNCTION

The Endura Delta is equipped with a fully automatic summer bypass. This bypass ensures that during hot summer months the house can be cooled overnight with fresh air from outside. When the bypass is activated, the warm extracted air does not pass through but alongside the heat exchanger. This way the heat is no longer transmitted to the fresh air supply. The supply air can then be used to cool down the house.

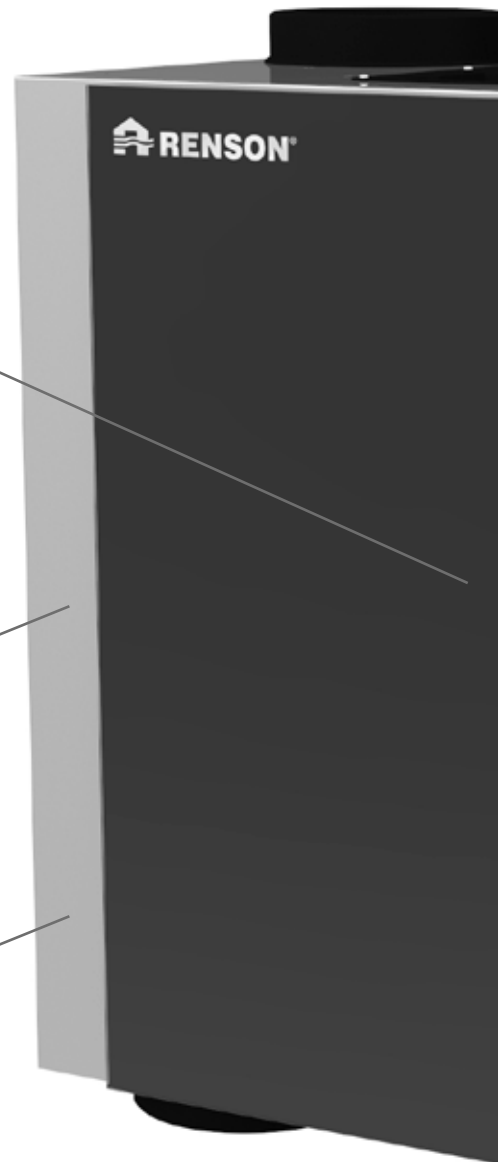


VENTILATION UNIT

Demand controlled ventilation system with heat recovery

Integrated humidity, CO₂ & VOC sensor

Passive House certified



Your installation comfort:

- Easy calibration with the Endura Delta app
- Suitable for both ground floor [T4] or attic [T2/B2] setup



Extremely quiet and energy-efficient system

Controlled via the Endura® Delta app

Breeze function [modular bypass]

TYPES OF ENDURA® DELTA

The Endura Delta is a demand controlled heat recovery unit. The system provides the house with fresh air and removes polluted indoor air using two fans. Up to 89% of the heat from the extracted air is transferred to the supply air via the integrated heat exchanger. The system can easily be controlled and programmed with the Endura Delta app. The app also provides information about the functioning of the system and the air quality in your home.

The device is available as standard in a left-hand version and with four top connections [T4] or two top and two bottom connections [T2/B2]. The left-hand version can also be converted to a right-hand version. In addition to the standard integrated frost protection, each model can be equipped with an optional preheating element for added security against freezing of the heat exchanger.



330 T4



330 T2/B2



**380 T4
450 T4**

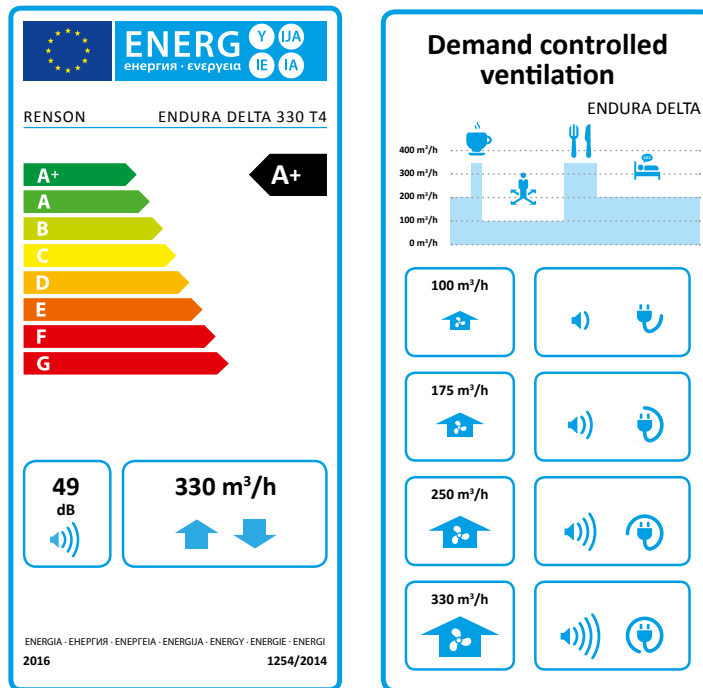


**380 T2/B2
450 T2/B2**

Product	Sound power level [LWA] dB(A)	m ³ /h	Label
Endura Delta 330 T2B2	47	330	A+
Endura Delta 330 T4	49		
Endura Delta 380 T2B2	49	380	A
Endura Delta 380 T4	52		
Endura Delta 450 T2B2	50	450	A
Endura Delta 450 T4	53		

ENERGY PERFORMANCE

Ecodesign is a European directive that provides a frame of reference for assessing the energy efficiency of electrical appliances, providing end customers with the information they need on the consumption and performance of the appliances that they purchase. As of 1 January 2016, ventilation manufacturers have to provide their ventilation systems for residential buildings with energy labels such as those required for other electrical appliances containing basic device information. This includes information about the noise level generated by the unit, the total airflow value and the energy class [A to G].



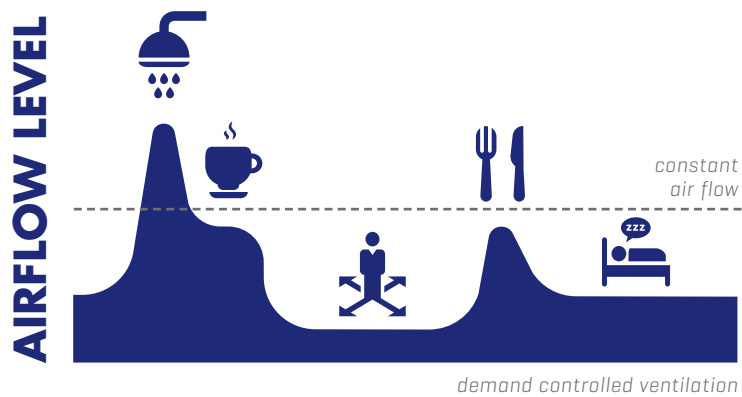
The energy label takes into account the maximum air flow. Since the Endura Delta is a demand controlled system, the system will rarely operate at its maximum airflow rate.

DEMAND CONTROL

FRESH AIR ON DEMAND

The Endura Delta is equipped with dynamic sensors that continuously monitor the extracted air for CO₂, humidity and/or harmful VOCs [volatile organic compounds]. This way, the Endura Delta will adapt the ventilation rate to your living pattern, thus creating a smart and energy-saving form of ventilation.

A constant air flow does not only account for unnecessary energy consumption, heat loss and noise production, but there will also be insufficient ventilation when it is most needed.



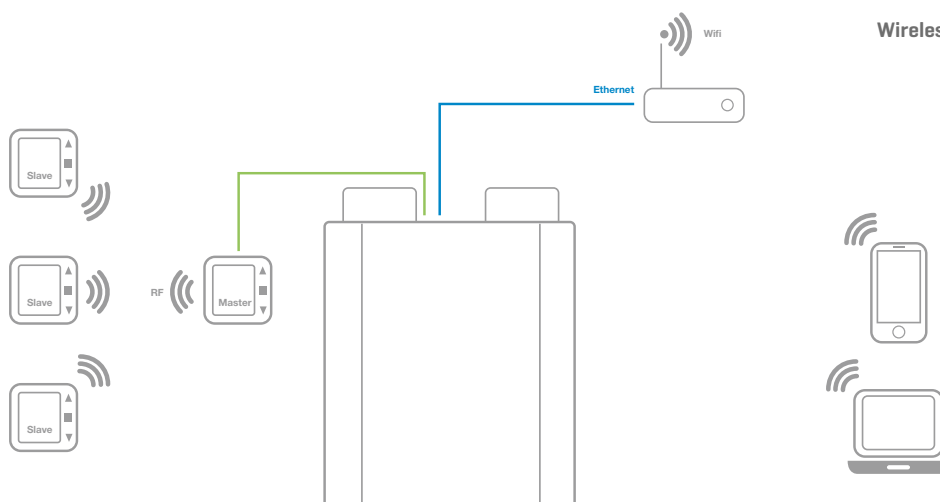
Example: The Endura Delta will observe that humidity levels in the exhaust air increase when someone is showering. Therefore, the airflow rate will be temporarily increased in the entire house until humidity levels have dropped back to normal.

EXTERNAL AIR QUALITY SENSORS

By default, the Endura Delta is equipped with internal air quality sensors. However, it is also possible to install external sensors [CO₂] in the dry rooms. This will allow the system to react even faster to changes in indoor air quality. The air quality sensors give an indication of the active ventilation level and the actual air quality with a colour scale from green to red.



Wireless air quality sensor



HEAT RECOVERY

The Endura Delta generates two air flows in your home: supply of fresh air in the dry rooms (living room, study, bedrooms) and the extraction of polluted air out of the wet rooms (bathroom, laundry room, kitchen, toilet). The extracted air has the same temperature as the indoor ambient temperature, whereas the supply air has the same temperature as the outside air. In the heat exchanger, the two air flows cross each other's paths and the heat from the hot, extracted air is transferred up to 89% to the incoming outdoor air. This way you will experience a maximum of comfort in your home.



FROST PROTECTION

The Endura Delta is equipped with a frost protection mechanism. If the outside temperature drops below zero, the heat exchanger may freeze. As heat is transferred from the extracted air to the supply air, condensation builds up in the heat exchanger. Condensation is drained off through a condensation drain connected to the plumbing. If the supply air temperature is below zero in winter, the possibility of condensation freezing in the heat exchanger cannot be excluded. In this case, the efficiency of the appliance drops dramatically and this may damage the heat exchanger.

To prevent this, the Endura Delta is equipped with a frost protection mechanism. The proportion of warm extracted air to cold supply air is increased so as to maintain positive temperatures for as long as possible.

Optionally, you can also equip the Endura Delta with an electric preheating element. At temperatures below zero, this pre-heating element prevents freezing by partially preheating the supply air. The preheating element is controlled in several steps in order to keep the additional electricity consumption as low as possible.

ENDURA® DELTA APP

As an innovative ventilation specialist, Renson® has committed itself to transform every home into a healthy and comfortable living environment. The Endura Delta can be controlled with a smartphone or tablet. The app also provides information on the functioning of the system and the air quality in your home.

The Endura Delta app allows you to:



The image shows a smartphone displaying the Endura Delta app interface. The screen features a dark background with a central house icon and a blue line graph. Text on the screen includes 'Endura Delta', 'Level 2', 'Wo 11:25', and 'BYPASS'. A bottom navigation bar has icons for 'Home', 'Timer', 'Schema', and 'Data'. Four callout boxes with lines pointing to specific app features are present:

- Configure the unit [installer]**: Points to the top-left menu icon.
- Fill in a measurement report and register the unit [installer]**: Points to the top-right help icon.
- Control the system by quickly and intuitively navigating through the various menus**: Points to the central house icon.
- Check the status of the ventilation system. The app will provide you with feedback on the total air flow, the relative humidity level, the indoor air quality, the inside and outside temperature and the filter status.**: Points to the 'Data' icon in the bottom navigation bar.



FILTERS

The Endura Delta is equipped with two high-quality coarse cartridge filters to protect the heat exchanger and the fans against pollution from dust and insects. Cartridge filters recognizable by their accordion-like structure are used because they have a larger filter surface area.



For health reasons [allergies], it is also possible to install an ePM1 cartridge filter [pollen filter]. These filters retain smaller particles and provide for a greater comfort for people allergic to pollen. As such filters have narrower openings, they present a greater resistance to flow, and this will have an influence on the efficiency of the system.

Does your neighbor still like to use his wooden stove in winter, and do these unpleasant smells come in? No problem, the active carbon filter offers the perfect solution. This filter not only stops particles, but also smells, so that they do not spread in your home.

SQAIR VALVE

The Endura Delta uses special acoustically optimised valves to guarantee that exactly the right amount of air is supplied and extracted from each room. With their sleek design [flat, white aluminium cover plate], these valves blend in perfectly with any interior design style. The supply and extraction valves have the same appearance and can be installed in a very subtle way. The integrated rotary valve allows you to adjust the airflow rate exactly as required in each room. This ensures that any draughts coming from the valve can be kept to a minimum.



SQair



TECHNICAL SPECIFICATIONS

	Endura® Delta 330	Endura® Delta 380	Endura® Delta 450
Product data			
Total air flow	330 m³/h [92 l/s] at 150 Pa	380 m³/h [106 l/s] at 150 Pa	450 m³/h [125 l/s] at 150 Pa
Efficiency [EN308]	89% at 100 m³/h [27 l/s] 84% at 250 m³/h [70 l/s] 82% at 325 m³/h [90 l/s] 81% at 350 m³/h [97 l/s]	88% at 100 m³/h [27 l/s] 85% at 200 m³/h [56 l/s] 83% at 300 m³/h [84 l/s] 81% at 400 m³/h [111 l/s]	87% at 100 m³/h [27 l/s] 83% at 250 m³/h [70 l/s] 81% at 350 m³/h [97 l/s] 79% at 450 m³/h [125 l/s]
Maximum power consumption	2 x 85W	2 x 83W	2 x 115W
Fans			
	EC fans		
	Constant flow control		
Unit			
Dimensions	862x745x520 mm [HxWxD]		
Weight	41 kg	46 kg	46 kg
Connections	180/150 mm or 200/180 mm		
	T4 [4 upper connections]		
	T2/B2 [2 upper and 2 lower connections]		
Configuration	Available in left-hand version [possible to convert to right-hand version]		
Optional pre-heating element	Max. power 1000 W		
	Modularly controllable		
Full bypass	Automatic		
	Modularly controllable		
	Breeze function		
Integrated condensation drain	Ø 32 mm		
Filters	2 x coarse cartridge filters		
	PM1 cassette filter or coarse + active carbon filter		
Integrated TouchDisplay in front panel	-	Configure and control unit	Configure and control unit
	-	Error messages	Error messages
	-	Filter message	Filter message
	-	Visualisation of ventilation levels	Visualisation of ventilation levels
Internal sensors: demand-controlled ventilation	Relative humidity		
	CO ₂		
	VOC		
External input/output	Digital input/output 24V		
	Analogue input/output 0-10V		
Ethernet connection	For using Endura Delta app		
External air quality sensors	External air quality sensors can be joined (master Touch Display + slave air quality sensors)		
Pre-heating element	Optional integration		
Features			
Operation	Schedule		
	Timers		
	Demand-controlled via internal and/or external sensors		
Frost protection	Automatic		
Breeze function	Optimal cooling in summer		
Fireplace function	With external pulse switch		
	Temporary overpressure		
Holiday mode	Most energy-efficient ventilation during absence		
Filter message	Indication when filter cleaning/replacement is due		
Control			
Endura Delta app	Android, iOS		
TouchDisplay	On the device [Endura Delta 380/450] or optionally in the room with air quality sensor[s]		



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