Project examples

Efficient large systems

High end heat pumps | Industrial Complete

universal design award 2014

german brand award 16 winner

reddot award 2017 winner

INDUSTRIE PREIS 2017 BEST OF

GERMAN DESIGN AWARD SPECIAL 2018

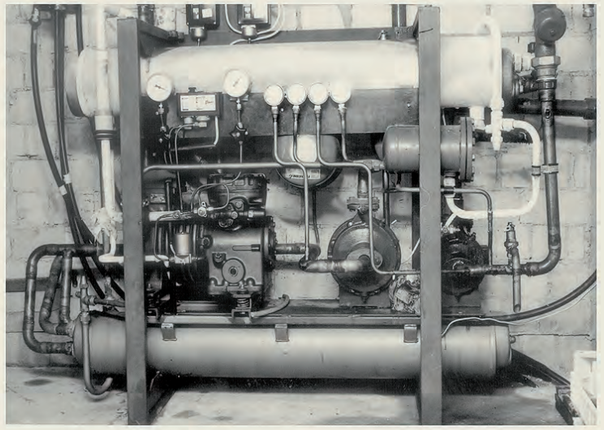
reddot award 2018 winner

INNOVATIVE ARCHITECTURE selection

GERMAN DESIGN AWARD WINNER 2019

WATERKOTTE

High End Wärmepumpen



First in-house developed
WATERKOTTE heat pump 1968

Industrial Line Goliath 6900 | Power range 690 - 1,000 kW

Our experience for your project

50 years of experience and innovation
Environmentally friendly, economical, innovative - these requirements prompted Klemens Oskar Waterkotte to develop a new type of heating system in 1968: The first German heat pump. In 1972 he started his own business with his idea and laid the foundation for the current corporate success of WATERKOTTE GmbH. Based on the experience gained at that time, WATERKOTTE today develops integrated system solutions and sustainable supply concepts. The conviction remains: Even after 50 years, we still trust in the best and most environmentally friendly heating system as the heart of all developments - the heat pump.

Numerous references
With a broad performance spectrum ranging from 1 - 1,000 kW as series-produced individual units, WATERKOTTE offers the right heat pump for every construction project and the right solution for every challenge. Our references include national and international projects - hotels, banks, hospitals, multi-family homes and well-known customers such as IKEA. Our products are always characterised by the best performance values, multiple award-winning product designs and state-of-the-art control technology. We support architects, planners, energy suppliers and skilled technicians with our expertise right from the beginning of the planning phase. Because we see ourselves as competent project partner.

Successful together
It is time to protect the environment. Let us take action together. The basic idea - the use of naturally available and regenerative energies from nature - is not new. But in terms of legislation it is more topical than ever. Together we will tailor the appropriate supply concept to your project. In this brochure, we introduce you to our concepts and products for the building services of multi-family homes, commercial properties and industrial buildings. The references shown give you a first insight into our sustainable system solutions and concepts.

The challenges are manifold. So are our possibilities.

Our answer to high requirements

Assuming responsibility with WATERKOTTE

Protecting the environment with the heat pump

16 of 17

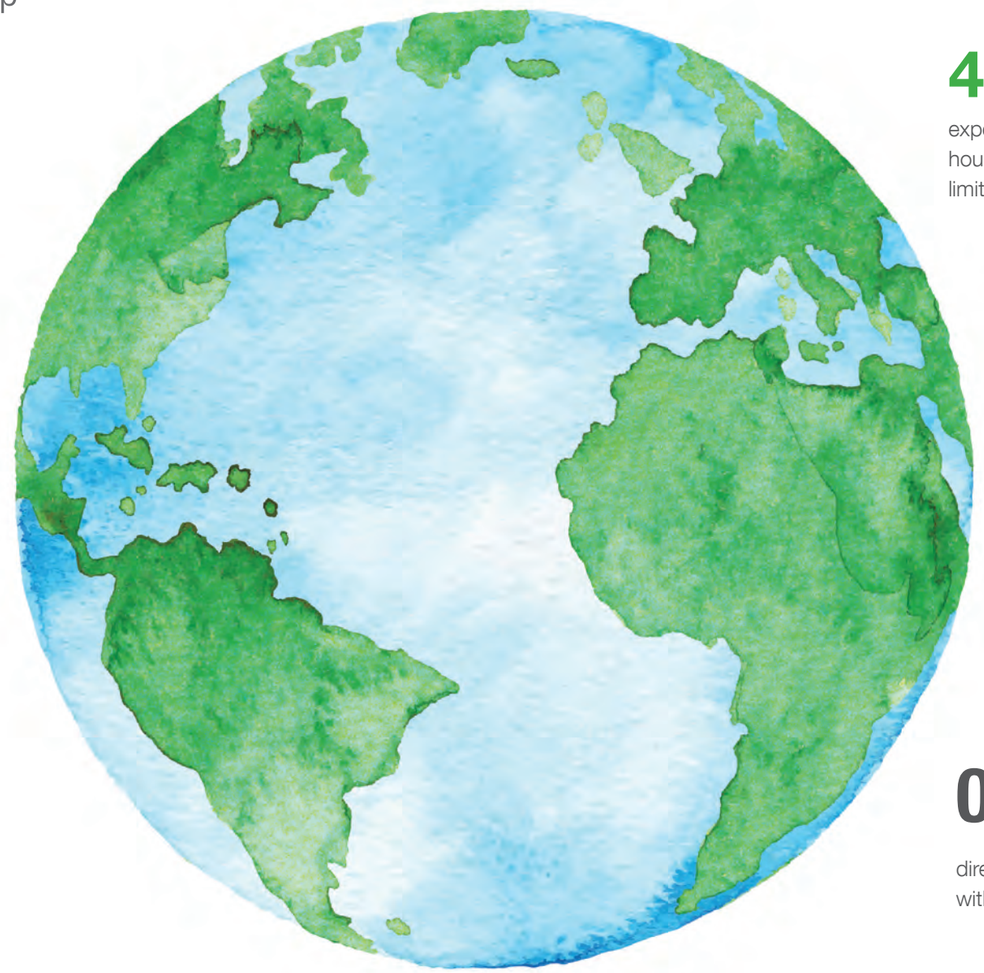
of the warmest years since the beginning of weather recording occurred during the last two decades.

Every year, Greenland is losing more than

250,000,000,000 t of ice

A 20 cm

rise of the mean sea level since the beginning of the 20th century.



4 °C global warming is expected by 2100 if the greenhouse gas emissions are not limited.

The global CO_2 emission rose in 2017 to a record level of

35 Gt

The goal is to limit global warming to

1.5 °C

0 g/kWh CO_2

direct emission when operating a ground source heat pump with green electricity from renewable energy sources

Source of data: Climate Protection in Figures - Facts, Trends and Incentives for German Climate Policy, 2018 Edition, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

Threat of global warming

Melting polar ice caps and glaciers, rising sea levels, extreme weather events - the consequences of global warming cannot be ignored. Industry and private households are the main sources of pollutant emissions. The heating of buildings and water play a major role in this context. If we want to preserve our environment and nature, it is high time to do something.

Climate protection goals in Germany

Since the entry into force of the Paris Climate Change Agreement of 2016, more than 180 contracting parties have already committed to implementing protective measures to benefit the climate. The goal is to limit global warming to 1.5 °C. The move away from fossil fuels such as coal, oil and gas for energy and heat generation is indispensable in this context. Renewable energies are the key to success.

Environmental protection with heat pumps

The heat pump convinces as the heating system with the lowest energy consumption and the lowest CO_2 and fine dust emission. Modern heat pumps convert electrical energy into thermal energy with an efficiency factor of five. For this purpose, they use the regenerative environmental heat from the air or the ground, which is available for free, with maximum efficiency. The heat pump thus contributes significantly to environmental protection.

50 years of experience make the difference

The range of the offered air, geothermal and groundwater heat pumps is large. There are considerable differences in quality between the manufacturers. With the wealth of experience gained over 50 years, WATERKOTTE builds premium class heat pumps with power ranging from 1 - 1,000 kW. WATERKOTTE offers integrated system solutions for commercial housing and commercial and industrial properties.

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Regenerative heat sources
Innovative. Creative. Efficient.

The cleanest and cheapest energy
The heat supply by means of classical district and local heating has long been outdated. The environmentally friendly alternative is simple and ingenious: The naturally available heat in the ground and the outside air is used for heating, cooling and hot water production - an efficient and climate-friendly technology!

Using free energy
With WATERKOTTE heat pumps, you make use of the freely available environmental energy. The operation of a heat pump requires only a small amount of electricity. With the thermal energy obtained, even the largest building complexes can be supplied reliably, comfortably and efficiently.

Alternative heat sources
In addition to natural and classical heat sources, alternative heat source concepts can also be implemented. High amounts of energy, which usually remain unused, occur in some cases as a by-product or waste product of industry. With the heat pump these potentials can be optimally exploited.

The perfect heating concept
The selection of heat sources and heat exchangers influences the economy, space requirements and energy efficiency of heat pump systems. It is therefore extremely important to consider and plan the heat concept together with the structural requirements and the intended use of the heat pump.

Ground | Outside air | Groundwater

Waste and process heat | Waste water | Ice storage tank

Ground
There are different ways to make use of the thermal energy stored in the ground. With **geothermal probes**, which are inserted deep into the ground, energy can be extracted from the deeper layers of the earth. The necessary depth and number of bore holes depends on the soil quality and the heat requirement. **Surface collectors** are laid horizontally at a depth of approx. 1.20 m. They absorb energy stored in the ground via plastic pipes distributed over a large area. Compared to horizontal collectors, the space required for the installation of **vertical collectors** is much smaller. For this purpose the collectors reach down to a depth of up to 3.20 m. The installation of collectors is possible anywhere in Germany without the need for a permit.

Outside air
The classic air source heat pump in split design has an outdoor unit with fan for outdoor installation and a transfer station with heat exchanger for indoor installation. The connection of several outdoor units in cascade enables a higher heat output and the heat supply of large building areas.

Groundwater
The usage of the energy stored in ground water is particularly effective. However, it is only possible if the respective geological requirements are met. The necessary access to the groundwater is achieved with the installation of a well system. The size is determined by the heat requirement.

Waste and process heat
In many branches of industry, a high amount of waste heat is generated due to the processes. This valuable heat energy can be put too good use. The reintegration of waste heat that is generated anyway offers great opportunities for energy and cost savings. Depending on the conditions, various technical concepts are possible.

Waste water
With a temperature of 10 - 20 °C, municipal and industrial waste water offers a very high heat utilisation potential. With the help of the heat pump, this valuable heat energy can be used for efficient and economical heat supply. This also requires project-specific conceptual design.

Ice storage tank
An ice storage tank is a cistern that is embedded in the ground. The energy is extracted from the contained water until it freezes. This releases a large amount of crystallisation energy, which can be used for heating in winter. In summer, the resulting ice is used for cooling.

Experience makes the difference
Our expertise with large heat pumps goes back to the 70s. The competence to assess source concepts and make recommendations is based on as many years of experience. In general, we offer solutions in connection with all source concepts. Simply contact our experts.

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System concepts and building automation

What our solutions can do

Increasing energetic requirements
The demands on the energy supply of modern buildings have increased steadily in recent years. Among other things, the stricter climate protection targets limit the permitted primary energy requirement of new buildings. The heat pump meets these requirements and makes the heating of these buildings environmentally friendly.

Technical concept
The principle of the heat pump is the same as that of the refrigerator, only in reverse. Heat is extracted from the environment and transferred to a refrigerant which, as a result, evaporates. Compression of the vapour increases its temperature level. The heat generated is used, among other things, for heating via a heat exchanger.

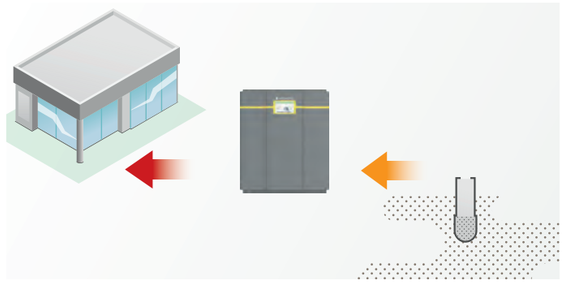
System efficiency
The high system efficiency of the heat pump ensures low energy consumption in relation to the power generated. 1 kWh of electricity is converted into 5 kW of useful heat by compressing the heat source energy. This low primary energy requirement makes the heat pump the superior system for energy generation.

Advantages
The heat pump is the only heating system that enables simultaneous cooling and heating and thus serves as the central element of the thermal supply. As it does not cause any direct CO_2 emission, it is increasingly CO_2 neutral due to the ever greener electricity from renewable energies.

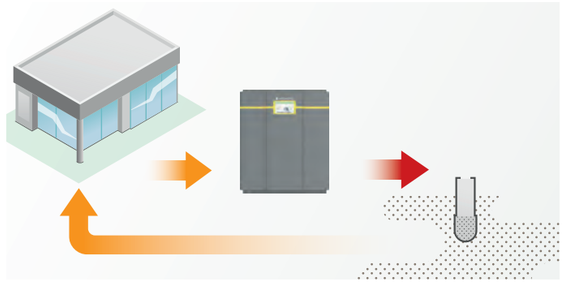
Realisation of the most modern system concepts
The control system determines the current heating or cooling requirement of the building. This is the prerequisite for the provision of corresponding heating or cooling energy in buffer storage tanks. In the process, the most effective operating conditions are always maintained. The modern WATERKOTTE heat pump control makes it possible to realise different operating conditions with the highest efficiency.

Potentials of building automation
The demands on networking, control and monitoring of the installed building technology are increasing, particularly with regard to large-scale projects. WATERKOTTE offers solutions to ensure maximum system efficiency and operational safety through complete, integrated and automated control of the building services.

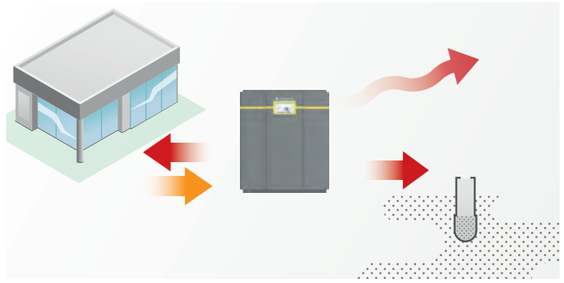
Efficient heating and cooling - The right concept



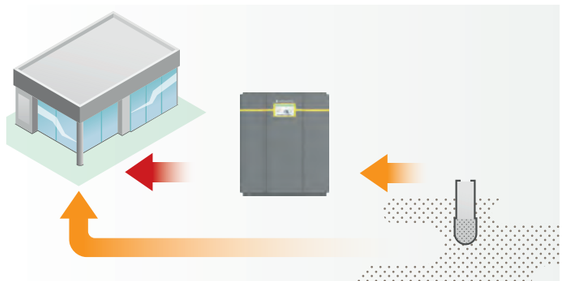
Heating
The central function of a heat pump is to supply heat to buildings. The thermal energy required for this is extracted from the environment and raised to a higher temperature level. In addition to the ground as a source, air and alternative energy sources can be used as well. If required, different heat sources can also be combined in the system concept.



Active and passive cooling
Active cycle reversal allows the use of air and geothermal heat pumps as cooling units. Any resulting waste heat is used for hot water production. Passive cooling describes the dissipation of building heat to the source medium via a heat exchanger arranged parallel to the heat pump circuit. The compressor is not in operation during this process.



Main requirement for cooling with heating
Geothermal heat pumps with an active cooling function offer the convenient possibility of meeting heating and cooling requirements simultaneously. It may happen that the cooling requirement is higher than the heating requirement. In this case, the excess heat can be dissipated into the ground for source regeneration and/or destroyed via the outside air.



Main requirement for heating with cooling
Even in the winter months it can happen that heating and cooling requirements are needed simultaneously. For example, when server rooms need to be cooled while the rest of the building needs to be heated. In this case, part of the resulting refrigeration production is used to provide the appropriate cooling energy.

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Well advised from the beginning

The WATERKOTTE project support

Individual and comprehensive project support
We care deeply about the success of your construction project. For this reason we advise you individually from the beginning. We accompany you closely throughout all project phases, even during ongoing operation. Our experts are always at your side with their acquired experience and competence.

Over 50 years of experience
We support you in the execution phase with more than 50 years of experience and know-how in large systems and project business. In addition, we work hand in hand with installation companies. Thus we guarantee a smooth and successful technical implementation of your planned project.

Integrated concept development
We develop the ideal system concept based on the project requirements. According to the heating and cooling requirements, we advise you on the optimal heat source concept, the heat pump and create the hydraulic diagram including the appropriate control concept. This allows you to benefit from our expertise in the best possible way.

Permanent system protection
We are also available as your project partner after commissioning. The remote maintenance technology RemoteCare enables a constant system check. Fault messages are analysed by our expert team in the WATERKOTTE control room. This is followed by immediate optimisation of the system operation.

Consultation and collection of project requirements

Creation of individual system and control concepts

Support with the creation of the specifications

Supervision of the technical implementation

Commissioning

Maintenance and monitoring

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WATERKOTTE service world

Always on the spot - even after system installation

Initial commissioning service

New systems are checked by the WATERKOTTE factory customer service department to make sure they have been installed properly and are then commissioned. Initial commissioning of every system is logged and documented.

Remote maintenance

The plant system is continuously monitored via Internet and faults are automatically reported to the service personnel. The system functions are maintained and optimised as required.

Configuration service

The system settings of each WATERKOTTE system are configured individually to suit the user's situation. This ensures that your system achieves the best possible efficiency.

Software update service

The operating software for the heat pumps and all other WATERKOTTE systems are checked and updated. This is performed automatically using WATERKOTTE remote access over the internet.

Maintenance packages

Our unique maintenance offer secures every plant system according to the latest standards. You can conclude maintenance contracts with fixed terms at special conditions.

24-h service hotline

You can contact the WATERKOTTE emergency service by telephone 24 hours a day and 7 days a week. Our service employees are available at all times with help and advice.

Warranty

The additional warranty can be provided for up to 10 years, depending on the system. Annual servicing by certified WATERKOTTE service specialists are the central prerequisite.

Spare parts service

Spare parts for your WATERKOTTE heat pump are available anywhere in Germany within 36 hours. This statement applies for WATERKOTTE heat pumps manufactured after 2005.

Quality for long service lives

WATERKOTTE heat pumps have excellent service lives of more than 30 years. They are therefore the longest-lasting heating systems available. Along with the high product quality, good service is crucial for this aspect. After all, WATERKOTTE heat pumps must also be regularly serviced and inspected by experts. Only in this way can the best efficiency values be permanently achieved and a long service life be ensured.

We will get there quickly

If a fault does occur, it can be quickly remedied. In addition to our factory customer service, our service partners are also at your disposal. They know all about the installation and maintenance of WATERKOTTE systems. They are always kept up to date in regular training course. In the event of a malfunction your expert service partner is there quickly. Our service line is available 24 hours a day and 7 days a week.

Our service pledge

For us at WATERKOTTE good service is inseparably linked to the product. We also aim for absolute top service. A high requirement on us. And a clear promise to you. We want your system to run perfectly, and that is also in 30 years' time. And so that you can address this issue as early as the purchase of your WATERKOTTE heat pump, we offer you our service packages. You then do not need to worry any more at all about the heating.

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Overview of project examples

Residential, industrial and commercial properties

Over 50 years of experience and know-how
WATERKOTTE has been building highly efficient heat pumps for over 50 years. For just as long, we have been successfully planning and accompanying projects of the most diverse kinds for the installation of WATERKOTTE systems worldwide.

Modern heat pump concepts
The heat pump is the central element of the climatic supply of the building. It enables heating, cooling and also allows hot water production. It is independent of the heat source.

Changing project requirements
From multi-family homes with heating and cooling functions to hospitals including integrated building automation. WATERKOTTE develops and implements individual solutions for all project requirements.

Automation
The WATERKOTTE control system provides heating and cooling as needed with the lowest possible energy consumption. With our software, efficiency is also in the foreground when several systems are combined.

Procedure of the case studies
On the following pages you can see WATERKOTTE reference projects from the last few years. These case studies show the variety of projects we have realised, from private to commercial projects.

Structure and content of the case studies
We present ten projects that should serve as a reference from the WATERKOTTE world. The project requirements, the system concept, the heat source used, and the WATERKOTTE solution are explained.

References
We have delivered and commissioned our heat pumps to well-known, satisfied customers for more than 500 projects. Our customers appreciate the advantage of having only one competent contact person for all matters.

Please contact us
We will be happy to support you in your project and advise you on the subject of heat pumps. You can reach us under the telephone number +49 23 23 | 9376 - 240. You can also find further information at www.waterkotte.de.

	Project type	Project requirements				System concept			
Case study	Object	Heating	Cooling	Hot water		Heat source	Heat pump series	Heating output	Additional components
1	Cold local heating network in housing development	•	•	•		Ground (central)	EcoTouch Ai1 Geo	6 - 18 kW	
2	Multi-family home with decentralised heating supply	•	•	•		Ground (central)	EcoTouch Ai1 Compact	1 - 4 kW	
3	Multi-family home with central heating supply and decentralised hot water supply	•	•	•		Groundwater	Industrial Line EcoTouch 5050T	20 - 56 kW	EcoStock, home station
4	Multi-family home with decentralised hot water supply	•	•	•		Ground, heating return	Industrial Line Goliath 6500 EcoWell PowerBooster	299 - 462 kW 1.8 kW	EcoStock / Industrial Storage tank
5	Residential and commercial building	•	•	•		Air	EcoTouch Air Kaskade	39 - 156 kW	EcoStock / Industrial Storage tank, EcoPack
6	Supermarket	•	•			Ground and waste heat	Industrial Line EcoTouch 5110T	48 - 112 kW	EcoStock / Industrial Storage tank
7	Office and administration building	•	•			Ground	Industrial Line EcoTouch 5112DT	51 - 112 kW	EcoStock / Industrial Storage tank
8	Swimming pool	•	•	•		Ground and waste water	Industrial Line Goliath 6500T	299 - 462 kW	EcoStock / Industrial Storage tank
9	Hospital	•	•	•		Ground	Industrial Line EcoTouch 5110T (high temperature) Industrial Line Goliath 6900	92 - 238 kW 690 - 1,000 kW	EcoStock / Industrial Storage tank
10	Wellness hotel	•	•	•		Ground	Industrial Line EcoTouch 5110T (high temperature) Industrial Line EcoTouch 5112DT	48 - 112 kW 51 - 112 kW	EcoStock / Industrial Storage tank

Case study 1:

Cold local heating with central heat source
Housing developments and accommodations

The idea
The concept of "cold local heating" includes the extraction of thermal energy from a central source. At a low temperature level of 0 - 20 °C, it is transported to the individual households within a housing development via a common pipeline network. Here, the temperature of heat pumps is raised to a level suitable for building heating. Cost-intensive heat losses on the transport route are thus eliminated while renewable energies are ideally integrated.

The situation
A development area with 40 single-family houses is to be supplied with environmentally friendly and up-to-date energy. A future network expansion should be possible without any problems. In addition to the hot water supply and heating of the residential buildings, the cooling of the buildings should also be integrated during hot summer months. The network operator demands a heating technology solution that is easy to maintain and service. The project should be a role model in terms of sustainability.

The WATERKOTTE solution
The central heat source is built in the form of collectors below a field used for agricultural purposes near the housing development. The heat energy is transported without loss to decentralised heat pumps. WATERKOTTE geothermal heat pumps with cooling function meet all comfort requirements. Building owners choose between the Basic Line and the high-end EcoTouch heat pumps. The Basic Line heat pump series can be optionally equipped with a web interface. In conjunction with a WATERKOTTE RemoteCare box, this makes it possible for the network operator to check the function of the technology.

Remote maintenance
The WATERKOTTE RemoteCare service enables the installation of a control room. The operation of every WATERKOTTE heat pump in the building area can thus be monitored and controlled directly by the energy supplier. In addition, the systems are permanently secured and monitored via the manufacturer's control room. Optimum functionality and performance is thus guaranteed at all times.

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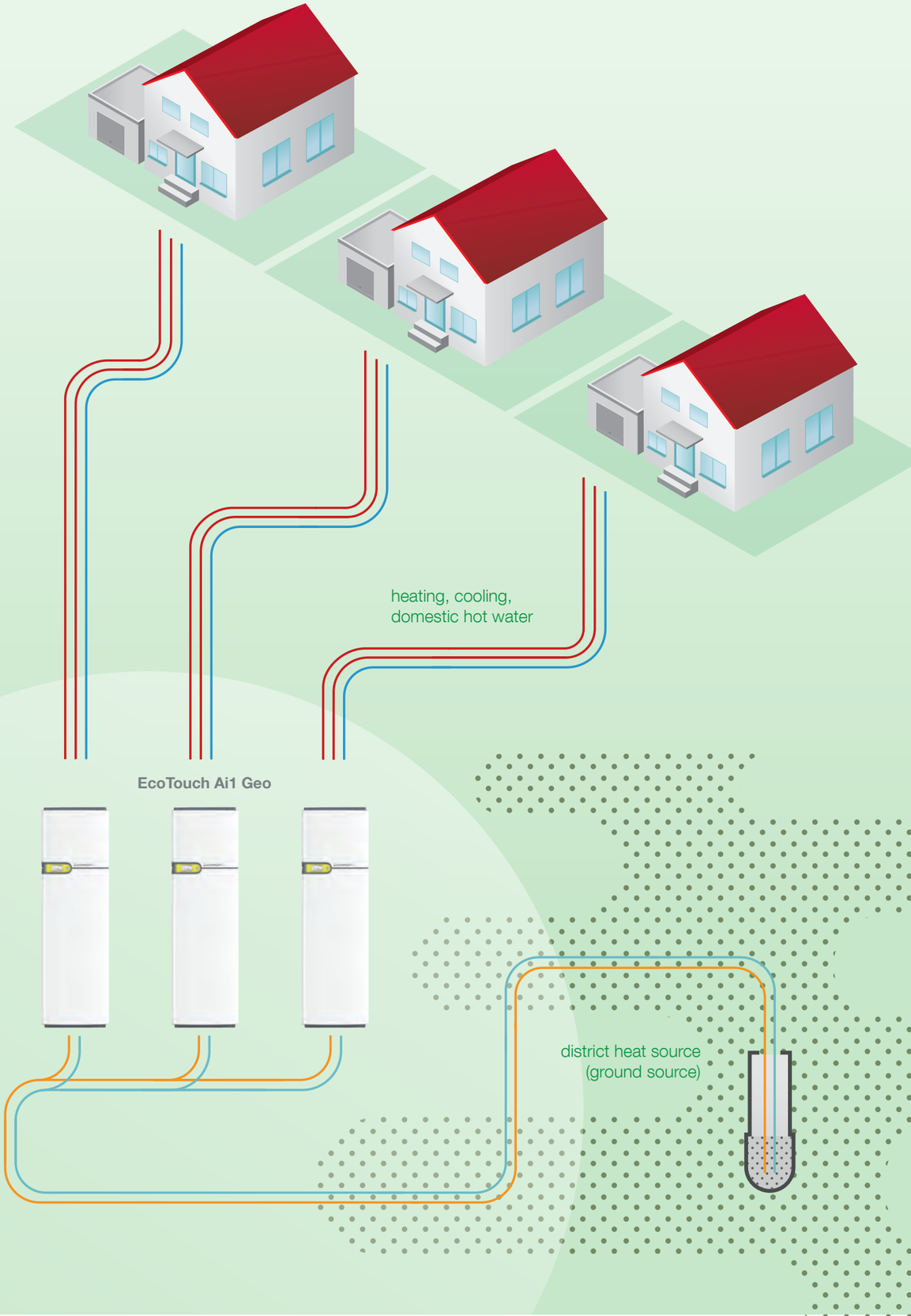

Case study 2:

Decentralised heat supply
Multi-family homes

The idea
Decentrally installed heat pumps can prevent transport losses in multi-storey residential buildings. Residential units are supplied with heating, hot water and cooling in a hygienic, modern and convenient way. The independent mode of operation also allows a step-by-step implementation of refurbishment projects - apartment by apartment or even storey by storey.

The situation
The refurbishment of a multi-family home is pending. In the future, the energy supply of the individual residential units is to be guaranteed with the lowest possible transport losses. Of particular importance: The house should have the best possible carbon footprint, offer maximum living comfort for the residents and meet the requirements of the Drinking Water Ordinance.

The WATERKOTTE solution
Starting from a central heat source, environmental heat from the ground is distributed to the individual residential units. The inverter-controlled EcoTouch Ai1 Compact residential heat pump covers a power range from 1 - 4 kW. The integrated 121 litre storage tank guarantees a reliable hot water supply. With integrated natural cooling, living becomes even more comfortable. Individual residential units up to 120 m² can thus be optimally supplied with heating, cooling and hot water. With a small unit footprint of 0.3 m², the integration of the modern central heating system is space-saving and flexible.

Advantages:
- **Simple billing of ancillary operating costs**
- **Compliance with the highest hygiene regulations**
- **Achievement of maximum building efficiency and carbon footprint**
- **Flexible implementation of refurbishment measures**
- **Plug and Play installation and independent functionality**

The system shown can be used in new construction and refurbishment projects of various sizes. Alternatively, other heat sources can be tapped.

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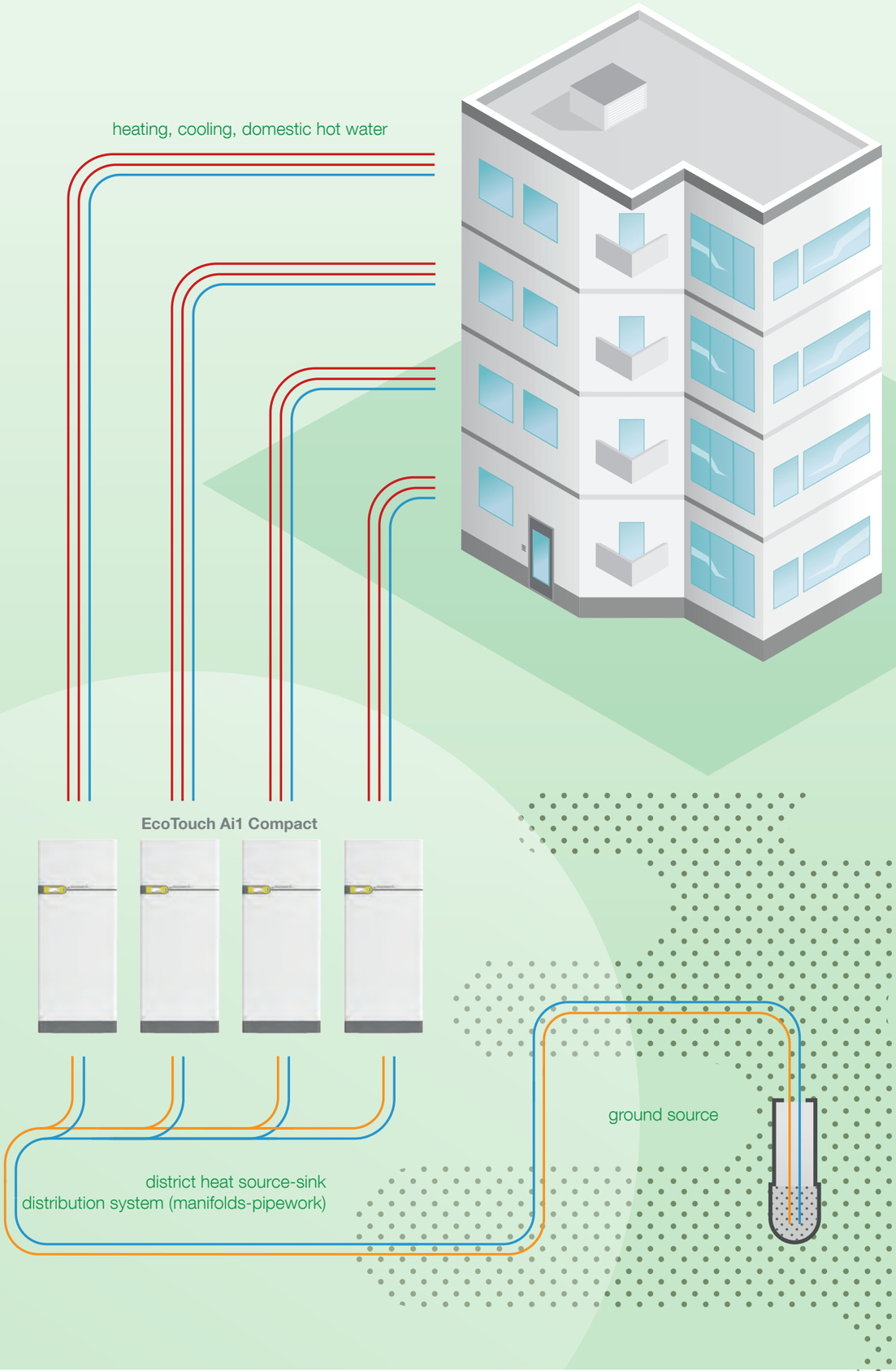

Case study 3:

Central heat and decentralised hot water supply
Multi-family homes

The idea
Buildings with three or more residential units account for around 40 percent of the total energy consumption of residential buildings in Germany. Environmentally friendly alternatives for heat supply play an equally important role in both new buildings and refurbishment projects. A centrally located heat pump can meet the increasing requirements.

The situation
A multi-family home is to be supplied with heating, cooling and hot water. The economical heating system solution should include simple installation of the components and meet the applicable standards for domestic water production. Within the living area, a space-saving alternative is decisive.

The WATERKOTTE solution
The WATERKOTTE Industrial Line EcoTouch 5050 T supplies the building with heat and enables active building cooling. In total, the heat pump covers a power spectrum of 20 - 56 kW. The home stations are integrated into the wall to save space. Installation is as simple as possible; the heating circuit distributor is already integrated in the compact system. In this combination, a centrally located heat pump as a central heating system and decentralised home stations for distribution and hygienic hot water production complement each other perfectly.

Advantages:
- **Compliance with the highest hygiene regulations**
- **Achievement of maximum building efficiency and carbon footprint**
- **Simple billing of ancillary operating costs**
- **Resource-saving installation through integrated distributor**
- **Hydraulically optimal distribution of thermal heat**

The system shown can be used in new construction and refurbishment projects of various sizes. Alternatively, other heat sources can be tapped.

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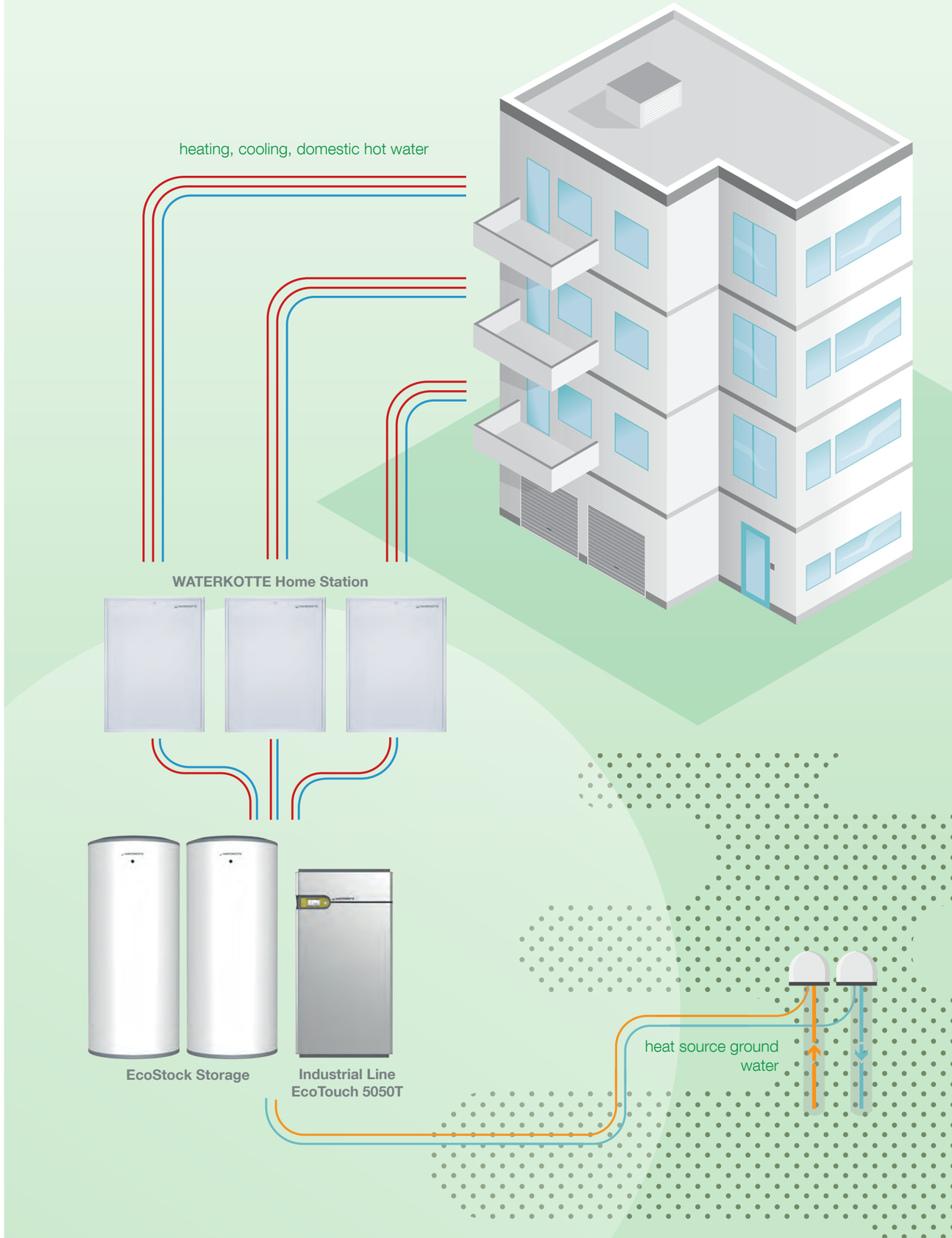


Case study 4:

Decentralised hot water supply
Multi-family homes

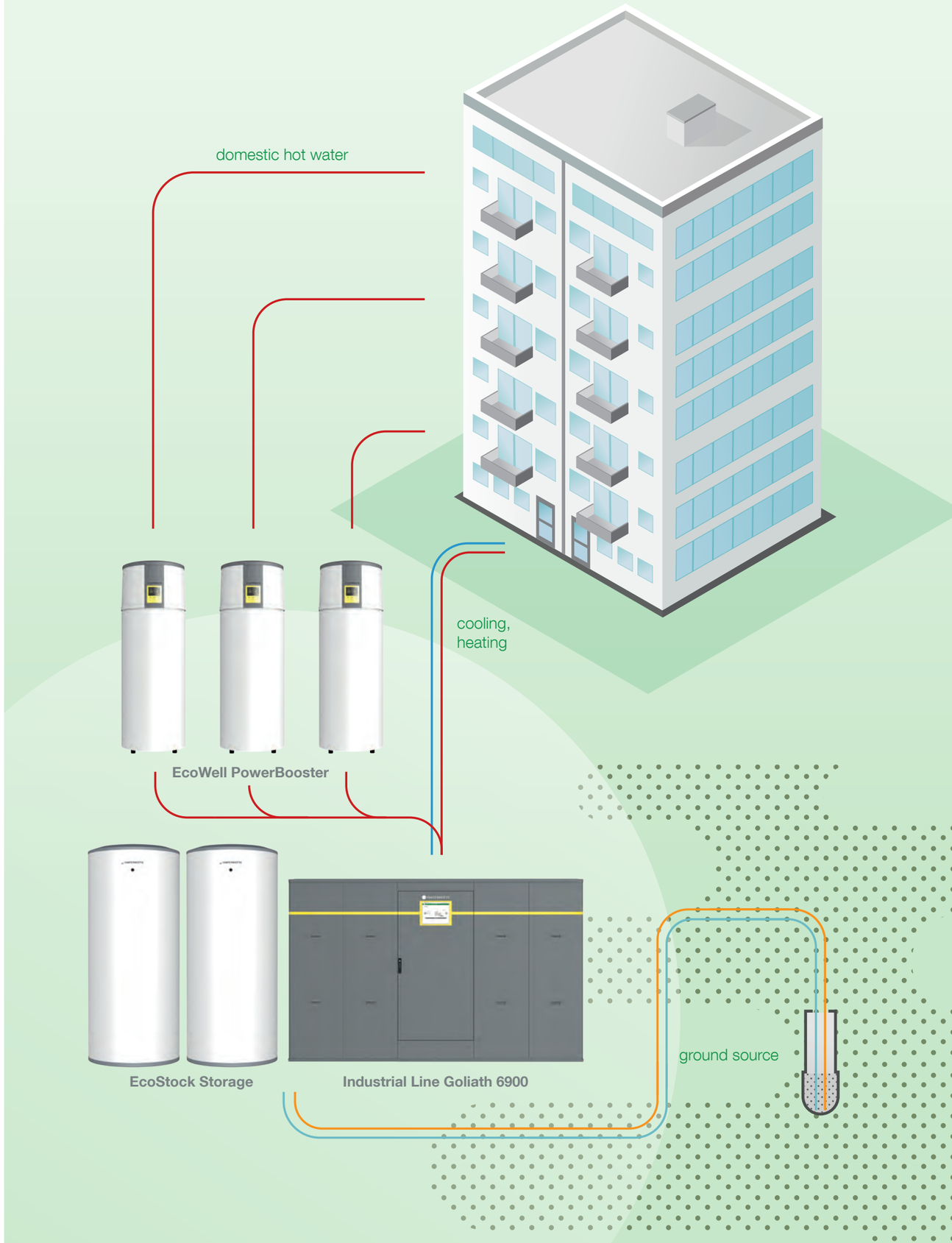
The idea
Decentrally placed domestic water heat pumps can be connected to existing underfloor heating systems in refurbishment projects. With little effort, a residential hot water supply can be established. In this case, the pipe system of the underfloor heating serves as a heat source.

The situation
A high-rise building is to be refurbished. In addition to the individual apartments, a restaurant on the ground storey of the building is to be supplied with energy. The concept should enable both heating and cooling of the building. The highest hygiene standards are to be met for the drinking water supply. Living comfort also plays a major role in the project.

The WATERKOTTE solution
The WATERKOTTE Industrial Line Goliath 6900, centrally located in the boiler room, covers not only the heating needs on cold days but also the cooling needs in the warm summer months. This powerful model forms the core of the reliable heating system. The EcoWell PowerBooster domestic water heat pump uses the flow of the underfloor heating system for cost-saving hot water production in the individual apartments. The decentralised installation enables compliance with the basic drinking water ordinance and excludes legionella growth.

Advantages:
- **Compliance with the highest hygiene regulations**
- **Achievement of maximum building efficiency and carbon footprint**

The system shown can be used in new construction and refurbishment projects of various sizes. Alternatively, other heat sources can be tapped.



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Case study 5:

Central heat supply with air cascade
Residential and commercial building

The idea
Depending on the geological conditions, the insertion of geothermal probes for environmental heat recovery is not possible everywhere. An efficient alternative, also in the case of refurbishments, is the heat source outside air. Cascading several outdoor units also allows the provision of high outputs for heating, hot water production and building cooling.

The situation
An existing building to be refurbished comprises commercial space on the ground storey and living space on the upper storey. The whole building is to be heated and cooled. There is an additional hot water requirement in the upper living area. The conditions do not allow the use of geothermal energy, but the energy supply should still be provided by environmental heat.

The WATERKOTTE solution
In the future, the new EcoTouch Air Kaskade air heat pump will supply the residential and commercial building in split construction with environmental heat from the outside air via four outdoor units installed outside. The WATERKOTTE EcoPack flow-type heater supplements the heat pump system in the living area with energy-saving domestic water heating. The system meets all the requirements of the German drinking water ordinance and, depending on the performance class, offers high bulk capacities of up to 35.8 l/min. This ensures a reliable and hygienic hot water supply.

Advantages:
- **Compliance with the highest hygiene regulations**
- **Achievement of maximum building efficiency and carbon footprint**
- **Uncomplicated building refurbishment thanks to flexible outdoor installation**
- **Convenient cooling of buildings**
- **High system efficiency with COP value above 4.5 (at A2/W35)**

The use of environmental heat from the outside air is an efficient and convenient alternative to geothermal energy. Thanks to cascading, the concept can also be optimally used to supply large buildings. With up to eight outdoor units, the EcoTouch Air cascade achieves a heating capacity of up to 156 kW.

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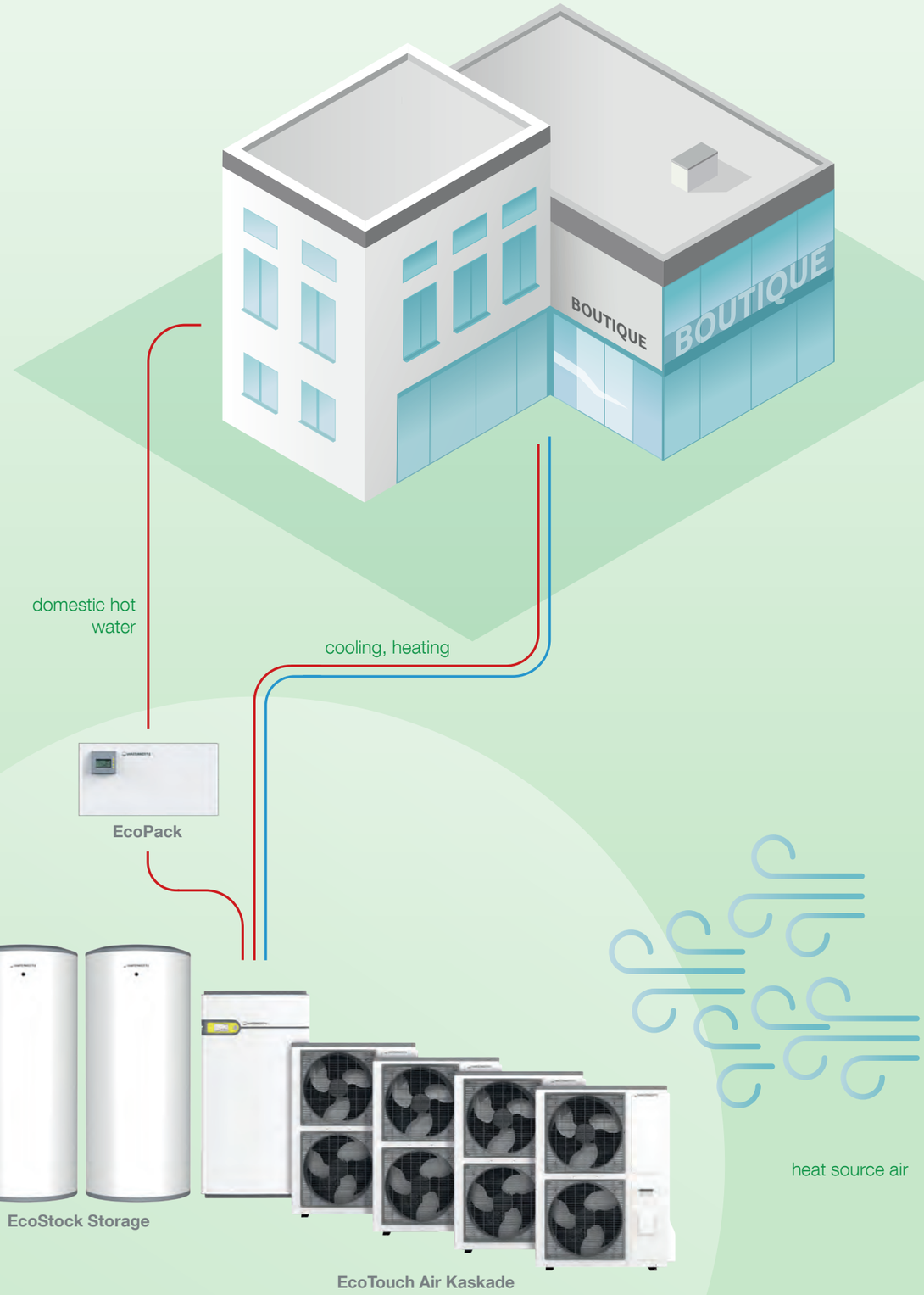


Case study 6:

Ground and waste heat utilisation
Supermarkets and production halls

The idea
In addition to environmental heat from air, groundwater or soil, thermal energy from processes can also be used for a sustainable heat supply concept. For example, waste heat is generated as a by-product of food refrigeration. Often the energy saving potential contained here remains unused. By integrating waste heat into the energy supply concept, this potential can be optimally used.

The situation
The sales, storage and office spaces of a new supermarket are to be heated and cooled sustainably and efficiently. In the store, food will be cooled throughout the year, while the sales area must be heated. Cooling constantly generates a large amount of waste heat, which is to be included in an integrated heating concept.

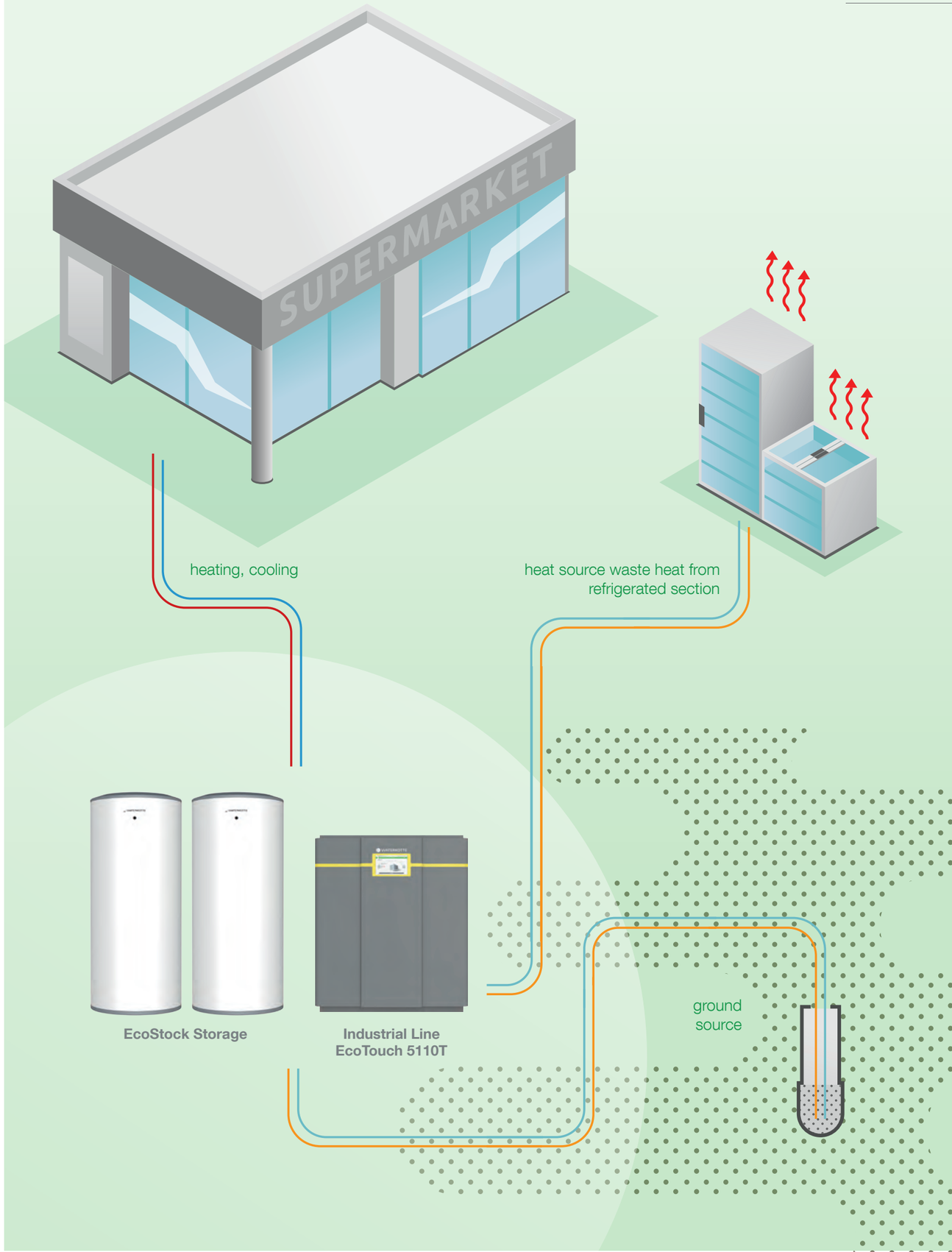
The WATERKOTTE solution
The waste heat from food refrigeration will in future be used by a heat pump as a heat source As an additional source, the ground will be integrated into the heat supply concept. The store's large parking space is ideally suited for the placement of geothermal probes or collectors.

At the heart of the concept is the WATERKOTTE system, consisting of the EcoTouch 5110T Industrial Line and two buffer storage tanks from the EcoStock series. The system raises the temperature level of the heat sources to a higher level suitable for heating buildings. In summer the integrated cooling function ensures pleasant temperatures in the supermarket.

Advantages:
- **Resource-saving waste heat utilisation**
- **Achievement of maximum building efficiency and carbon footprint**
- **Compliance with the highest hygiene regulations**
- **Combination of heating and cooling in one system**
- **Reduced dimensioning of the geothermal heat source**

The principle shown can also be applied in large production halls and warehouses. Alternative heat sources can be waste heat generated during production processes or waste heat from server rooms.

WATERKOTTE
High End Wärmepumpen



Case study 7:

Use of geothermal energy in inner city
Office and administration building

The idea
Building cooling is becoming increasingly important for office and administration buildings. The heat pump enables sustainable building heating and cooling in equal measure. The space required for the probe field can be optimised by varying the drilling metres. This is of decisive advantage, especially in city centres with a high building density.

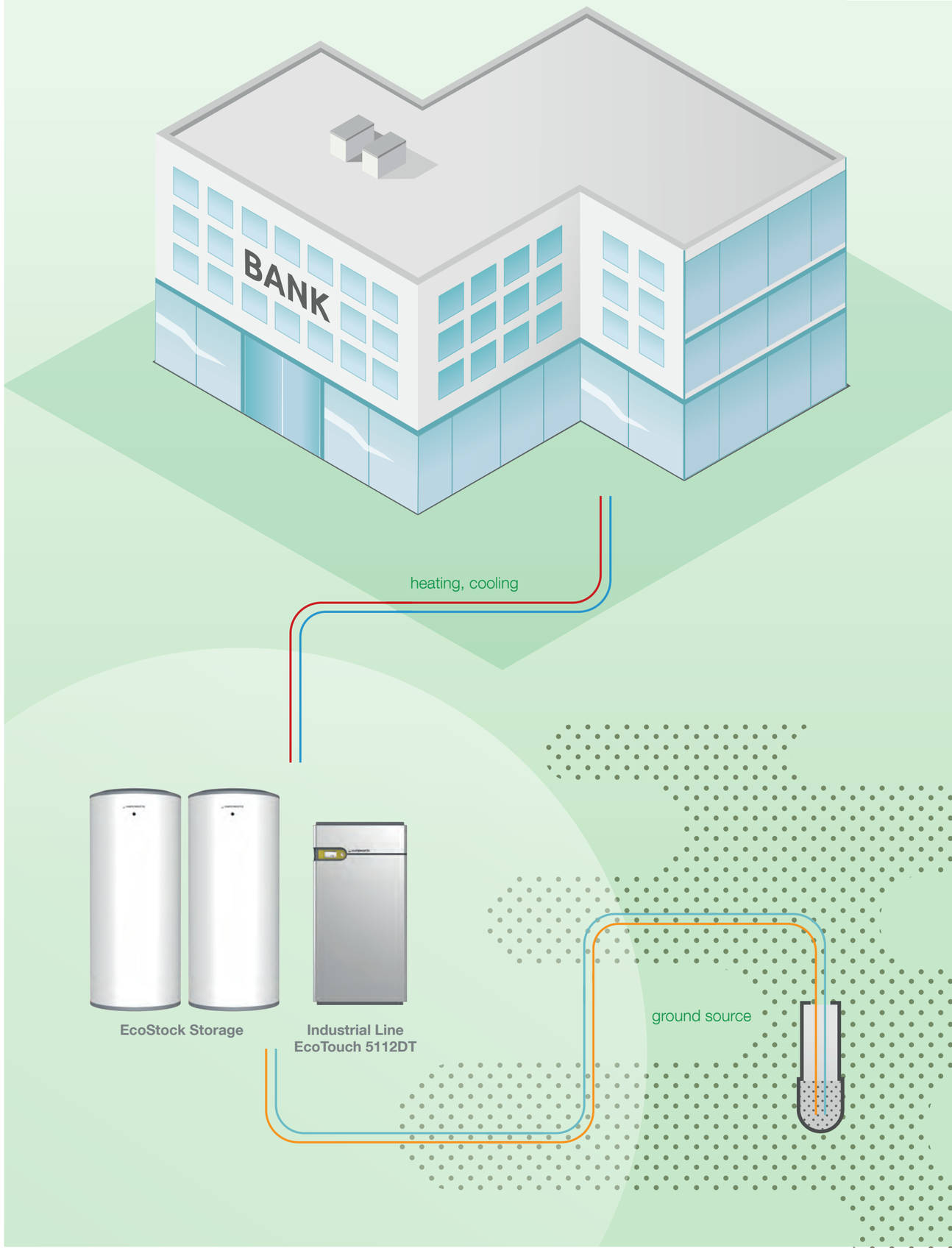
The situation
A new bank branch is to be built in the inner city. The operating costs are to be kept as low as possible while providing maximum comfort with integrated building cooling. The densely built-up surroundings of the property pose a particular challenge to the future heat supply concept.

The WATERKOTTE solution
In the future, the bank building will be heated and cooled conveniently and at the same time in an environmentally friendly manner via an Industrial Line EcoTouch 5112DT. Operating costs will remain low thanks to the high system efficiency. The ground serves as a heat source. The installation of particularly deep geothermal probes makes it possible to use geothermal energy even where space is limited.

Advantages:
- **Achievement of maximum building efficiency and carbon footprint**
- **High system reliability due to double tandem concept**
- **Reliable energy supply**

The principle shown can also be applied in large production halls and warehouses. Alternative heat sources can be waste heat generated during production processes or waste heat from server rooms.

WATERKOTTE
High End Wärmepumpen



Case study 8:

Waste water heating
Swimming pool

The idea
Most uses of domestic water are associated with the heating of water. This includes, for example, taking a shower and using the washing machine. As a result, constant temperatures of 10 °C to 20 °C prevail in the waste water system in many places. With a heat exchanger, this thermal potential can be harnessed and used to supply heat to a building.

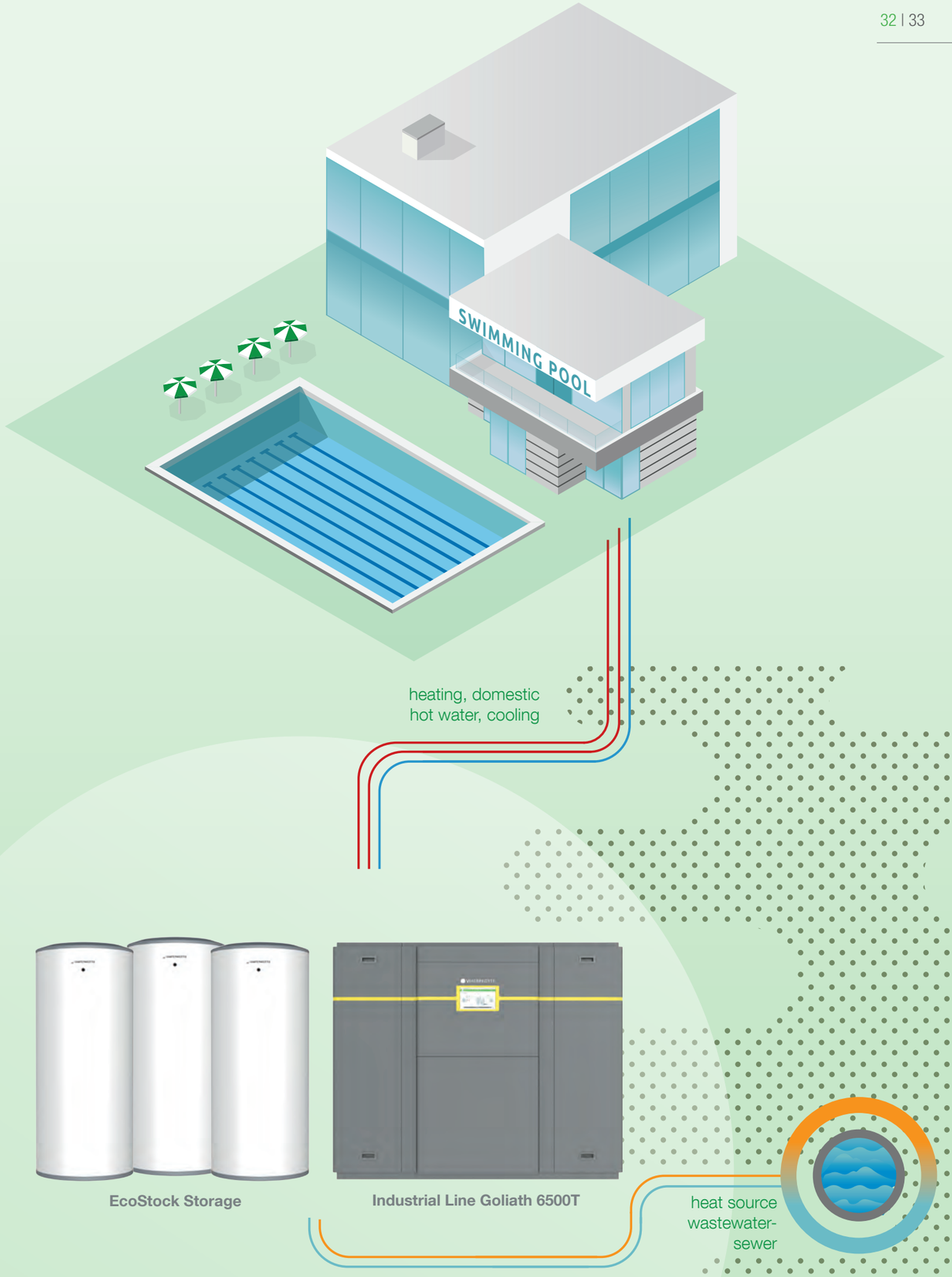
The situation
A new swimming pool is to be built according to the latest technical standards and supplied with energy. As a public building, the swimming pool is to serve as a role model in terms of sustainability and operating costs.

The WATERKOTTE solution
A sewer located close to the property will serve as a thermal energy source for an Industrial Line Goliath 6500T in the future. In combination with three buffer storage tanks of the Industrial series, the model will provide sustainable heating and hot water supply as well as building cooling.

Advantages:
- **Sustainable and economical concept**
- **Achievement of maximum building efficiency and carbon footprint**
- **Reliable energy supply**

The principle shown can also be applied in large production halls and warehouses. Alternative heat sources can be waste heat generated during production processes or waste heat from server rooms.

WATERKOTTE
High End Wärmepumpen



Case study 9:

Reliable heating and cooling supply
Hospital

The idea
Environmental heat can be used as a reliable supply concept even in large building complexes. The combination of two heat pumps with different performance classes can be useful. One heat pump takes over the heating and cooling function of the building. An additional high-temperature heat pump meets the requirements for hot water.

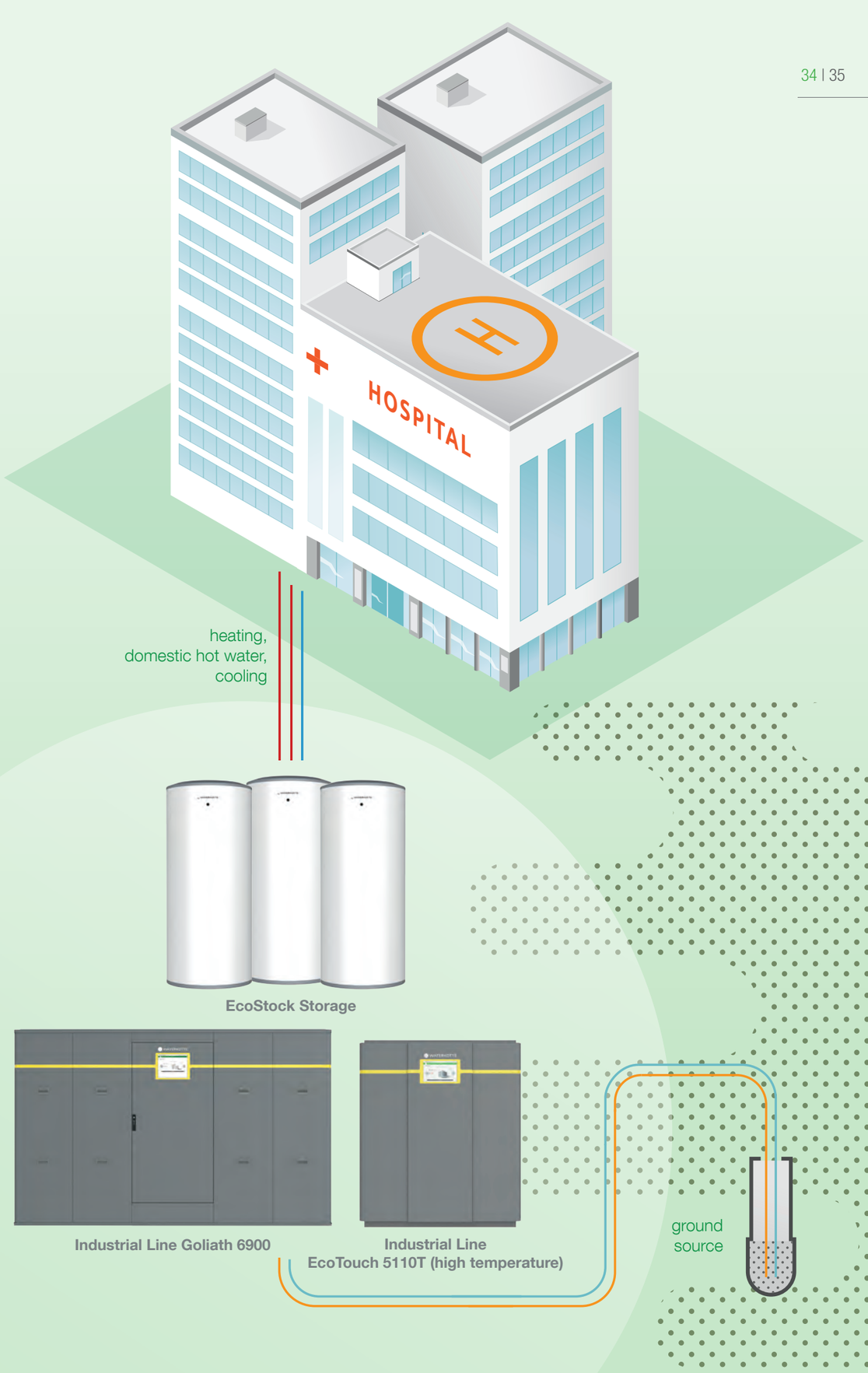
The situation
A state-of-the-art new hospital building is to be operated in an environmentally friendly and cost-saving manner. Naturally, high quantities of hot water are required during operation. An additional requirement is room cooling in connection with the storage of pharmaceuticals and medicines. An absolutely reliable system solution is required, especially with regard to domestic water hygiene.

The WATERKOTTE solution
In future, the building will be economically supplied with environmental heat from the ground. This will be made available by a WATERKOTTE Industrial Line Goliath 6900. The compact design of the system is particularly advantageous. The largest single unit worldwide in terms of performance is equipped with scroll compressors. Separate refrigeration circuits allow continuous power request even during maintenance. An Industrial Line EcoTouch 5110T is also integrated to cover peak loads. The combined system offers maximum operational reliability and represents a perfect hygienic solution.

Advantages:
- **Compliance with the highest hygiene regulations**
- **Achievement of maximum building efficiency and carbon footprint**
- **Maximum operational reliability through several independent refrigeration circuits**

The concept shown can also cover a high demand and the high requirement on the operational safety of the system in other types of buildings. The heat source and also the size of the system can be perfectly adapted to the corresponding requirements.

WATERKOTTE
High End Wärmepumpen



Case study 10:

Reliable heating and cooling supply
Wellness hotel

The idea
Maximum comfort and the use of environmental heat can go hand in hand. With the appropriate control and user-friendly regulation, maximum comfort and low operating costs are combined.

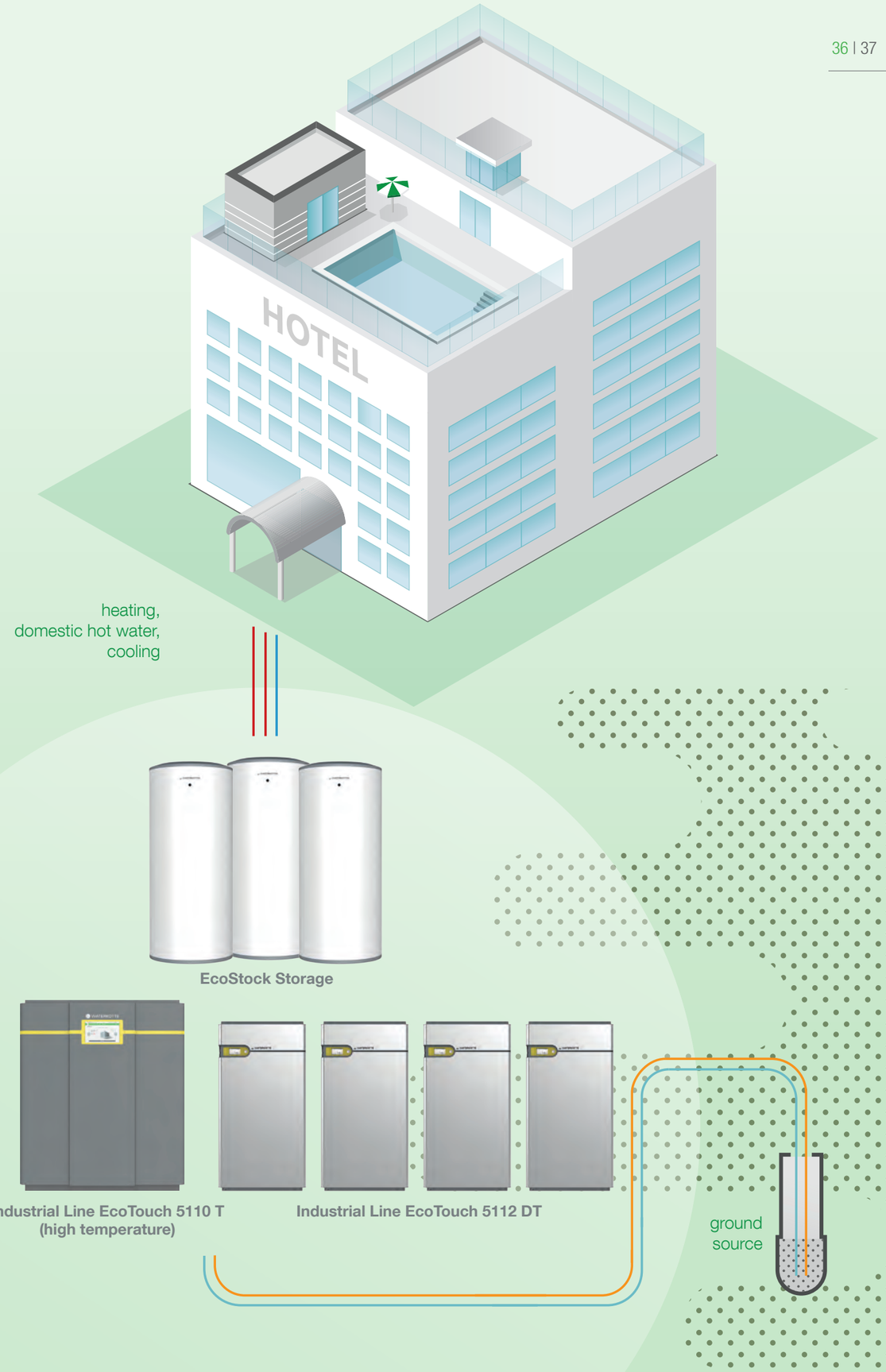
The situation
A modern luxury hotel is to be supplied with energy from the ground using environmental heat. The hotel has different temperature zones. In addition to supplying the hotel rooms, the new building will have a fitness area, a modern wellness area and a swimming pool.

The WATERKOTTE solution
The heating and cooling capacity corresponding to the requirements is provided by a combined system. In addition to the WATERKOTTE Industrial Line EcoTouch 5110T, which provides the hot water supply, four 5112DT series heat pumps for different temperatures are integrated. In conjunction with temperature sensors in the individual temperature zones within the building, the WATERKOTTE control system guarantees the appropriate room climate. In addition to the luxury demand, the new building with the heat pump fulfils the most modern building standards and allows for long-term resource-conserving operation.

Advantages:
- **Sustainable and economical concept**
- **Compliance with the highest hygiene regulations**
- **Achievement of maximum building efficiency and carbon footprint**
- **Maximum operational reliability through maintenance-optimised design**
- **Simple operation of various requirements**

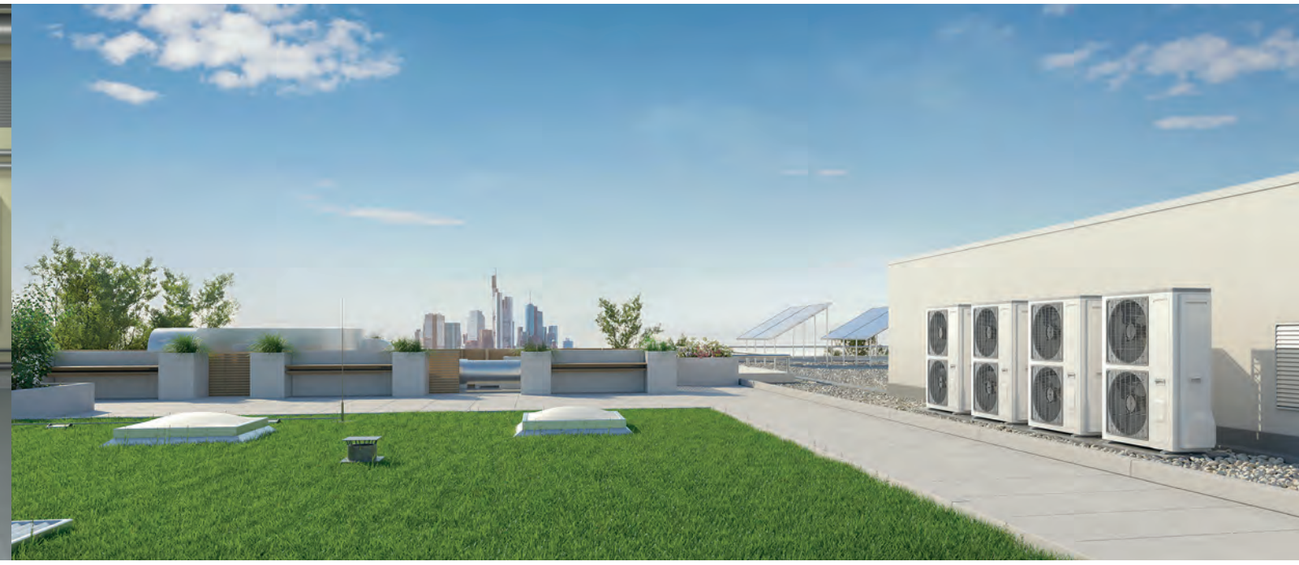
Different temperature zones are also used in other building concepts. With the appropriate WATERKOTTE control system, all requirements are easily met.

WATERKOTTE
High End Wärmepumpen



WATERKOTTE Industrial Line

High-end heat pumps for large projects



The future belongs to the heat pump
Today, the heat pump is the second most used heating system in new buildings in Germany. The triumph of the heat pump will continue. The high efficiency of the systems, emission-free operation and increased safety compared to gas heating are the decisive factors. The heat pump meets the increasing energy requirements of buildings at all times.

We invented it
Klemens Waterkotte was a pioneer. In 1968 he built the first heat pump in Germany. Today we can verify WATERKOTTE heat pumps that have been in operation for more than 30 years. No other manufacturer can look back on an experience with heat pump technology of similar length. WATERKOTTE stands for innovation and product quality.

Small and large systems
WATERKOTTE is one of the few suppliers of large systems with performance values of more than 1,000 kW. As an innovative heat pump specialist, we offer industrial solutions based on geothermal energy and air heat. The know-how gained from large systems also benefits our small systems. This results in units with the best performance values.

Innovations are our strength
WATERKOTTE has many years of know-how in the field of heat pumps. The production in Herne guarantees outstanding product quality. With the EcoTouch series, we have introduced one of the most modern and efficient heat pumps to the world. The numerous awards confirm the high innovative strength of WATERKOTTE.

WATERKOTTE
High End Wärmepumpen

EcoTouch Ai1 Compact | Power range from 1 – 4 kW

reddot award 2018 winner

ICO 2 NIC 0 AWA 1 RDS 8 INNOVATIVE ARCHITECTURE selection

GERMAN DESIGN AWARD WINNER 2019

Up to SCOP 5.5

INVERTER TECHNOLOGIE by WATERKOTTE

A+++ and A+: Energy efficiency class combined system (incl. WWPR III controller) heating W10/W55 and DHW production. Deviations within the series are possible.

Mini heat pump for residential units
The EcoTouch Ai1 Compact is a fully fledged central heating system with an integrated hot water tank that has a capacity of 120 litres. The heat pump covers the heating and domestic hot water demand of flats up to 120 m².

Completely high-end
With COP values up to 4.6, the heat pump is the most efficient in its class. The high-quality features, the colour touch display and state-of-the-art control technology with Internet-support impress as a premium product.

Suitable for every living room
The small space requirement of 0.3 m² and the connections on the underside make possible flexible system installation – ideal for the smallest utility rooms. The unit design is also optimised for servicing.

Hardly audible, easy to operate
The high-quality housing has special noise insulation. In this way the noise emissions are reduced to a minimum. Control is intuitive and logical via the high-quality touch display.

WATERKOTTE
High End Wärmepumpen

Features

- Very small heat pump for individual flats
- Inverter technology
- Colour 4.3" touch display
- Integrated web interface for app control
- Intuitive control software EasyCon
- Central power switch
- Sensor system with numerous sensors
- COP counter and display of all operating data
- Stainless steel storage tank with 120-litre capacity
- Automatic Legionella protection circuit
- Integrated electrical heating element
- Chlorine-free refrigerant R410A without ozone depletion
- Signal for the regulation of the speed of the circulation pumps
- Speed-controlled circulation pumps of efficiency class A
- Integrated vibration damper Silenter®
- Easy to service unit design
- Connections on the underside
- Unit dimensions (W x H x D): 834 x 1950 x 399 mm

Optional features

- Natural cooling
- Controller extension for additional mixer circuits

Highlights

- Low operating costs due to COP values up to 4.6 and SCOP values up to 5.5
- Touch display with innovative EasyCon software
- Fully integrated into the Internet
- Smartphone control via EasyCon Mobile
- High-quality hot water tank
- Legionella protection due to high tank temperatures
- Housing insulation with maximum thermal insulation
- Ready-to-use assembly
- Reduced space requirement 0.3 m²

Industrial Line EcoTouch 5050T | Power range 20 – 56 kW

A+++: Energy efficiency class combined system (incl. WWPR II controller) heating W10/W55, deviations within the series possible..

Powerful and individually applicable
The EcoTouch 5050T is a compact heating system with separate domestic hot water heating. The power range of 20 - 56 kW is ideally suited for use in multi-family homes and small commercial properties.

Performance as required
Two fully hermetic scroll compressors allow an individual and demand-oriented power adjustment. The variable operation of the compressors allows a gradation of 50 % of the nominal power.

Cascade control included
With the integrated heat pump controller WWPR 2, 8 heat pumps can be connected in parallel. Without additional controller, the master pump controls the demand-oriented use of the other devices.

Maximum ease of use
The high-quality equipment includes touch display, WebInterface and the EasyCon software. With the EasyCon Mobile App, remote monitoring via Smartphone, tablet or PC is simple and extremely convenient.

WATERKOTTE
High End Wärmepumpen

Features

- Highly efficient compact heat pump
- Power adjustment 50 % / 100 %
- Colour 4.3" touch display
- Integrated WebInterface for remote monitoring
- Intuitive control software EasyCon
- Sensor system with numerous sensors
- COP counter and display of all operating data
- Cascade control of up to 8 heat pumps
- Domestic water heating with external storage tank
- Chlorine-free refrigerant R410A without ozone depletion
- Signal for the regulation of the speed of the circulation pumps
- SG Ready feature
- Easy to service unit design
- Connections installed on rear
- Unit dimensions (W x H x D): 750 x 1470 x 611 mm

Optional features

- Levelling mat for installation on uneven floors
- Flexible hoses for hydraulic connections
- Foundation support for vibration decoupling
- Controller expansion for:
    - Second heating circuit e.g. for swimming pool heating
    - Use of thermal solar energy
    - Two additional mixing circuits

Highlights

- Low operating costs due to high COP values
- Power adjustment through tandem compressor
- Innovative control software with mobile control
- Fully integrable into the Internet
- Display of running COP values
- Housing in high gloss white or stainless steel look

Industrial Line EcoTouch 5110T | Power range 26 – 112 kW

A+++: Energy efficiency class combined system (incl. WWPR II controller) heating W10/W55, deviations within the series possible.

Powerful compact heat pump
The ET 5110T covers a wide power spectrum in various sizes from 26 - 112 kW. By connecting a water tank from the Industrial series, the heat pump becomes a complete heating system.

Demand-oriented performance
The integrated compressors can be operated individually or together. This enables a flexible, two-stage power control. The power levels 50 % and 100 % are possible according to demand.

Highest quality in every component
When producing the housing, we also rely on interior lining with airborne sound insulation in addition to thick-walled sheet steel for the components. During maximum performance, low noise emission is guaranteed.

Simple operation and mobile control
The EasyCon software combines technical complexity with intelligent ease of use. The EasyCon Mobile App enables simple, mobile and intuitive control via Smartphone, tablet or computer.

WATERKOTTE
High End Wärmepumpen

Features

- Heat pump for the medium power requirement
- Power adjustment 50 % / 100 %
- Colour 10.4" touch display
- Integrated WebInterface for remote monitoring
- Intuitive control software EasyCon
- Sensor system with numerous sensors
- COP counter and display of all operating data
- Cascade control of up to 8 units
- Domestic water heating with external storage tank
- Chlorine-free refrigerants R410A and R134a
- Signal for the speed control of the circulation pump
- Easy to service unit design
- Connections installed on rear
- Unit dimensions (W x H x D): 1130 x 1306 x 886 mm

Optional features

- Flexible hoses for hydraulic connections
- Foundation support for vibration decoupling
- Electronic soft start
- Controller expansion for:
    - Second heating circuit e.g. for swimming pool heating
    - Use of thermal solar energy
    - Two additional mixing circuits

Highlights

- Low operating costs due to high COP values
- Power adjustment through tandem compressor
- Innovative control software with mobile control
- Fully integrable into the Internet
- Display of running COP values
- Anthracite housing with robust powder coating

Industrial Line EcoTouch 5112DT | Power range 51 – 112 kW

A+++: Energy efficiency class combined system (incl. WWPR II controller) heating W10/W55, deviations within the series possible.

Efficient and economical at the same time
The ET 5112DT is used in buildings with high heating requirements. The power range of 68 - 112 kW is made available via three different types. The efficient geothermal plant achieves highest COP values.

First class equipment
The standard features include a web interface, the 4.3 inch colour touch-display and the innovative EasyCon software. It is therefore possible to control the system conveniently using a smartphone.

Performance as required
The EcoTouch 5112DT is equipped with two pairs of tandem scroll compressors. With the intelligent EasyCon controller software, the power is provided as required in 4 power levels between 25 % and 100 %.

Highest operational reliability
The innovative double tandem concept with 2 separate refrigerant circuits ensures maximum operational reliability of the system. The two independent systems supply a common heating circuit.

WATERKOTTE
High End Wärmepumpen

Features

- Heat pump for higher requirements
- Colour 4.3" touch display
- Integrated WebInterface for remote monitoring
- Intuitive control software EasyCon
- Cascade control of up to 8 heat pumps
- Signal for the regulation of the speed of the circulation pumps
- Sensor system with numerous sensors
- COP counter and display of all operating data
- Electronic starting current damping
- Domestic water heating, external tank provided on site
- Chlorine-free refrigerant R410A without ozone depletion
- Two independent refrigerant circuits
- Power grading 25 % / 50 % / 75 % / 100 %
- Integrated Silenter® vibration damper
- Easy to service unit design
- Connections installed on rear
- Unit dimensions: (W x H x D) 750 x 1470 x 611 mm

Optional features

- Levelling mat for installation on uneven floors
- Flexible hoses for hydraulic connections
- Foundation support for vibration decoupling
- Starting current damping (400 V)
- Controller expansion for:
    - Second heating circuit e.g. for swimming pool heating
    - Use of thermal solar energy
    - Two additional mixing circuits

Highlights

- Low operating costs due to high COP values
- Innovative operating software with mobile control
- Network integration via Ethernet port
- Display of running COP values
- Housing in high gloss white or stainless steel look
- 4-level power adjustment

Industrial Line EcoTouch 5240T | Power range 111 – 238 kW

A+++: Energy efficiency class combined system (incl. WWPR II controller) heating W10/W55, deviations within the series possible.

Highest performance values
With an enormous power spectrum of 111 - 238 kW, the ET 5240T series is ideally suited for use in buildings with high heating requirements. The power range is covered by the various sizes.

Flexible power control included
The ET 5240T is equipped with a tandem scroll compressors. With the intelligent EasyCon controller software, the power is provided according to demand in the 2 power levels 50 % and 100 %.

Highest efficiency with minimum noise emission
A reliable airborne sound insulation has been added to the housing interior. This ensures a low operating volume. The L-shaped base frame minimises the structure-borne noise transmitted - silent efficiency.

Innovative ease of use
The high-quality equipment includes touch display, WebInterface and the innovative EasyCon software. The EasyCon Mobile App makes remote control and monitoring of the heat pump extremely convenient.

WATERKOTTE
High End Wärmepumpen

Features

- Heat pump for the medium power requirement
- Two-stage power control
- Colour 10.4" touch display
- Integrated WebInterface for remote monitoring
- Intuitive control software EasyCon
- Sensor system with numerous sensors
- COP counter and display of all operating data
- Cascade control of up to 8 units
- Domestic water heating with external storage tank
- Chlorine-free refrigerant R410
- Signal for the regulation of the speed of the circulation pumps
- Easy to service unit design
- Connections installed on rear
- Unit dimensions (W x H x D): 1130 x 1366 x 1076 mm

Optional features

- Flexible hoses for hydraulic connections
- Foundation support for vibration decoupling
- Electronic soft start
- Frequency converter
- Controller expansion for:
    - Second heating circuit e.g. for swimming pool heating
    - Use of thermal solar energy
    - Two additional mixing circuits

Highlights

- Low operating costs due to high COP values
- Power adjustment through tandem compressor
- Innovative control software with mobile control
- Display of running COP values
- Anthracite housing with robust powder coating

Industrial Line Goliath 6500 T/D | Power range 299 – 462 kW

A+++: Energy efficiency class combined system (incl. WWPR II controller) heating W10/W55, deviations within the series possible.

Pure top performance
The Industrial Line Goliath 6500 covers a power range from 299 - 462 kW. The properties of the module make it ideal for supplying heat to building complexes with enormous heating requirements.

Flexible power request
The series optionally allows an individual power reduction of 50 % of the nominal power. Since scroll compressors are used, the adjustment is made with almost no loss of efficiency.

Intelligent control
The innovative EasyCon software combines strong performance and intelligent user-friendliness. With the integrated WebInterface, intuitive remote control via the Internet and mobile terminals is possible.

Project-specific hot water production
The Industrial domestic water tanks complete the heat pump system. Individually dimensioned storage tanks with a capacity of up to 5,000 litres are available on a project-related basis - ideally adapted to every requirement.

WATERKOTTE
High End Wärmepumpen

Features

- Heat pumps for high power requirements
- Colour 10.4" touch display
- Integrated WebInterface for remote monitoring
- Intuitive control software EasyCon
- Sensor system with numerous sensors
- COP counter and display of all operating data
- Cascade control of up to 8 units
- Domestic water heating with external storage tank
- Chlorine-free refrigerants R410A
- Signal for the regulation of the speed of the circulation pumps
- Easy to service unit design
- Connections installed on rear
- Unit dimensions (W x H x D): 2100 x 1927 x 930 mm
  2300 x 1927 x 930 mm

Optional features

- Open-frame construction
- Power control 50 % / 100 %
- Flexible hoses for hydraulic connections
- Foundation support for vibration decoupling
- Frequency converter
- Controller expansion for:
  - Second heating circuit e.g. for swimming pool heating
  - Use of thermal solar energy
  - Two additional mixing circuits

Highlights

- Low operating costs due to high COP values
- Power adjustment through slider control
- Innovative control software with mobile control
- Display of running COP values
- Anthracite housing with robust powder coating

Industrial Line Goliath 6900 | Power range 690 – 1,000 kW

INDUSTRIE PREIS 2018
BEST OF

A+++: Energy efficiency class combined system (incl. WWPR II controller) heating W10/W55, deviations within the series possible.

Innovative new development
With the Industrial Line Goliath 6900 we present you a new development in the WATERKOTTE Industrial Line. The large heat pump breaks through previous performance limits with an outstanding output of 1,000 kW*.

Fourfold performance
The performance values make the Goliath 6900 the largest single unit in the world. Four powerful scroll compressors are used in the large system. This allows power grading of 25 %, 50 % and 75 % power.

Maximum operational safety
Four compressors, four refrigeration circuits, fourfold safety. Separate refrigerant circuits guarantee maximum operational reliability. A continuous power request is also possible during maintenance procedures without any problems.

Convenient control included
The EasyCon software makes controlling the system convenient and simple. It is based on the principles of intuitive operation. The WebInterface and the EasyCon App enable the mobile control.

* at W14/W35

WATERKOTTE
High End Wärmepumpen

Features

- Heat pump for extreme power requirements
- Power adjustment 25 % / 50 % / 75 % / 100 %
- Colour 10.4" touch display
- Integrated WebInterface for remote monitoring
- Intuitive control software EasyCon
- Sensor system with numerous sensors
- COP counter and display of all operating data
- Cascade control of up to 2 units
- Domestic water heating with external storage tank
- Chlorine-free refrigerant R410A without ozone depletion
- Signal for the speed control of the circulation pump
- Easy to service unit design
- Connections installed on rear
- Unit dimensions (W x H x D): 3177 x 1947 x 991 mm

Optional features

- Connection to building control system
- Controller expansion for:
    - Second heating circuit e.g. for swimming pool heating
    - Use of thermal solar energy
    - Two additional mixing circuits

Highlights

- Low operating costs due to high COP values
- Power adjustment through scroll compressor
- Innovative control software with mobile control
- Fully integrable into the Internet
- Display of running COP values
- Anthracite housing with robust powder coating

EcoTouch Air Kaskade | Power range of 26 – 156 kW

A++: Energy efficiency class composite system (incl. WWPR2 class II controller) heating W55. Deviations within the series are possible.

Cascadable up to 156 kW
The new EcoTouch Air Kaskade uses the air as a heat source. The compact indoor module can be combined with up to eight outdoor units and in this way covers power requirements up to 156 kW.

Flexible power request
The compressor performance is adapted to the required heat in the best possible way by means of inverter technology. As a result optimal efficiency and low operating costs are achieved at any time with considerable power reserves.

Outstandingly efficient
The technical values of the new Kaskade impress: The coefficient of performance (COP) of 5.0 is absolutely in the lead and confirms the high system efficiency.. The operating costs are reduced to a minimum with the new development.

Robust and durable
The outdoor unit achieves the highest efficiency figures: flow temperatures of 58 °C are possible even at outdoor temperatures of -15 °C. High-quality components ensure reliable operation for decades.

WATERKOTTE
High End Wärmepumpen

Features, indoor unit

- Colour 4.3" touch display
- Integrated web interface for app control
- Intuitive control software EasyCon
- Automatic Legionella protection circuit
- Integrated flow rate measurement
- Pressure sensor in the heating circuit
- Speed-controlled circulation pumps, efficiency class A
- Connections installed on rear
- Unit dimensions (H x W x D): 750 x 1470 x 611 mm

Outdoor unit features

- Special insulation for noise reduction
- Easy to service unit design
- Weather-resistant housing
- Speed-controlled fans
- Speed-controlled double rotary piston compressor
- Electronic expansion valve
- Defrosting process: Circulation reversal using 4-way valve
- Active cooling due to reversible refrigerant circulation
- Unit dimensions (W x H x D): 900 x 1250 x 340 mm

Optional features

- Connection set
- Controller expansion for:
  - Second heating circuit e.g. for swimming pool heating
  - Use of thermal solar energy
  - Additional mixer circuits

Highlights

- Cascading with up to 8 outdoor units possible
- Touch display with innovative EasyCon software
- Low operating costs due to COP values up to 5.0
- Smartphone control via EasyCon Mobile
- Optimised space requirement 0.46 m^2

EcoWell PowerBooster | Domestic water heat pump

Features

- Domestic hot water heat pump
- Heating source is the heating flow
- Available with tank sizes of 235 and 285 litres
- Large LED display with indication of:
  - Current tank temperature
  - Temperature setpoint
  - Symbol for hot water readiness
  - Function status of electrical heating element
  - Clock with integrated timer
- Central buttons for the functions:
  - Power On/Off
  - Temperature setting
  - Additional heating On/Off
- Standard electrical heating element with 1.5 kW
- Electrical connection: 220 - 240 V / 50 Hz / 1~
- Refrigerant R134a
- Coefficient of performance COP 4.16 (EN 255)
- Optimised installation dimensions:
  - EcoWell PowerBooster 250:
    (Ø x H) 640 x 1633 mm
  - EcoWell PowerBooster 300:
    (Ø x H) 640 x 1845 mm
- Side carrying handles for easy transport
- Connection to photovoltaic installation
- SG Ready feature

Highlights

- FC-Protect® welded stainless steel tank
- Legionella protection due to high tank temperatures
- Housing insulation with maximum thermal insulation
- Intuitive to operate LED control display
- Ready-to-use assembly

Usage of available energy
This model was developed especially for buildings with existing underfloor heating. The heating flow is used as the heat source. The energy obtained from this source is used for the production of domestic hot water.

Best quality
The domestic hot water heat pump is characterised by excellent performance figures, modern design and ease of use. Backup operation is possible at any time using the electrical heating element.

State-of-the-art operation
The large LED display provides a comprehensive overview of the functions. Along with the actual temperature, target temperature and hot water situation, the status of the electrical heating element and the timer are displayed.

High-quality finish
The EcoWell Powerbooster is optionally available with a 235 litre or 285 litre hot water tank made of high-quality stainless steel. With specially pickled weld seams it meets the highest hygiene requirements.

WATERKOTTE
High End Wärmepumpen

Appendix: Facts and figures in detail

EcoTouch Ai1 Compact | 1 - 4 kW

EcoTouch Ai1 Compact with R410A		5003.5 (NC)
Heat source groundwater[1)]		
Power input/output W10/W35, partial load operation	kW	0.4 / 1.8
Coefficient of performance (COP) at W10/W35		6.6
Power regulation W10/W35	kW	1.8 - 5.5
Space heating energy efficiency[2)] / hot water production energy efficiency load profile L		A+++ / A+
Energy efficiency class of the combined system[2)] space heating / domestic hot water production load profile L		A+++ / A+
Groundwater flow rate	m³/h (ΔT=3K)	1.4
Groundwater flow rate, minimum	m³/h [3)] (ΔT=6K)	0.7
Heating water flow rate	m³/h (ΔT=5K)	1.0
Operating limit		W10/W63
Sound power level according to EN 12102 for W10/W35	dB(A)	40-45 (frequency-dependent)
Heat source ground		
Power input/output B0/W35, partial load operation	kW	0.6 / 2.4
Coefficient of performance (COP) at B0/W35		4.6
Power regulation B0/W35	kW	1.3 - 4.1
Space heating energy efficiency[2)] / hot water production energy efficiency load profile L		A++ / A
Energy efficiency class of the combined system[2)] space heating / domestic hot water production load profile L		A++ / A
Heat source flow rate[4)]	m³/h (ΔT=3K)	1.0
Heating water flow rate	m³/h (ΔT=5K)	0.8
Max. power consumption HS pump	W	75
Max. power consumption heat pump	W	75
Operating limit		B-5/W63; B0/W63
Compressor		Rotary piston
Sound power level, 36 Hz[5)]	dB(A)	39.9
Sound power level, 60 Hz[5)]	dB(A)	44.7
Sound power level, 90 Hz)[5)]	dB(A)	44.9
Electrical data		
Electric power supply	V, AC, Hz	230, 1, 50
Max. operating current	A	25
Main fuse, compressor (on site)	A	C 25 A
Dimensions, weights, connections		
Weight of device, without tank filling	kg	199 (NC: 205)
Refrigerant filling	kg	0.75
Connections: Heat source / use		1" / 1“
Dimensions W x H x D	mm	834 x 1950 x 399
Domestic hot water tank	l	121

Subject to technical changes. Tolerances as per EN 12900, EN 14511 and EN 12102 apply.

[1)] Groundwater source heating is to be used with an intermediate circuit, for solutions, please refer to our product range. Our performance data is based on this system configuration. [2)] Mean temperature application, average climatic conditions. The Waterkotte WWPR controller class III (without room temperature sensor) was considered for the combined system. [3)] At W10/W35 and ΔT=6K. [4)] Heat source (70 % water + 30 % ethylene glycol). [5)] At W10/W30 (+- 10K)

Industrial Line EcoTouch 5050T | 20 - 56 kW

EcoTouch 5050T with R410A		ET 5028.5T	ET 5034.5T	ET 5045.5T	ET 5056.5T
Heat source groundwater[1]					
Power input/output W10/W35	kW	4.4/26.8	5.6/34.1	7.7/45.2	9.6/56.4
Coefficient of performance (COP) at W10/W35		6	5.8	5.6	5.6
Space heating energy efficiency[2]		A+++	A+++	A+++	A+++
Energy efficiency class of the combined system[3]		A+++	A+++	A+++	A+++
Groundwater flow rate	m³/h (ΔT=3K)	6.5	8.2	10.8	13.5
Groundwater flow rate, minimum	m³/h [4] (ΔT=6K)	3.3	4.1	5.4	6.7
Heating water flow rate	m³/h (ΔT=5K)	4.6	5.9	7.8	9.7
Operating limit			W10/W65		
Compressor			Tandem scroll		
Power control			50 % / 100 %		
Heat source ground					
Power input/output B0/W35	kW	4.4/20.2	5.6/25.6	7.5/34.1	9.2/42.4
Coefficient of performance (COP) at B0/W35		4.5	4.5	4.4	4.5
Space heating energy efficiency[2]		A+++	A+++	A+++	A+++
Energy efficiency class of the combined system[3]		A+++	A+++	A+++	A+++
Heat source flow rate[5]	m³/h (ΔT=3K)	5.2	6.6	8.7	10.8
Heating water flow rate	m³/h (ΔT=5K)	3.5	4.4	5.9	7.3
Operating limit			B5/W60; B0/W65		
Compressor			Tandem scroll		
Power control			50 % / 100 %		
Electrical data					
Electric power supply	V, AC, Hz		400, 3, 50		
Starting current	A	51.5	62.0	75.0	102.0
Starting current with soft start	A	26.0	31.0	38.0	51.0
Max. operating current	A	2 x 7.4	2 x 9.7	2 x 13.0	2 x 15.3
Main fuse on site (compressor)		C 20 A	C 25 A	C 32 A	C 32 A
Control fuse on site		B 10 A	B 10 A	B 10 A	B 10 A
Dimensions, weights, connections					
Number of scroll compressors		2	2	2	2
Weight of unit	kg	221	232	265	286
Connections: Heat source/use			R2“a		
Dimensions W x H x D	mm		750 x 1470 x 611		

Subject to technical changes. Tolerances as per EN 12900 and EN 14511 apply.

[1] Groundwater source heating is to be used with an intermediate circuit; for solutions, please refer to our product range. Our performance data are based on this system configuration. [2] Mean temperature application, average climatic conditions [3] The Waterkotte WWPR2 controller class III (without room temperature sensor) was considered for the combined system. [4] At W10/W35 and ΔT=6K. [5] Fluid 70 % water + 30 % ethylene glycol.

Industrial Line EcoTouch 5110T | 26 – 77 kW

Industrial Line EcoTouch 5110T with R134a		ET 5036.4T	ET 5049.4T	ET 5063.4T	ET 5077.4T
Heat source groundwater[1]					
Power input/output W10/W35	kW	7.4/36.8	9.1/49.4	11.6/63.0	14.2/77.2
Coefficient of performance (COP) at W10/W35		4.87	5.31	5.29	5.29
Space heating energy efficiency[2]		A+++	A+++	A+++	A+++
Energy efficiency class of the combined system[3]		A+++	A+++	A+++	A+++
Groundwater flow rate	m³/h (ΔT=3K)	8.6	11.7	14.9	18.3
Groundwater flow rate, minimum	m³/h [4] (ΔT=6K)	4.3	5.9	7.5	9.2
Heating water flow rate	m³/h (ΔT=5K)	6.3	8.5	10.9	13.3
Operating limit			W10/W75; W15/W70		
Compressor			Fully hermetic tandem scroll		
Power control			50 % / 100 %		
Heat source ground					
Power input/output B0/W35	kW	6.7/26.3	8.3/35.8	10.6/45.4	13.0/55.4
Coefficient of performance (COP) at B0/W35		3.84	4.25	4.23	4.20
Space heating energy efficiency[2]		A+	A++	A++	A++
Energy efficiency class of the combined system[3]		A+	A++	A++	A++
Heat source flow rate[5]	m³/h (ΔT=3K)	6.3	8.8	11.2	13.6
Heating water flow rate	m³/h (ΔT=5K)	4.5	6.2	7.8	9.5
Operating limit			B-5/W70; B0/W75		
Compressor			Fully hermetic tandem scroll		
Power control			50 % / 100 %		
Electrical data					
Electric power supply	V, AC, Hz		400, 3, 50		
Unreduced starting current	A	99	127	167	198
Starting current soft start	A	50	59	84	99
Max. operating current	A	2 x 17	2 x 21	2 x 25	2 x 32
Main fuse on site (compressor)		C 50 A	C 50 A	C 63 A	C 80 A
Control fuse on site		B 10 A	B 10 A	B 10 A	B 10 A
Dimensions, weights, connections					
Number of scroll compressors		2	2	2	2
Weight of unit	kg	352	377	399	456
Connections: Heat source / use			flat-sealing R 2“a / R 2“a		
Dimensions W x H x D	mm		1130 x 1306 x 886		

Subject to technical changes. Tolerances as per EN 12900 and EN 14511 apply.

[1] Groundwater source heating is to be used with an intermediate circuit; for solutions, please refer to our product range. Our performance data are based on this system configuration. [2] Mean temperature application, average climatic conditions [3] The Waterkotte WWPR controller class III (without room temperature sensor) was considered for the combined system. [4] At W10/W35 and ΔT=6K. [5] Fluid 70 % water + 30 % ethylene glycol.

Industrial Line EcoTouch 5110T | 48 – 112 kW

Industrial Line EcoTouch 5110T with R410A		ET 5063.5T	ET 5075.5T	ET 5085.5T	ET 5095.5T	ET 5112.5T
Heat source groundwater[1]						
Power input/output W10/W35	kW	10.6/63.2	12.1/75.2	13.8/85.0	15.6/95.2	18.9/112.2
Coefficient of performance (COP) at W10/W35		5.73	5.90	5.85	5.77	5.58
Space heating energy efficiency[2]		A+++	A+++	A+++	A+++	A+++
Energy efficiency class of the combined system[3]		A+++	A+++	A+++	A+++	A+++
Groundwater flow rate	m³/h (ΔT=3K)	15.3	18.3	20.7	23	27
Groundwater flow rate, minimum	m³/h [4]	7.7	9.2	10.4	11.5	13.5
Heating water flow rate	m³/h (ΔT=5K)	10.9	13	14.6	16.4	19.3
Operating limit				W10/W63		
Compressor				Fully hermetic tandem scroll		
Power control				50 % / 100 %		
Heat source ground						
Power input/output B0/W35	kW	10.4/47.6	12.0/56.6	13.6/64.2	15.2/71.4	18.3/84.6
Coefficient of performance (COP) at B0/W35		4.45	4.58	4.58	4.56	4.45
Space heating energy efficiency[2]		A+++	A+++	A+++	A+++	A+++
Energy efficiency class of the combined system[3]		A+++	A+++	A+++	A+++	A+++
Heat source flow rate[5]	m³/h (ΔT=3K)	11.9	14.3	16.2	18	21.2
Heating water flow rate	m³/h (ΔT=5K)	8.2	9.7	11.1	12.3	14.6
Operating limit				B-5/W50 B0/W55 B5/W58		
Compressor				Fully hermetic tandem scroll		
Power control				50 % / 100 %		
Electrical data						
Electric power supply	V, AC, Hz			400, 3, 50		
Unreduced starting current	A	111	118	118	140	174
Starting current soft start	A	56	59	59	70	87
Max. operating current	A	2 x 21	2 x 22	2 x 25	2 x 31	2 x 34
Main fuse on site (compressor)	A	C 50 A	C 50 A	C 63 A	C 80 A	C 80 A
Control fuse on site	A	B 10 A	B 10 A	B 10 A	B 10 A	B 10 A
Dimensions, weights, connections						
Number of scroll compressors		2	2	2	2	2
Weight of unit	kg	312	327	338	357	370
Connections: Heat source / use				flat-sealing R 2“a / R 2“a		
Dimensions W x H x D	mm			1130 x 1306 x 886		

Subject to technical changes. Tolerances as per EN 12900 and EN 14511 apply.

[1] Groundwater source heating is to be used with an intermediate circuit; for solutions, please refer to our product range. Our performance data are based on this system configuration. [2] Mean temperature application, average climatic conditions [3] The Waterkotte WWPR controller class III (without room temperature sensor) was considered for the combined system. [4] At W10/W35 and ΔT=6K. [5] Fluid 70 % water + 30 % ethylene glycol.

Industrial Line EcoTouch 5112DT | 51 - 112 kW

EcoTouch 5112DT with R410A		ET 5068.5DT	ET 5090.5DT	ET 5112.5DT
Heat source groundwater[1]				
Power input/output W10/W35	kW	11.2/68.2	15.4/90.2	19.2/112.8
Coefficient of performance (COP) at W10/W35		5.8	5.6	5.6
Space heating energy efficiency[2]		A+++	A+++	A+++
Energy efficiency class of the combined system[3]		A+++	A+++	A+++
Groundwater flow rate	m³/h (W10/W35), (ΔT=3 K)	16.9	22.2	27.8
Groundwater flow rate, minimum	m³/h [4], (ΔT=6 K)	8.5	11.1	13.9
Heating water flow rate	m³/h (W10/W35), (ΔT=5 K)	11.7	15.5	19.4
Operating limit			W10/W65	
Compressor			2 x Tandem scroll	
Power control			25 % / 50 % / 75 % / 100 %	
Heat source ground				
Power input/output B0/W35	kW	11.2/51.2	15.0/68.2	18.4/84.8
Coefficient of performance (COP) at B0/W35		4.5	4.4	4.5
Space heating energy efficiency		A++	A++	A++
Energy efficiency class of the combined system[3]		A++	A++	A++
Heat source flow rate[5]	m³/h (B0/W35), (ΔT=3 K)	12.6	16.7	20.9
Heating water flow rate	m³/h (B0/W35), (ΔT=5 K)	8.8	11.7	14.6
Operating limit			B5/W60; B0/W65	
Compressor			2 x Tandem scroll	
4. Compressor: Sound output according to EN 12102 at B0/W55	dB(A)	63	65	62
Power control			25 % / 50 % / 75 % / 100 %	
Electrical data				
Electric power supply	V, AC, Hz		400, 3, 50	
Starting current	A	62	75	102
Max. operating current	A	4 x 9.7	4 x 13.0	4 x 15.3
Main fuse (on site)			depending on the supply line	
Dimensions, weights, connections				
Number of scroll compressors		4	4	4
Unit weight, without cladding panels	kg	305	334	372
Weight of cladding panels	kg		40	
Connections: Heat source / use			G2“a	
Dimensions W x H x D	mm		750 x 1470 x 611	

Subject to technical changes. Tolerances as per EN 12900 and EN 14511 apply.

[1] Groundwater source heating is to be used with an intermediate circuit; for solutions, please refer to our product range. Our performance data are based on this system configuration. [2] Mean temperature application, average climatic conditions [3] The Waterkotte WWPR controller class III (without room temperature sensor) was considered for the combined system. [4] At W10/W35 and ΔT=6K. [5] Fluid 70 % water + 30 % ethylene glycol.

Industrial Line EcoTouch 5240T | 111 – 238 kW

EcoTouch 5240T with R410A		ET 5145.5T	ET 5182.5T	ET 5235.5T
Heat source groundwater[1]				
Power input/output W10/W35	kW	24.0/146.4	30.3/183.2	38.7/238.1
Coefficient of performance (COP) at W10/W35		5.62	5.63	5.70
Space heating energy efficiency[2]		A+++	A+++	A+++
Energy efficiency class of the combined system[3]		A+++	A+++	A+++
Groundwater flow rate	m³/h (ΔT=3K)	35.1	43.9	57.2
Groundwater flow rate, minimum	m³/h [4] (ΔT=6K)	17.6	22.0	28.5
Heating water flow rate	m³/h (ΔT=5K)	25.2	31.5	41.0
Operating limit			W10/W64	
Compressor			Fully hermetic tandem scroll	
Power control		50 % / 100 %	50 % / 100 %	50 % / 100 %
Heat source ground				
Power input/ Outp. B0/W35(compressor)	kW	23.2/111.1	29.4/140.3	37.4/181.5
Coefficient of performance (COP) at B0 / W35		4.53 (4,78)[5]	4.55 (4,78)[5]	4.61 (4,86)[5]
Space heating energy efficiency[2]		A+++	A+++	A+++
Energy efficiency class of the combined system[3]		A+++	A+++	A+++
Heat source flow rate[5]	m³/h (ΔT=3K)	27.8	35.1	45.6
Heating water flow rate	m³/h (ΔT=5K)	19.2	24.2	30.8
Pressure loss condenser	m³/h (ΔT=5K)	2.5	2.4	2.6
Operating limit			B5 / W59; B0/W60; B5/W64	
Compressor			Fully hermetic tandem scroll	
Power control		50 % / 100 %	50 % / 100 %	50 % / 100 %
Electrical data				
Electric power supply	V, AC, Hz		400, 3, 50	
Unreduced starting current	A	225	272	310
Starting current with soft start, A (option)	A	113	136	155
Max. operating current	A	2 x 40.0	2 x 48.5	2 x 65.4
Main fuse on site, compressor[5]	A	2 x C 50 A	2 x C 63 A	2 x C 80 A
Control fuse on site	A	B 10 A	B 10 A	B 10 A
Dimensions, weights, connections				
Weight of unit	kg	900	1000	1100
Connections: Heat source/use			flat-sealing R 2½“a / R 2½“a	
Dimensions W x H x D	mm		1130 x 1366 x 1076	

Subject to technical changes. Tolerances as per EN 12900 and EN 14511 apply.

[1] Groundwater source heating is to be used with an intermediate circuit; for solutions, please refer to our product range. Our performance data are based on this system configuration. [2] Mean temperature application, average climatic conditions [3] The Waterkotte WWPR controller class III (without room temperature sensor) was considered for the combined system. [4] At W10/W35 and ΔT=6K. [5] Fluid 70 % water + 30 % ethylene glycol.

Industrial Line Goliath 6500 T/D | 299 - 462 kW

Industrial Line Goliath 6500 with R410A		IL 6300.5T	IL 6450.5D
Heat source groundwater[1]			
Power input/output W10/W35	kW	49.8/299.8	76/462
Coefficient of performance (COP) at W10/W35		5.59	5.8
Space heating energy efficiency[2]		A+++	A+++
Energy efficiency class of the combined system[2]		A+++	A+++
Groundwater flow rate	m³/h (ΔT=3K)	72.5	109
Groundwater flow rate, minimum	m³/h [3] (ΔT=6K)	36.2	55
Heating water flow rate	m³/h (ΔT=5K)	51.6	78
Operating limit		W10/W64	W10/W64
Compressor		Fully hermetic tandem scroll	Fully hermetic duo scroll
Power control		50 % / 100 %	50 % / 100 %
Heat source ground			
Power input/ Outp. B0/W35 (compressor)	kW	47.1/229.3	73/345
Performance factor (COP) for B0/W35[2]		4.63	4.6
Space heating energy efficiency[2]		A+++	A++
Energy efficiency class of the combined system[2]		A+++	A++
Heat source flow rate[4]	m³/h (ΔT=3K)	58.3	88
Heating water flow rate	m³/h (ΔT=5K)	39.5	59
Operating limit		B-5/W59; B0/W60; B5/W64	B-5/W59; B0/W60; B5/W64
Compressor		Fully hermetic tandem scroll	Fully hermetic duo scroll
Power control		optional 50 % / 100 %	optional 50 % / 100 %
Electrical data (3 x 400 V, 50 Hz)			
Unreduced starting current	A	490.6	666
Starting current with soft start	A	286.6	--
Max. operating current	A	2x 82.6	2x 130
Main fuse on site (compressor)	A	2 x C 100 A	2x C 150 A
Control fuse on site	A	B 10 A	B 16 A
Dimensions, weights, connections			
Number of compressors		2	2
Weight of unit	kg	1300	1475
Connections: Heat source/use, Victaulic	DN	125	100
Dimensions W x H x D	mm	2300 x 1927 x 930	2100 x 1927 x 930

Subject to technical changes. Tolerances as per EN 12900 and EN 14511 apply.

[1] Groundwater source heating is to be used with an intermediate circuit; for solutions, please refer to our product range. Our performance data are based on this system configuration. [2] The Waterkotte WWPR controller class III (without room temperature sensor) was considered for the combined system. Mean temperature application, average climatic conditions. [3]At W10/W35 and ΔT=6K. [4] Fluid 70 % water + 30 % ethylene glycol.

Industrial Line Goliath 6900 I 690 – 1000 kW*

Industrial Line Goliath 6900 with R410A		ET 6900.5Q
Heat source groundwater[1]		
Power input/output W10/W35	kW	152 / 924
Coefficient of performance (COP) at W10/W35		5.8
Space heating energy efficiency[2]		A+++
Energy efficiency class of the combined system[3]		A+++
Groundwater flow rate	m³/h (ΔT=3K)	2 x 109
Groundwater flow rate, minimum	m³/h [4] (ΔT=6K)	2 x 55
Heating water flow rate	m³/h (ΔT=5K)	2 x 78
Operating limit		W10/W64
Compressor		Fully hermetic quattro scroll
Power control		25 % / 50 % / 75 % / 100 %
Heat source ground		
Power input/output B0/W35	kW	146 / 690
Coefficient of performance (COP) at B0/W35		4.6
Space heating energy efficiency		A++
Energy efficiency class of the combined system[2]		A++
Heat source flow rate[5]	m³/h (ΔT=3K)	2 x 88
Heating water flow rate	m³/h (ΔT=5K)	2 x 59
Operating limit		B-5/W59; B0/W60; B5/W64
Compressor		Fully hermetic quattro scroll
Power control		25 % / 50 % / 75 % / 100 %
Electrical data		
Electric power supply	V, AC, Hz	400, 3, 50
Unreduced starting current	A	666
Max. operating current	A	4 x 130
Main fuse on site (compressor)	A	4 x gL-gG 125 A
Control fuse on site	A	B16A
Dimensions, weights, connections		
Number of scroll compressors		4
Weight of unit	kg	2850
Connections: Heat source/use, Victaulic	DN	8 x 100
Dimensions W x H x D	mm	3177 x 1947 x 991

Subject to technical changes. Tolerances as per EN 12900 and EN 14511 apply.

1) Groundwater source heating is to be used with an intermediate circuit; for solutions, please refer to our product range. Our performance data are based on this system configuration. 2) Mean temperature application, average climatic conditions 3) The Waterkotte WWPR controller class III (without room temperature sensor) was considered for the combined system. 4) At W10/W35 and ΔT=6K. 5) Fluid 70 % water + 30 % ethylene glycol. *at W14/W35

Home station for heating and domestic water production

Home station		38 kW	54 kW	80 kW
Output capacity (55 °C tank temperature / Domestic hot water heating from 10 °C to 50 °C)	l/min	13.7	19.3	28.7
Output capacity (55 °C tank temperature / Domestic hot water heating from 10 °C to 40 °C)	l/min	21.7	28.2	40.3
Max. power consumption circulation pump	W		76	
Power consumption controller	W		1	
Residual head at (55 °C tank temperature / Domestic water heating from 10 °C to 40 °C)	mWC (m³/h)	4.9 (1.0)	4.8 (1.3)	3.1 (1.9)
approx. maximum line length at the stated Residual head (22 x 1 mm Cu pipe)	m	89	58	19[2]
Operating limit	°C			90
Max. operating pressure primary (tank HP) / Secondary (domestic hot water)	bar		2.5 / 10	
Design temperature	°C		55	
Material plate heat exchanger			Stainless steel (soldered)	
Heating circuit			6 - 12	
Electrical data				
Electrical power supply	V, AC, Hz		230, 1, 50	
Max. operating current	A		2	
Main fuse (on site)	A		10	
Dimensions, weights, connections				
Weight 8 heating circuit version (without front panel and frame)	kg	21	23	25
Connections			flat-sealing 1 “	
Installation dimensions W x H x D	mm		860 x 1100 x 165	
Dimensions blind frame W x H	mm		883 x 1111.5	

Subject to technical changes.

[1] The value is not displayed on the controller display screen but can be tapped to the maximum. [2] For these variants, 28 x 1.5 mm Cu pipe is recommended.

EcoTouch Air Kaskade | 26 – 156 kW

EcoTouch Air Kaskade		5030.5	5045.5	5060.5	5075.5	5090.5	5105.5	5120.5
Number of outdoor units		2	3	4	5	6	7	8
Max. heat output (A7/W35)	kW	39	58.5	78	97.7	117.0	136.5	156.0
Power consumption (A7/W35, full load)	kW	10.6	15.9	21.2	26.5	31.8	37.1	42.4
Max. coefficient of performance (COP) at A7/W35, controlled		5.0				5.0		
Max. heating output (A2/W35)	kW	26.8	40.2	53.6	67	80.4	93.8	107.2
Power consumption (A2/W35, full load)	kW	9	13.5	18	22.5	27	31.5	36
Max. coefficient of performance (COP) at A2/W35, controlled		4.5				4.5		
Max. heating output (A-7/W35)	kW	26.6	39.9	53.2	66.5	79.8	93.1	106.4
Power consumption (A-7/W35, full load)	kW	10.2	15.3	20.4	25.5	30.6	35.7	40.8
Max. coefficient of performance (COP) at A-7/W35, regulated		3.5				3.5		
Cooling power (A35/W7)	kW	23.6	35.4	47.2	59	70.8	82.6	94.4
Power consumption (A35/W7, full load)	kW	11	16.5	22	27.5	33	38.5	44
Coefficient of performance (COP) at A35/W7		2.2				2.2		
Cooling power (A35/W18)	kW	28.4	42.6	56.8	71	85.2	99.4	113.6
Power consumption (A35/W18, full load)	kW	8.4	12.6	16.8	21	25.2	29.4	33.6
EER at A35/W18		3.4				3.4		
Space heating energy efficiency[1] / domestic hot water production energy efficiency load profile L		A++	A++	A++	A++	A++	A++	A++
Energy efficiency class of the combined system[2] space heating/DHW production load profile L		A++	A++	A++	A++	A++	A++	A++
Heating water flow rate (Δt=5 K) per outdoor unit	m^3/h	2.3				2.3		
Air flow rate (maximum) per outdoor unit	m^3/h	4500				4500		
Operating limit, heating		A-15/W58; A35/W58				A-15/W58; A35/W58		
Operating limit, cooling		A45/W10				A45/W10		
Refrigerant		R410A				R410A		
Sound power level (A7/W55) night mode (per outdoor unit)	dB(A)	61				61		
Sound power level (A7/W55) day mode (per outdoor unit)	dB(A)	65				65		
Electrical data								
Electrical power supply	V, AC, Hz	380-415, 3, 50				380-415, 3, 50		
Max. operating current (per outdoor unit)	A	13.9				13.9		
Main fuse per outdoor unit (on site)	A	3-pole B16 A				3-pole B16 A		
Control fuse per outdoor unit (on site)	A	1-pole B10A				1-pole B10 A		
Dimensions, weights, connections								
Refrigerant filling per outdoor unit	kg	3.50				3.50		
Weight per outdoor unit	kg	120				120		
Weight, indoor unit	kg	113.0	125.5	138.0	151.5	164.0	176.5	189.0
Connections, refrigerant lines (liquid side)	mm	3/8“/10 mm				3/8“/10 mm		
Connections, refrigerant lines (gas side)	mm	5/8“/16 mm				5/8“/16 mm		
Connections, heating		2“, OT, flat-sealing				2“, OT, flat-sealing		
Dimensions outdoor unit W x H x D	mm	900 x 1250 x 340				900 x 1250 x 340		
Dimensions indoor unit W x H x D	mm	750 x 1470 x 611				750 x 1470 x 611		

Subject to technical changes. Tolerances as per EN 12900, EN 12102 and EN 14511 apply.

[1] Mean temperature application 55 °C, average climatic conditions. [2] On the combined system the WWPR2 class II controller was taken into account (without room temperature sensor).

Subject to technical changes. Tolerances as per EN 12900, EN 12102 and EN 14511 apply.

[1] Mean temperature application, average climatic conditions. [2] On the combined system the WATERKOTTE WPRs controller class II was taken into account (without room temperature sensor).

EcoWell PowerBooster

EcoWell PowerBooster		250 l	300 l
Tank capacity	l	235	285[1)]
COP		4.16	4.16
Max. operating pressure (storage tank)	bar	8	8
Volume flow source	l/min	10 (min. 7)	10 (min. 7)
Sound pressure level (2m)	dB(A)	35	35
Electrical data			
Supply voltage	V, AC, Hz	220-240, 1, 50	220-240, 1, 50
Current consumption heat pump	A	3.2	3.2
Current consumption electrical heating element	A	6.5	6.5
Maximum power consumption heat pump	W	700	700
Power consumption electrical heating element	W	1500	1500
Refrigerant circuit R134a			
Refrigerant		R134a	
Heat source		Heating water	
Operating limits			
Maximum water temperature without electrical heating element	°C	60	
Maximum water temperature with electrical heating element[2)]	°C	70	
Source inlet	°C	10 to 40	
Operating ambient temperature	°C	10 to 40	
Dimensions / weight			
Dimensions Ø x H	mm	640 x 1633	640 x 1845
Weight, empty net weight	kg	100	110
Connection dimensions cold water / hot water / drain		G ¾“	G ¾“
Connection dimensions condensate outlet		G ½“	G ½“

Subject to technical changes.

[1)] Optional 277 l model with additional heat exchanger available for solar or boiler applications. [2)] During disinfection the water is heated by the electrical heating element to a temperature of up to 70 °C.

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