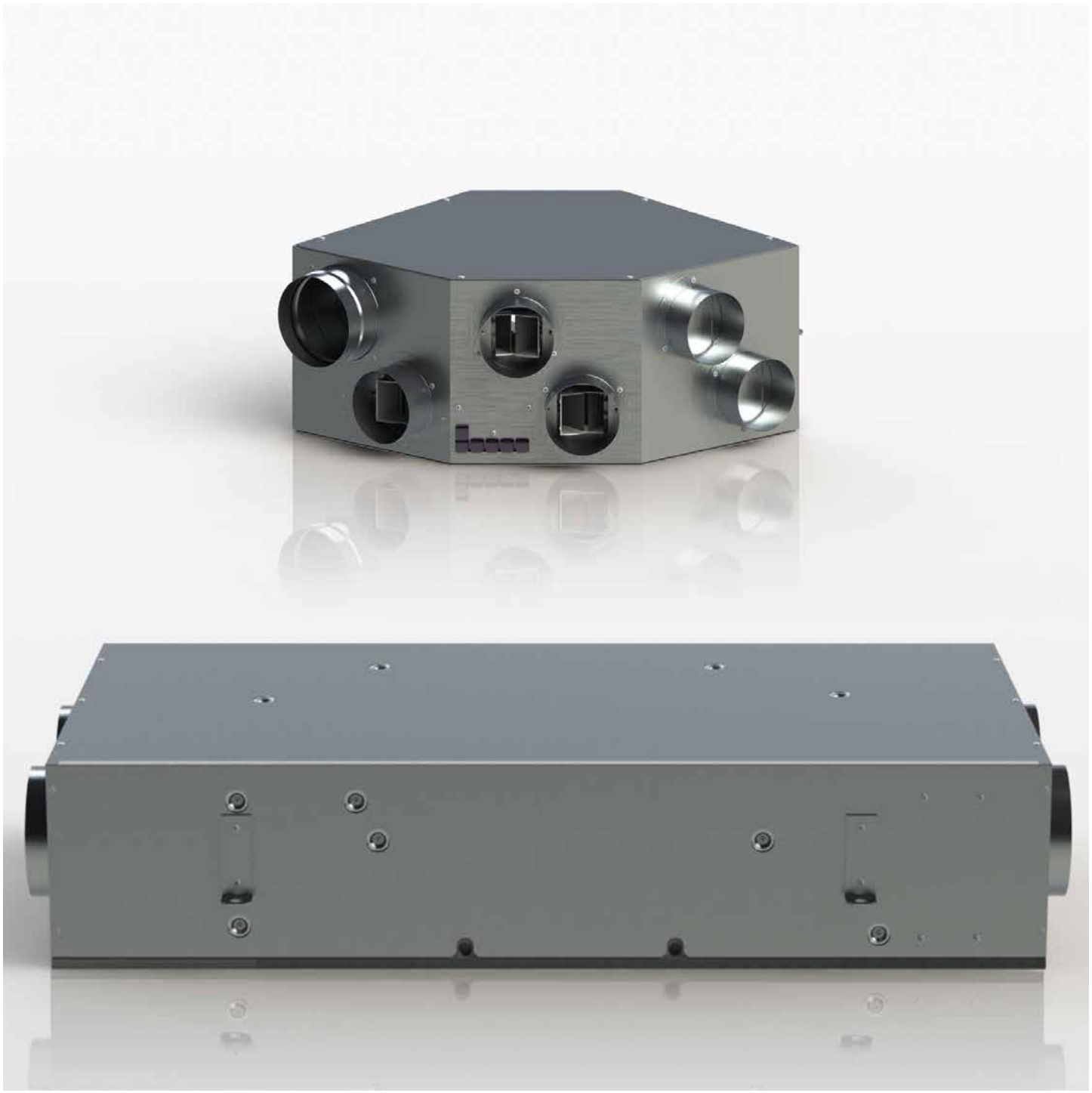
AERECO

DXR

ROOM-BY-ROOM DEMAND CONTROLLED HEAT RECOVERY VENTILATION



DXR REVOLUTION IN THE WORLD OF HEAT RECOVERY VENTILATION

Through its new ventilation system, which combines heat recovery and room-by-room demand controlled airflows, Aereco takes a further step towards optimising energy performance and indoor air quality with an innovative concept.

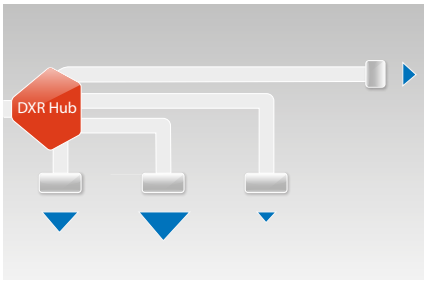
While most ventilation systems on the market offer constant or globally controlled airflows, DXR stands out as the first residential heat recovery ventilation system to **automatically adjust ventilation according to the specific needs of each room.**

COMFORT AND INDOOR AIR QUALITY

DXR enhances indoor comfort by providing healthy air (thanks to F7 and G4 filters), at a milder temperature (preheated by the heat exchanger integrated in the DXR Unit) and more efficient ventilation control due to the automatic adaptation to the needs of each room (via the DXR Hub distribution box).

Modulates exhaust and supply airflows according to the specific needs of each room

Unlike most systems known as *demand controlled* that adjust airflows globally only, the DXR system adapts airflows **room-by-room** based on specific needs, while balancing supply and exhaust. This enables an optimum indoor air quality in all rooms and a great reduction in heat-loss without pointlessly drying the air with unnecessarily high flow rates.



A quiet operation for optimum comfort

Silent motors, strengthened acoustic insulation, airflow modulation, low pressure (25 Pa at supply) and hanging fixing parts guarantee a quiet operation to provide maximum comfort to the occupants.

Automatic *free cooling* mode with integrated bypass

The automatic or forced bypass of DXR allows *free cooling* mode: the fresh air is thus sped up during hot summer nights, passively cooling the dwelling.

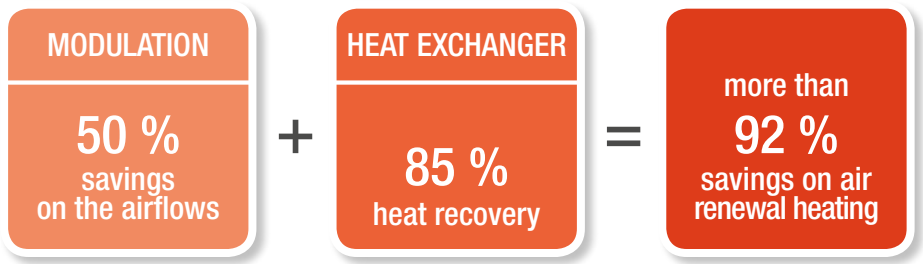
Touch screen controls for display, setup and diagnosis

A colour LCD touch screen allows the occupant to view system parameters, to diagnose operation, to control setups such as automatic bypass temperature, to boost ventilation or to action a *free cooling* on demand. It also notifies the occupant when the filters need to be replaced. A single-colour LCD version is also available.

AN OUTSTANDING ENERGY PERFORMANCE THROUGHOUT THE YEAR

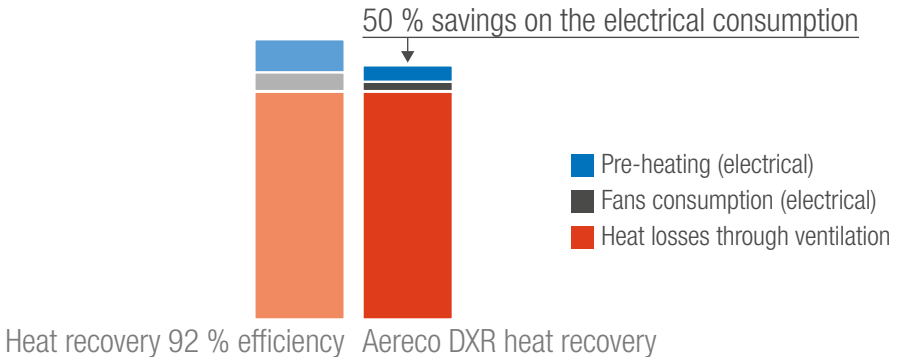
DXR is an innovative ventilation concept designed to combine the benefits of both airflow modulation and heat recovery.

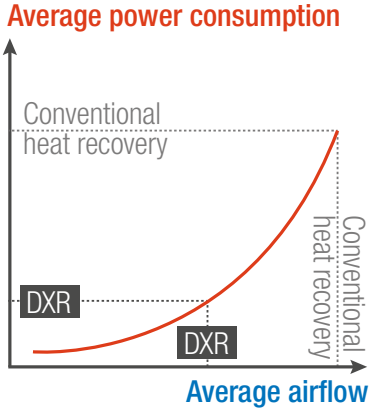
Modulation enables a significant reduction in average airflows while providing excellent air quality, with heat losses produced by ventilation lowered by half on average in comparison with a constant airflow ventilation. The heat exchanger operates with a yield of about 85 % recovery. **Combined, these features achieve about 92 % energy savings when compared with a mechanical exhaust ventilation system at constant airflow, with the same indoor air quality.**



50 % savings on electrical consumption

The average airflow reduction, due to the demand control ventilation offered by the DXR system, also generates important savings on electrical consumption and the impact of this on preheating and fan power (see next paragraph) is very positive, **saving more than 50 % electrical power in comparaison with a constant airflow heat recovery with 92 % efficiency.**





How demand controlled airflows can reduce electrical consumption of the fans

In addition to significant energy savings on heat losses, DXR reduces primary energy consumption by reducing fan power. The fan type used (highly efficient brushless electronic commutation motors), low pressure operation and average airflow reduction through demand controlled ventilation (50 %) allow DXR to work at an average power greatly reduced compared to that of a standard heat recovery system using one or several speeds. **Power consumption is thereby reduced by more than 50 %.**

Filters kept clean longer = less power consumption

By reducing the average airflows (by about 50 %) with an equivalent indoor air quality, DXR reduces the rate of filters clogging, thanks to the reduce volume of air passing through the filters at any given period. Filter durability is doubled compared to traditional heat recovery systems, thereby reducing pressure drops and the power consumption of the motors.

A SOLUTION PARTICULARLY SUITABLE FOR FLATS, FOR RENOVATION AND NEW BUILD

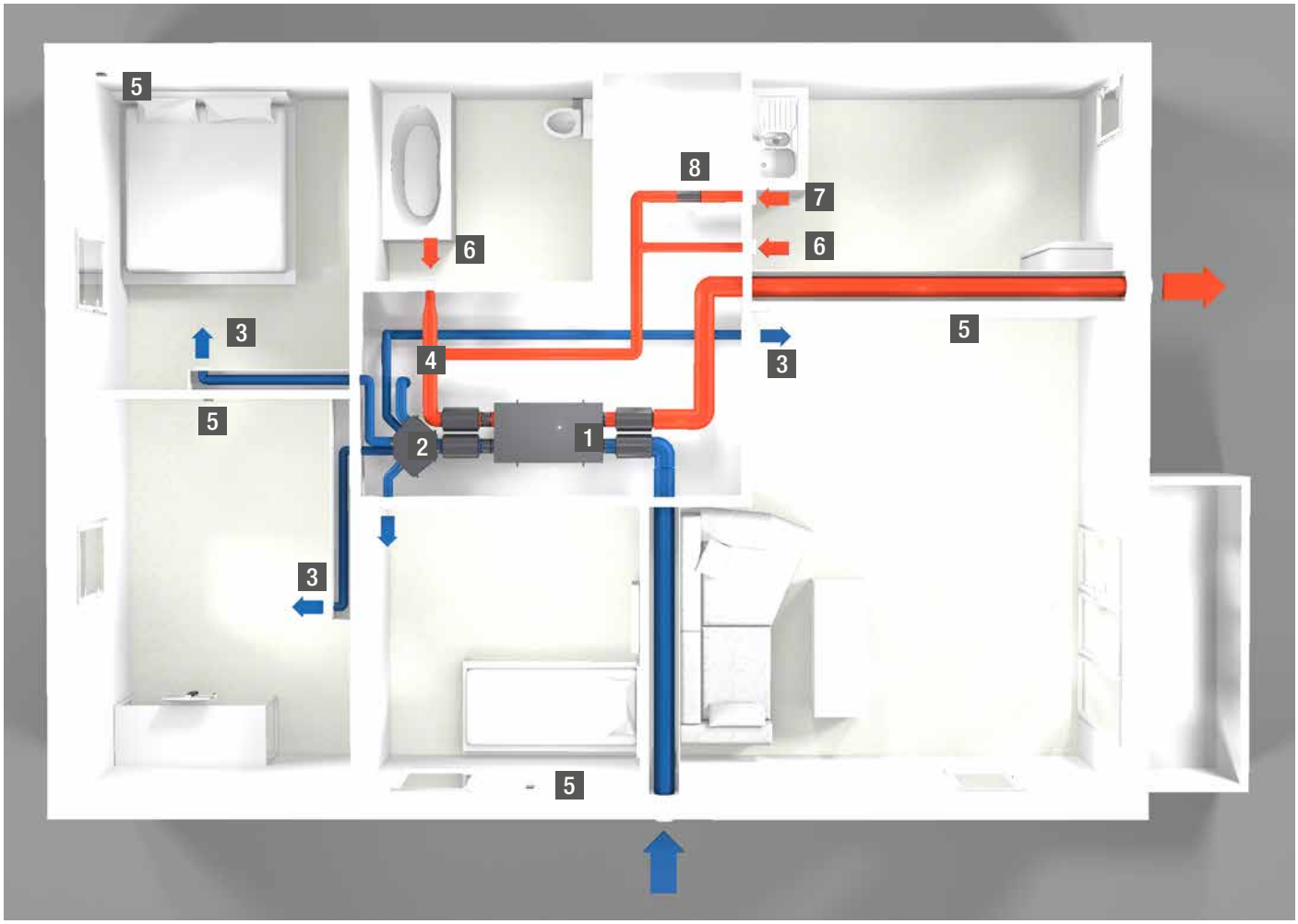
Designed for ceiling installation within the heated space, DXR provides a truly elegant solution for multi-apartments buildings, where available space for systems is often restricted, particularly in renovation projects. Its very low thickness (26 cm) and its reduced width (65 cm) allow easy installation in ceiling spaces (for example in the ceiling void of a corridor).

SIMPLIFIED INSTALLATION AND EASY FILTERS CHANGE

The DXR Unit is fixed by the means of 4 cables. Connections (to sensors and Hub) are very simple, via RJ11 and RJ45 connectors.

Filters can be easily replaced without dismounting the cover of the unit, by just simply removing the two trapdoors. Safety is ensured during this operation (even without cutting the electrical supply), as the filters are separated from the motors and electrical components.

A SMART SYSTEM
OPTIMISED FOR THE AIRFLOW CONTROL



The DXR system is comprised of a heat recovery unit (DXR Unit) connected to exhaust units and to a distribution box (DXR Hub) which controls the supplied airflows. The counter-flow heat exchanger, integrated into the main unit, ensures the recovery and transfer of most of the energy from the exhaust air to the supply air, thus limiting the energy required to heat the fresh air.

Airflows are automatically controlled according to the needs of each room of the dwelling: for the supply air in the bedrooms and the living room, and for the exhaust air from the kitchen, bathroom and WC. Each supply unit is directly connected to the DXR Hub distribution box, which adjusts the airflow to all main rooms based on the CO_2 rate, proportionally to the measured level of pollutant. On the exhaust side, the BXC units automatically adjust the airflow, according to parameters read by various sensors: humidity in bathroom, presence in WC, humidity and manual boost in the kitchen. Versions with CO_2 or VOC sensors can also be used for exhaust units.

At all times, the total supply and exhaust airflows are measured and balanced by means of two controlled compensation valves which can be located in the living room, in the kitchen or in a corridor. For example, when the need for ventilation is growing during meal preparation in the kitchen without being accompanied

by a strong demand in main rooms, the requested exhaust airflow can be achieved by the supply compensation valve opening (located in the DXR Hub).

The bypass located in the heat recovery unit automatically sends the exhaust air directly outside without going through the exchanger when the outside temperature is mild enough; it can also be used in free-cooling mode to provide night cooling in summer.

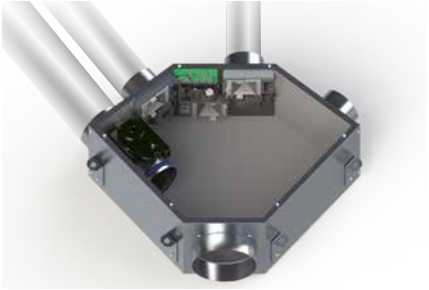
DXR heat recovery ventilation components:

	**DXR Unit** Heat recovery unit with balanced demand controlled airflows	1
	**DXR Hub** Distribution box for demand controlled supply airflows	2
	**SDC100** Supply units	3
	**SDC125** Supply unit for balance	4
	**S-CO2** CO_2 sensors	5
	**BXC** Exhaust units with integrated humidity, presence detection or other sensors	6
	**BXC b** Exhaust unit for balance	7
	Exhaust compensation valve	8
	**Touch screen** Display and control module for the user also used for maintenance	

Note: Some other components may be used in the system such as pre-heating device, condensation exhaust pump, etc. Please refer to the "Design and installation guide" of the system.

How does DXR control room-by-room supply and exhaust airflows?

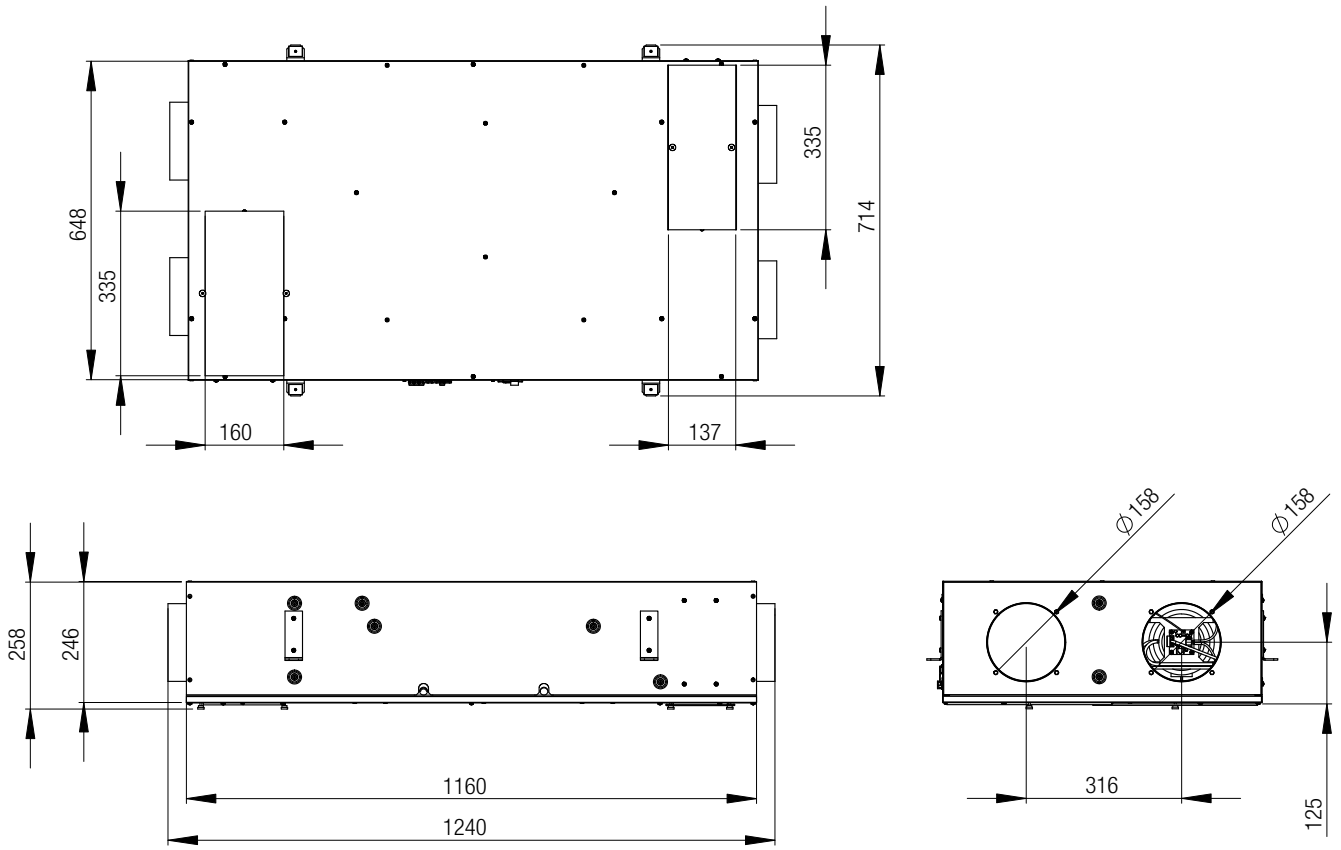
If the units used for exhaust are the same as those used in "standard" Aereco's mechanical exhaust ventilation system, airflow supply control in the DXR system is provided by a specific device: the DXR Hub distribution box. Using up to 5 demand controlled dampers connected to supply units, it allocates the airflow in each room according to the data received by CO_2 sensors located in bedrooms and in the living room. An additional valve is integrated to ensure the balance between total exhaust and supply air.



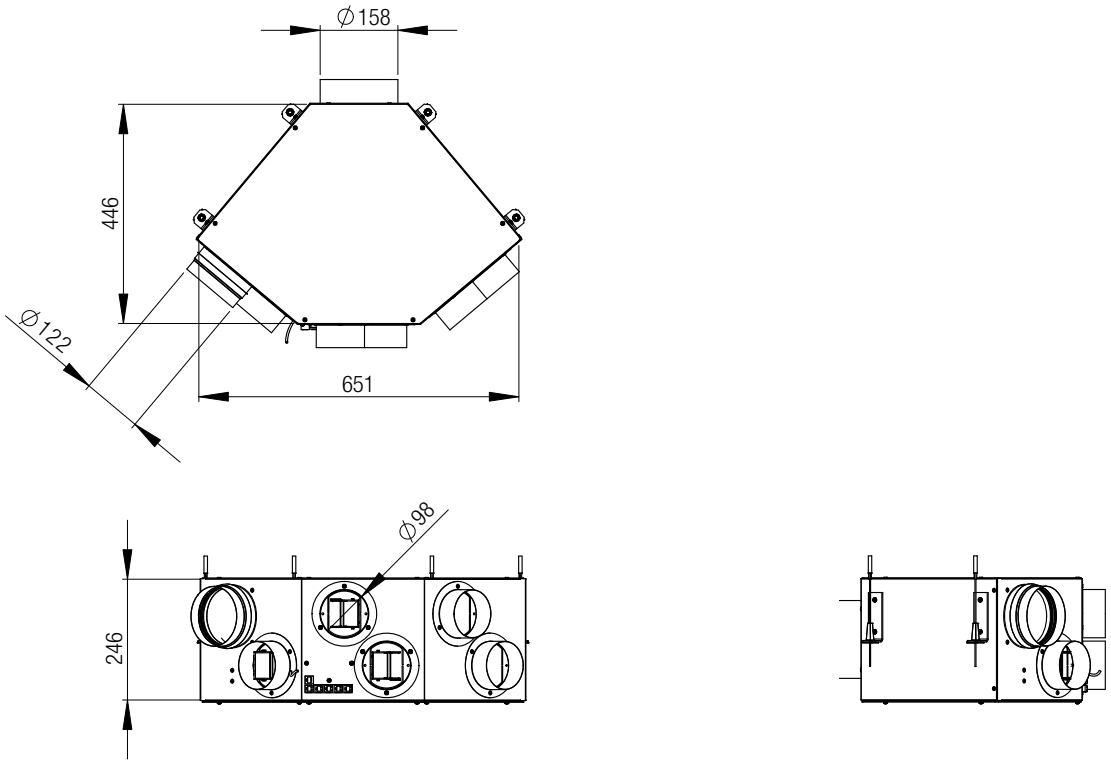
HIGH QUALITY MANUFACTURE

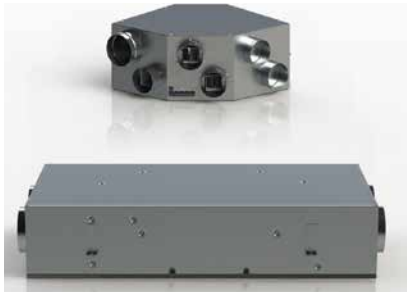
With a base, a distribution box and vital parts all being made of metal, DXR wins on quality and maximum durability. Most of its components (motor, fans, and heat exchanger) are manufactured in Germany and assembled in Aereco, in France.

DXR Unit - Dimensions in mm



DXR Hub - Dimensions in mm





DXR Room-by-room demand controlled heat recovery

		DXR Unit
Standard code		
Airflow characteristics		
Max. airflow	m^3/h	170
Pressure at supply	Pa	25
Pressure at exhaust	Pa	60
Airflow compensation (filter clogging)		automatic
Airflow balance (supply and exhaust)		automatic
Acoustics		
Sound power level Lw @ 165 m^3/h	dB(A)	46.3
Electrics		
Power supply		230 VAC, 50 Hz
Motor type		EC (x2)
Power @ 112 m^3/h	W	30
Power @ 160 m^3/h	W	42
Connection DXR Hub - DXR Unit		RJ45
Electrical connections (sensors)		5 x RJ11
Characteristics		
Exchanger		aluminium / counter flow type / 85 % efficiency
Filters		on supply air: G4 + F7 / on exhaust air: G4
Weight	kg	40
Colour		metal
Material (main)		galvanised steel with phonic and thermal insulation
Dimensions	mm	with connectors: 260 x 650 x 1 240 without connectors: 260 x 650 x 1 160
Certifications		CE, VDE
Installation		
Max. number of main rooms		5
Max. number of technical rooms		4
Connections		2 x (2 x ø160 mm)
Installation		horizontal only, to the ceiling / 4 fixation points
Other functions		
Bypass		supply: 100 % / driven by external and internal temperature / also used for *free cooling*
Pre-heating		resistance in fresh air ductwork from outside (accessory driven by specific strategy)
Anti-frost		supply airflow regulation strategy
Condensation management		exhaust through lateral tube ø16 mm / pump in option (accessory) (ø6 mm)

		DXR Hub
Weight	kg	11
Colour		metal
Material (envelope)		galvanised steel with phonic and thermal insulation
Electrical connections (sensors)		5 x RJ11
Duct connections	mm	room supply: 5 x ø100 mm compensation / balance: 1 x ø125 mm DXR Unit: 1 x ø160 mm

Aereco S.A.
62 rue de Lamirault – Collégien – 77615 MARNE LA VALLEE CEDEX 3 – FRANCE – tel. +33 1 60 06 26 63 – fax +33 1 64 80 47 26
www.aereco.com