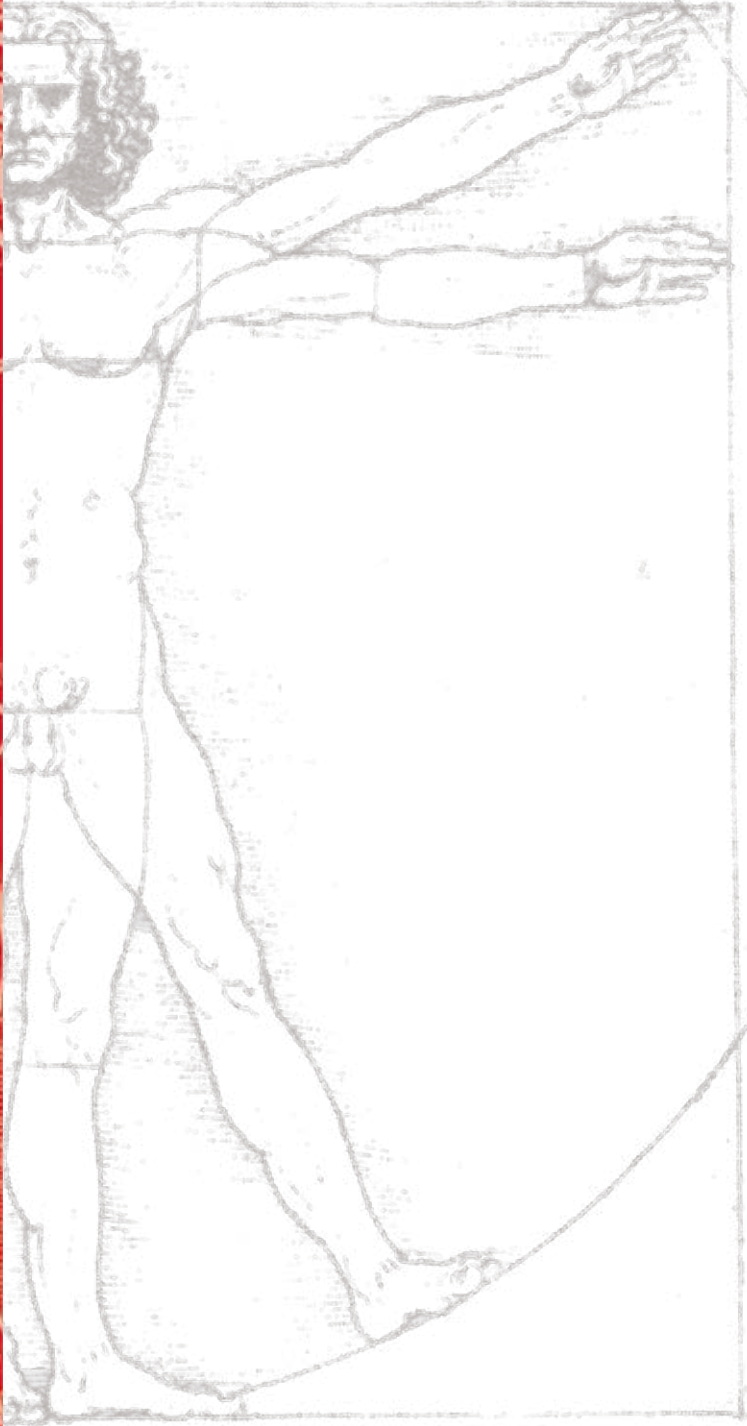




Ventilation systems –

Energy saving ventilation solutions for
healthily comfortable living



Why (controlled) ventilation?

Fresh air or low energy savings?

With Genvex ventilation appliances, you can have both. Regardless of whether your home is new or was built years ago, we have the right system for you. The problem of combining energy savings with sufficient ventilation can only be solved by introducing the means for controlled internal ventilation. This is where Genvex comes in!



All in all, domestic ventilation has three aims: cleaner internal air, controlled air humidity, and energy savings.

Windows open, heat escapes

Ventilation heat losses often amount to over 50 % of total heat losses in the modern home. The potential for savings is therefore high. This means cash in hand for you.

You need to breathe, your home does as well

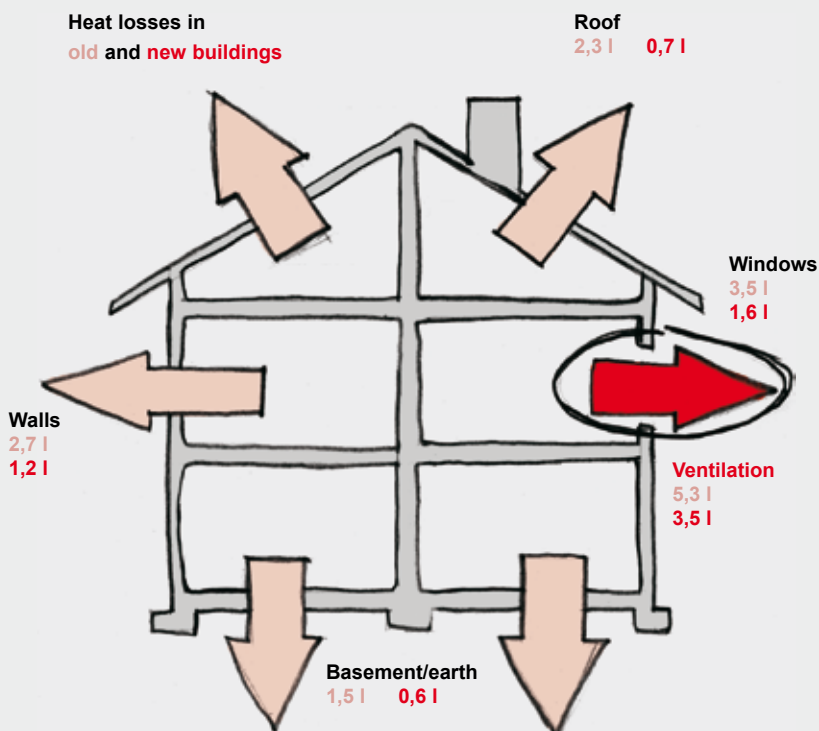
Low-energy houses or flats constructed or modernised under the energy savings schemes of the European countries, have to be constructionally air-tight. This is the only way to restrict energy losses to the environment, use less energy and minimize your energy costs. Relying on natural air changes through cracks, gaps or untight windows and doors is no longer an option. The consequence is poor internal air quality, excessive humidity, high carbon dioxide levels (CO₂) and other harmful elements such as mould growth.

For the occupant this means discomfort and in the worst case, allergic reactions. For the building, it means damage to the construction and lowered value.

Window ventilation can be helpful but again it wipes out the intended energy savings.

Heat escape

The diagram shows the proportion of heat energy needs escaping through the building envelope. It shows how many litres of heating oil are consumed per m² each year. Old or new construction, it makes no difference: the biggest potential saving lies in ventilation. The data for older buildings are shown in pink, and those for low-energy housing in red.



Ventilate correctly!

We all spend on average 90 % of our time in enclosed rooms. This shows how important regulated internal ventilation is.

Lots of fresh air and lots of energy savings!

A ventilation appliance is one of the necessary components in the energy-saving homes of today, alongside insulation and modern heating technology. Only a ventilation appliance can deliver the air changes needed for optimum energy efficiency and hygiene.

What internal air contains

The smell of paint, varnish, furniture adhesive, carpets, windows and doors, not to mention cleaning agents, all hang invisibly in the air. Add to this germs and micro-organisms such as mites from pets.

Healthier with ventilation appliances

Up to 80 % of allergy triggers can be avoided by controlled internal ventilation. This is achieved by special pollen filters and healthy humidity.

Ventilation methods	Problems
Gap ventilation Air exchange between the interior and exterior of the building is effected through draught gaps (e.g. gaps in windows) in the building	<ul style="list-style-type: none"> ▶ Cannot be relied on in air-tight new-build construction ▶ Draught problems ▶ Cannot be controlled ▶ Causing damage to construction through warm humid air flows
Permanent ventilation Permanent air changes through external openings such as fixed window openings	<ul style="list-style-type: none"> ▶ Cooling of rooms ▶ High energy losses ▶ Ingress of noise, dust, pollen, insects etc.
Periodic ventilation Regular ventilation for short periods, e.g. 2 min., 10 min.	<ul style="list-style-type: none"> ▶ Ecologically sound, but associated with draught problems and heat losses ▶ Ingress of noise, dust, pollen, insects etc. ▶ Needs to be done regularly every two hours (even at night)

Solution

Controlled internal ventilation

The main benefits of controlled internal ventilation



Damage to the building (e.g. through mould) is avoided by the optimum dehumidification of the room



Special air filters keep house and rooms free of dust and similar particles, pollen, insects etc.



Health and well-being thanks to fresh, clean air with moderate humidity and no noise



House dust mites can no longer survive, in part because of the reduced air humidity



No drops in temperature or discomfort from cold or draughts as with window ventilation



Cost savings through heat recovery and reuse of waste heat for heating and hot water



Rules of the relevant energy saving schemes are easier to comply with

Lots of fresh air and low energy costs

Central ventilation appliances from Genvex with integrated heat pump and heat recovery offer the optimum solution for systematic, energy-saving ventilation of new and renovated housing.

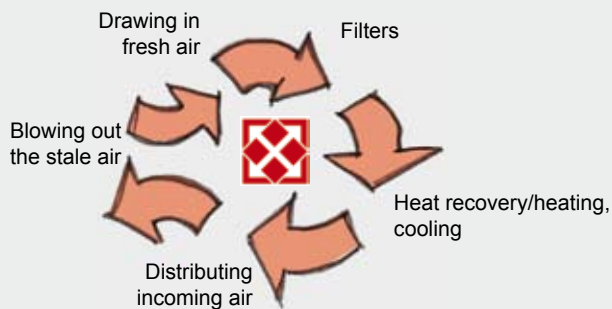
Controlled internal ventilation

When using controlled internal ventilation, fresh air is drawn in through a fan, then filtered for dust, harmful substances and pollen. Then it is distributed to the various rooms through a pipe system. Another pipe system discharges damp stale air to the outside.

Lower heating costs through heat recovery

Heat recovery means that heat is extracted from the outgoing air using a special method and transferred to the incoming air in a heat exchanger. Up to 95% of the heat energy in the stale internal air can be retained.

How does an air extract system work?



Genvex ventilation appliances the right solution

How does an air supply and extract system work?

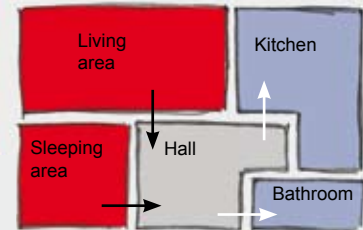
The fresh filtered supply air, flows through the various grilles and air inlets into the supply air rooms (living rooms and bedrooms). From there it flows through the "overflow zone" (halls, lobbies, passages) to the air extraction rooms (kitchen, bathroom, WC), where it is drawn into the exhaust grilles, the heat is recovered and is discharged to the outside atmosphere.

Typical supply air rooms are living rooms, offices, bedrooms and the children's rooms, in which fresh air is needed. In supply and extract systems the incoming fresh air passes through a fine dust filter. On the extract side, the air passes through a filter for protecting appliance components from polluting elements. In this way the amount of dust in the fresh and the extract air is drastically reduced.

Choice of installation location

Genvex ventilation appliances are available for installation with top air duct connectors and/or side connectors. Appliances with top connectors are ideal for installation in the lower part of the house (basement, utility room). Appliances with side duct connectors are particularly suitable for roof or attic installation.

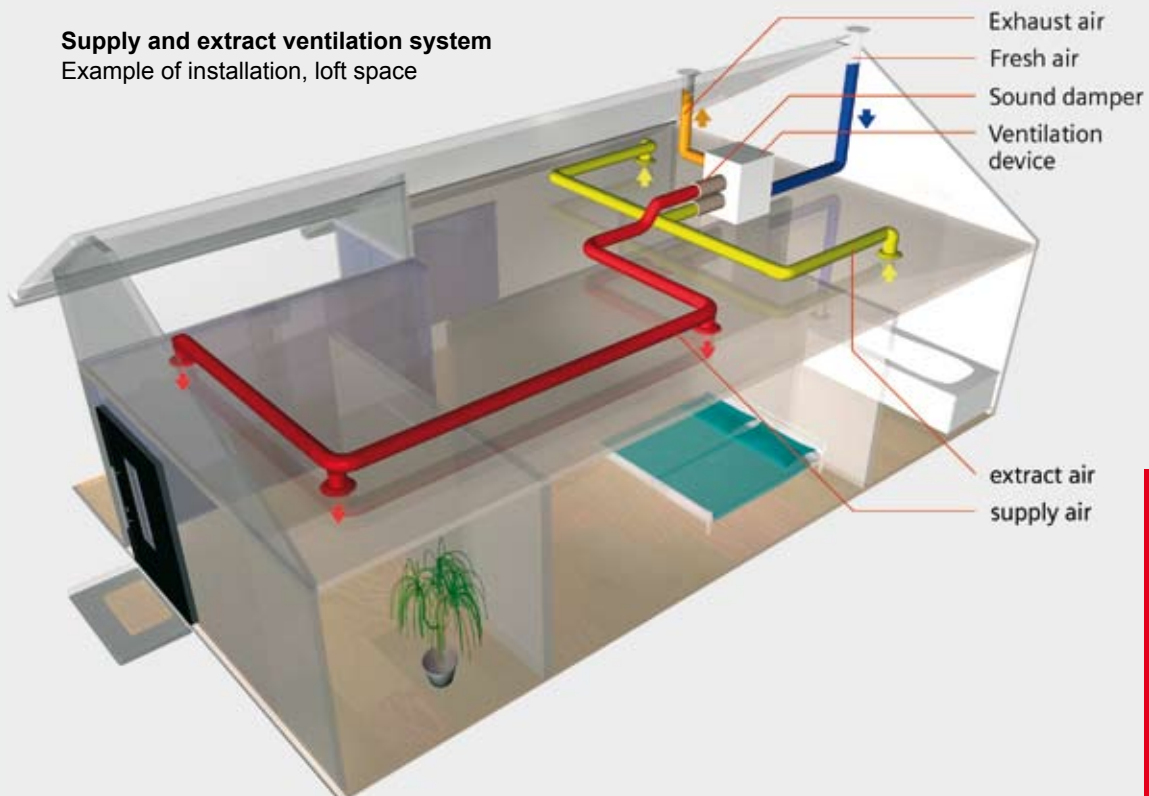
Supply air zone
Overflow zone
Extract air zone



Air extraction rooms are rooms such as kitchen, bathroom or utility room. In other words, rooms with a lot of humidity. From these rooms the warm, damp and stale extract air, flows into the ventilation appliance, where the heat energy is recovered. The outgoing air - and with it the house - is thus dehumidified, while smells are transported into the outside atmosphere along with the exhaust air.

Supply and extract ventilation system

Example of installation, loft space



Ventilation and heat recovery

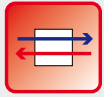


Ventilate and save heating costs!

Even when it first sounds like a contradiction, Genvex makes it possible: with a central ventilation appliance from Genvex you can recover a great deal of the heat you generate without a high energy input. Extraordinary efficient counterflow heat exchangers achieve efficiency rates up to 95 % and retain valuable room heat during ventilation. As both airflows (fresh air and stale air) are hermetically separated, the air will not mix.

When recovering heat from the exhaust air, the so-called plate heat exchangers are used. There are two different designs: crossflow and counterflow heat exchangers.

A heat exchanger consists of several plates. Both airflows pass over these plates, however on different sides. The heat is transferred through the plate from the hot to the cold side. At every point where two airflows need to be separated, e.g. in order to prevent transmission of smells from the extract air to the supply air, plate heat exchangers are used. The heat recovery rate of the crossflow heat exchanger varies between app. 55 - 65 %. Counter current heat exchangers achieve efficiencies up to 95 %. In the so-called "passive" ventilation appliances from Genvex only counter current heat exchangers are employed.



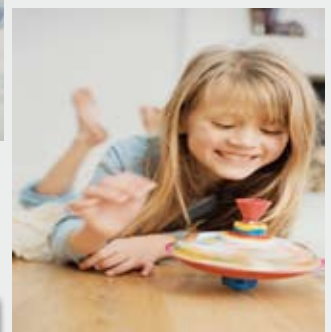
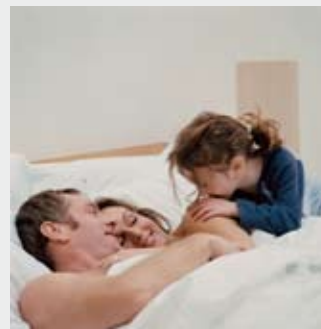
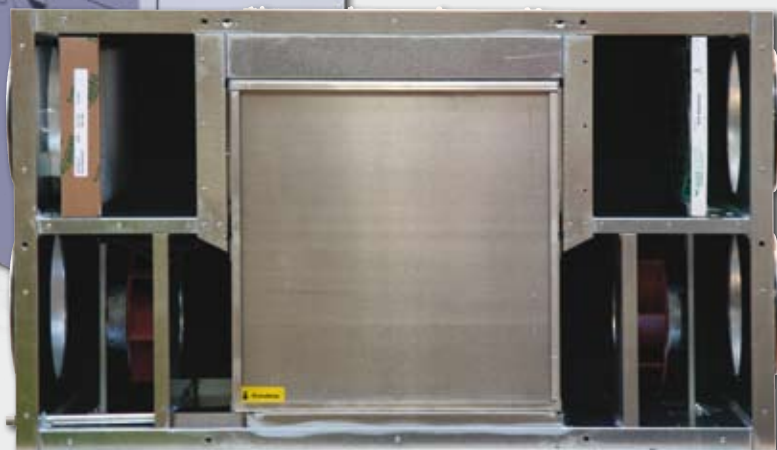
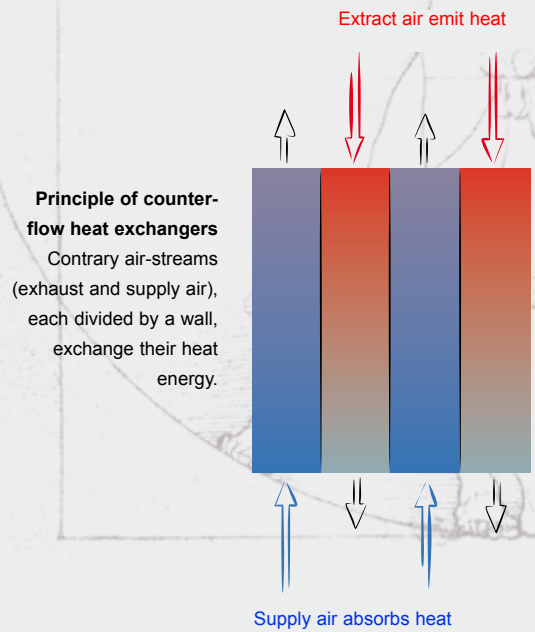
Ventilation appliances with counterflow heat exchanger

Central ventilation plant with counterflow heat exchangers

The appliances in the GE Energy 1-3 series are suitable for detached houses with a gross living area up to 450 m². The maximum air output will vary between 80 and 540 m³/h. Besides the GE Energy series for mounting in the loft, the GES version is available for a mounting on the wall (GES Energy 1) and the GEU series are also available for being ceiling mounted. Particularly suitable for refurbishment work, or blocks of flats.

Central ventilation plant with counterflow heat exchangers

- Supply and extract air
- Maximum airflow app. 200 to 800 m³/h.
- Heat recovery from counterflow heat exchangers



Ventilating, heating and cooling with Genvex Active Appliances



Whole house ventilation appliance with heat exchanger and integrated air-source heat pump

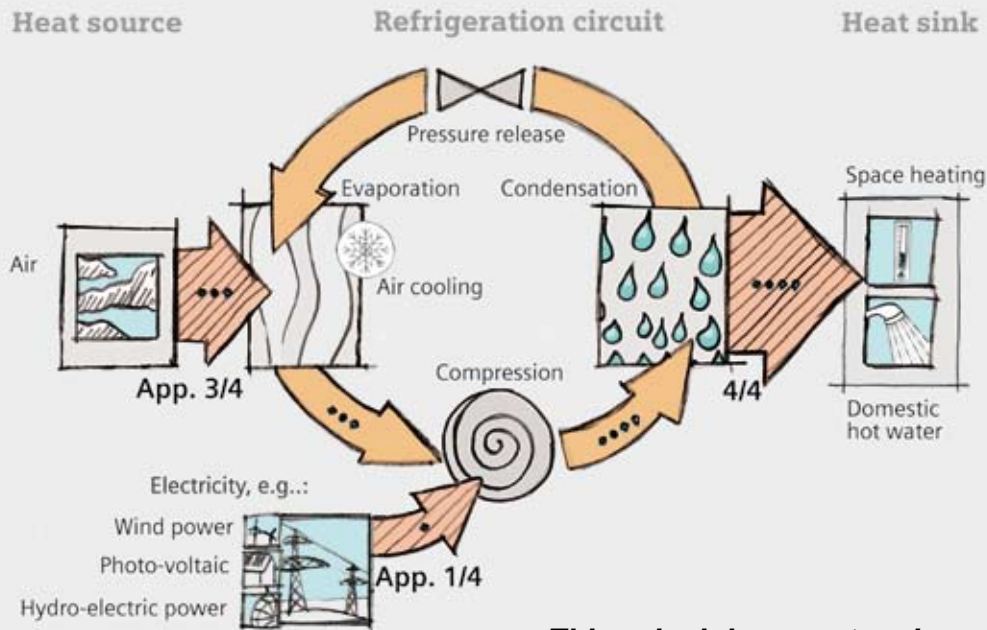
With this combination of appliances, you can achieve the highest level of comfort and energy efficiency in your own home. Fresh air and stale air are passed over separating plates. In doing so heat exchange takes place. Up to 95 % of the heat from the exhaust air is transferred to the incoming air with a counter current heat exchanger. Added to this is the energy from the heat pump. The plates of the heat exchanger in the subsequent heat pump perform the actual heating or cooling function. With this combination of heat pump and counter current heat exchanger an output ratio of up to 5 can be achieved, i.e. with 1 kW electricity you can obtain up to 5 kW heating output. In this way the energy efficiency is exploited to the utmost.

The GES/GE Premium-serie are ventilation appliances consisting of a counter current heat exchanger, a heat pump, supply and extract fans and it is delivered with extra automatic for cooling.

At first the energy is recovered in the counter current heat exchanger and then the energy residual by the heatpump, contemporary contributes to heating of the residence. The GES/GE Premiums are used, when you want the heat pump to cool down the supply air.



A clever principle, a comfortable result



This principle operates day and night, independently of the seasons.

Function of a ventilation heat pump

The heat pump functions like a refrigerator: same technology, reverse effect. The refrigerator extracts heat from food, while the heat pump extracts heat energy from the warm exhaust air and “pumps” it up to a higher temperature level.

Function of a ventilation heat pump for air cooling

If the air must be cooled down, the refrigerant circuit is reversed. The heat pump now works exactly like a refrigerator. It extracts heat energy from the warm outside air. The cooled fresh air now flows into the building. The heat energy extracted from the supply air is transported out again along with the escaping air.

Ventilation appliances

- Supply and extract air ventilation
- Maximum air flow app. 200 to 800 m³/h.
- Heat recovery with counterflow heat exchanger
- Heat pump heating for transition period
- Heating and cooling
- For living areas from app. 100 to 450 m²

Central extract ventilation heat pump for generating domestic hot water with the Vanvex series



extract ventilation heat pump extracts app. 70 % of the heat energy necessary for heating up the water from the extract ventilation rooms. Gross floor areas of up to 250 m² can be ventilated.

The Vanvex series is equally suitable for internal installation in new and old buildings and it will provide hot water for you and your family all year round at lower costs and with a lower impact on the environment. The slim and compact appliance will fit through any door. It can quickly and easily be installed by a specialist without turning your basement or living area into a building site.

For successful functioning of your Vanvex series, you will need external wall breakouts to allow sufficient incoming fresh air to service the air extraction process. This is not necessary with the Vanvex Lite, because it does not need any duct system.

Just what your basement needs

Basements in old buildings often smell musty, because the stale air cannot be expelled. Too high humidity in the utility room will encourage mould growth and damage the brickwork. In such cases the Genvex extract air heat pump improves the environment. It ventilates the basement, dehumidifies the air and, quite incidentally, also considerably reduces running costs.

With storage contents of 285 l the Vanvex R/RS are able to meet the demand of a family for hot water. The hot water is produced in a very energy cheap way with an actual efficiency (COP) of 3,5 by an ambient temperature of 15°C to 45°C and a circulated air amount of 250 m³/h. The enameled boiler is protected by a galvanic anode incl. legionella protection function.

Have you ever thought of making use of the damp, relatively warm air in your kitchen, bathroom or utility room, rather than just ventilating it out of the house? If so, choose a Vanvex-series extract ventilation heat pump for generating domestic hot water.

The extract ventilation heat pump for generating of domestic hot water has three advantages:

- Ventilation of the building
- Dehumidification of the building
- Saving money

Less expensive hot water

The Vanvex series extract ventilation heat pump provides you with a central hot water supply independently of the heating system. And the advantage: in future you will pay only around one third of the energy costs of, for instance, an electric thermostatically controlled heater. This is possible because the

Extract ventilation heat pump

- Maximum air flow app. 280 m³/h.
- Year-round hot water supply
- Ventilated living area of up to 250 m²



Ventilating, heating and hot water with the Combi 185 S/LS

Central ventilation appliances with air/water and air/air heat pump for domestic hot water heating:

Ventilating, heating, cooling and hot water supply: One appliance does it all. The heat energy from the extract air is used to heat up the hot water. So the ventilation heat will not be wasted but used for a hot shower or applied to heat up the incoming air.

The Combi 185 S/LS with counterflow combines the advantages of active heat pump ventilation with the benefits of heat recovery through a passive heat exchanger.

Hot water as well

Combi 185 S/LS offer priority switching, in which heating of hot water takes place first. The integrated storage cylinder holds 185 litres and can be fitted with a bare tube heat exchanger. This makes it ideal for combination with existing solar heating or wood-burning boiler plant for generating hot water. The integral electrical heating element can also carry out a weekly thermal disinfection (legionella switch).

The maximum airflow of the Combi 185 S/LS is normally 280 m³/h at 75 Pa external counterpressure. Gross living areas of up to 200 m² can be ventilated with simultaneous heating or cooling.

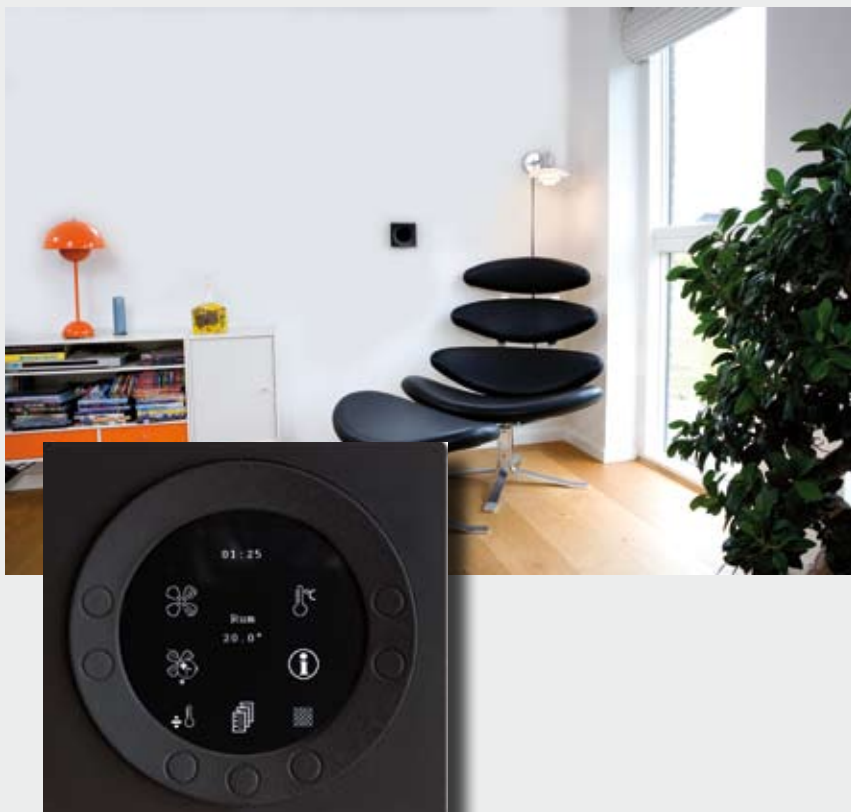


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Combi 185

- Supply and extract air ventilation
- Maximum air flow app. 280 m³/h
- Counterflow heat exchanger
- Heat recovery
- Heat pump heating for transition period
- Domestic hot water
- For living areas up to app. 200 m²

Optimum control



We leave nothing to chance: The most essential factor for energy-efficient operation of a ventilation unit is an intelligent open and closed control system. With its numerous functions, the Optima Design wall controller ensures a pleasant and healthy living environment at all times. All supply and extract ventilation appliances are fitted with this control system.

Main features at a glance:

- Automatic filter monitoring with filter change indicator
- 10 temperature raising or lowering modes per day (70 per week)
- Optimum airflow settings (supply and extract air adjustable in three percentage steps)
- Periodic ventilation boost of up to 6 hours
- Data memory for the last 11 days
- Data logging interface for ultra-fast read-out of operating data

Air distribution tailored to your own home

One of the main components of the appliances, with regard to function, is the air distribution system. System design is individually adapted to structural conditions. In practice the following systems have proved their worth:

- Folded spiral-seam pipe systems
- Metal flat duct systems
- Plastic bare-tube systems

Combinations of all three are not uncommon. The details are decided in a detail planning phase. Generally the air distribution system is easily adapted to structural conditions. (For example in the attic storey, in suspended ceilings, under the basement ceiling, behind cladding etc.) The easiest approach to rational planning is, however, to incorporate distribution planning in the early stages of construction.

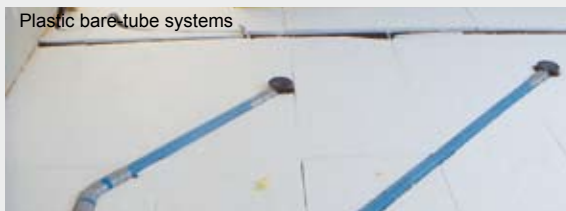
Folded spiral-seam pipe systems



Metal flat duct systems



Plastic bare-tube systems



Ventilation provides a better inner climate Genvex has the necessary equipment



GES Energy

Controlled internal ventilation with counterflow heat exchanger for detached houses with a living area of up to 175 m²

GES/GE Premium-series

Controlled internal ventilation with EC-motor, cooling function and additional counterflow heat exchanger for detached and two-family houses with a living area of up to 450 m²

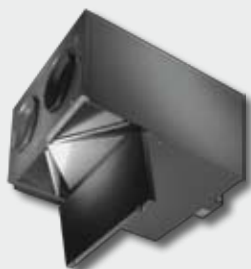


GE Energy 1 - 3 series

Controlled internal ventilation with counterflow heat exchanger for detached houses with a living area of up to a 540 m²

Combi 185S/285S

Controlled internal ventilation and heat pump for hot water supply for detached houses with a living area of up to 180 m²



GEU-series

Controlled internal ventilation for ceiling mounting, especially suitable with cooling function and additional heat exchanger for refurbishment and flats with a living area of up to a 200 m²

Vanvex-series

Extract air heat pump for ventilation and hot water supply for detached houses with a living area of up to app. 250 m², with or without heat exchanger for second heat source



Technical data for a Genvex appliance

Supply and extract air ventilation PASSIVE

Supply and extract air ventilation PASSIVE	GES Energy
Airflow (m ³ /h) at 75 Pa. ext. pressure	up to 220
Suitable for houses up to app. m ² living area	175
Air duct connections (d in mm)	160
Position of duct connections	Above
Dimensions H xW x D (mm) without connectors	1014 x 550 x 550
Weight less packaging (kg)	34
Heat recovery (HR) with extract air (20 °C, rel. humidity 50 %) and fresh air - 3 °C and nom. basic ventilation	ca. 96 %



Supply and extract air ventilation PASSIVE	GE Energy 1	GE Energy 2	GE Energy 3
Airflow (m ³ /h) at 100 Pa. ext. pressure	up to 216	up to 300	up to 540
Suitable for houses up to app. m ² living area	180	250	450
Air duct connections (d in mm)	160	200	250
Position of duct connections	Side	Side	Side
Dimensions H xW x D (mm) without connectors	580 x 1000 x 380	580 x 1000 x 530	798 x 1480 x 730
Weight less packaging (kg)	55	68	200
Heat recovery (HR) with extract air (20 °C, rel. humidity 50 %) and fresh air - 3 °C and nom. basic ventilation	ca. 88 %	ca. 88 %	ca. 88 %
Other	Bypass possible	Bypass possible	Bypass integrated



Supply and extract air ventilation PASSIVE	GEU 390	GEU 590
Airflow (m ³ /h) at 100 Pa. ext. pressure	70 to 180	120 to 300
Suitable for houses up to app. m ² living area	150	200
Air duct connections (d in mm)	125	160
Position of duct connections	Side	Side
Dimensions H xW x D (mm) without connectors	327 x 1162 x 520	327 x 1162 x 830
Weight less packaging (kg)	40	55
Heat recovery (HR) with extract air (20 °C, rel. humidity 50 %) and fresh air - 3 °C and nom. basic ventilation	ca. 88 %	ca. 88 %



Legend



Heating



Cooling



Hot water




Crossflow heat exchanger



Counterflow heat exchanger

Technical data for a Genvex appliance

Supply and extract air ACTIVE  heat pump + internal heat	GES Premium 1 / 1L	GE Premium 1 / 1L	GE Premium 2	GE Premium 3
Airflow (m³/h) at 100 Pa. ext. pressure	to 370	to 370	to 410	to 560
Suitable for houses up to app. m² living area	60 - 120 100 - 190	60 - 120 100 - 180	326	445
Heating output (kW/COP) for ventilation with extract air (+ 20 °C; rel. humidity = 50 %) and fresh air + 2 °C	2,4 / 5,5 3,0 / 5,1 for 240 m³/h extract air	2,7 / 6,6 3,0 / 5,5 for 260 m³/h extract air	3,45 / 5,36 for 270 m³/h extract air	4,49 / 5,38 for 390 m³/h extract air
Cooling output (kW) with fresh air (+ 26 °C; rel. humidity = 45 %)	-	0,8/1,0 at full airflow	1,6 at full airflow	1,6 at full airflow
Air duct connections (d in mm)	160	160	200	200
Position of duct connections	Above	Side	Side	Side
Dimensions H xW x D (mm) without connectors	1415 x 600 x 664 1865 x 600 x 664	580 x 1000 x 612	600 x 1185 x 612	600 x 1186 x 735
Weight less packaging (kg)	175	126	126	143



ACTIVE for hot water supply	Combi 185 S	Combi 185 LS
Airflow (m³/h) at 100 Pa. ext. pressure	to 216	to 216
Suitable for houses up to app. m² living area	200	200
Cylinder volume (litres)	185	185
Heating output (kW/COP) for hot water supply to + 45 °C with extract air (+15 °C; rel. humidity = 50%)	1,02 / 3,0 for 200 m³/h extract air	1,55 / 3,0 for 200 m³/h extract air
Heating output (kW/COP) for ventilation with extract air (+ 20 °C; rel. humidity = 50 %) and fresh air + 2 °C	1,65 / 4,5 for 200 m³/h extract air	2,5 / 4,5 for 200 m³/h extract air
Cooling output (kW) with fresh air (+ 26 °C; rel. humidity = 45 %)	-	-
Air duct connections (d in mm)	160	160
Position of duct connections	Above	Above
Dimensions H xW x D (mm) without connectors	2014 x 600 x 664	2014 x 600 x 664
Weight less packaging (kg)	210	210



Extract air	Extract ventilation heat pump	Vanvex 285S	Vanvex 185S	Vanvex Lite	Vanvex R	Vanvex RS
	Airflow (m³/h) at 100 Pa. ext. pressure	up to 280	up to 280	up to 280	up to 280	up to 280
	Suitable for houses up to app. m² living area	200	200	200	250	250
	Cylinder volume (litres)	285	185	285	285	285
	Heating output (kW/COP) for hot water supply to + 45 °C with extract air (+15 °C; rel. humidity = 50%)	1,6 / 3,1 for 200 m³/h extract air	1,6 / 3,1 for 200 m³/h extract air	1,96 / 3,2 for 200 m³/h extract air	1,52 / 3,5 for 250 m³/h extract air	1,52 / 3,5 for 250 m³/h extract air
	Air duct connections (d in mm)	160	160	finned	160	160
	Position of duct connections	Above	Above	-	Above	Above
	Dimensions H xW x D (mm) without connectors	1865 x 600 x 664	1415 x 600 x 664	1792 x Ø 660	1837 x Ø 660	1837 x Ø 660
	Weight less packaging (kg)	210	195	105	105	105



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Billund

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Genvex

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Intelligent ventilation system from Genvex

As ventilation specialists, we offer a product range that covers all aspects of modern ventilation equipment, from passive ventilation units with highly effective counter current exchangers to units with integrated heat pumps that are extremely power efficient for heating or cooling. We can also provide units for ceiling mounting for installation in existing office buildings, high-rise buildings and industrial buildings.

Presented by:



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