



hydraulic flow
control

we help you to get
the most out of your
heat pump installation



shifting to a greener future

Heat pumps will have to meet nearly 20% of global heating needs in buildings by 2030, in order to align with all existing national energy and climate pledges worldwide.

In line with the objectives of the European Green Deal, we have 30 years to reduce our energy consumption by 45% and CO₂ emissions by 55%

Buildings are one of the largest sources of energy consumption in Europe. Boosting their energy efficiency is key to cutting CO₂ emissions. Heating accounts for most of the household energy consumption in the EU, representing 62.8% of the final energy consumption in the residential sector. Choosing the right heating solutions will therefore play a key role.

With the installation of a low temperature generator, such as a heat pump, you can drastically reduce the building's energy consumption.

As heat pumps emit up to 58% less carbon when compared with a conventional gas boiler, installing a heat pump with a low temperature emitter like underfloor heating, will maximize energy efficiency. The combination of an underfloor heating system with a heat pump can increase energy savings **up to 20%**.



building.

climate.

excellence.

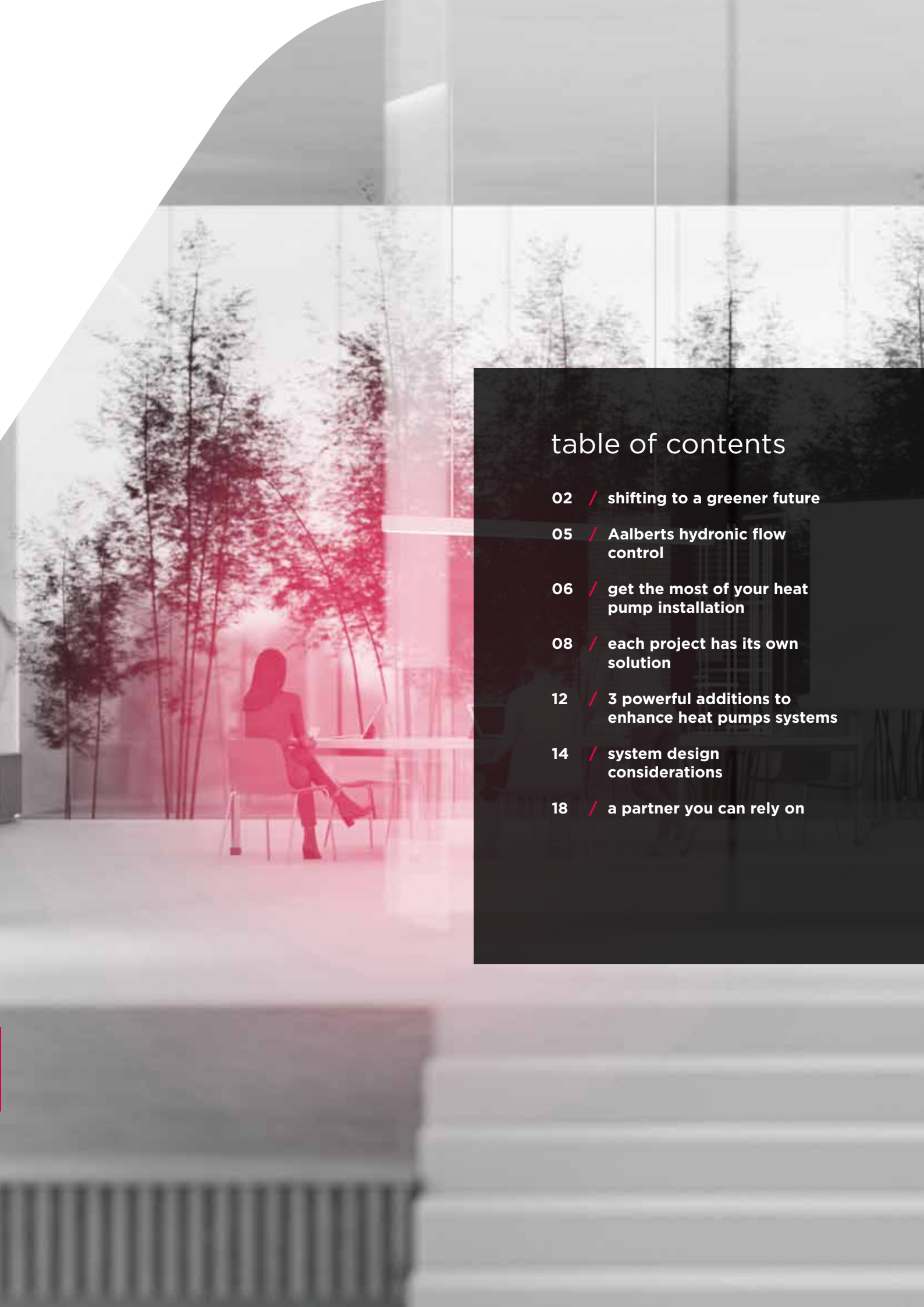


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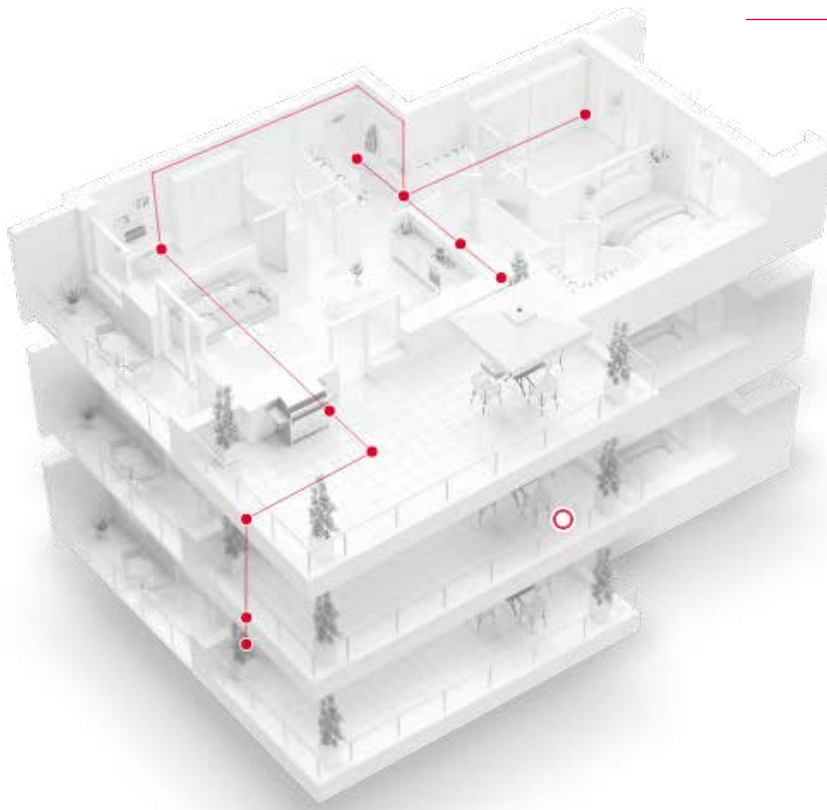
Aalberts hydronic flow control, sustainability starts with us!

Sustainability is just common sense. We are committed to achieve our goals sustainably, and to offer our customers quality solutions that are clean, green, and waste-free. That also applies to us, with our new headquarter complex in Almere (The Netherlands).

Nestled in a wonderfully biodiverse setting purposefully designed to help the environment thrive, the Aalberts hydronic flow control office runs on 100% renewable energy – just one of the reasons it was nominated for the ‘most sustainable building in the world’ award! In 2021, it was awarded a BREEAM outstanding certificate for sustainability. Some of the key ways we lower the amount of energy we use in our headquarter:

- offices and warehouse are heated with residual heat from our factory that is stored in buffer tanks.
- heat is reused all over the campus, reducing overall consumption and cutting down on cost.
- heat pumps are used to cool the building.
- roof, windows, and outer walls of our headquarters have been insulated so as to retain as much heat as possible.
- PV panels are used on the roof to provide part of the energy we use. Since November 2022, we have more than 6000 PV panels installed on the roof, meaning a significant chunk of our head quarter’s energy needs will be met by clean, renewable energy.
- FlexTherm Eco, a PCM heat battery, is being used to store PV energy, preventing the grid from being overloaded and allowing us to make optimum use of our solar power generating capacity.
- smart thermostats and heating as well as cooling meters with remote monitoring give real-time data regarding our energy consumption, allowing us to see how and where we can improve.





Aalberts hydronic flow control at the heart of every great building

hydronic flow control is Aalberts's one-stop hydronic engineering specialist, from source to emitter, for all building system challenges ; delivering innovative, tailor-made and fail-safe solutions that bring great visions to life with superior system performance and energy savings. Aalberts hydronic flow control is partnering with its customers to engineer seamless energy efficient hydronic systems for their building requirements. We are involved in every step of the building life cycle.




Since 1956, Flamco has been involved in the development, production and sale of high-quality components for use in HVAC systems. It is part of the stocklisted Aalberts NV, instituted in 1975. Along with Comap, which helps manage water and energy through its thermal and sanitary products that increase comfort in buildings, the Aalberts hydronic flow control business unit was constituted.



Since 1921, Comap has been driving intelligent management of water and energy through its thermal and sanitary products that increase comfort in buildings. It is part of the stocklisted company Aalberts NV, instituted in 1975. Along with Flamco, which produces high-quality components for use in HVAC systems, the Aalberts hydronic flow control business unit was formed.

Stronger together. Comap and Flamco will continue to build mission critical technologies to manage heating and cooling humanly with better financial and environmental efficacy.



we help you to get
the most out of your
heat pump installation

When installing a heat pump, the entire installation must be taken into account : **source, heat pump, distribution and emitters**. Each part of the installation must work seamlessly together to ensure a robust and reliable system that will maximise its efficiency while bringing more comfort and saving energy.

As a heat pump is a low temperature generator, the settings are specific (when compared with a gas boiler). Other system components must be suitable to be used with a heat pump. A heat pump is also working with water, therefore, attention must be paid to the system water flow rate, system pressure and temperature and system water quality.

In order to get the most out of your heat pump installation, having the right settings with the right products will help to increase the lifespan of your installation, its efficiency and reduce your energy consumption. With our wide range of products and systems for heat pump installations, you can always combine energy savings, comfort and system robustness optimally.



our promise



save
energy



improve
comfort



optimise
system robustness

we are a competent supplier, and we offer great and essential components for heat pump installations.

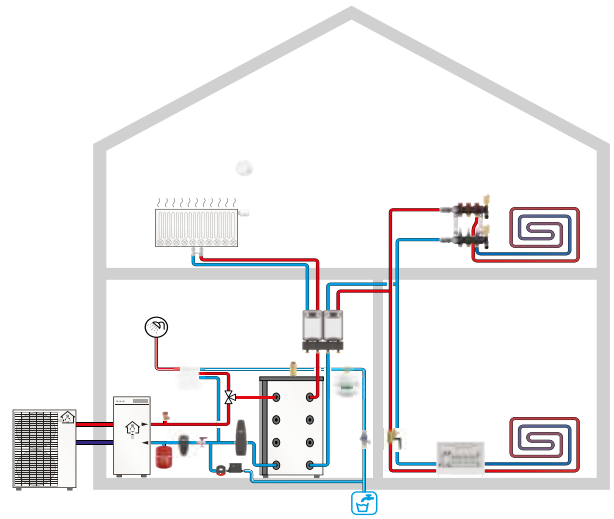


we offer
solutions,
no matter the
type of project

- + Small residential < 10 kW
- + Large residential < 11 kW - < 74 kW
- + Multi-use buildings < 75 kW

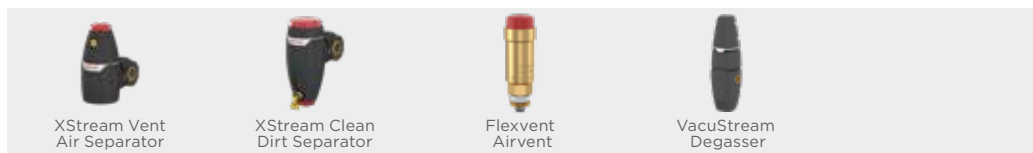
+ Small residential < 10 kW

Approximately 40 % of all CO₂ emissions in Europe are attributed to the provision of hot water and space heating for buildings. This is mainly due to the fact that inefficient gas and oil heating systems, which are harmful to the climate, are still being used in many existing buildings. To achieve the ambitious climate protection goals, it is necessary to equip new and existing houses with a heat pump system. In older, existing buildings, good efficiency values are also possible! More and more heat pumps are installed in new and existing buildings to provide hot water and space heating. These units offer ecological, energetic and economic advantages that are attractive for the end user and key for the future energy system. No other heating technology is able to provide 1 kWh of heat using less energy. Thus heat pumps can reduce CO₂ emissions significantly.



Products < 10 kW

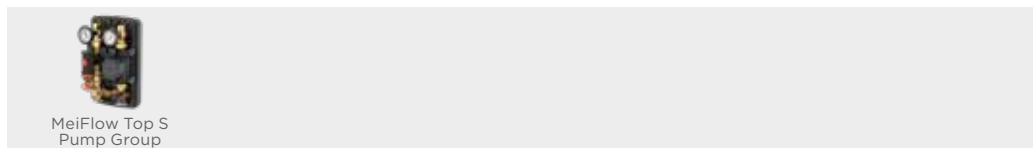
Air & Dirt Removal



Expansion & Pressurisation



Energy Distribution



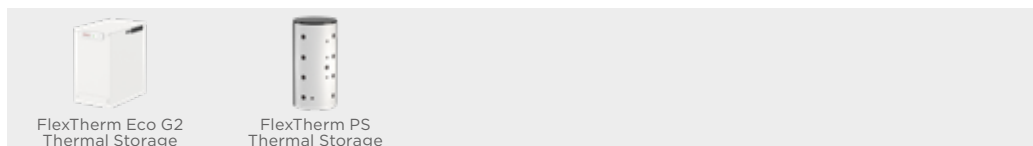
Valves (Safety / Ball / Balancing)



Surface Heating & Cooling

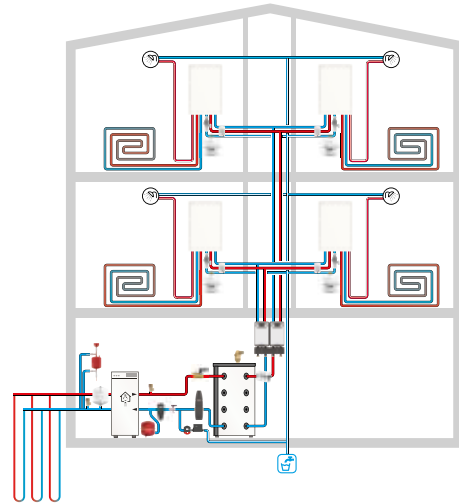


Energy Storage



+ Large residential < 11 kW ~ < 74 kW

In nearly every country, the building sector plays an important role in total energy consumption. Therefore, the CO₂ emissions from the building sector must be significantly reduced if climate neutrality is to be achieved in the long term. If heat pumps are used to supply heat to the large sector of multi-family homes and apartment buildings, it is possible to significantly lower CO₂ emissions. The design requirements for the heat pump and the overall system, however, are more complex in large residential buildings than in single-family homes. Specific questions on heating water, the heat transfer system (heat sink) as well as the use of environmental energy at the location (heat source) must be addressed.



Products < 11 kW ~ < 74 kW

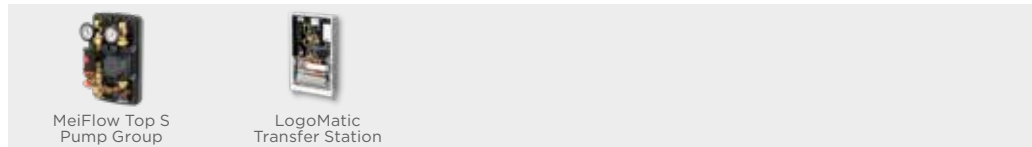
Air & Dirt Removal



Expansion & Pressurisation



Energy Distribution



Valves (Safety / Ball / Balancing)



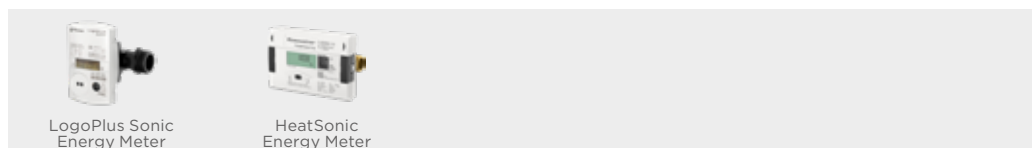
Surface Heating & Cooling



Energy Storage

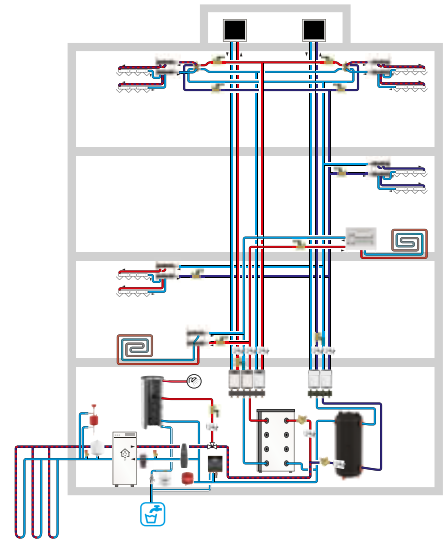


Metering



+ Multi-use buildings > 75 kW

Heat pumps and chillers are a main supply technology for non-residential buildings. In commercial properties, office buildings, hospitals, hotels or schools, they provide hot water, space heating and cooling. The use of heat pumps for the supply of heating and cooling is particularly efficient. When used in non-residential buildings, low system temperatures and thus high energy efficiency are possible.



Products > 75 kW

Air & Dirt Removal



FlamcoVent Smart Air Separator



Flamco Clean Smart Dirt Separator



Flexvent Pro Airvent



Vacumat Eco Degasser

Expansion & Pressurisation



Flexcon Premium Expansion Vessel



Baseflex / Flofix Expansion Vessel



FlexFiller Direct G4 Pressurisation Unit



Flamcomat MP G4 Remote

Energy Distribution



MeiFlow Top S Pump Group

Valves (Safety / Ball / Balancing)



Prescor Safety Valve



Prescor IC Safety Valve



Simplex KFE Ball Valve



NexusValve Vivax L Balancing Valve

Surface Heating & Cooling



Fixing systems



Manifolds



Pipes



Control systems

Energy Storage



FlexTherm PS Thermal Storage



FlexTherm Duo HLS Water heater

Metering



HeatSonic Energy Meter

3 powerful additions to enhance heat pumps system

Save energy, improve comfort and optimise system robustness

Our wide range of premium quality system components allow you to combine energy saving and still reach a high level of comfort, optimally. At hydronic flow control, we offer highly efficient degassers, dirt separators, pump groups, expansion vessels, underfloor heating systems, and many more. Our products are indispensable to ensure a reliable and long lasting heat pump system, from the heat pump source to the heat and cold emitter.



XStream Clean Dirt Separator

Highly efficient dirt separation is vital because the higher flow and the lower system temperature makes them more vulnerable for dirt

Why use an XStream Clean Dirt Separator in a heat pump installation?

- Heat exchangers in heat pumps systems are vulnerable to dirt.
- The same counts for low temperature emitter systems.
- Therefore, a high-end dirt separator is a must.

Heat Pump capacity	Recommended
< 10kW	✓
< 11 - < 74 kW	✓
> 75kW	✗

MeiFlow Top S Pump Group

Due to high flow in a heat pump system energy distribution by means of a pump group is essential.

Why use a MeiFlow Pump Group in a heat pump installation?

- Depending on hydraulic lay-out of the heat pump system, a pump group may be required.
- Specific primary systems of heat pumps can contain glycol.
- Heat Pump installations require a relatively high volume flow because of a low dT.
- A pump group is needed to set the required flow precisely.



Heat Pump capacity

Recommended

< 10kW	✓
< 11 - < 74 kW	✓
> 75kW	✓



VacuStream Degasser

In a low temperature domestic heating system, you need active degassing to remove dissolved gasses. Here, a compact high-end vacuum degasser is essential.

Why use a a VacuStream Degasser in a heat pump installation?

- Removing gases from low temperature systems such as heat pumps is much more difficult and requires active degassing.
- Synthetic low temperature emitter systems are less air-tight.

Heat Pump capacity

Recommended

< 10kW	✓
< 11 - < 74 kW	✓
> 75kW	✗



system design considerations

Converting or upgrading an installation to a usable temperature requires more electrical (auxiliary) energy than with a central heating system. In addition to the compressor, other components, especially the control, pumps and fans, also require energy.

Thus the challenge is to keep the energy consumption of the heat pump installation as low as possible, without compromising comfort and efficiency. Such an installation consists of four parts: source, heat pump, distribution and delivery. For optimal operation, they must all function properly and be coordinated with each other. What are the points of attention and how do you approach them?

1 Low temperature heating

A heat pump generally works with a much lower supply temperature (usually 35-55 °C) than a central heating system (normally 80 °C). This means conventional radiators and convectors may not provide enough energy to adequately heat spaces. Therefore, heat pumps are preferably combined with low temperature emitters, such as underfloor heating, LT radiators or LT convectors.

Recommended products



Surface heating
& Cooling



VacuStream
Degasser



NexusValve
Balancing Valves



Simplex
Hydraulic Modules

2 Small Delta T

A heat pump is more suitable for keeping rooms at a stable temperature than to quickly achieve a large temperature difference. A heat pump therefore supplies the highest efficiency when the difference between the temperature of the source and that of the delivery system is as small as possible. Such a low temperature difference (Delta T) between the supply and return pipes also provide greater comfort because the heat output is more even and the room is heated more evenly.

Recommended products



FlexTherm PS
Buffer Vessel



MeiFlow Top S
Pump Group (w. Manifold)



NexusValve Vivax
G2 EQM

3 Air & Dirt

Heat pump systems are vulnerable to air. Due to the low system temperature, removing air is more difficult but still a must! In the long term air causes corrosion and biofilm, which causes pipes to clog and the installation to wear out more quickly. Air also reduces heat transfer and slows down heating. The flow of the system water decreases and cold zones can develop. Energy consumption then increases while the comfort and lifespan of the system decreases.

Recommended products



XStream Clean
Dirt Separator



VacuStream
Degasser

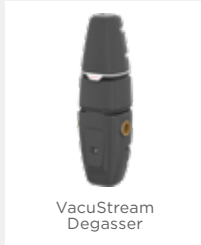


Vacumat Basic
Degasser

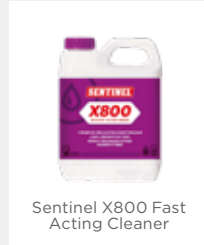
4 Scale

A heat pump works at low temperatures and has to pump up to four times more water than a central heating installation. It is therefore better to install pipes with a larger diameter. With that you also reduce the risk of clogging due to corrosion and scale. Corrosion reduces the pipe diameter. For example, 0.5 mm around the inside of a pipe makes the diameter 1 mm narrower. This would reduce a 1" pipe's surface area by 8.6%, increasing energy consumption. Cleaning the installation can be done in different ways, e.g. with additives. Degassers are ideal for removing oxygen from the system water and thus prevent corrosion.

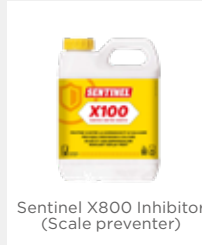
Recommended products



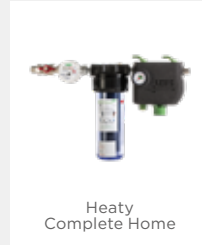
VacuStream
Degasser



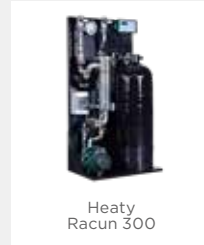
Sentinel X800 Fast
Acting Cleaner



Sentinel X100 Inhibitor
(Scale preventer)



Heaty
Complete Home



Heaty
Racun 300

5 Cooling

It is also possible to cool buildings with heat pumps. The emitter devices must be suitable for dispensing cold. This can be done with, for example using an underfloor heating system, LT radiators, LT fan coil units or climate ceilings. Since the flow rate in cooling is different from heating, you have to set up the system properly. In addition it's important that the pipes and fittings are watertight and insulated up to the level of the floor, in order to prevent condensation, in case the temperature in the system drops below the dew point.

Recommended products



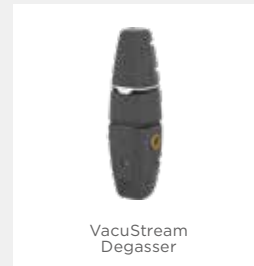
Secos
Manifold



MeiFlow Top S Pump Group
Active Cooling



MeiFlow Top S
Pump Group (w.Manifold)



VacuStream
Degasser

6 Hydronic balancing

The challenge with a heat pump system is not so much the installation. Proper balancing is essential for the ultimate efficiency and comfort of the system. To ensure that a heat pump works efficiently and the provides the right level of heating, it is crucial to accurately adjust the system on the water side. Hydronic balancing or balancing is the adjustment of the water flow through the emitters (radiators, convectors and underfloor heating) is running. This determines, per room the exact amount of hot water needed to heat it properly.

Recommended products



NexusValve
Balancing Valves



MeiFlow Top S
Pump Group (w.Manifold)



AutoSar
Self-balancing Thermostatic Valves

7 Flow Resistance

In general, a heat pump requires a high flow rate. That's why it is essential to minimize resistance by separating dirt using dirt separators. After all, the lower the resistance, the less energy the heat pump uses. This energy saving can amount to 8%.

Recommended products



XStream Clean
Dirt Separator



FlamcoClean Smart
Dirt Separator

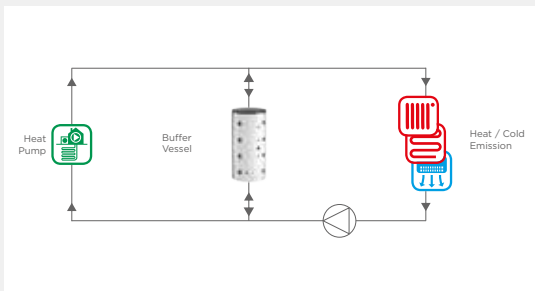


VacuStream
Degasser

8 Buffering

A heat pump delivers most efficiency when the temperature differentials (between flow and return temperature) are as small as possible. Many starts and stops are unfavourable for the efficiency and life of a heat pump. To prevent this, a buffer vessel can be added that disconnects the heat pump from the distribution system.

Recommended products



FlexTherm PS
Buffer Vessel

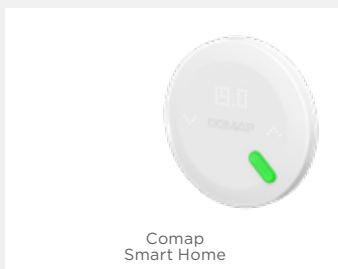


FlexTherm PS
Buffer Vessel

9 Room-by-room Temperature

Good room-by-room temperature control contributes considerably to energy savings. When the end user regulates the temperature per room, each room gets the desired, optimum temperature. To do this, install thermostatic valves and heads. Even better is to use 'smart' thermostats and (programmable) radiator heads to heat rooms only when there is people are present and shut-down heating when nobody is present.

Recommended products



Comap
Smart Home



Senso
Thermostatic head & Valves



TAF234
Analog Thermostat control

a partner

you can rely on

Aalberts hydronic flow control



integrated offering from source to emitter

With Flamco and Comap brands, Aalberts hydronic flow control has built a strong and qualitative product portfolio to provide global solutions all type of heat pump projects. We offer :

- Dedicated support at every step of the project
- Online technical data access (Etim, step files)
- One central logistic HUB in Europe
- Prefabrication service



benefit from our speed of innovation

For nearly 50 years, Aalberts hydronic flow control has been at the cutting edge of engineering technology, working with our customers to create seamless solutions for every need :

- A culture of innovation to manufacture highly robust and reliable products for long lasting systems
- Products are developed to ensure energy consumption is reduced to its lowest
- A total focus on new solutions with lower carbon footprint, using less raw materials, better diffusion of heating and smart control



engineering partner for contractors

Aalberts hydronic flow control also enhances efficiency through design and calculation. We model, test and tweak various designs for their application and maximum energy efficiency, while optimizing the installation process. We provide :

- Tailor-made calculations
- Dedicated support at every step of the project : advice, planning, design, detailed plans, calculations
- Online technical data (data sheet, dimensions, certifications)
- Online technical data access (etim, step files)



1500

colleagues to support you as customer



15K

Our products are available via 15.000 point of sales across Europe



8,5/10

Customer satisfaction rate



#1

Aalberts' primary focus is on sustainability



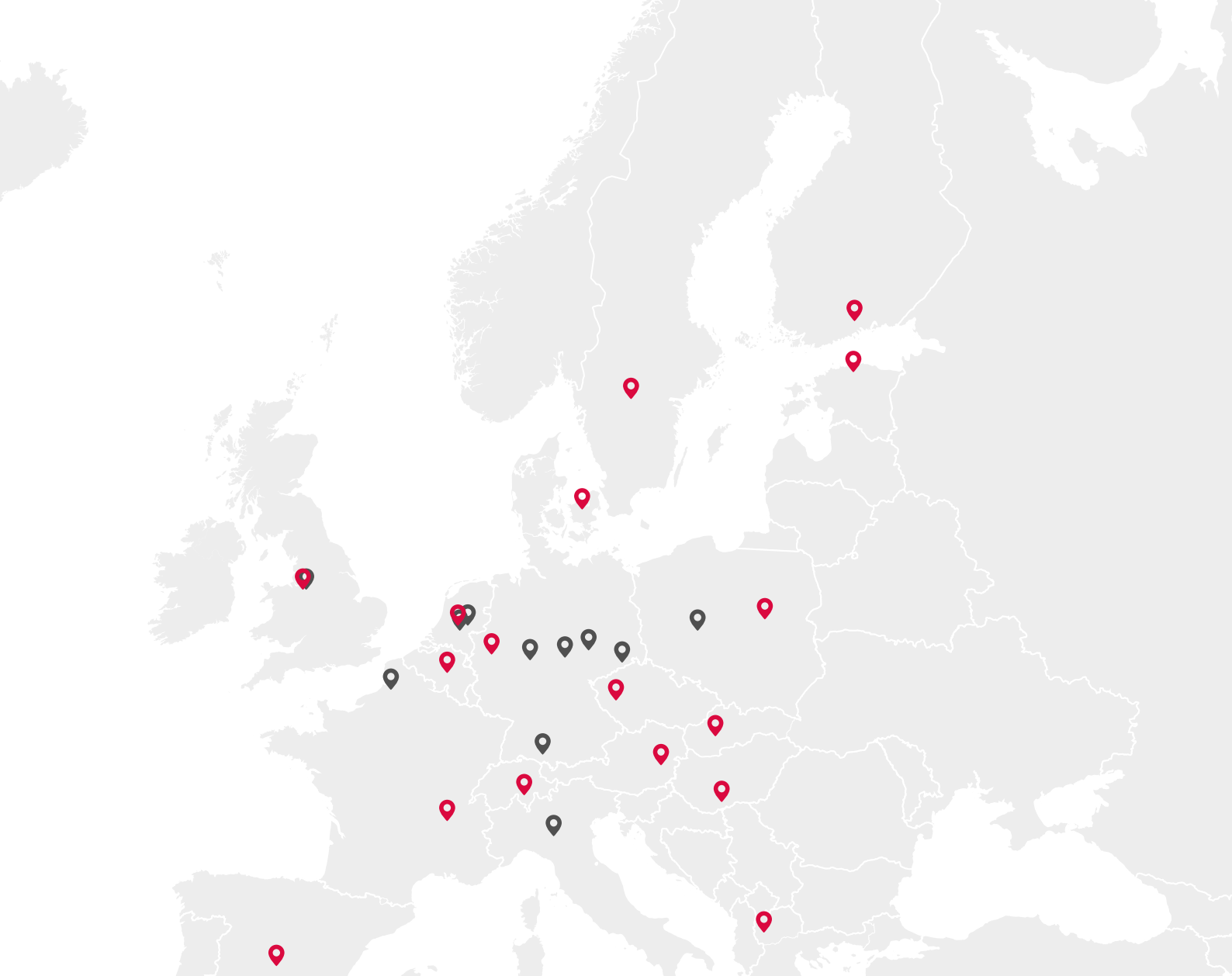
20 years

experience with underfloor heating projects



10k

of reference projects all over Europe



 Competence & production centers

 Sales & services offices

stay in touch !

Do you have a question or comment? Tell us!

We supply products for the installation industry in more than 70 countries. This is done from hydronic flow control sales offices and via distributors who know the local market, and can give you the right advice at all times.

Aalberts hydronic flow control

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