AERECO

DX SYSTEM - EXCELLENCE

HEAT RECOVERY SYSTEM,
DEMAND CONTROLLED VENTILATION SYSTEM

DX SYSTEM

EXCELLENCE

INDOOR AIR QUALITY AND ENERGY SAVINGS, A MATTER OF BALANCE

As a leader of the humidity sensitive ventilation, Aereco develops innovative ventilation solutions for residential and office buildings. With a key concept – the modulation of airflow rates according to needs – Aereco ventilation systems fully meet the building current challenges with regard to energy efficiency and indoor air quality.

Present in most of the countries of Europe as well as in Asia, in the United States and in Russia, Aereco continues to expand since its creation in 1984. The group, whose headquarters and factory are located in France in Marne-la-Vallée, has today 9 representations worldwide (subsidiaries and offices) in addition to a large network of distributors.

Aereco offers several lines of products that can be implemented in various systems, from natural and hybrid ventilation to mechanical exhaust and heat recovery ventilation. More than 450 employees work at Aereco group today is manufacturing around four million units every year to equip an average of 400 000 dwellings.

ErP READY

> In order to align on new environmental standards, most of the new constructions must respect a high level of air tightness. Thus, a lack of suitable ventilation induces a bad indoor air quality.

SUMMARY

Dx system Excellence – Heat recovery with efficiency 4
Dx system Excellence - How does room-by-room regulation work ? 5
Indoor air quality, not an option but a primary human need 6
How does the room-by-room control reduce the CO_2 footprint ? 7
Dx system Excellence – User experience is our priority 8
High quality Manufacture 11
Technical performances 16
Dx Hub Range - smart air distribution box 18
Dx System - Items 25
Dx System - Optionnal accessories 27
DX Excellence - Performances of room-by-room regulation 31

DX SYSTEM EXCELLENCE
HEAT RECOVERY WITH EFFICIENCY

With its **30-years of expertise in demand-controlled ventilation**, Aereco innovates in the field of ventilation. Combining ventilation to heat recovery with room-by-room regulation, indoor air quality is carried to its maximum.

Unlike conventional ventilation, the demand-controlled ventilation based on a room-by-room regulation reduces the average air flow rates required for the similar inhabited area. Indeed, this type of regulation makes it possible to manage the air needs cleverly and to reduce the air requirements of the dwelling.

An airflow rates reduction has two positive effects on the energy efficiency of the dwelling:

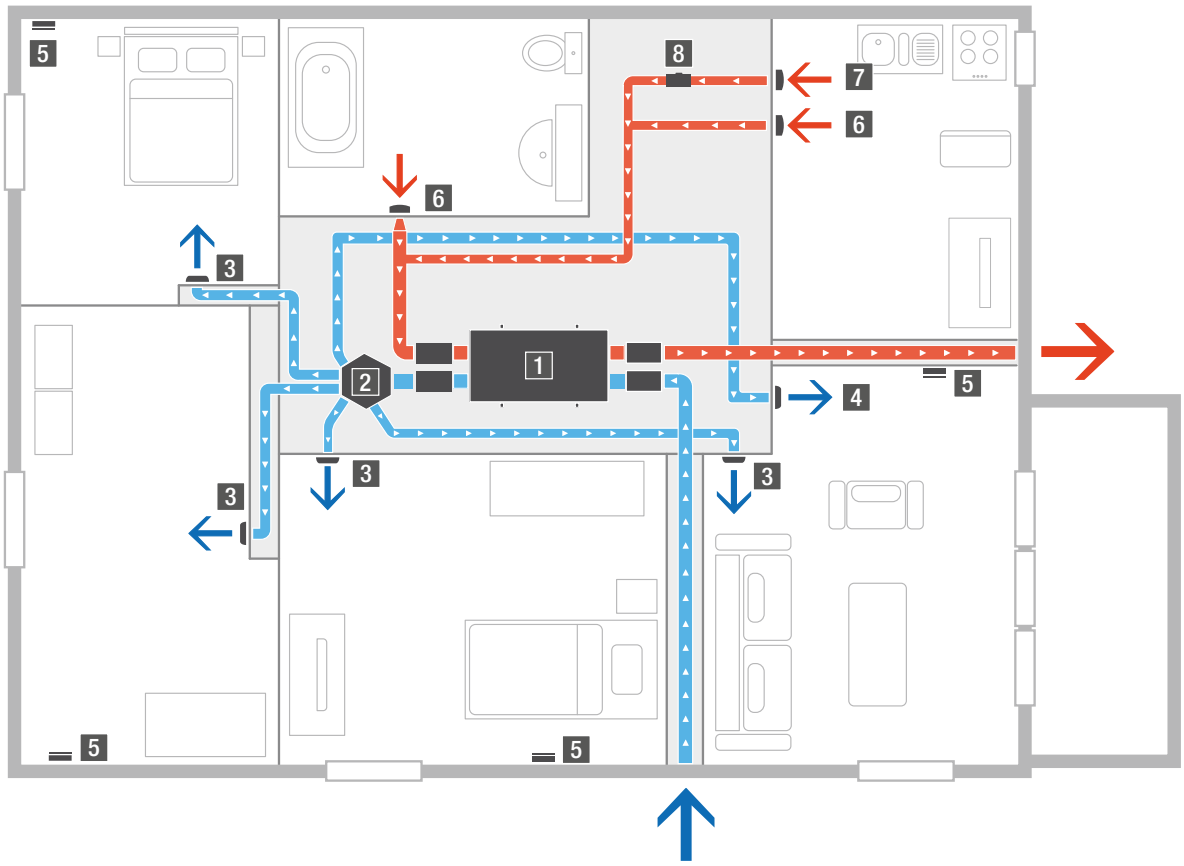
- Less exchanges with external environment, thereby a reduction in heat losses
- Slow down airflows at the heat exchanger level. This allows to use its full potential and achieve **an energy efficiency up to 92%** depending on the device because all the heat from the stale air is transmitted to the fresh air more efficiently.

DX System Excellence is not only a product, but a sustainable, intelligent, and complete solution to guarantee excellent indoor air quality and energy efficiency.

DX SYSTEM

EXCELLENCE

How does room-by-room regulation work ?



Principle of operation

The DX System is comprised of a main unit 1 DXA (wall-mounted) or DXR (ceiling-mounted) connected to exhaust and supply ductworks. 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.

Excellence version

Airflows are automatically controlled according to the needs of each dwelling's room. Outdoor filtered air is supplied 3 in the bedrooms and in the living room. Stale air is extracted 6 , 7 from the kitchen, bathroom and WC.

The supply airflows to all main rooms are regulated based on the inputs from one or many CO_2 sensors or occupancy sensors 5. On the exhaust 6 side, the airflow is adjusted, according to parameters read by various sensors (BXC): humidity in the kitchen and bathroom), and occupancy sensors in WC.

The total supply and exhaust airflows are balanced thanks to an exhaust-controlled compensation valve 8 , installed in the bathroom or in the kitchen 7 . An additional compensation valve, integrated in the DX Hub 2 , adjusts supply compensation airflow, supplying preheated 4 fresh air in the living room, in the kitchen or in a corridor.

INDOOR AIR QUALITY

NOT AN OPTION BUT A PRIMARY HUMAN NEED

Every day, humans breathe in an average of 12 000 liters of air, so air is an essential element for life. As much as a healthy and balanced diet or sports to keep the human body healthy, breathing healthy air helps humans to protect themselves from various health problems.

Nowadays, **humans spend an average of 85% of their time in an indoor environment**. Indoor air quality is therefore the priority, especially when constructions become more and more airtight to air exchanges with the outside.

This fundamental need naturally brings up the question not only of the ventilation of the dwelling but even more: **it is necessary to regulate the air renewal in the dwelling and give a central position to the occupant concerning the fresh air demand**. In fact, the occupants live and practice different activities, at different times and in different rooms of the accommodation. This regulation is allowed thanks to the DX Excellence using its room-by-room regulation.

Moreover, supplying the right amount of fresh and pure air toward the accommodation requires a real expertise. On one hand, too high supplied airflows cause discomfort to the occupant. On the other hand, too low air renewal has more insidious consequences and generates a lot of pollutants (chemical, biological, radioactive, and particles matter) harmful to the health of the occupant.

Types of pollutants	Names	Origins	Effects	Harmfulness treshold (µg/m³)
Chemical	CO (Carbon Monoxide)	Heating equipment, hot water production…	Fading away - Death	10 mg/m³
	VOC (Benzene, formaldehyd,…)	Perfumes, glues, paints, varnished wood	Cancer	30 µg/m³
Biological	Bacteria & Viruses	High relative humidity	Infection	-
Radioactive	Radon	Ground, rock	Cancer	67 Bq/m³
Particles Matter (PM)	PM_{10} - $PM_{2.5}$ - PM_1	Cooking, DIY	Toxic effects on the cardiovascular system	-

Origins of the various indoor pollutants and harmful limit thresholds for an 8-hour exposure
According to World Health Organization WHO

HOW DOES THE ROOM BY ROOM CONTROL REDUCE THE CO_2 FOOTPRINT ?

BIRTH OF GREEN STANDARDS

In a context of global warming, human beings must reduce their impact on the earth no matter the cost and rethink their way of living and consuming the resources at their disposal. At the central of concerns, we find energy consumption.

Energy is a limited resource and as an example, **in Europe the building area remains the most important source of energy consumption and CO_2 emissions**: 40% of CO_2 emissions, ahead of industry and transport.

In this context, **the European Union has imposed to every member states a performance level "nZEB" ("Nearly zero-energy building") for every new building from 2020**. The aim is clear: tend towards buildings close to independence in term of primary energy and therefore reducing the carbon footprint of the building area. According to this approach, the technology of mechanical ventilation with heat recovery units records a real gain of interest. Thanks to room-by-room regulation, the DX Excellence allows you to go even further by combining room-by-room modulation with a very high-performance heat exchanger.

GLOBAL WARMING EFFECTS

UN Environment has communicated some unexpected but very impacting effects about **particles matter: they darken glaciers and snow.**

By this effect, the reflection of the sun is reduced, therefore the non-reflected thermal energy is absorbed by the earth: global warming is accentuated.

Climate evolutions linked to global warming are changing local vegetation: **new pollens are emerging for local populations who are once again developing allergies** because their immune system is not prepared to these news pollens.

Today, **the best way to protect yourself at home is to integrate filters into your ventilation system** so allergens are retained outside the dwelling.

DX SYSTEM EXCELLENCE
USER EXPERIENCE IS OUR PRIORITY

DXR

• Easy monitoring

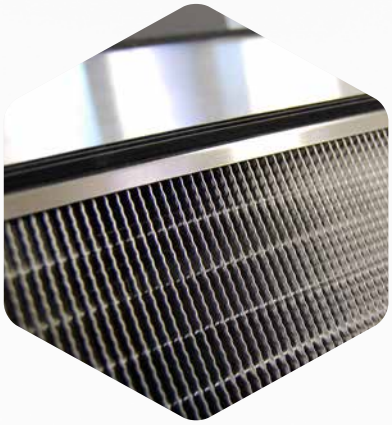
To guarantee you a permanent monitoring, our DX devices can communicate with you through notifications at any time.

• Filter clogging detection

Both DXA and DXR incorporate a function for measuring filters clogging in real time and independently of each other, which allows precise replacement to be made to the clogged filter when it is no longer functional.

• Easy installation

According to its room-by-room regulation principle, our devices are designed to be able to pair a sensor with one or several supplying pipes. This allows configuration facilities and great versatility from one accommodation to another.



• Easy remote control

The ability to access your device and be able to control it with a simple and secured internet access: this is a part of the digital experiment we offer.

• Smart

The DX System is available as a complete and interactive solution. Our DXA and DXR devices thus communicate with the different elements of the solution.

• Optimal comfort

Thanks to its sensors, our devices always offer a way of precisely measuring the CO_2 level and the temperature in every room of the dwelling. Thus, the occupant can visualize the effects of Excellence regulation on indoor air quality.

Energy efficiency at its best

The efficiency of a heat exchanger depends on several parameters, including the airflow. Modulated ventilation makes it possible to reduce average airflows to the minimum, thus a good synergy is workable.

In addition, our products permit -thanks to internal temperature and pressure sensors- a measurement in real time. This allows to operate a real-time mass balancing of our devices which is more accurate than mass balancing based on estimates related to the rotational speeds of the motors. This technology gives better results in term of performance and energy efficiency.

A completely flexible solution

The DX System offers a complete solution for mechanical ventilation with heat recovery segment. A maximum flexibility to guarantee an adequate choice of ventilation.

The range is available in **two versions**:

- **The DXR that is designed for installation in false ceilings** thanks to its dimensions, it is a solution that fits very well with renovations or apartments where space is often limited.

- **The DXA has been designed with standard household appliance dimensions for wall installation** in technical rooms of the dwelling. Its creamy white front cover also allows it to go unnoticed in the kitchen.

Easy installation, monitoring and maintenance!

Thanks to a user-friendly interface, it is possible to take full control of the device for an in-depth consultation or as part of a commissioning.
Very wide configuration possibilities are provided via the user-friendly interface:

- Setting the suction pressure
- Flow rates automatically adjusted according to the lengths of the blowing pipes
- Pairing between the sensors and the associated supplying ducts.

A very high manufacture

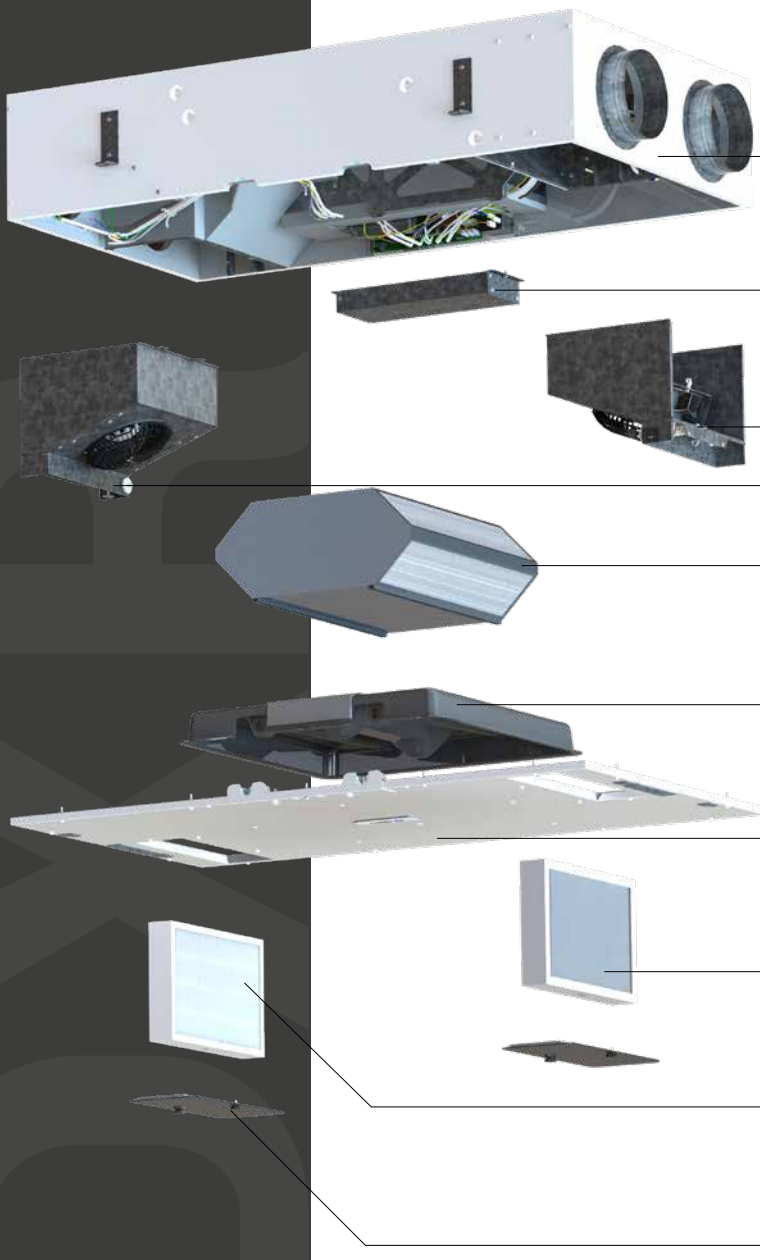
Because quality is our primary concern, the **DX System range is offered among our high-range products**.
Keeping that in mind, we carefully selected the internal components of our products: from EBM motors to Reckair's heat exchangers whose reputations are well established.

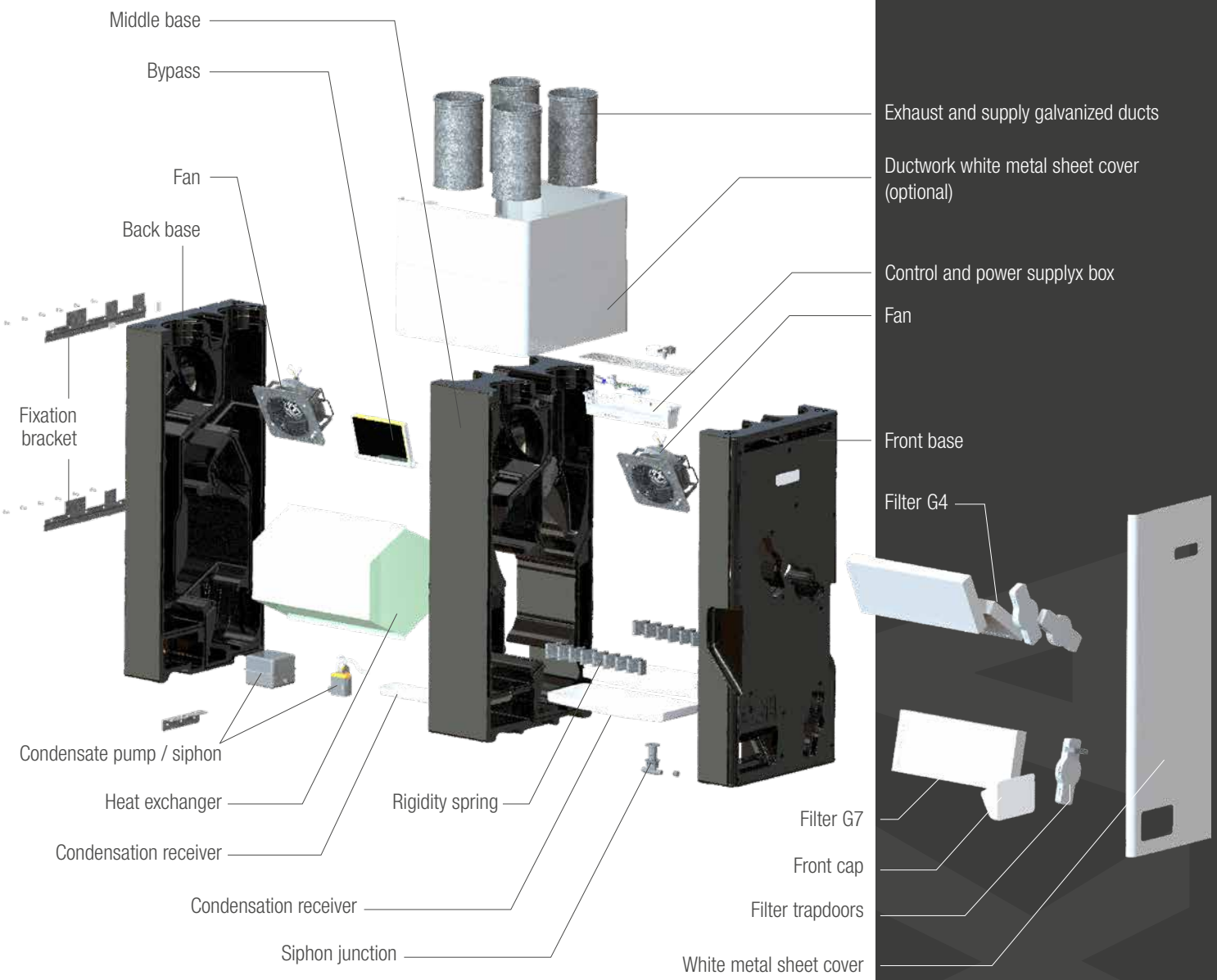
Aereco is committed to offering robust and reliable products over time. **Quality materials and a French design** associated with modulated ventilation are our three ingredients to provide an important lifetime, and a less frequent need for maintenance.

HIGH QUALITY MANUFACTURE

DXR: Top efficient heat recovery unit with a top model size

With a base, a distribution box and vital parts all being made of metal, DXR wins on quality and maximum durability.





DXA: So much discreet that it will go unnoticed in the technical room

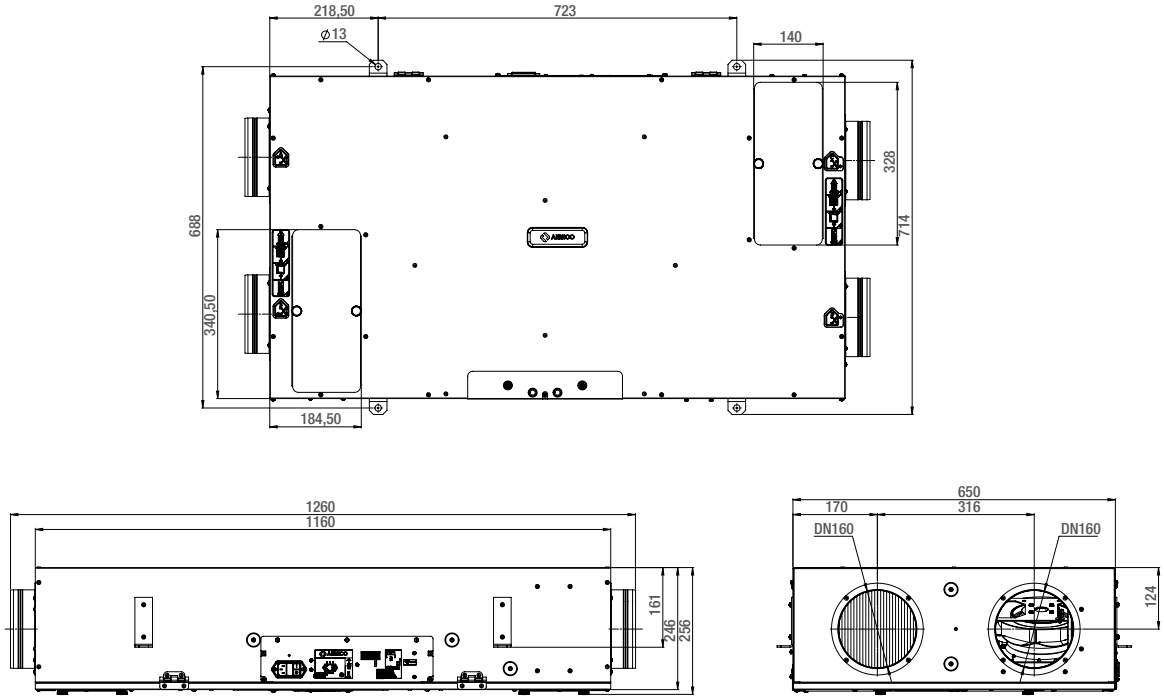
The DXA is produced using mainly the EPP (Expanded Polypropylene), which is a "green", **environment friendly material, 100% recyclable**. It does not include any VOC (volatile organic compound), CFC (chlorofluorocarbon) or other compounds known to be particularly harmful to the environment. In addition, weighting only 23 kg, DXA has a very high resistance to weight ratio.

DX SYSTEM Heat recovery unit

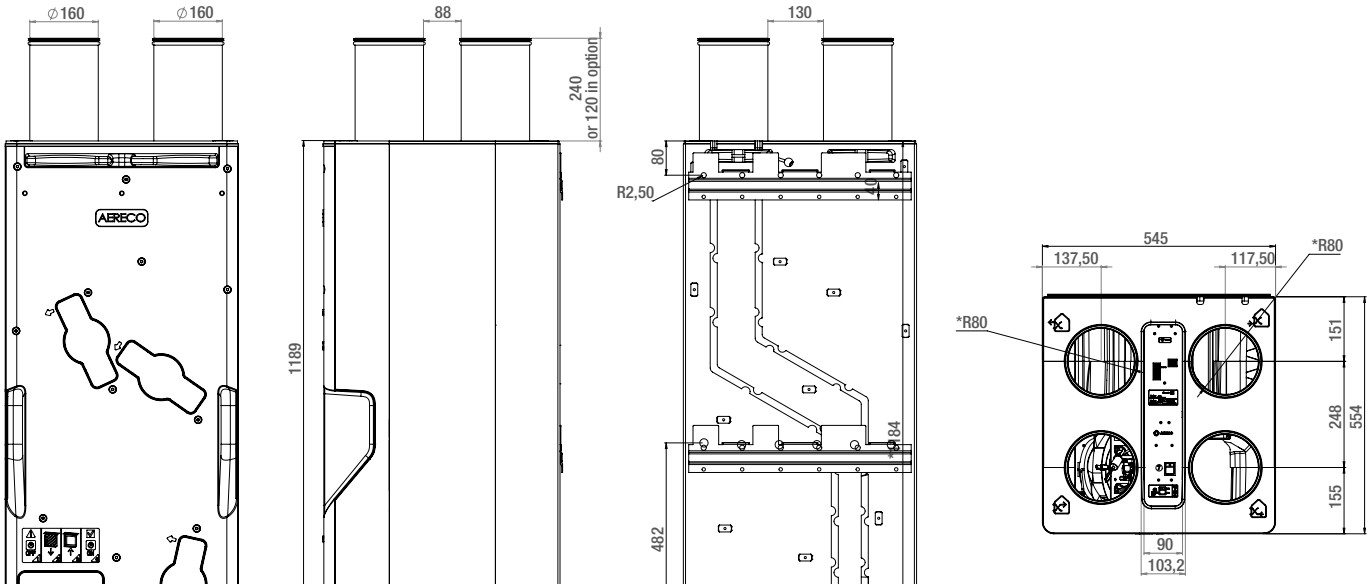
ErP

		DXR	DXA	
Standard code		DXR1851 Excellence	DXA1846 Excellence	DXA1847 Excellence
Ecodesign				
Label (EU Ecodesign Directive)		A+	A+	
Airflow characteristics				
Max. airflow	m^3/h	230	230	
Other nominal airflows	m^3/h	80 / 140 / 200 / 230	80 / 140 / 200 / 230	
Airflow compensation (filter clogging)		automatic	automatic	
Airflow balance (supply and exhaust)		automatic	automatic	
Acoustics				
Sound power level Lw @ 161 m^3/h, 50 Pa	dB(A)	40	52	
Certifications		CE, EAC	CE	
Electrics				
Power supply		230 VAC, 50 Hz	230 VAC, 50 Hz	
Motor type		EC (x2)	EC (x2)	
Power consumption @ 161 m^3/h @50 Pa	W	34,2	36,5	
Power consumption @ 230 m^3/h @50 Pa	W	91,0	92,0	
Sensors connections		RJ12 / RJ45	RJ12	
Demand control				
DCV compatibility		Integrated	Integrated	
Min - Max Number of sensors for modulation at supply		1 – 5	1 – 5	
Min - Max Number of sensors for modulation at exhaust		1 – 5	1 – 5	
Sensors type at supply		presence / CO_2	presence / CO_2	
Exhaust units type		humidity / presence / switch / CO_2 / VOC	humidity / presence / switch / CO_2 / VOC	
Characteristics				
Exchanger		aluminium / counter flow type / 82% efficiency	polystyrene / counter flow type / 93% efficiency	
Filters		on supply air: 1 x F7 / on exhaust air: 1 x G4	on supply air: 2 x F7 / on exhaust air: 1 x G4	
Weight	kg	46	23	
Colour		white	black / Grey EPP - white painted Galvanized steel houssing (option)	
Material (main)		galvanised steel with phonic and thermal insulation	expanded polypropylene (EPP) covered by a white galvanized metal sheet (optional)	
Dimensions	mm	with duct connectors: 260 x 650 x 1200 / without duct connectors: 260 x 650 x 1160	with duct connectors: 1428 x 552 x 545 / without duct connectors: 1188 x 552 x 545	
Installation				
Max. number of main rooms		6	6	
Max. number of technical rooms		5	5	
Connections		2 x (2 x ø160 mm)	2 x (2 x ø160 mm)	
Installation		horizontal only, to the false ceiling / 4 points of attachment	2 wall fixed rails	
Other functions (in option)				
Interface		Control module / Wifi	Control module / Wifi	
Bypass		controlled by outdoor temperature / also used for free cooling	controlled by outdoor temperature / also used for free cooling	
Preheating (optional)		with resistance in fresh air ductwork from outside	with resistance in fresh air ductwork from outside	
Condensation management		exhaust through lateral tube / optional condensate pump	exhaust through siphon	condensate pump
Temperature of use				
Installation room		frost free: +5°C < T°< +50°C	frost free: +5°C < T°< +50°C	
Incoming outdoor fresh air or Extract		-5°C < T° < +50°C without preheating / -26°C < T° < +50°C with preheating	-5°C < T° < +50°C without preheating / -26°C < T° < +50°C with preheating	

DXR Dimensions in mm



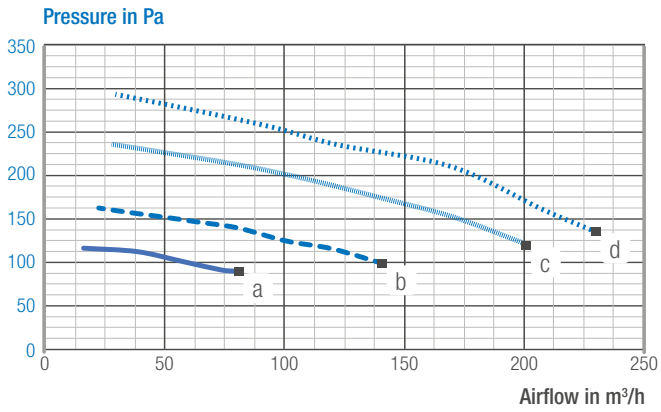
DXA Dimensions in mm



DX SYSTEM

TECHNICAL PERFORMANCES

DXR - Airflow characteristics



DXR Unit maximal airflow setting:

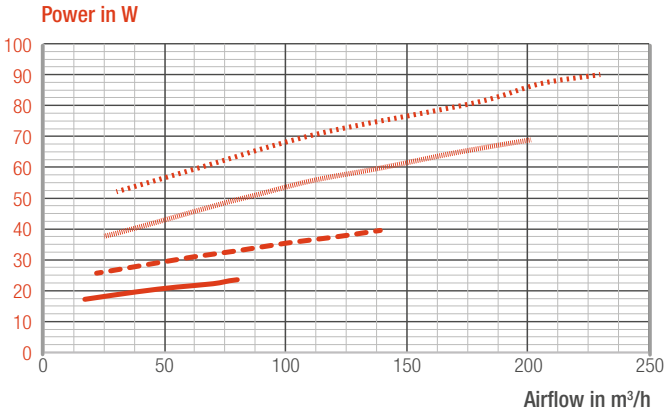
80 m³/h — 200 m³/h

140 m³/h — 230 m³/h

Sound power level Lwa

a = 40 dB c = 46 dB

b = 43 dB d = 49 dB

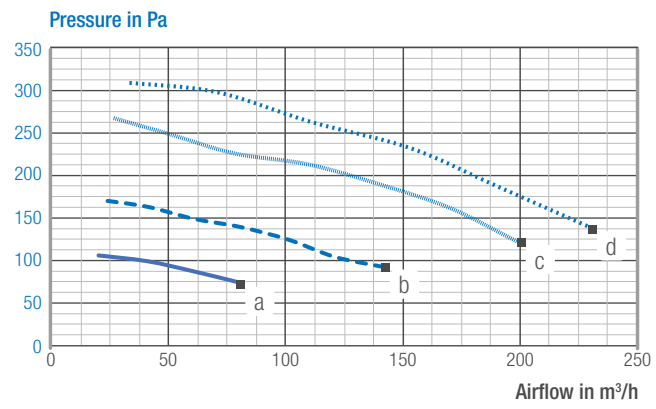


DXR Unit maximal airflow setting:

80 m³/h — 200 m³/h

140 m³/h — 230 m³/h

DXA - Airflow characteristics



DXA Unit maximal airflow setting:

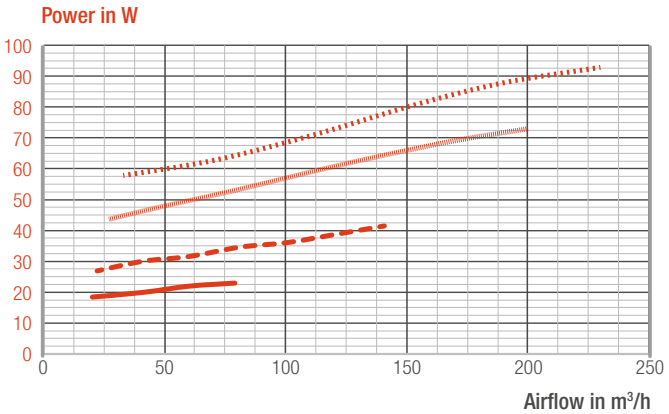
80 m³/h — 200 m³/h

140 m³/h — 230 m³/h

Sound power level Lwa

a = 49 dB c = 59 dB

b = 54 dB d = 60 dB

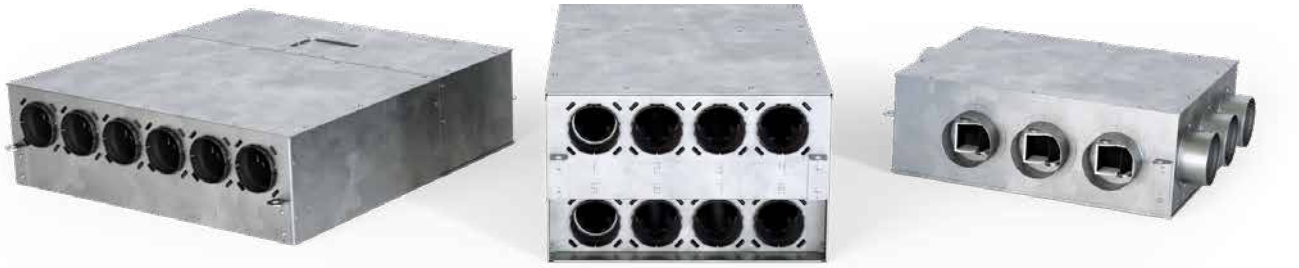


DXA Unit maximal airflow setting:

80 m³/h — 200 m³/h

140 m³/h — 230 m³/h

DX HUB RANGE -
SMART AIR DISTRIBUTION BOX



DX HUB

Active air supply distribution box
DX System "Excellence"

DynamiX® Technology: ensures a silent system and optimal indoor air quality through room-by-room demand control.

Noise attenuation through low pressure operation (DX Hub Ø100) and built in silencers (DX Hub Ø75).

Easy installation thanks to multiple positioning.

Nearly zero maintenance

High-quality: Many parts in metal. Made in France

DCV compatible: an intelligency included that optimizes the DCV performance.

An active air distributor, for better air quality and increased energy efficiency.

Nowadays, the balance between indoor air quality and energy savings is a major issue for the ventilation industry. This issue concerns both the individual house and collective dwellings.

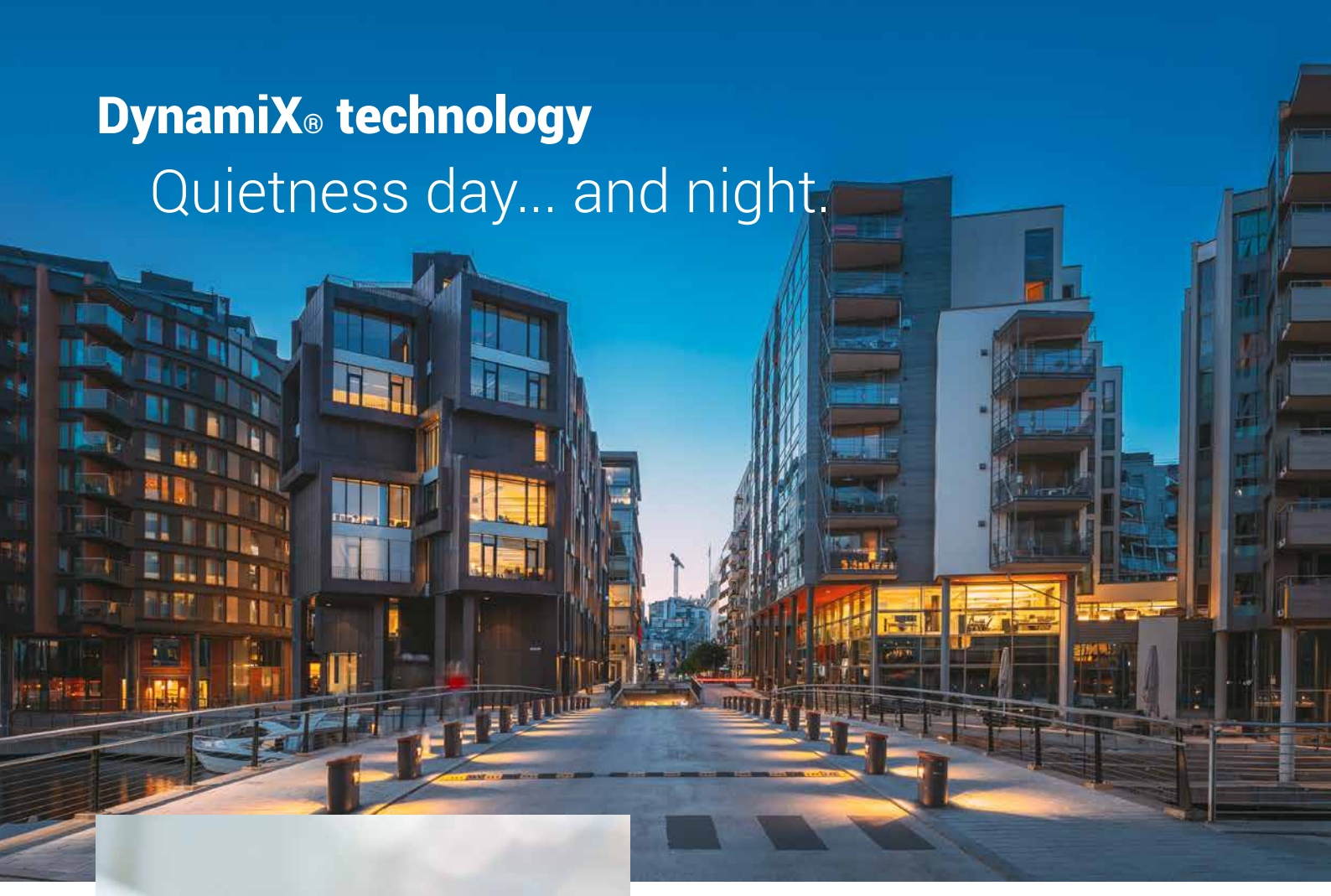
Indeed, **current new housings are becoming more and more airtight and old housings are becoming more so with the boom in retrofit**. Ventilation must therefore adapt and optimize the supply of fresh and necessary air to the occupant, while limiting heat loss with the outside.

The DX Hub product range which is the masterpiece of the DX "Excellence" system, distributes the air preheated by mechanical heat recovery system. Thanks to CO_2 sensors or occupancy sensors installed in the living rooms, the DX Hub knows **in real time the state and the need for fresh air in each room.**

Using motorized valves, the DX Hub can deliver the necessary amount of fresh air to the occupant. This is the principle of room-by-room control: providing the right amount of air in the right place at the right time, for significant energy savings.

DynamiX® technology

Quietness day... and night.



Fresh and silent airflow thanks to DynamiX® technology

The DX Hubs brilliantly rise to the challenge of ensuring optimal air quality without compromising acoustic comfort thanks to DynamiX® technology.

DynamiX® technology allows intelligent and accurate management of motorized valves in order to work at low pressure and reduce noise.

In addition, the 75 mm diameter acoustic versions are fitted with acoustic foam and acoustic attenuators to ensure a silent operation.

A supply of fresh air room by room as needed

The DX Hub range is available in several diameters: 75 mm or 100 mm and a variable number of outputs: 6 or 8.

Our different solutions will supply the different rooms of an apartment or a detached house.

The DX Hub allows preheated and healthy air to be distributed in rooms where healthy air is needed.

HUB

A robust and thought-out design for an efficient and easy installation

Designed and manufactured in France, the DX Hub is a solid product, as most of its part are made of metal.

Thanks to a clip system, the DX Hub makes it **easy to clip ducts**, which considerably makes easy installation, maintenance and allows a reduction of potential leaks in the hydraulic network.

DX Hub **can be wall-mounted or installed in a ceiling**, whatever the configuration: horizontal or vertical.

A patented pressure regulation system

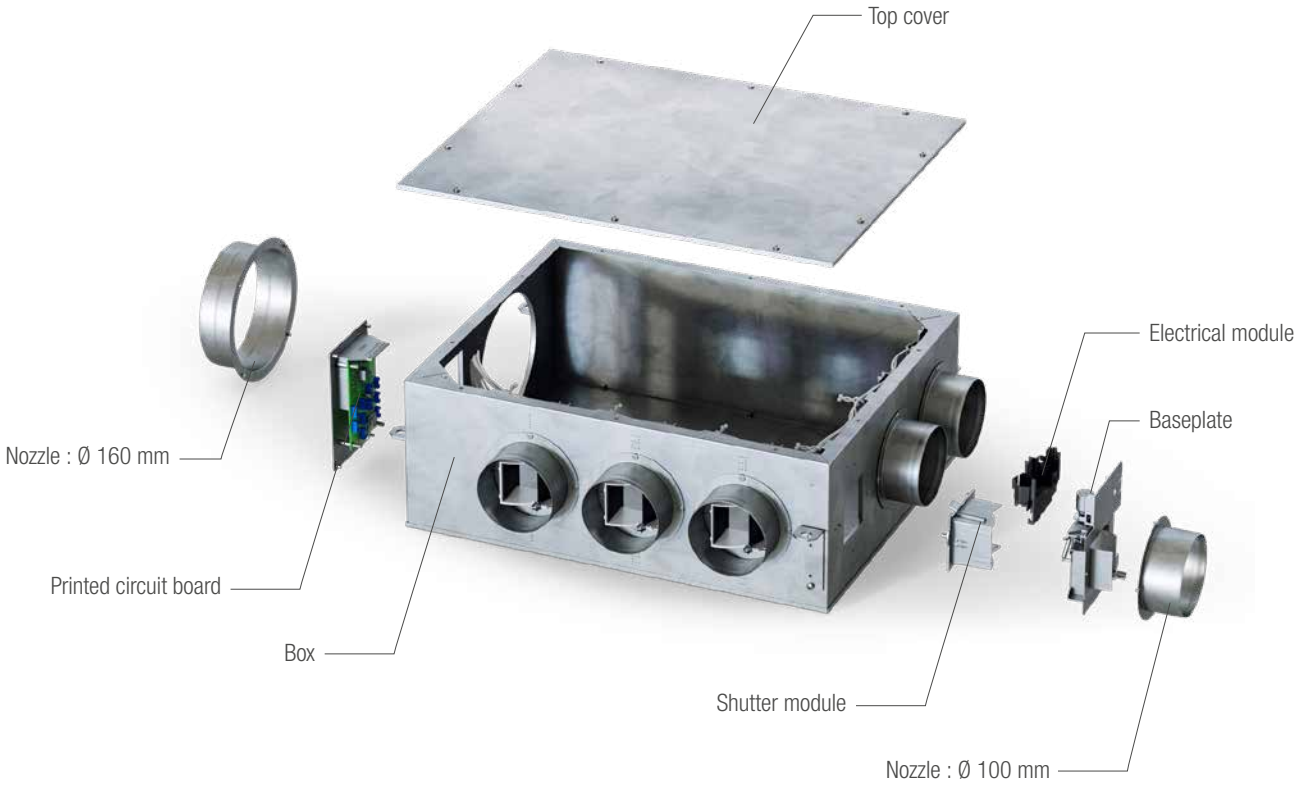
Thanks to several integrated pressure sensors, the DX Hub can maintain a constant pressure at any point.

Furthermore, the DX Hub is equipped with intelligency allowing to monitor the needs of each outlet and adjust the operating pressure to the minimum pressure required.

This process offers the opportunity to divide the operating pressure by 3, **i.e. a reduction in the consumption of blowing motors by almost 50% as well as a notable improvement in acoustics performances.**

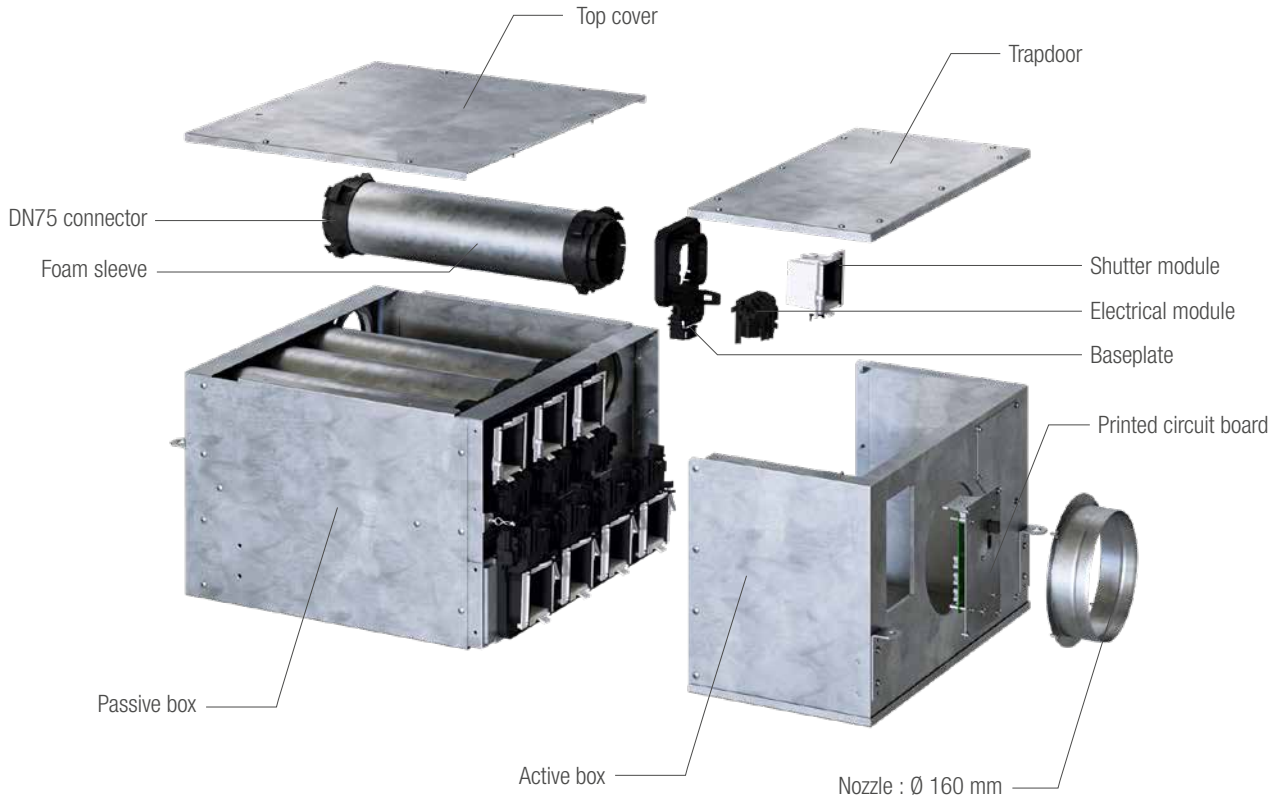
HUB6

DN100



HUB8

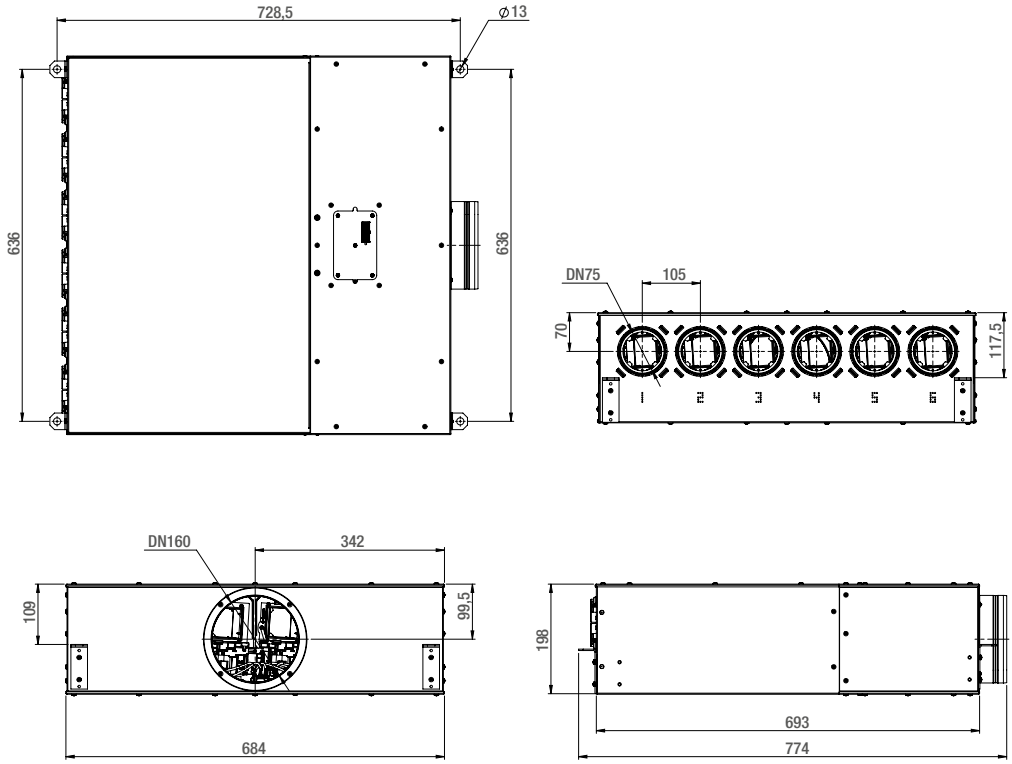
DN75



DX HUB6 DN75

Active air supply distribution box

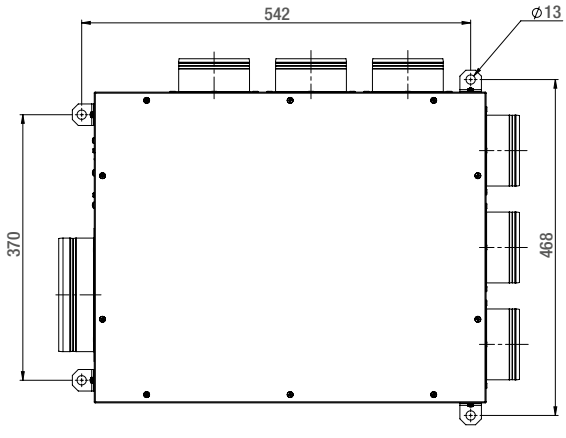
Standard code		**HUB1798EX**
Airflow characteristics		
Pressure at supply max	Pa	65
Acoustics		
Phonic enveloppe		■
Phonic silencers		■
Electrics		
Electrical connections (sensors)		up to 6xRJ45 (daisy chain)
Characteristics		
Weight	kg	19
Dimension	mm	774 x 684 x 198
Colour		metal
Material (main)		galvanised steel with phonic and thermal insulation and acoustic silencers
Inlet duct connections (to DXR or DXA)		ø160 mm
Outlet duct connections (to the supply units)		6 x ø75 mm
Installation		
Installation		horizontal or vertical
Installation room		frost free: +5°C < T°< +50°C

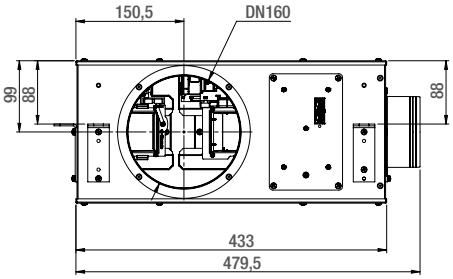


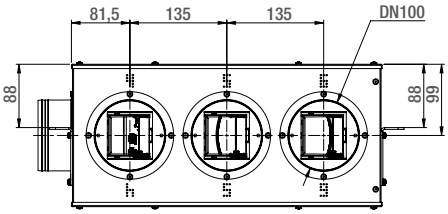
DX HUB6 DN100

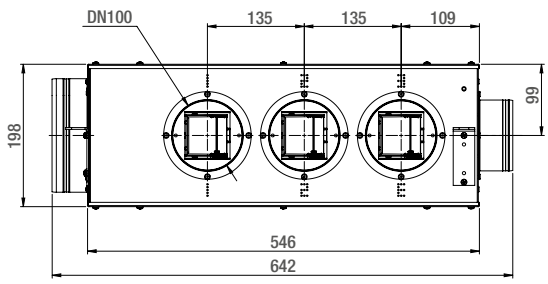
Active air supply distribution box

Standard code		**HUB1788EX**
Airflow characteristics		
Pressure at supply max	Pa	40
Acoustics		
Phonic enveloppe		■
Phonic silencers		-
Electrics		
Electrical connections (sensors)		up to 6xRJ45 (daisy chain)
Characteristics		
Weight	kg	11
Dimension	mm	642 x 510 x 198
Colour		metal
Material (main)		galvanised steel with phonic and thermal insulation
Inlet duct connections (to DXR or DXA)		ø160 mm
Outlet duct connections (to the supply units)		6x ø100mm
Installation		
Installation		horizontal or vertical
Installation room		frost free: +5°C < T°< +50°C





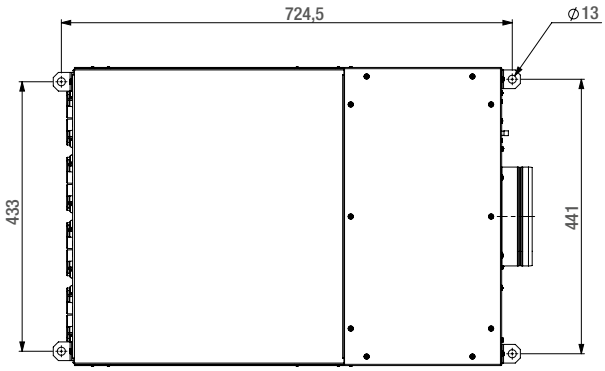


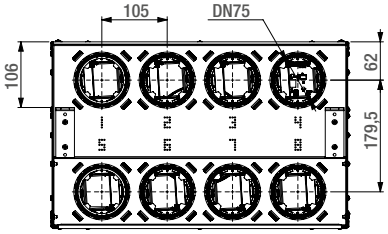


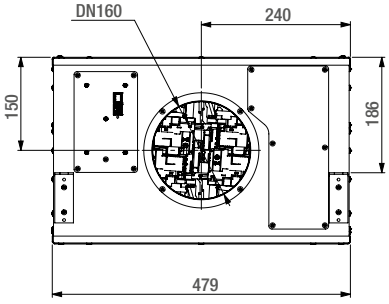
DX HUB8 DN75

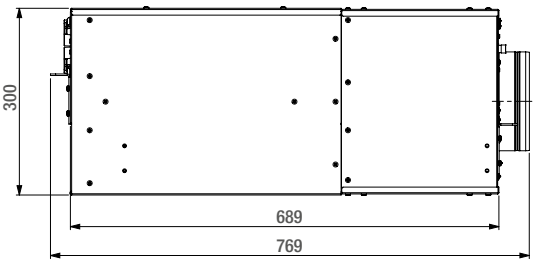
Active air supply distribution box

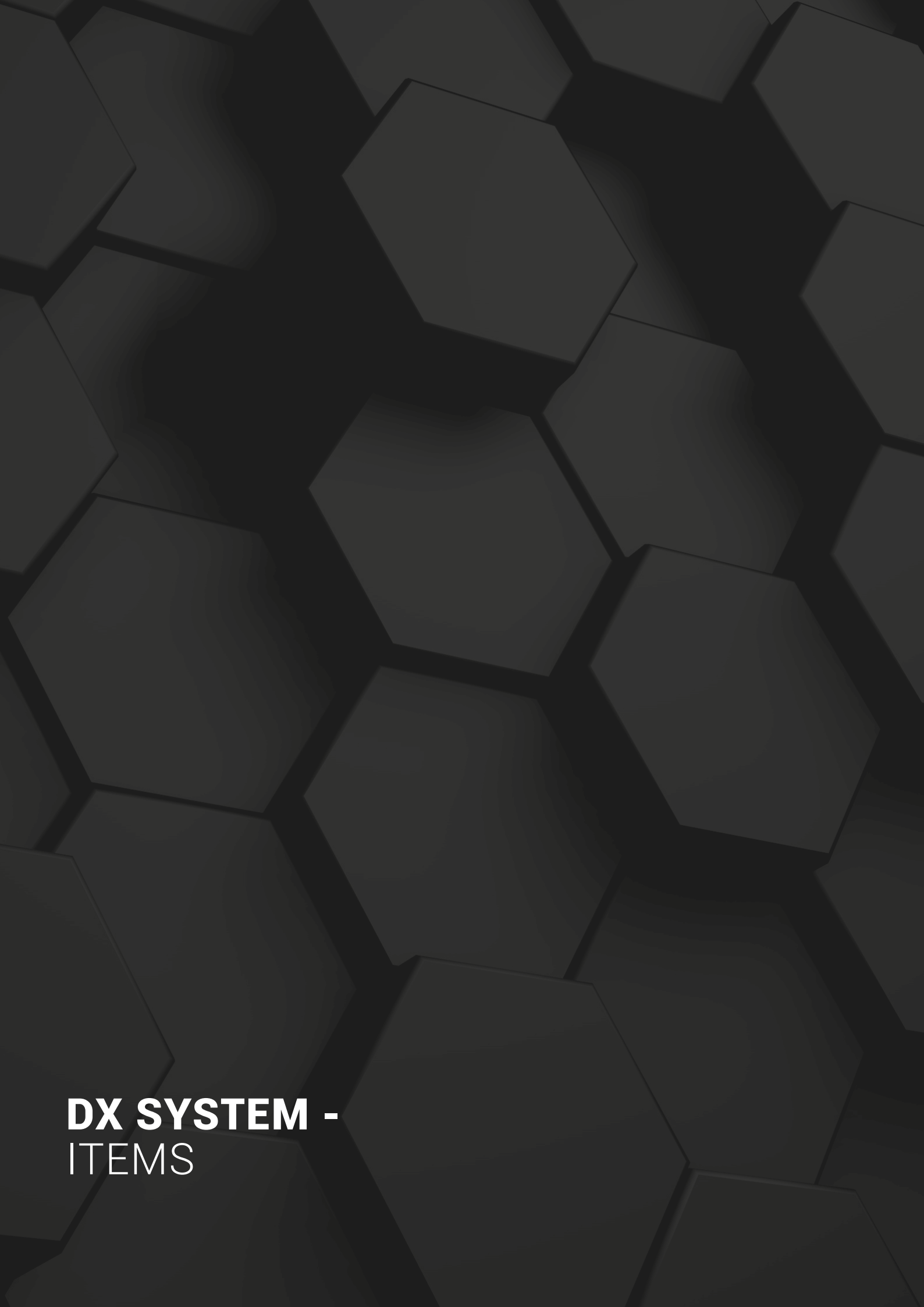
Standard code		**HUB1789EX**
Airflow characteristics		
Pressure at supply max	Pa	40
Acoustics		
Phonic enveloppe		■
Phonic silencers		■
Electrics		
Electrical connections (sensors)		up to 8xRJ45 (daisy chain)
Characteristics		
Weight	kg	20
Dimension	mm	769 x 479 x 300
Colour		metal
Material (main)		galvanised steel with phonic and thermal insulation and acoustic silencers
Inlet duct connections (to DXR or DXA)		ø160 mm
Outlet duct connections (to the supply units)		8x ø75mm
Installation		
Installation		horizontal or vertical
Installation room		frost free: +5°C < T°< +50°C











DX SYSTEM -
ITEMS

DX SYSTEM - ITEMS

CO_2 sensors

Essential elements of the DX System, CO_2 sensors enable to measure the CO_2 rate level in every living room at every moment. That data is returned as a value in part by millions (ppm) to the intelligence of the DX. Then, the blow-off setpoint is automatically adjusted, room-by-room, based on an accurate feedback in real-time.

Occupancy sensors

Occupancy sensors, installed in the living rooms, also allow an accurate feedback regarding the occupancy level of each living room: thus, the air supply is activated room-by-room according to the occupancy level of each. Thanks to a sophisticated algorithm, these sensors adopt a behavior adapted to human activity day and night.

Hub

The HUB is a central element that allows a proper splitting of the airflow in a smart and selective way according to the instructions given by the DX System. Once again, theses instructions are based on the data measured by sensors.

Valve motorized

To promote the energy efficiency of our system, we have chosen a mass balancing of internal and external airflows in the dwelling. Thanks to its motorized valve and its pressure measurement, the motorized valve can absorb a sudden and high demand on the exhaust side. On the supply side, this balancing is ensured thanks to the HUB by controlling the opening of its multiple and independent valves.

Air inlets

Air inlets bring fresh and healthy air into rooms where human activity is important without acoustic or thermic disturbance. A specific air inlet is dedicated to airflow balancing whether it is necessary. Basically, that specific air inlet is installed in the main living room or in the corridor.

Exhaust units

Exhaust units pull out stale air from wet rooms according to the humidity, the occupancy or the CO_2 in these rooms. In that case, the demand is driven by the extraction and the mass balancing is performed on the supply side. The additional occupancy or CO_2 sensors integrated into the exhaust units do not require any additional wiring. The exhaust unit dedicated to the compensation valve will also be installed in a wet rooms.

“More than a product...
...a system”

DX SYSTEM -
OPTIONNAL ACCESSORIES

DX SYSTEM - OPTIONNAL ACCESSORIES

Condensate pump

The condensate pump is necessary when the condensate drain point is higher than the condensate outlet pipe: gravity is no longer enough. The condensate pump can therefore evacuate condensation products up to 8 meters.

Front cover

The DXA, is entirely designed in PPE material to reduce the carbon footprint of the product on the environment. In option, a creamy white front cover is proposed to optimize the aesthetic rendering.

Filters

The filters embedded in the DX System are very easy to replace and they perform two main functions: by filtering the outdoor air, they preserve the air in the home from allergens or particles harmful for health. The DX System filters also prevent the heat exchanger from dust which can affect its performance.

Touch interface

A touch interface offering an additional way of controlling your DX System with ease.

Protective acoustic kit

In an aesthetic perspective, a lid was designed to hide ducts leaving the DXA through the top of the product. Rockwool was also included in, so the acoustic properties of DXA are improved.

Fixing

For an easy installation on the ceiling, rod cables suitable for the DXR are available.

Preheater

Air preheating module: In extreme climatic conditions (extremely cold weather), the supply of cold air into the system can seriously weaken the performance of the heat exchanger. To avoid this, the air preheating module is offered with a patented regulation which takes into account not only the outdoor temperature but also the indoor temperature : the module guarantees an ideal operating temperature at the entrance of the heat exchanger and not at the entrance of the dwelling, which overcomes the effect of the insulation of the ventilation network on the efficiency.

DXA Heat recovery unit for wall installation

BASIC ITEMS

DXA230 + Condensate pump	Code	Quantity
	DXA1847	X1

OR

DXA230 + Siphon	Code	Quantity
	DXA1846	X1

Exhaust unit	Code	Quantity
	BXCxxx	1 / main room up to 5

Exhaust compensation unit	Code	Quantity
	BFX114	X1

Supply unit	Code	Quantity
	SDC1107	1 / main room up to 6

Supply compensation unit	Code	Quantity
	SDC1108	x1

DX EXCELLENCE - SMART COMPONENTS

DX HUB 6 DN75	Code	Quantity
	HUB1798	X1

OR

DX HUB 6 DN100	Code	Quantity
	HUB1788	X1

OR

DX HUB 8 DN75	Code	Quantity
	HUB1789	X1

Exhaust compensation valve	Code	Quantity
	ADX1671	X1

CO_2 sensor	Code	Occupancy sensor	Code	Quantity
	CAP1668		CAP1669	at least 1, up to 5

ACCESSORIES

Preheater	Code	2I20	Code
	ADX1098		ADX1673*

*Only necessary if a Preheater is used

Protective acoustic kit	Code
	ADX1449

Wall interface	Code
	IHM1707

Metal white front cover	Code
	ADX1555

x2 F7 x1 G4 Filter kit	Code
	ADX1428

RJ45 cable	Code
	5 m: ADX1197 10 m: ADX1123

RJ12 cable	Code
	5 m: ADX1249 10 m: ADX1250 20 m: ADX1251 30 m: ADX1252

Acoustic silencer	Code
	ADW1167

DXR Heat recovery unit for ceiling installation

BASIC ITEMS

DXR 230 + Siphon	Code	Quantity
	DXR1851	X1

Exhaust unit	Code	Quantity
	BXCxxx	1 / main room up to 5

Exhaust compensation unit	Code	Quantity
	BFX114	X1

Supply unit	Code	Quantity
	SDC1107	1 / main room up to 6

Supply compensation unit	Code	Quantity
	SDC1108	x1

DX EXCELLENCE - SMART COMPONENTS

DX HUB 6 DN75	Code	Quantity
	HUB1798	X1

OR

DX HUB 6 DN100	Code	Quantity
	HUB1788	X1

OR

DX HUB 8 DN75	Code	Quantity
	HUB1789	X1

Exhaust compensation valve	Code	Quantity
	ADX1671	X1

CO_2 sensor	Code	Occupancy sensor	Code	Quantity
	CAP1668		CAP1669	at least 1, up to 5

ACCESSORIES

Preheater	Code	2I2O	Code
	ADX1098		ADX1673*

*Only necessary if a Preheater is used

Filter kit	Code
x1 F7 x1 G4	ADX1254

Condensate pump	Code
**A 2I2O module is recommanded	ADX1099**

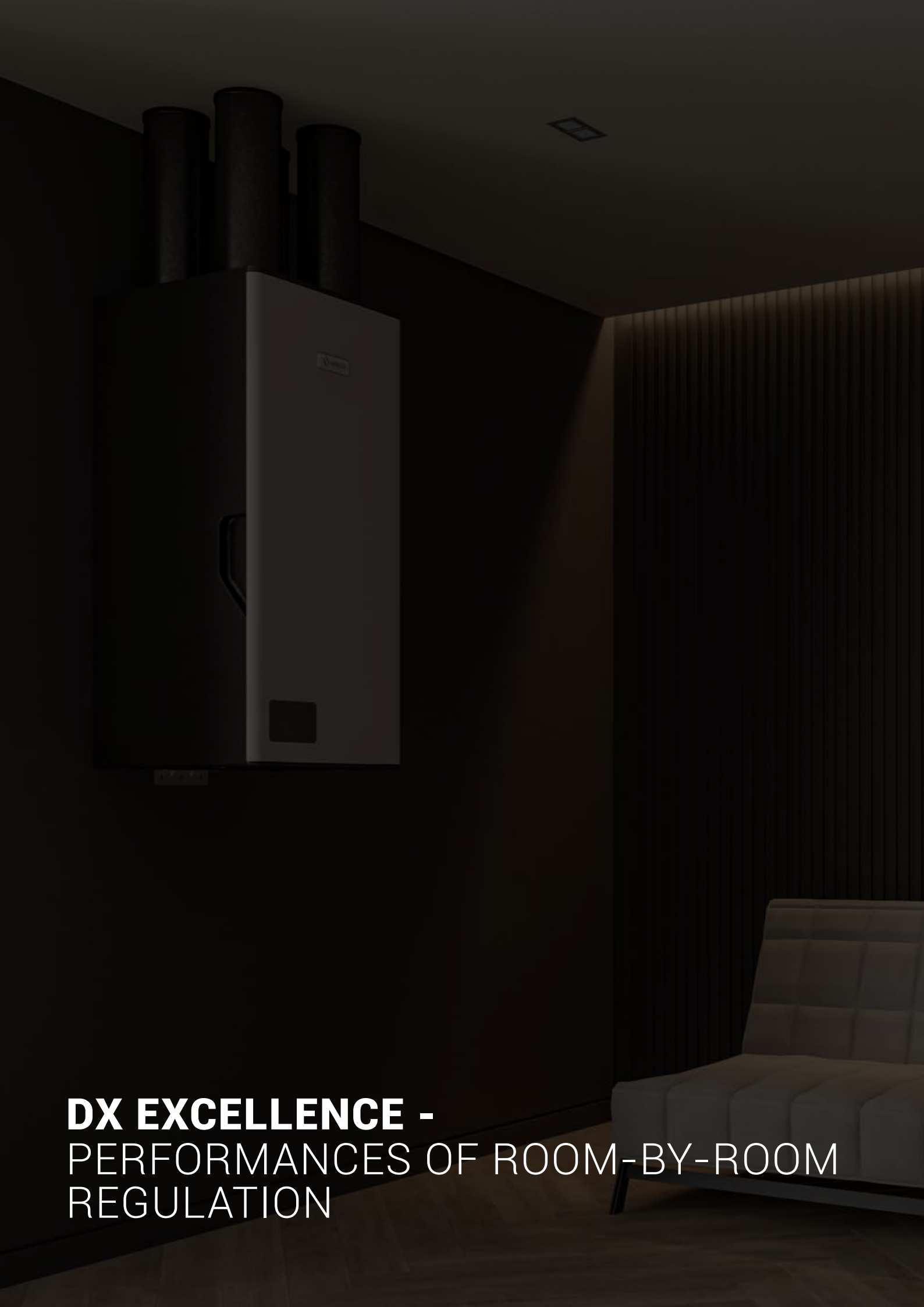
Fixing suspension system	Code
	ADX1106

Acoustic silencer	Code
	ADW1167

RJ45 cable	Code
	5 m: ADX1197 10 m: ADX1123

RJ12 cable	Code
	5 m: ADX1249 10 m: ADX1250 20 m: ADX1251 30 m: ADX1252

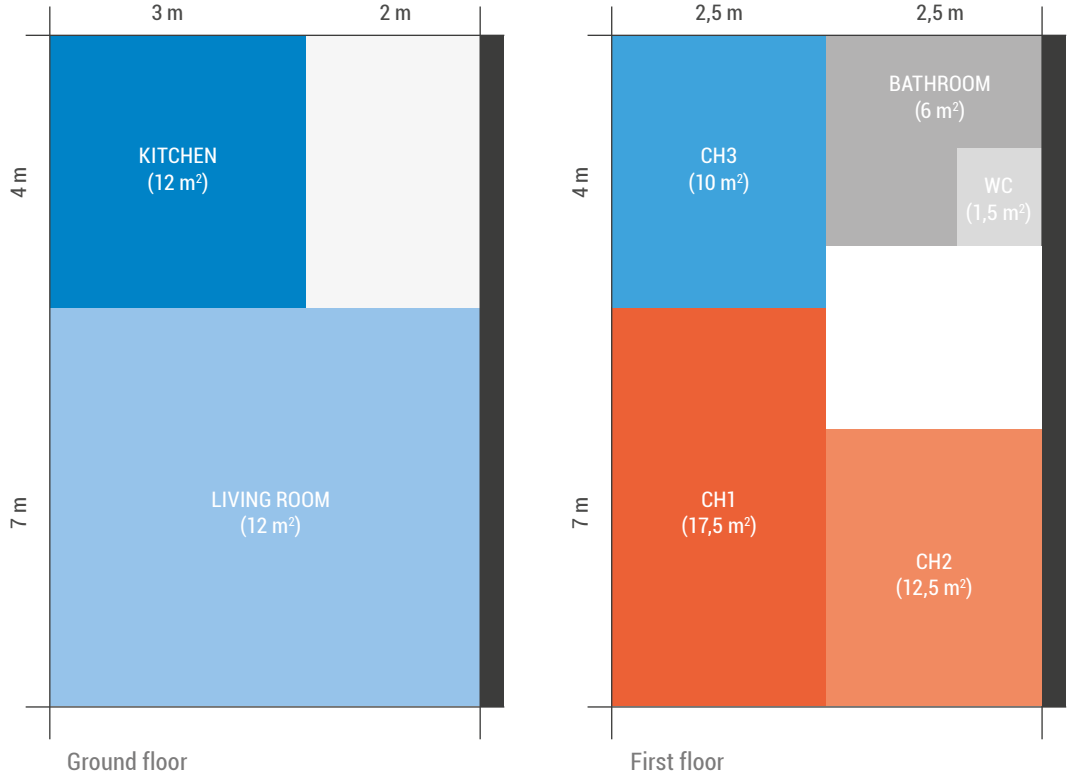
Wall interface	Code
	IHM1707



DX EXCELLENCE -
PERFORMANCES OF ROOM-BY-ROOM REGULATION

PERFORMANCES OF ROOM-BY-ROOM REGULATION

INDIVIDUAL HOUSE

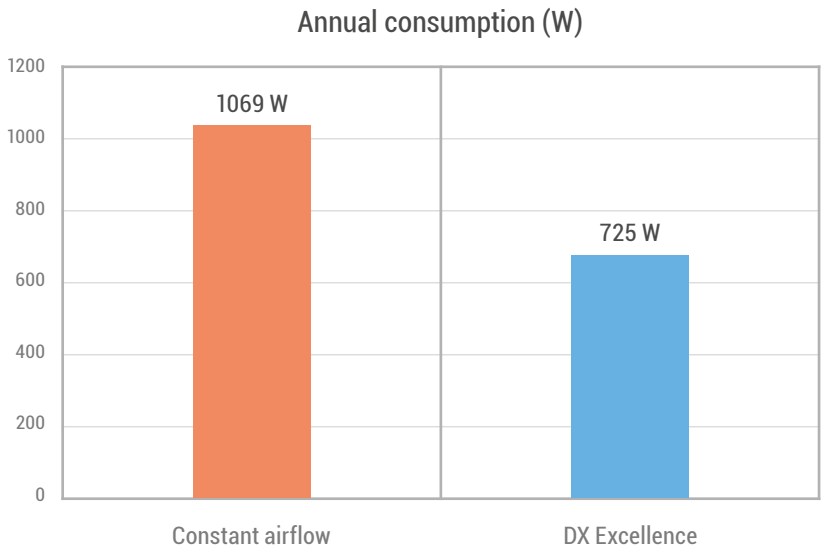


Considering a mechanical ventilation with heat recovery (MVHR) unit set up in Saint-Petersburg (Russia), we carried out the comparison of the DX Excellence using its room-by-room regulation with a conventional MVHR based on a constant airflow. In this study case, the supplied airflow is set to 140 m³/h.

The accommodation plan is presented above: an individual house with a total area of 103 m² distributed over two floors. We are studying and comparing the performance of each system according to five criteria.

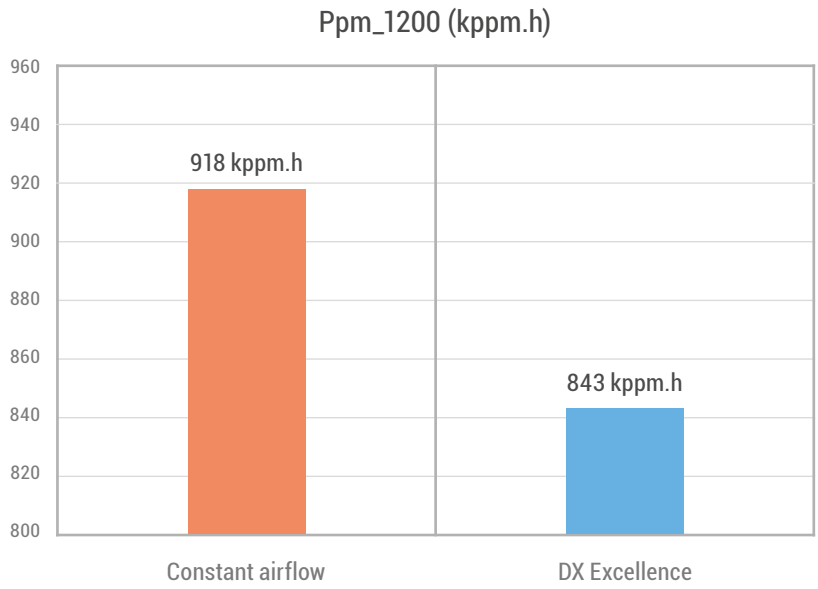
Consump_Tot: This parameter represents the total energy consumption caused by the ventilation system over a year. It entails fan consumption, pre-heating and conventional heating. Values are given in Watt.

The DX Excellence enables **33% energy savings** over a full year. Thanks to room-by-room accuracy regulation, airflows are cleverly distributed according to the demand. Thus, the heat losses are reduced to their minimum.



Ppm_1200 : This parameter gives a quantitative representation of the indoor air quality in the dwelling. It is based on the CO_2 level in the air. It is given in kppm.h. An important value of Ppm_1200 means the CO_2 level is often above 1200 ppm in the dwelling. This characterizes a bad indoor air quality.

In the different configurations tested, the Ppm_1200 indicator is **10% better with the DX Excellence.** This represents a significant improvement in the indoor air quality in the dwelling compared to a constant airflow system.

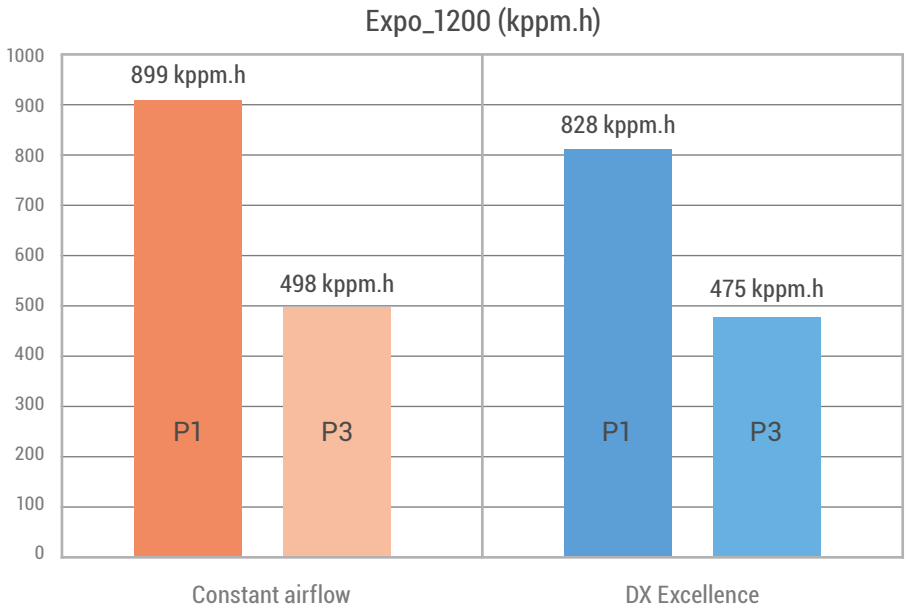


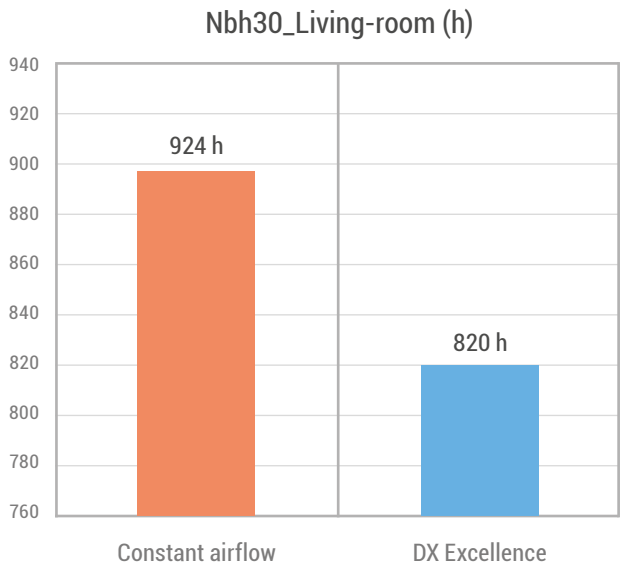
Expo_1200_P1 and Expo_1200_P3: This parameter is also given in kppm.h and it shows the exposure level to CO_2 for one adult (P1) and for one child (P3). Thereby, we can assess the indoor pollutants exposure level in the dwelling. We consider a period of one year and a threshold of 1200 ppm.

Firstly, we notice that the child (P3) is less exposed to pollutants compared to adults. Indeed, he spends most of his time alone, compared to adults who share their bedroom. Thus, adults are exposed to twice more pollutants when they both stay in the bedroom, which leads to reach nearly two times faster the threshold of 1200 ppm.

Secondly, we note that the exposure levels are very similar between both systems used. However, the constant airflow MVHR system operates at 140 m^3/h. The DX Excellence operates on average at 93 m^3/h. **Thus, the room-by-room regulation is the most efficient system.**

Smart
Efficient
Design



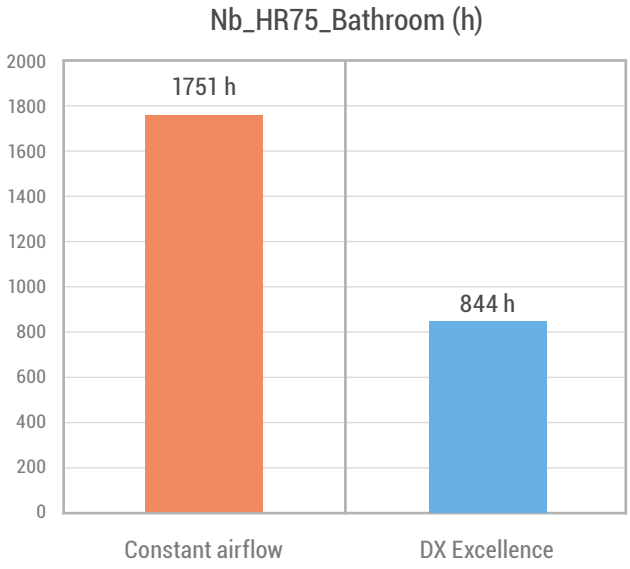


Nbh30_Living-Room: This parameter gives the number of hours per year during which the living room falls below the threshold of 30% relative humidity (under this value, residents' health can be affected after long-term exposure).

The time spent below 30% relative humidity is around 10% longer with a constant airflow system. Indeed, a higher airflow evacuates more significantly the humidity produced in the dwelling. In cold weather conditions (like St. Petersburg), the relative humidity naturally drops. Therefore, using a DX Excellence is recommended to decrease dry air effects.

Nb_HR75_Bathroom: This parameter gives the number of hours per year during which the bathroom exceeds the 75% relative humidity threshold.

The time spent above 75% relative humidity in the bathroom is twice as high when using an MVHR at constant airflow. The DX Excellence is therefore much efficient at adressing episodes of high humidity. It prevents the appearance of molds harmful to the occupant's health. The DX Excellence also helps protect the structure of the house from damage caused by high relative humidity.

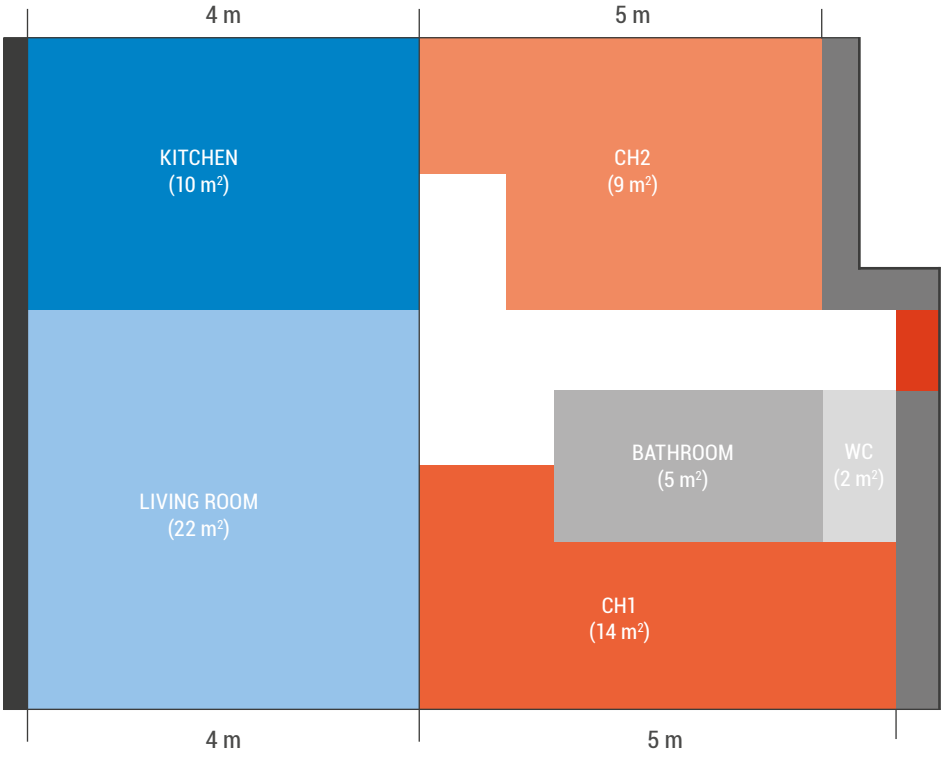


INDIVIDUAL HOUSE

	CONSTANT AIRFLOW	DX EXCELLENCE
Consump_Tot	●●○○○	●●●●●
Ppm_1200	●●●○○	●●●●○
Expo_1200	●●●○○	●●●●○
Nbh30_Living-Room	●●●○○	●●●●●
Nb_HR75_Bathroom	●●○○○	●●●●○

PERFORMANCES OF ROOM-BY-ROOM REGULATION

COLLECTIVE HOUSE



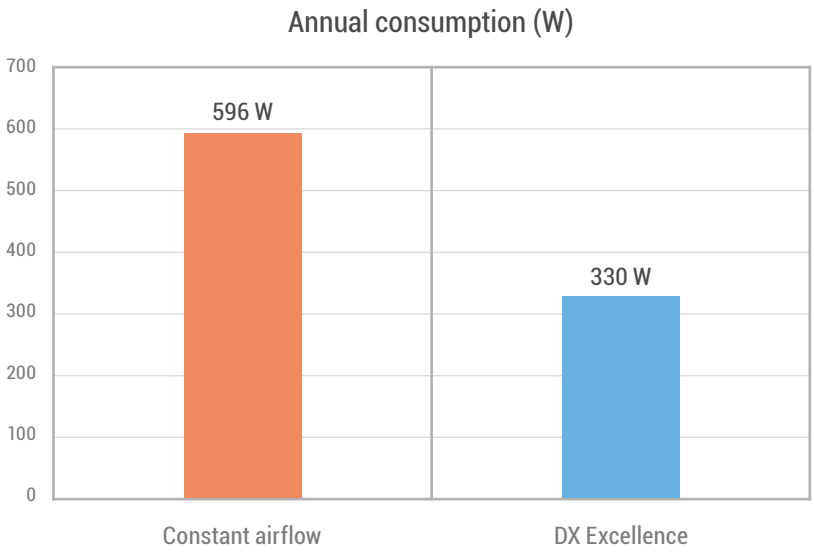
F3/ 1 BATHROOM/ 1 WC

Considering a mechanical ventilation with heat recovery (MVHR) unit set up in a collective dwellings in Berlin (Germany), we carried out the comparison of the DX Excellence using its room-by-room regulation with a conventional MVHR using constant flow rate set to 140 m³/h. The house is inhabited by two adults and a child.

The accommodation plan is presented above: a flat with a total area of 70 m². We are studying and comparing the performance of each system according to five criteria.

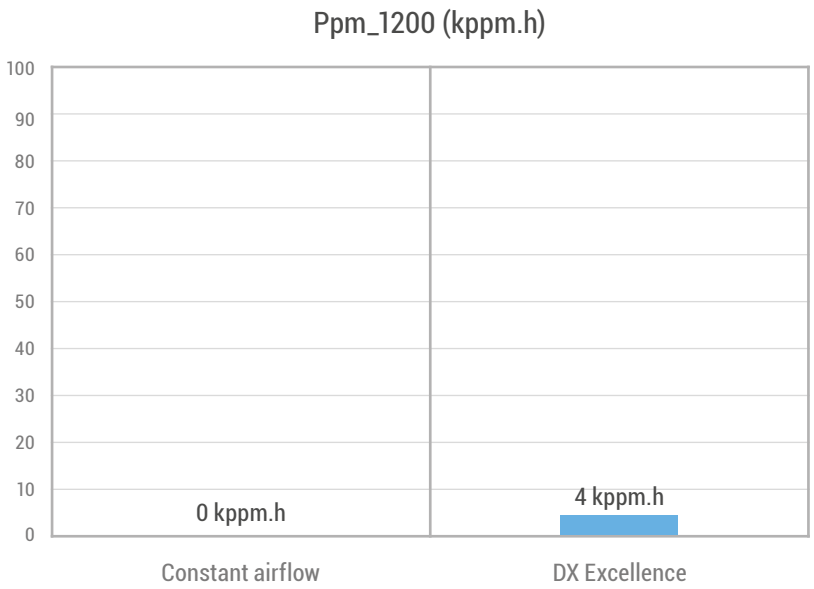
Consump_Tot: This parameter represents the total energy consumption caused by the ventilation system over a year. It entails fan consumption and conventional heating. Values are given in Watt.

The DX Excellence enables **45% energy savings over a full year.** Thanks to room-by-room accuracy regulation, airflows are cleverly distributed according to the demand. Thus, the heat losses are reduced to their minimum. The savings are higher than in the previous study case because of weather conditions: in Berlin, the use of the air preaheating module represents nearly 0 W.



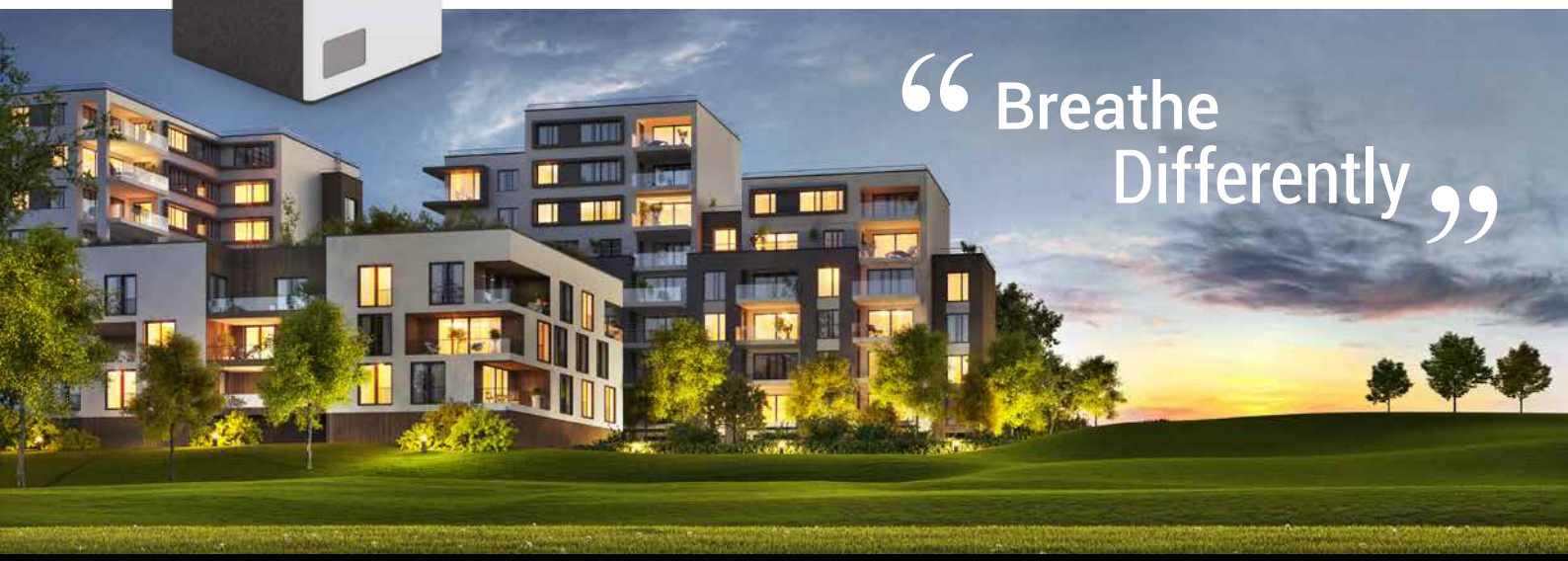
Ppm_1200: This parameter gives a quantitative representation of the indoor air quality in the dwelling. It is based on the CO_2 level in the air. It is given in kppm.h. An important value of Ppm_1200 means the CO_2 level is often above 1200 ppm in the dwelling. This characterizes a bad indoor air quality.

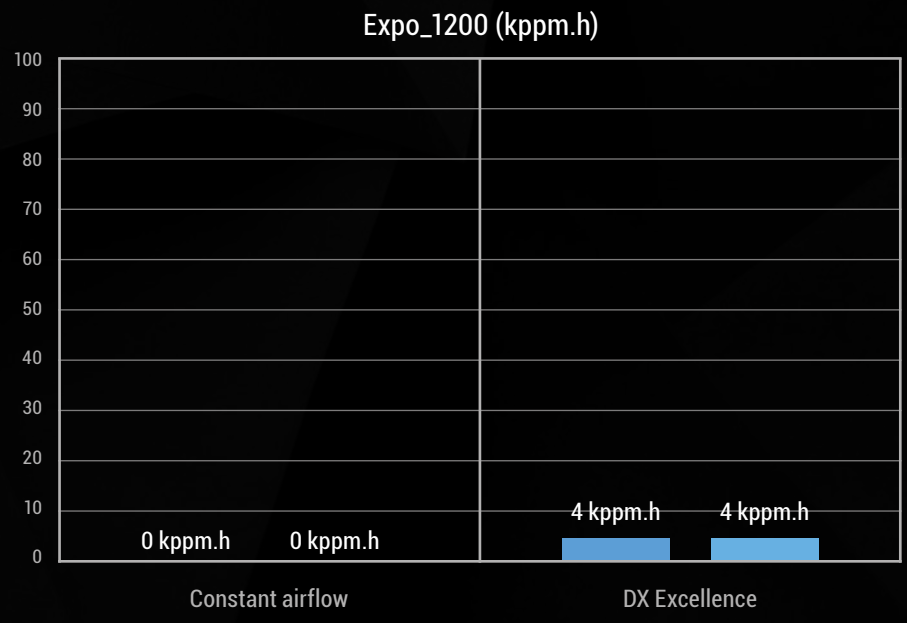
The ppm_1200 index indicates an excellent indoor air quality using MVHR systems. In that case, the two systems are equivalent in terms of indoor air quality. However, the room-by-room regulation shows how it can achieve the best indoor air quality using the minimum amount of energy.

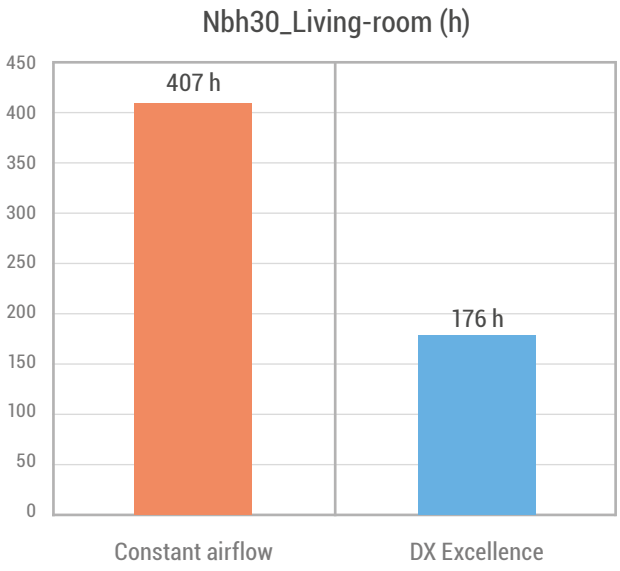


Expo_1200_P1 and Expo_1200_P3: This parameter is also given in kppm.h and it shows the exposure level to CO_2 for one adult (P1) and for one child (P3). Thereby, we can assess the indoor pollutants exposure level in the dwelling. We consider a period of one year and a threshold of 1200 ppm.

Like the previous indoor air quality index, the exposure to pollutants is nearly zero in this configuration and the two systems are equivalent in terms of indoor air quality.

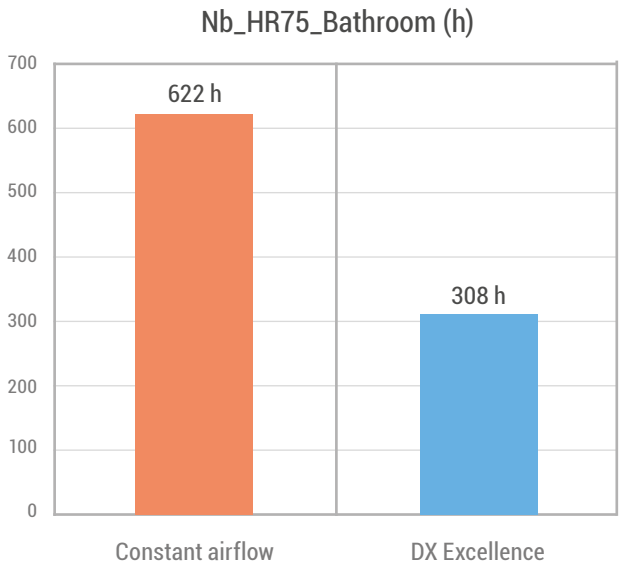






Nbh30_Living-Room: This parameter gives the number of hours per year during which the living room falls below the threshold of 30% relative humidity (under this value, residents' health can be affected after long-term exposure).

The time spent below the 30% relative humidity threshold is around 57% higher for the MVHR operating constant airflow. As we measured an average airflow of 77 m^3/h the DX Excellence is more efficient in terms of inhabitant comfort and well-being.



Nb_HR75_Bathroom: This parameter gives the number of hours per year during which the bathroom exceeds the 75% relative humidity threshold.

The time spent above 75% relative humidity in the bathroom is twice as high when using an MVHR at constant airflow. The DX Excellence is therefore much efficient at adressing episodes of high humidity. It prevents the appearance of molds harmful to the occupant's health. The DX Excellence also helps protect the structure of the house from damage caused by high relative humidity.

COLLECTIV HOUSE

	CONSTANT AIRFLOW	DX EXCELLENCE
Consump_Tot	●●●○○	●●●●●
Ppm_1200	●●●●●	●●●●●
Expo_1200	●●●●●	●●●●●
Nbh30_Living-Room	●●●○○	●●●●●
Nb_HR75_Bathroom	●●○○○	●●●●○

+4 000 000 products made per year

400 000
dwellings equipped per year

6 million dwellings equipped since Aereco was founded in 1984

+450 employees in the group

+30 countries where Aereco is active


AERECO

Aereco S.A.
62 rue de Lamirault – Collégien – 77615 MARNE LA VALLEE CEDEX 3 – FRANCE – tel. +33 1 60 06 44 65
www.aereco.fr