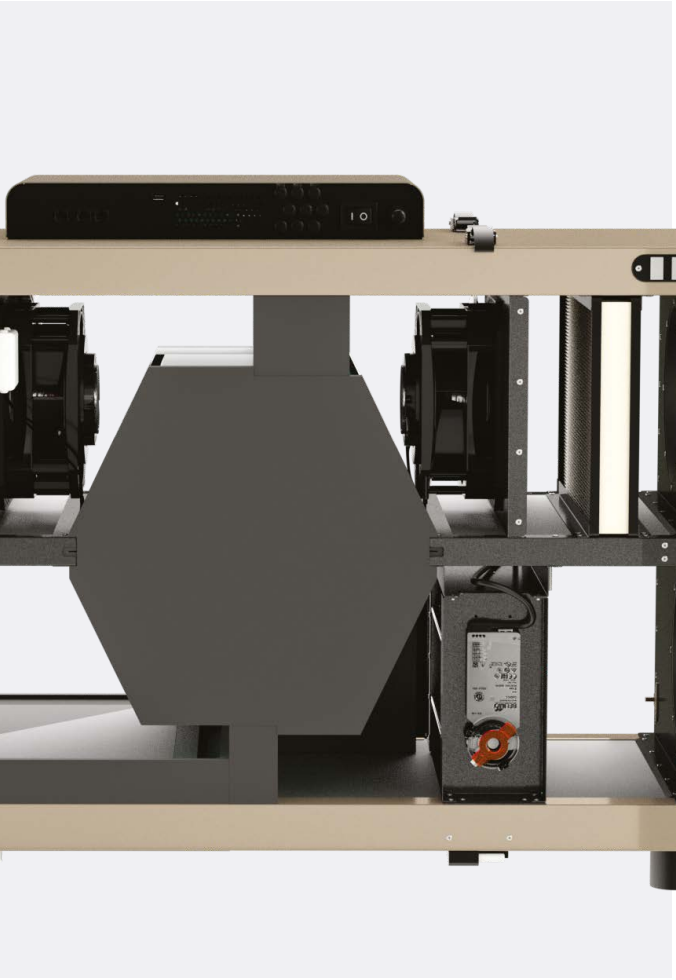
AirPack Home

Mechanical Ventilation Units with Heat Recovery



30% extra energy savings

2× less noise

40% higher standard of air filtration

AirPack can be easily Integrated with your heat Pump.

You can integrate the AirPack into your smart home.

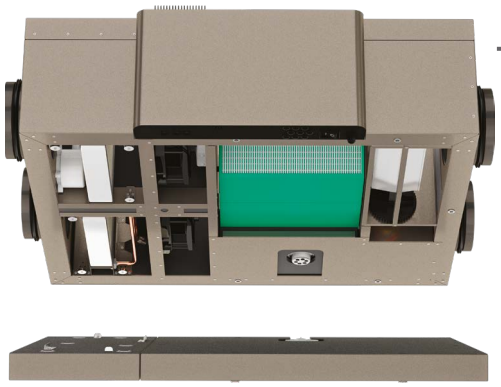
GHE

AirPack is perfectly suitable for using renewable energy sources.

THESSLAGREEN

AirPack Home

with the CF technology*

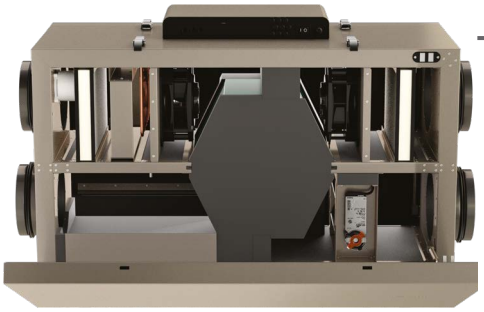


flat

In buildings with limited are ideal as they require a small amount of space. Even in confined spaces they still perform with very high acoustic performance.

vertical

Highly efficient solution that performs to the highest levels consistently. This well designed, multi-functional packaged ventilation solution works seamlessly meeting your ventilation requirements and more!



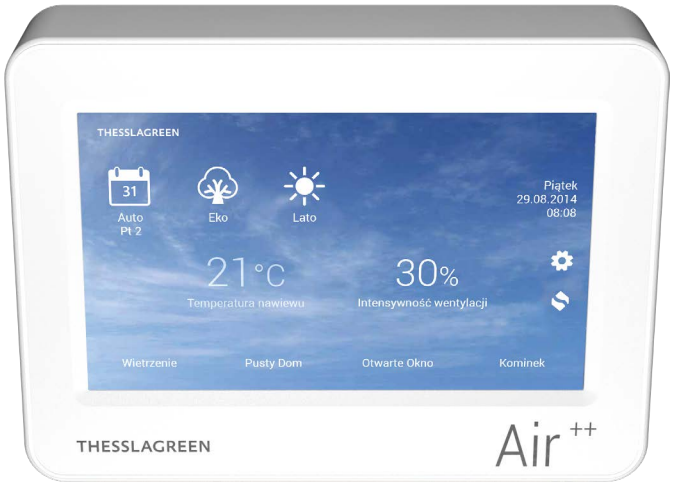
horizontal

In homes with limited space, confined attic spaces can be used to house this slimline solution. Thermally we can guarantee performance in such spaces due to the level of insulation integrated into the design of its enclosure.

*The fullest functioning capacities are available after installing the CF module.

Air++ and AirMobile

Two simple ways to control the quality of the air inside your building.



Touch display interface is simple and intuitive to use! Can be used without referencing to a manual each time!

Air interface removes the need for all other control interfaces 100%

Control of your ventilation at your fingertips, using your smartphone or laptop. Simply connect to your AirPack Ventilation unit and configure at ease without limits. AirMobile can replace all other control interfaces.

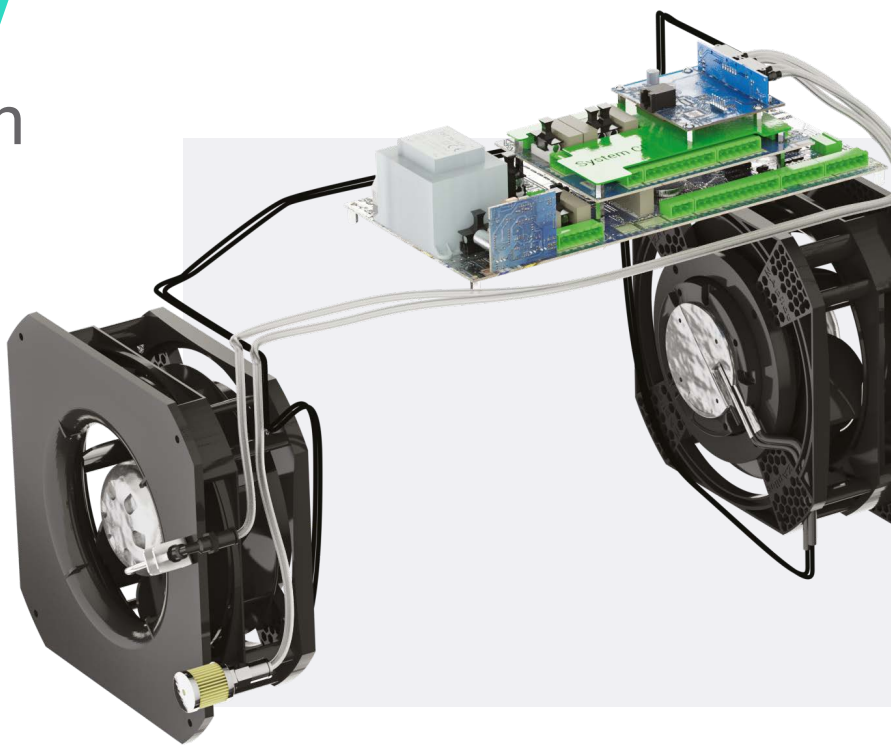
CF The automatic air flow control system

Did you know that a balanced ventilation means up to 30% more energy savings?

The AirPack Home MVHR Unit Control Flow (CF) function maintains the highest possible efficiencies by over coming restrictions within the Heat Exchanger by dynamically controlling Air Flow. The Control flow (CF) module maintains balanced air flow ensuring that the maximum amount of energy is transferred to the incoming supply Air (Fresh Air given to the Building) from the Exhaust Air (leaving the building). This is especially important in the winter.

Control systems of most other MVHR units do not continually measure air flow. By setting the ventilation intensity on the control panel the user only adjusts the fan speed. Change in weather conditions, natural filter contamination, moisture formation within the heat exchanger due to condensation will have an ever changing affect on supply and exhaust air flows. Ventilation imbalance will often exceed 30% which in turn as a proportional adverse affect on ventilation heat loss and the comfort level experienced within the building being ventilated.

Perfectly balanced ventilation



AirPack Home with CF Module* ensures balanced air flow and in turn the highest possible efficiencies consistently. Most other MVHR Ventilation units do not have this very important control strategy. The CF system continuously measures the air flow and regulates the rotary speed of the fans to ensure that air flow via both sides of the heat exchanger are equal i.e. balanced!

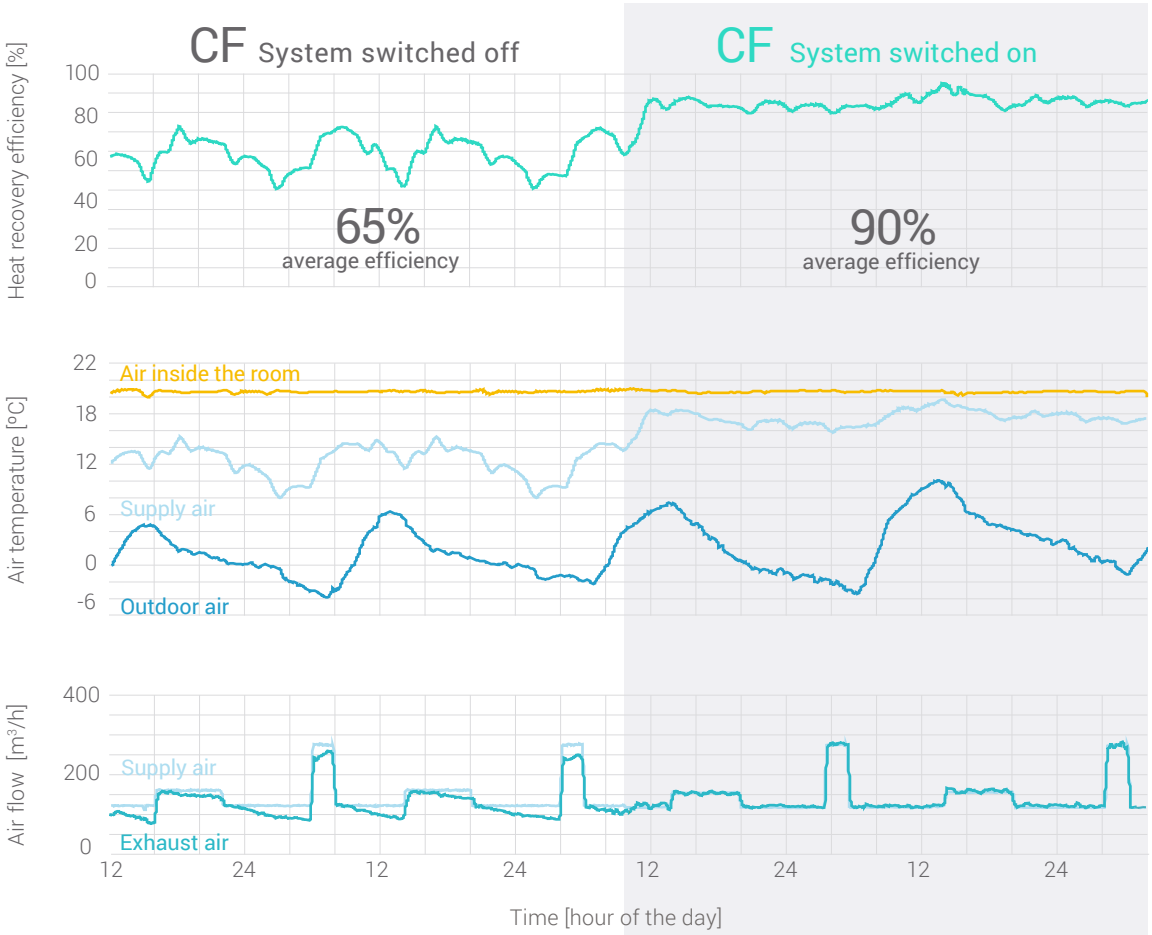
The result of adopting the CF control strategy in the AirPack MVHR units is high operating efficiency and low running costs that are independents of weather conditions or Air filter state.

* CF full range of functions are available by installing a CF module

CF system under real conditions

Measurements were taken in Krakow on the 13.02.2017 - 17.02.2017. The AirPack Home 300h MVHR unit was tested in the field to measure the performance of the CF module under normal operating conditions. During the first two day period the CF Module was switched OFF (Disabled) and during the second two day period the CF Module was switched ON (enabled). During both periods the the MVHR unit was set to operate in the same way i.e. with the same ventilation rates and following the same daily time programme. It was found that the humidity of the air was 50% higher inside the building when the CF module was disabled.

When it is cold outside and when the moisture content in the air inside the building is high the moisture laden air being removed via the MVHR heat exchanger condenses internally within the heat exchanger.
The resistance across the exhaust air side of the heat exchanger increases resulting in an imbalance across the heat exchanger. The outcome of this is increased ventilation losses, reduced efficiency
EFFICIENCY = (Tn-Tz) / (Tp-Tz)[1] and an unhealthy living environment inside the building.



When CF mode is off (deactivated) the fans run at constant speed independent of air flow across the heat exchanger. An imbalance exists (volume of exhaust air is less than the volume of supply air). The result of this is less recovered energy available to temper the incoming fresh supply air (Outside Air). If the temperature of the supply air drops below 12 degrees C then the average efficiency of energy recovery within the MVHR unit is approximately 65%.

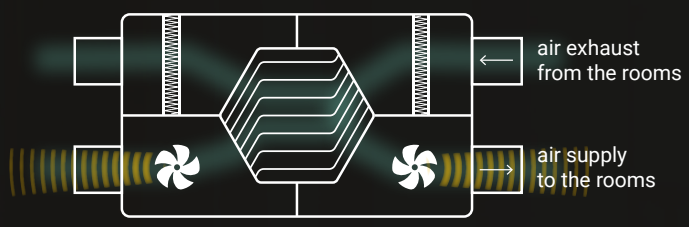
The CF control detects small deviations in air flow and in proportion increases the exhaust fan speed to ensure that air exchanged across the heat exchanger (in and out) is equal (balanced). The temperature of the supply air given to the building remains constant at 18 degrees C and the average efficiency of energy recovery (Heat Recovery) at 90%.

[1]Tn – temperature of the supply air
Tp – temperature of the air in the rooms
Tz – temperature of the outdoor air

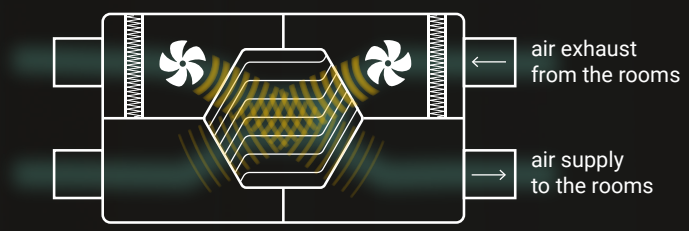
With the AirPack Home air handling unit, ventilation works two times quieter.

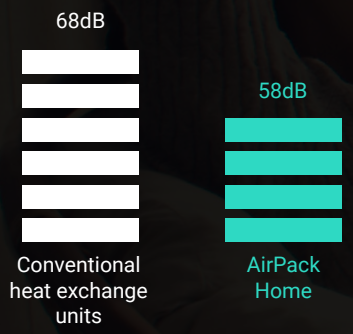
The AirPack Home casing is made of 50 mm closed-cell, waterproof foam. Our design guarantees excellent thermal and acoustic performance. The exposed surface area of the foam absorbs part of the acoustic wave, prevents its reflection, effectively reducing noise emitted to the ventilation system.

Acoustic performance is a common concern with centralised ventilation systems. Noise breakout from MVHR units via the ventilation distribution system to living spaces can be resolved by introducing acoustic breaks. In many MVHR units the supply fan is connected directly to the supply Air duct outlet. When the fan is running an acoustic wave is created. As no acoustic break exists the noise is transmitted to the rigid body of the MVHR unit to the supply air outlet and to living spaces within the building.



The AirPack Home is designed to achieve the highest possible acoustic performance. Our innovative InFlow system places the heat exchanger between the fan and the supply air outlet. Prior to reaching the supply air outlet any noise produced by the fan is conditioned acoustically via the thousands of small channels within the MVHR heat exchanger. The heat exchanger acts as a very good acoustic attenuator.





Level of sound power emitted to the supply installation at maximum performance.

Thanks to the InFlow system and the thermoacoustic technology AirPack Home emits to the supply duct, at maximum performance from 7 to 13 dB less sound power[1] than conventional MVHR units.
In the logarithmic scale sound intensity at 10 dB means 10 times less sound power, 3 times smaller sound pressure and 2 times smaller volume[2].

[1] Sound power level - logarithmic measure of sound power in relation to a reference value.
[2] Volume - psychoacoustic scale of the auditory sensation of the human ear.

40% better air quality

without increasing the filtration costs

Air quality

In normal mode a well designed ventilation system will provide a 150m^2 detached domestic dwelling with approximately 800,000m^3 of fresh air per year. In urban environment, for each 1 m^3 of air accrues approximately one million dust particles that will be air borne in your home. Dust undoubtedly harms health, distorting the hygiene of the ventilation system dirties the walls and objects inside the building. Impurities which are accumulated in the heat exchanger lowers the efficiency of heat recovery and increases the resistances of the air flow. Therefore one of the most important features of the AirPack Home ventilation system is its innovative air filtration system.

Costs of filtration*

The cost of providing adequate fresh filtered air can be significant. 35% - 50% of ventilation running costs can be attributed to filter replacement costs and energy costs indexed to filters being soiled and inadequately maintained.

Thesslagreen are customer focused and have designed a cost effective solution that reduces the cost of filtration whilst ensuring good air quality. Our CleanPad pure two stage filter system has a large surface area and lasts at least 50% longer than conventional G4 filters and upto 5 times longer than G4 grade flat nonwoven filters.

In addition to provideeing a superior filtering medium the controls within the AirPack Home ventilation units provide information on capacity remaining for filtration as a percentage. This means that the customer is always informed on the state of the filters within the Airpack Home unit.

		G4 class flat nonwoven fabric	G4 class CleanPad filters	M5 class CleanPad Pure filters
Energy consumed by the fans	kWh/year	41	19	36
Cost of the energy consumed by the fans to pump the air through the filter	EUR/year	4	2	3
Filter service life	weeks	11	38	59
Cost of the set of filters	EUR	8	27	38
Cost of filter replacement	EUR/year	35	36	33
The effectiveness of stopping- dust p articles with dimensions of 3-10 µm	%	50	50	85
Total cost of filtration	EUR/year	39	38	36

* On the example of the AirPack 500h unit. Measurements made in Poland.

horizontal

vertical

flat

Technical data

AirPack Home			300h	400h	500h	650h	850h	300v	400v	500v	600v	800v	200f
Air stream	for 100 Pa	[m³/h]	305	420	495	655	870	305	400	490	590	800	200
	for 150 Pa		285	400	480	630	840	285	380	470	565	780	185
	for 200 Pa		260	375	460	610	800	260	360	450	540	750	172
Maximum efficiency of heat recovery		[%]	95										
Annual average efficiency of heat recovery (real heat recovery per year while operating with the factory weekly program)		[%]	91	90	88	90	87	91	90	88	91	88	91
Level of sound power emitted to the supply installation at maximum performance*		[dB(A)]	52	54	55	54	58	52	54	55	55	59	52
Level of sound power emitted to the supply installation at maximum performance**		[dB(A)]	56	58	59	59	63	56	58	59	59	63	58
Energy efficiency class*** (for moderate climate)			A	A	B	A	B	A	A	B	A	B	A
Air flow adjustment			I. With the CF module - automatic (maintenance-free) adjustment and air flow balancing (option). II. Without the CF module - conventional, fully continuous rotary speed adjustment of fans + balancing the installation using the Calibrator CF.										
Heat exchanger			100% counter-current, made of Recair plastic.										
Fans			Centrifugal with EC (ebmpapst).										
Bypass			100% of bypass, insulated, programmable in the function of the outdoor temperature and the temperature in the building.										
Frost System			FPX system - continuously adjustable heater which prevents the drops of the exchanger wall temperature below 0°C.										
Filters			CleanPad Pure - M5 class two stage filters with increased dust capacity by 60%.										
Power supply			230 V (AC), 50 Hz										
Maximum current consumed by the device		[A]	5.9	7.5	9.8	11.5	15.6	5.9	7.5	9.8	11.5	15.6	4.2
Diameter of connectors (in accordance with PN-EN 1505:2001 standard)		[mm]	200										160
Condensate connector		[mm]	32										
Weight		[kg]	65			78	82	65			82	86	40
Unit dimensions (W x H x D)		[mm]	1116x697x555			1116x697x754		953x702x554			953x702x754		931x315x782
Work conditions			Work conditions 0°C - +45°C, recommended conditions: 5°C - +45°C , relative humidity ensuring no condensation on the surfaces of the casing and the device components.										

*In accordance with PN-EN-ISO 3741-2011
**In accordance with PN-EN-ISO 5136-2009
***In accordance with 2009/125/EC Directive and the European Commission Regulation No 1254/2014