RENEWABLE ENERGY

PERFECT FOR YOUR BUSINESS, PERFECT FOR YOUR CUSTOMERS

Thermia heat pumps for commercial applications

thermia.com

Thermia - more than 100 years of **history**, **experience** and **innovation**

In 1973, at the height of the global fuel crisis, Thermia launched the world's first heat pump with its own integrated hot water tank. Ever since then, we have been 100% dedicated to developing, refining and manufacturing heat pumps.

We make heat pumps and nothing else. All our resources, expertise and experience are invested in what we believe is the future of renewable energy – for domestic and commercial uses alike.

Thermia began life as one man's passion. Way back in 1889, Per Anderson began developing highly innovative new types of stoves for cooking, heating and hot water. By 1923, his business had matured sufficiently for him to found Thermia. Ever since then, we have been guided by Per's original vision: "The products one releases must be not only the best of their time, but before their time, over time."

Today we are producing some of the most technologically advanced heat pumps in the world. And we keep making them better.

Yet remarkably, perhaps, thousands of people across Europe are still using the very first heat pumps we manufactured in the mid-1970s. 50 years of constant use and they are still going strong – long after they repaid their owners' original investment.

That is part of our secret: to be constantly at the cutting edge of technology while knowing that every product we make today will be delivering value, far into the future.

Read our
Thermia story:

Welcome to **Thermia** the pioneer of geothermal energy

Thank you for your interest in our company. Choosing an energy solution for a commercial building is an important and complex decision. We hope this brochure will guide you through the process, answer your questions and inspire you to collaborate with Thermia – the pioneer of geothermal energy.

Thermia has been working with heat pumps and pioneering the field of geothermal technology since 1973. Over the decades, we have installed more than a quarter of a million systems, from domestic to major commercial installations.

All our heat pumps are designed and manufactured in Sweden using the latest technology and top-quality components. At our R&D centre, we work continuously to take geothermal energy and heat pump technology to the next level in terms of performance, innovation, ease of use and, not least, comfort for the people who benefit from our products.

If you are looking for the most high performing and reliable heat pump for your project, you have come to the right place. But take your time and explore our solutions for yourself. If you have any questions, we are always here for you.

Welcome to Thermia's world of renewable energy for large, public and private buildings.

Hans Wreifält,
Sales Director
Thermia Europe

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If we can achieve major savings for domestic homes,

imagine what we can do for commercial buildings.

Geothermal technology
works in any commercial building

Increasing the energy efficiency of buildings is a fundamental political and economic goal in many European countries. With their use of renewable energy, heat pumps will play a central role in achieving these goals in the years ahead. Heat pumps combine heating, hot water and cooling in one high performing and economical device.

They are particularly suitable for buildings with high demands on heating, cooling and hot water.

The technology is well established and offers benefits ranging from increased comfort to significant savings on operating and maintenance costs.

Geothermal heat pumps – leading the way

Geothermal heat pumps are possibly the most advanced heating and cooling equipment on the market today. This is because they simply move heat from one place to another, instead of generating it from a fuel source like oil or natural gas.

Geothermal heat pumps draw heat from the ground, raise its temperature and transfer it to the building's energy system. In the summer, the process can be simply reversed. The heat pumps collect heat from the building and deposit back it into the ground, effectively cooling the building.

Heat pumps reduce whole life cycle cost (LCC) and save you money – for years to come

Typical HVAC systems account for around 40% of total energy use in commercial buildings. Heat pumps provide as much as 75% of the energy you need "for free" while simultaneously heating and cooling your building to provide the highest possible level of comfort.

At the point of purchase, a heat pump system will cost more than a conventional fuel-based system of comparable capacity. But here's where it gets interesting. No matter how large or complex your system, heat pumps will pay back 100% of your initial investment in less than 10 years. We will be happy to provide you with documented evidence.

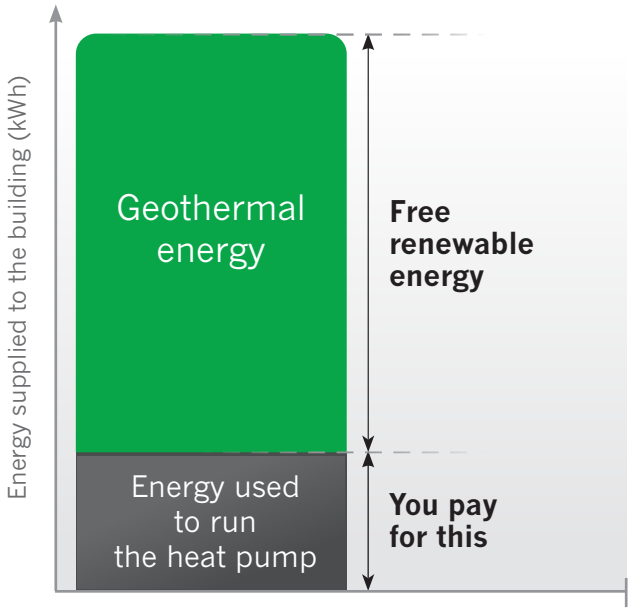
From then onwards, your heat pump will be providing your business with a constant and endless supply of renewable energy, reducing operating costs and increasing profitability, all day, every day, for as long as the system lasts.

In terms of total life cycle cost (LCC) of your system, nothing can beat a heat pump. Period.

Comfort for building users and tenants

Because they can provide full heating and cooling capacity on demand, heat pumps offer superb comfort. Some installations can cover 100% of your heating requirements. This means you don't need to use back up heat or extra air conditioning. A geothermal heat pump can do the entire job on its own.

Geothermal heat pumps require only a small amount of electricity to run, and if you get your electricity from a renewable source, that is even better.



This graphic shows the building's total energy consumption for heating and hot water. The grey area shows the energy used to run the heat pump. The calculation was made for a building of 1 000 m^2 in an average weather year.

Heat pumps are ideal for **all building types**

Today, commercial heat pumps are being successfully used in virtually every building type, from schools, nursing homes and hospitals to hotels, offices, warehouses, swimming pools and more.

Public and office buildings typically benefit from the ability of heat pumps to provide heating and cooling at the same time. Residential buildings, hotels and spa facilities benefit from their ability to supply large quantities of hot water while sports, healthcare and leisure centres profit from their outstanding cooling function.

Low-energy buildings

A low-energy building is any type of building that uses less energy than a conventional one. The first step in creating a low-energy building is integrated planning. This takes the entire life cycle of a building into consideration from the very beginning.

The right heat pump can cover a wide range of applications in a single system, from heating and hot water to cooling and pool heating. This avoids investing in and maintaining multiple systems.

With many countries now making energy efficiency a standard requirement for new builds, choosing a future-proof energy source has never been more important.

Heat pumps also work in harmony with current trends like Thermally Active Building Systems (TABS). These systems integrate indoor climate management into the fabric of the building, minimizing the need for conventional technologies.

Replacement and renovation

The savings that a heat pump can provide depend upon the type of house, its geographical location and the existing heating system.

Heat pumps can be adapted to existing heating systems and even combined with different types of supplementary energy sources.

This makes them ideal for renovations, where they can be installed within the context of a partial retrofit. In these cases, the heat pump replaces the existing system, which can then be cost-effectively used as an auxiliary heating source, as required.

Process heat applications

Industrial and commercial processes create enormous amounts of waste heat that is often simply thrown away. From hydraulic presses and heavy machinery to dryers, cooking, food storage – even animal waste on farms or the tap water used to heat water treatment plants – heat pumps can be used to recover and re-use waste process heat in many applications. The warmer the source, the more savings can be achieved.

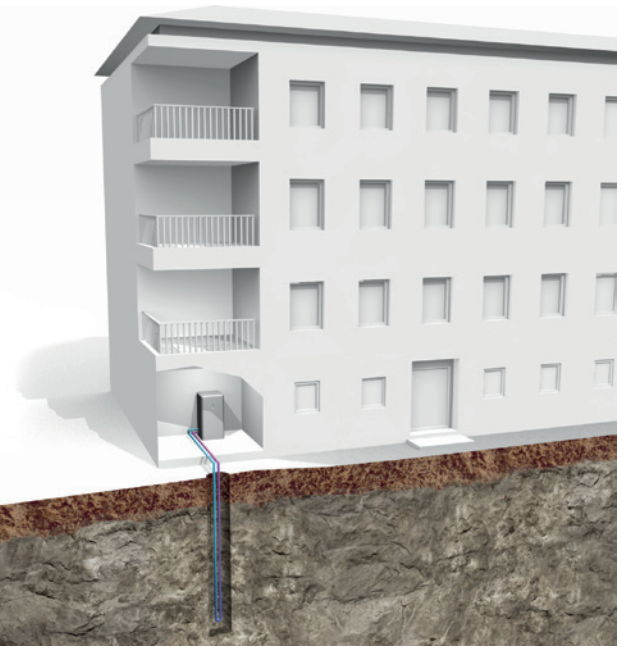
Heat pumps harvest geothermal energy stored in the ground, air or water and use it to create an excellent indoor climate for the building and no fossil fuels are burnt.

Rather than using more of our increasingly scarce natural resources, heat pumps supply more energy than they consume by using the freely available, inexhaustible geothermal energy stored in the earth, air or water.

The bigger the building, the **greater the benefits** of renewable energy

Four different **sources of energy** for your property

Energy is stored all around your property. Nature has provided plentiful, completely natural, sources of energy that heat pumps allow us to extract. The energy is stored in the bedrock, the ground, the groundwater or lake water and the air - it is a store that is constantly replenished by the heat of the sun. Thermia has solutions to capture all four different sources of stored energy and provide you with heating, cooling and hot water.

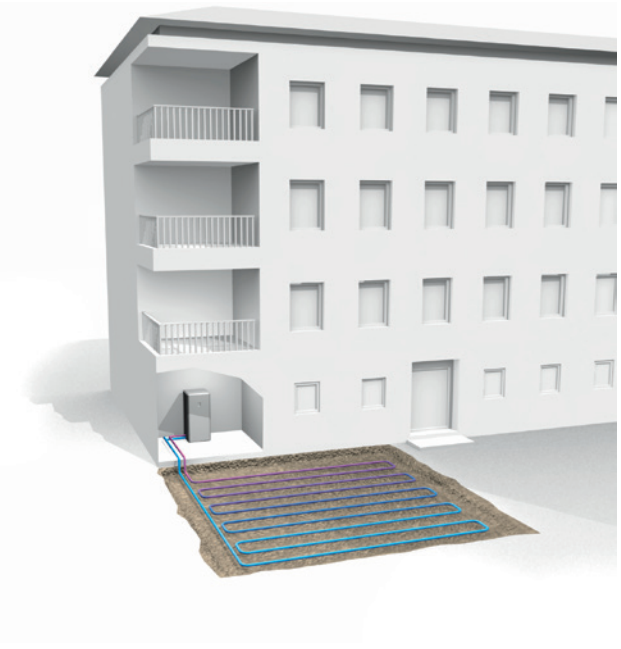


Ground source – boreholes

A geothermal pump uses the solar energy stored in the bedrock. Pipes are lowered into a number of boreholes, drilled to a depth of 100–200 metres.

Advantages:

- You do not need a large plot of land
- The rock maintains an even temperature all year round
- Little effect on the plot of land
- Permits passive cooling

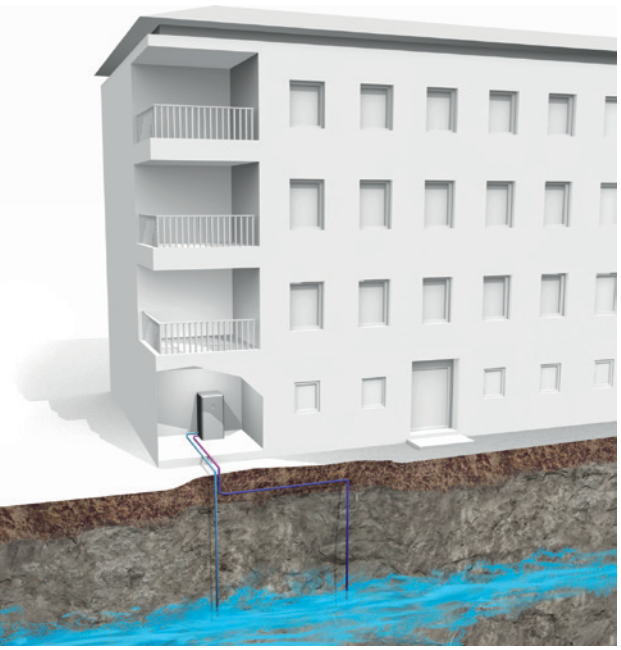


Ground source – horizontal loop

A ground source heat pump uses the solar energy stored in the ground. Plastic tubing is laid in loops at a depth of one metre. If the bedrock is too deep or you do not wish to drill on your land for some other reason, you can choose a ground source heat pump instead.

Advantages:

- No drilling needed
- Lower installation cost than geothermal
- The ground loop maintains an even temperature all year round
- Permits passive cooling

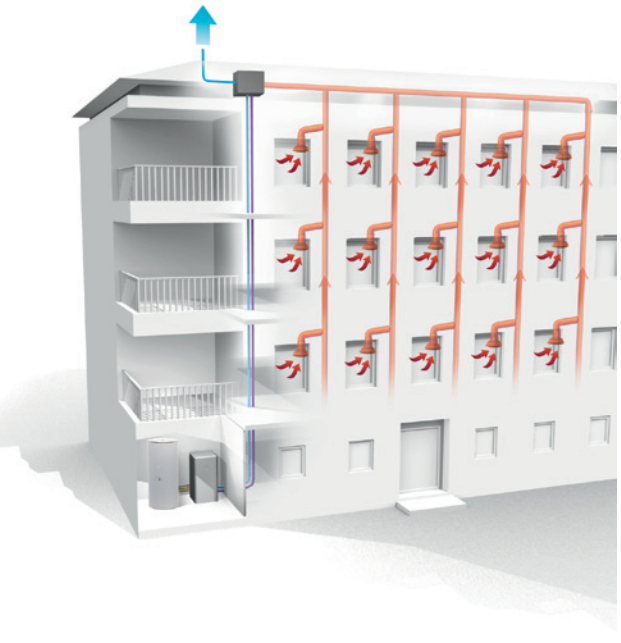


Groundwater

A groundwater heat pump uses the energy stored in the groundwater. The groundwater is pumped up from the bedrock, and the energy is extracted by the heat pump before the water is returned to the bedrock.

Advantages:

- Lower drilling cost than geothermal
- Even and high temperature
- Other types of process water can be used
- Permits passive cooling



Exhaust air

The heat pump recycles the warm exhaust air that is ventilated out of buildings. The system requires a mechanical ventilation system. Install a heat pump in the basement and an air/brine heat exchanger on the roof and connect these with two brine water pipes.

Advantages:

- Low investment and running cost
- Can be combined with other heat sources (rock, ground, etc.) to further increase performance
- Works perfectly with inverter-driven heat pumps, as the heat pump can precisely adjust to the energy available in the exhaust air at the ventilation unit

Welcome to a **world of renewable energy**

Why choose Thermia technologies?

For the last 50 years, we have developed unique technologies that ensure you enjoy maximum performance, superb functionality and significant cost savings, on top of which is the reassurance of Thermia's legendary reliability.

Many of our first-generation heat pumps from the mid-1970s are still in use today. When you consider that it takes less than 10 years for a heat pump to repay its cost in lower operating costs, it's easy to see the enormous long-term value a Thermia heat pump can deliver.

The controller: the brain of the heat pump

The main controller is responsible for overall heat pump operation. In all Thermia heat pumps, the controller has been specifically designed for the purpose of controlling that heat pump.

Dedicated control software, developed in-house, reduces operating time by managing the start-stop operation of the compressor to ensure optimum performance.

Inverter technology

Inverter compressor technology is the latest and most effective way to control heating capacity in heat pumps.

By continuously adapting to heating demand – matching power input with heating capacity – it also reduces operating costs.

Passive and **active** cooling – year-round comfort at the lowest cost

The large areas of glass in many modern buildings are great during the darker months of the year but often lead to overheating in summer. Passive cooling ensures a perfect indoor climate all year round. If necessary, this can be supported with active cooling using the heat pump's compressor. Both passive and active cooling are far more economical than traditional air-conditioning systems.

Superb performance with simultaneous heating and cooling

Simultaneous heating and cooling allows you to reduce operating costs even more. To achieve this, multiple heat pumps are connected in parallel between hot and cold buffer tanks. The hot tanks connect to the heating zones and the cold tanks to the cooling zones. The heat pump then simply exchanges hot for cold, depending on the needs of the building. For example, as a hotel conference room is cooled down, the excess heat removed is re-used to produce hot water for the swimming pool or Spa.

Hot gas technology for on-demand hot water

Thermia has developed a unique method for producing hot water.

At the same time as water is heated for distribution through the building's heating system, hot water is produced at very high temperature by an extra de-superheater.

This means that during the part of the year when the building is heated, you get lots of hot water at a very low cost.

Integration with other systems (BMS)

Traditional building management systems typically have stand-alone applications with separate monitoring and control stations for HVAC, energy metering or power management. The key is to manage them as one intelligent integrated unit. Heat pump controllers can monitor the entire heating system, using internet monitoring to give you full control. Thermia heat pumps can be easily integrated into BMS via Modbus™.

What to consider when choosing a commercial heat pump

This handy checklist will help you in your discussions with your architect or consultant heating engineer.

How much **energy** do you need?

How much energy does your building need?

Are you planning a simple retrofit based on the existing heating system or installing a completely new system?

Do you plan to extend the building after a few years?

Which **functions** do you need?

How many occupants/ tenants does the building have?

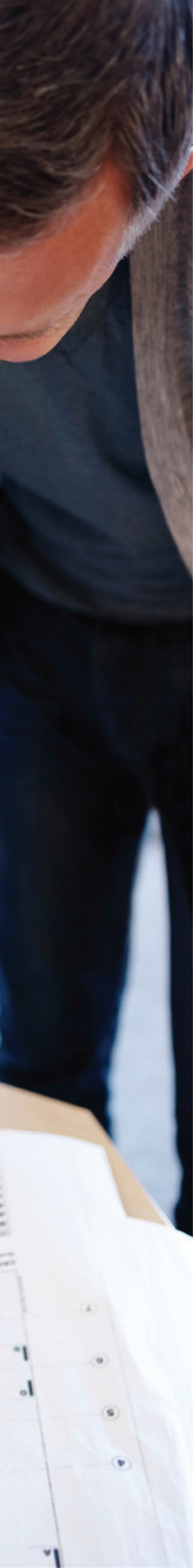
How much domestic hot water is needed (volume and temperature)?

Does your building need all functions – heating, hot water and cooling – or just heating?

Do you need an **intelligent system**?

Do you need to integrate the heat pump with other systems?

Do you need to control your heating system remotely?



The **perfect heat pump** for your building at a glance

When designing your ideal system, the factors to consider in making your choices include the size of the building, any existing heating system, and additional requirements such as a swimming pool or requirement for cooling.

The table below gives you an overview of the different technologies used in large-capacity Thermia Mega heat pumps.

Thermia Mega functions*	Your benefits
Inverter technology - variable speed compressor	*Precise adjustment to current heat demand. 100% of heating needs can be provided without an auxiliary heater.*
Intelligent controls monitor all system functions	*User-friendly, intuitive navigation via the control menu ensures optimum energy saving and comfort.*
Newly designed color touchscreen display and USB slot for software update	*Easy and convenient software upgrade.*
Full overview of the refrigerant system	*Compressor 'envelope' visualization reassures you that the heat pump is working at its optimum level.*
Cascade function (master/slave)	*A single control unit switches multiple heat pumps on and off in sequence, maximising performance and keeping costs as low as possible.*
Ability to control different heating/cooling systems (zoning via sub-shunt groups)	*Define individual temperatures and heating systems for different parts of the building.*
Cooling (passive and active)	*By using free cooling from the borehole, buildings can be cooled much more cheaply than with conventional cooling systems.*
Simultaneous heating and cooling	*Enables you to cool certain parts of the building at the same time as other parts are heated.*
De-superheater - hot gas heat exchanger for extremely effective hot water production	*Delivers domestic hot water at high temperature and in high volumes.*
Energy source control	*Heat pump capacity load can be adjusted to the capacity (temperature) of the ground source.*
Control of external heat source (back-up heater)	*Existing heat source can be used to provide supplementary heating for very cold periods.*
BMS communicates with other control systems via Modbus	*Heat pump can be controlled and monitored via a management control system (along with others parts of the building, such as ventilation, etc.)*
Online remote control	*Remote control simplifies operation and assists with support or service needs. The alarm function informs you if something requires attention.*

*Some functions described in the table are built into the heat pump controller. Some are available only with optional accessories.

Why choose the **Thermia Mega?**

- Multiple functions in one device: heating, domestic hot water and cooling
- Simultaneous heating and cooling
- Capacity up to 1400 kW for the flexibility to expand your system as your needs grow
- Cascading up to 16 units
- Covers 100% of heat demand without the need for auxiliary/ back up heating
- Exceptional hot water performance thanks to hot gas and inverter technology
- Integration with other systems (Building Management System)
- Energy source control – heating capacity adapted to currently available energy source (boreholes or exhaust air)
- Online remote monitoring
- Acoustic performance (low noise)
- Designed and built in Sweden from top quality European components
- Authorised Thermia consultancy for system design

Inverter technology inside!

The Thermia Mega

Geothermal heat pump for advanced applications with capacity up to 1400 kW

The Thermia Mega inverter-controlled commercial ground source heat pump is the ideal choice for all types of commercial buildings. It is also perfect for large private properties with advanced heating and cooling systems and very high demands on both functionality and performance. The Thermia Mega E is an addition to the Mega series, our unique series that has set the standard for commercial heat pumps since 2014.

Mega

Heating capacity: 10-33 kW, 11-44 kW, 14-59 kW, 21-88 kW

The Thermia Mega is available in four output sizes: 10-33 kW, 11-44 kW, 14-59 kW and 21-88 kW. It is also possible to “cascade-connect” up to 16 units to get up to 1400 kW capacity. Cascade connected pumps start in sequence, depending on the energy need. This ensures that no more energy is used than is specifically required at any point in time, regardless of output. The Thermia Mega uses the refrigerant R410A.

Mega E

Heating capacity: 10-33 kW, 11-14 kW, 14-58 kW, 21-85 kW

The Thermia Mega E is available in four output sizes: 10-33 kW, 11-14 kW, 14-58 kW and 21-85 kW. It is also possible to “cascade-connect” up to 16 units to get up to 1350 kW capacity. Cascade connected pumps start in sequence, depending on the energy need. This ensures that no more energy is used than is specifically required at any point in time, regardless of output. The Mega E contains a refrigerant (R454B) with a GWP of 466.

Mega and Mega E

Powerful and user-friendly control system

For maximum ease of use, the Mega features a colour touchscreen and a web interface. The new controller supports an array of different functions, including passive/active cooling, water charging system (WCS), tap water control (TWC) or heat pump On/Off via the power grid.

Online function and BMS integration

The Thermia Mega’s online function allows you to remotely control and monitor the heat pump using a smartphone or computer. You can view current temperatures or set operating parameters whenever you like.

Building management systems are used to improve occupant comfort, maximise the performance of building systems and keep operating costs to a minimum. An effective BMS provides energy to rooms based on an occupancy schedule and monitors performance and device failures in all systems.

The Mega can be easily connected to building management systems using a Modbus protocol.

Exceptional hot water production with hot gas technology

Thermia has developed a unique method for producing hot water. At the same time as water is heated for distribution through the building’s heating system, hot water is produced at very high temperature by an extra de-superheater. This means that during the part of the year when the building is heated, you get lots of hot water at a very low cost.

5-year warranty

The quality of our warranties reflects the high standards of our manufacturing processes.

The Mega is protected by a warranty on all functional parts, providing worry-free comfort without the unexpected cost of replacement parts.

If a repair covered by the warranty is required, an authorised reseller will respond promptly and make repairs using only original Thermia parts.

Inverter technology adjusts precisely to real-time demand

Our inverter technology makes the Mega extremely flexible and versatile, allowing it to be installed in all building types. Inverter technology continuously adjusts the heat pump’s output to current demand, enabling the heat pump to supply 100% of your energy requirements.

The best technologies for commercial heat pumps

Condenser

The latest Micro Plate Heat Exchangers (MPHE) improve heat transfer, as well as requiring less refrigerant.

Frequency controlled
low-energy circulation pumps

Hot Gas Water
technology

Patented Hot Gas Water (HGW) technology produces hot water at high temperature extremely rapidly and enables hot water to be produced at the same time as heating.

Acoustic performance

Acoustically engineered design ensures an very low sound level.

Controller

The new controller in the Mega heat pump boasts a colour touchscreen display with user-friendly icons that are easily understandable.

Inverter technology

At the heart of the Thermia heat pump is an inverter-controlled compressor. Inverter technology continuously adjusts the heat pump's output to the current heat demand. This means that the heat pump can supply 100% of your energy requirements without the need for auxiliary heating.

Electronic expansion valve

The electronic expansion valve delivers precise doses of refrigerant to the evaporator. Adaptive superheat control optimises the refrigerant circuit and saves energy.

Powerful and unique **control system**

- Menu and algorithms developed by Thermia
- New colour touchscreen
- User friendly, intuitive menu with icons and infographics
- Full overview of temperatures from refrigerant circuit
- Compressor "envelope" visualization
- Heat curve with 7-point adjustment
- Plug-and-play software update via USB slot
- Ready for BMS via Modbus

Thermia **inverter** technology

- Premium quality compressor and inverter – the functional core of the heat pump
- Continuously adapting heating capacity to heat demand means increased energy savings
- No need for a back-up heating source
- Energy source control – heat pump can adjust heat load to available or limited energy source
- Power grid friendliness – soft start and lower starting current
- Can combine large heating demand in winter and smaller hot water demand during summer (no need for big hot water tanks)

Please visit our website **www.thermia.com** to find out more about Thermia Mega

With **Thermia solutions**, each application can be tailor-made

Getting the most out of your Thermia energy solutions:
hot water cylinders, buffer tanks and back up heaters.

From providing supplementary heating to delivering a fully integrated single heating/cooling system, Thermia offers remarkable flexibility. If you need larger volumes of hot water or buffer tanks, we offer variety of cylinders that are fully compatible with our heat pump range. Moreover, all of them are tested in commercial applications in the tough Northern European climate.

WT-T

Stainless steel hot water cylinder with a TWS coil

The Thermia WT-T is a hot water cylinder with a TWS coil. The hot water cylinder is made with pickled stainless steel, which makes it extra resistant to corrosion and, consequently, no sacrificial anode is needed in the tank.

The Thermia WT-T has an outlet for an immersion heater and hot water circulation. It can be used as a final heater in property solutions to guarantee the right temperature of outgoing domestic hot water. The WT-T cylinder fits perfectly to hot gas technology available with the Mega and Mega E heat pumps.

The Thermia WT-T is available in 300 and 500 litre sizes and can be cascade connected if greater volumes are required.

WT-S

Stainless steel hot water cylinder for large hot water requirements

The Thermia WT-S is a single-wall stainless steel hot water cylinder for heating domestic hot water via a heat pump or other heat source. Heating is achieved via a heat exchanger or by means of an immersion heater.

The hot water cylinder is made with pickled stainless steel, which makes it extra resistant to corrosion and, consequently, no sacrificial anode is needed in the tank. The Thermia WT-S has an outlet for an immersion heater and hot water circulation. It is available in 500 and 1 000 litre sizes and can be cascade-connected if greater volumes are required.

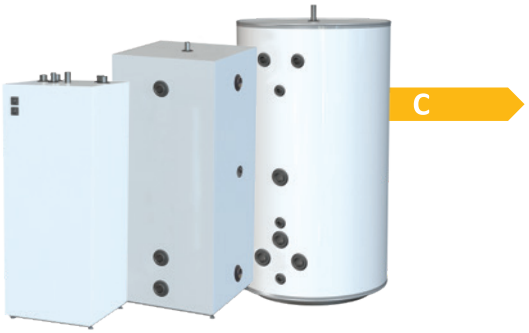
WT-C

Hot water cylinder for effective heating of domestic hot water

The Thermia WT-C FC is a front-connected coil water heater for domestic hot water. It is available in 500, 750 and 1,000 litre sizes and can be cascade-connected where there is high demand for hot tap water.

Domestic hot water is heated via finned coils through direct exchange with the radiator water. Each loop is 12 metres in length and there are different numbers of loops in each model: 4 in the 500, 6 in the 750 and 8 in the 1,000 litre variants.

A benchmark is that WT-C 500 FC will be able to cover the hot water needs of up to 10 apartments, WT-C 750 FC the needs of up to 15 apartments and WT-C 1000 FC the needs of up to 20 apartments.



WT-V

Buffer tank specially designed for heat pump operation

Thermia WT-V constitutes a series of buffer tanks that can be used to increase volume, for flow equalization and the reduction of any fluctuations in heating systems.

WT-V 100, 200, 300 and WT-V 500 FC, 750 FC and 1000 FC have four connections. WT-V 300, WT-V 500 FC, 750 FC and 1000 FC can be connected to an immersion heater.

From the coldest north European climate to the sunniest southern European climate, renewable heating and cooling, across Europe

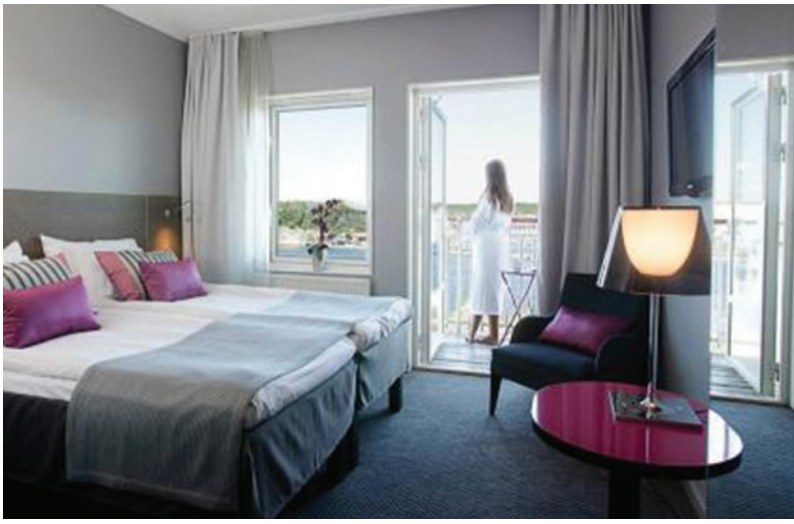
Quality Spa & Resort Strömstad

Beautiful spa resort with an **ultra-modern heating system**

24 000 m² of hotel rooms, a Spa, offices, shops and apartments heated by Thermia heat pumps.

Quality Spa & Resort Strömstad is a modern spa resort situated on the west coast of Sweden, only a few minutes from the Norwegian-Swedish border and around an hour's drive from Oslo.

Strömstad Spa includes 232 rooms and extended spa services, covering 2 000 m² across two floors. The hotel is located just ten metres from the sea and the harbour and offers a variety of activities such as sea rafting, boat trips and lobster trapping.

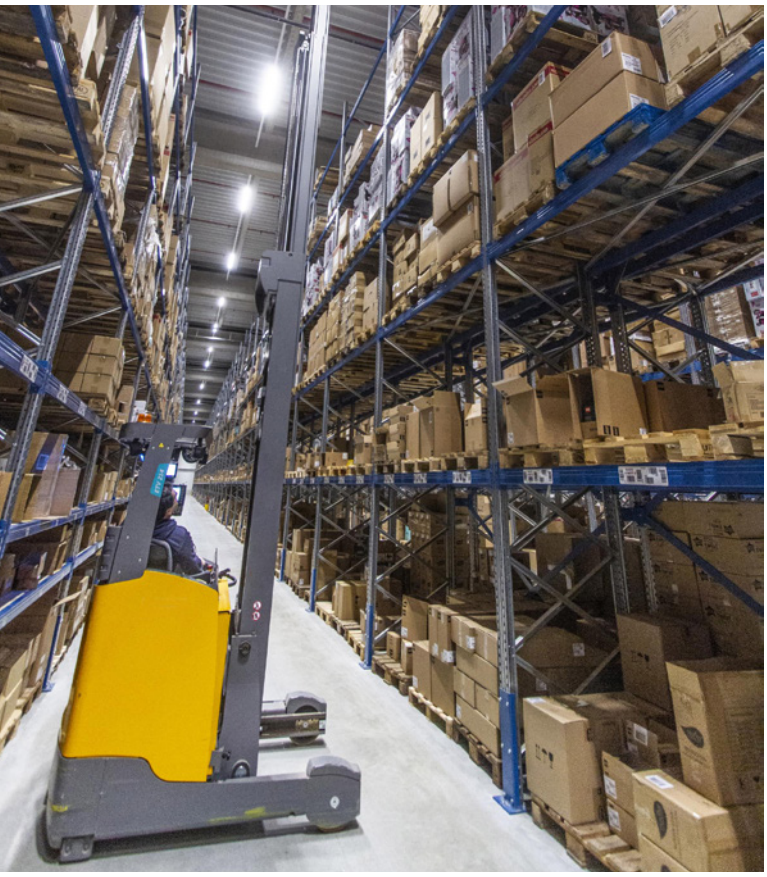


Year-round comfort from Thermia

The entire hotel and spa is heated by Thermia ground source heat pumps. 18 heat pumps provide heating, cooling and hot water to 24 000 m² of hotel rooms, spa, offices, shops and apartments.

The heating system was commissioned in 2007 and features the very latest heat pumps, which use seawater as a source for both heating and cooling. The system has a total heating capacity of 715 kW.

Ultra-modern, new logistics centre in Slovenia, powered with **renewable energy**.



The Bemit Group is a highly dynamic organisation that provides a wide range of services to companies both within and outside the group, including comprehensive logistics services.

The ongoing success and constant growth of the Bemit Group and the companies it serves has led to increased demand for logistics services, particularly state-of the art storage for all different types of products and materials.

Given the general lack of high-quality storage and linked systems, the Bemit Group, together with real estate company LC Bekra, decided to build a completely new logistics centre. At 16,000 m² of storage space, which corresponds to 5,000 pallet spaces, LC Bekra is one of the largest logistics centres in the region. It is also one of the most modern.

The new logistics centre benefits from the very latest equipment and technology. In logistics, temperature control is critical, not only for products that are stored, such as food products, but also for people. The indoor climate is ideal, all year round. Energy is vital to this.

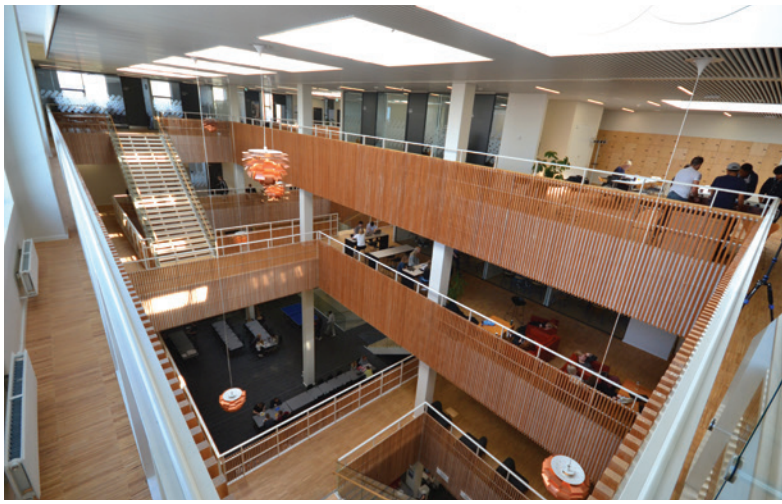
Atlas Trading d.o.o., Thermia's reseller in Slovenia, recommended to Bekra a modular solution with four Thermia Mega XL ground source heat pumps, each with a modulated capacity of 25-100 kW. Hence, the system delivers a continuously variable output from 25-400 kW, meeting all the heating and cooling needs of the building. The source of energy is underground water, which is pumped from an aquifer in the bedrock through two wells. The system performs superbly well, with an annual perfomance factor that averages 5. The system is fully integrated into the building's management system, which enables all functions to be operated and managed remotely.

Campus on a beautiful Danish island benefits from Thermia **renewable energy**

In 2008, the Regional Municipality of Bornholm decided that by 2025, the island should only be using renewable energy, with no energy at all from fossil fuels. Accordingly, the island has been converting its energy systems to fossil free energy by investing in wind farms, photovoltaic panels, heat pumps and biomass.

The islanders' ambition is to increase production of renewable energy to cover 100% of local consumption. In 2018, a new campus building was inaugurated that gathers together all Bornholm's education in one place. The physical merger of the island's youth, adult and continuing education was one of the largest projects ever on Bornholm.

The new energy solution has enabled the Campus management to provide high-performing heating and cooling that is renewable and guarantees superior comfort. In recognition of the success of this project, Campus Bornholm won the "Building of the Year 2018" award. It is used as a best practice example across Denmark, in terms of renewable energy, as well as contemporary, timeless, architectural design. With the Campus Bornholm, the island has created a unique and pioneering landmark that sets new standards for design and construction, both architecturally and visually.



From the start, the vision was to create a unique building. In line with Bornholm's "Bright Green Island" vision, the building is heated and cooled by ground-source heat pumps that use a 9 km network of ground source collectors.

1 100 m^2 of solar cells provide around one fifth of the building's total electricity consumption.

The heating and cooling system is based on the Thermia Mega XL (21-88 kW), a commercial ground-source heat pump with an inverter-driven compressor.

The Willis building – **an innovation** centre in every way

The combination of the cold heat storage system, heat pumps and photovoltaic panels provides superior indoor comfort for the Willis building.

Belcotec is an HVAC installation company that specializes in the realization of high-quality installations, providing tailor-made solutions in heating, air-conditioning and sanitary installations for commercial properties. Clevr is an installation company dedicated to homeowners and self-builders. The way the two companies complemented each other and their mutual ambition led to the Willis project - an ultra-modern building that exemplifies innovation.

The Willis building was realised by Belcotec as an innovation centre for its own use. “We named it in honour of the inventor of air conditioning - Willis Carrier”, explained Jan Vangeel, CEO at Belcotec, and added: “We wanted to make a statement with our own building. The energy level is 28, which is very low for office buildings. For cooling and heating, we use a low-energy ceiling and ventilation with heat recovery. Using renewable technology means we do not need fossil fuels. All the energy we need is taken from the ground via a cold heat storage (KWO - Koude Warmte Opslag) system, combined with a ground source heat pump. The building’s electricity is provided by solar panels.”

Swedish housing association chooses **the latest Thermia heating solution**

In Sweden, temperatures regularly drop to -25°C

HSB Fabriken is a Swedish housing association that represents 11 buildings from the mid-1980s, which are home to around 200 people. The rising cost of district heating inspired the residents to start looking for a new heating solution. The main challenge was whether the new system would be able to cope with the very lowest winter temperatures.

The Thermia Mega – a reliable choice!

After careful consideration, the decision was made to entirely replace the district heating system with geothermal energy. The new heating solution is supported by three Thermia Mega inverter-driven ground source heat pumps, each with a capacity of 88 kW. In addition, a 33 kW heat pump was integrated into the system to convert waste heat into hot water. The renewable energy is drawn from a total of 20 boreholes.

Up to 65 000 Euros saved every heating season

Anders Johansson from the housing association was delighted with the results. “Most residents confirm that room temperatures are just as before and we are even experiencing more even temperatures in all apartments.

All tenants are cosy and warm in winter and the housing association is also able to save up to 65 000 Euros during every single heating season. That’s a remarkable outcome.”

Born in **Sweden**, made for the world

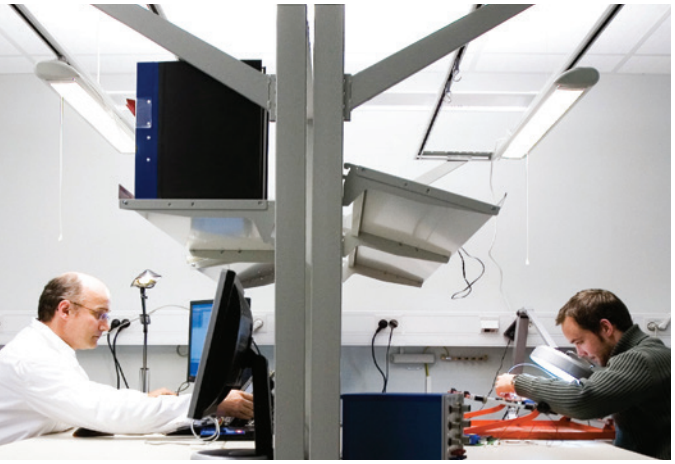
Thermia heat pumps are designed, tested and manufactured in one of the harshest climates in Europe.

Swedish winters can be very harsh. February is usually the coldest month, with temperatures dropping as low as -30°C or even lower in the north. The first snowfall comes as early as October and heating is essential from September to May.

The geothermal energy experts since 1973

Thermia manufactured the very first heat pump with an integrated hot water tank back in 1973 and many of our very earliest products are still in use today.

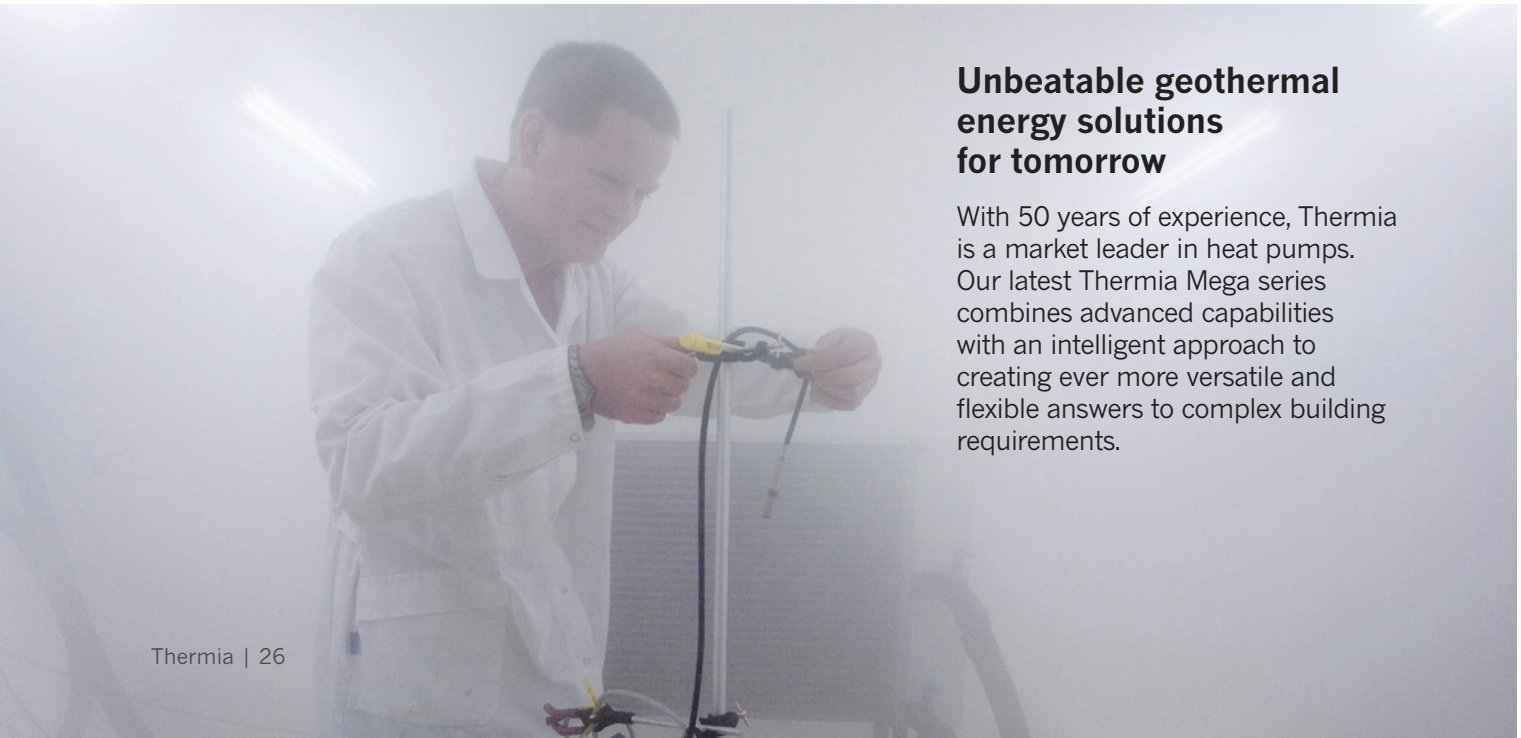
By concentrating solely on geothermal energy over the last five decades, we have gathered an unparalleled wealth of experience in energy extracted from the ground and related heating applications.



One of Europe's leading R&D centres

Thermia's facility in Sweden includes our 3 000 m^2 global R&D centre for heat pumps. The centre has a state-of-the-art climate chamber where any type of climatic condition can be simulated for testing purposes.

The R&D centre has special sound rooms where heat pump noise levels are tested with the goal of removing all low-frequency noise. Thermia's engineers also collaborate with designers to ensure that our products achieve the best possible balance between form and function.

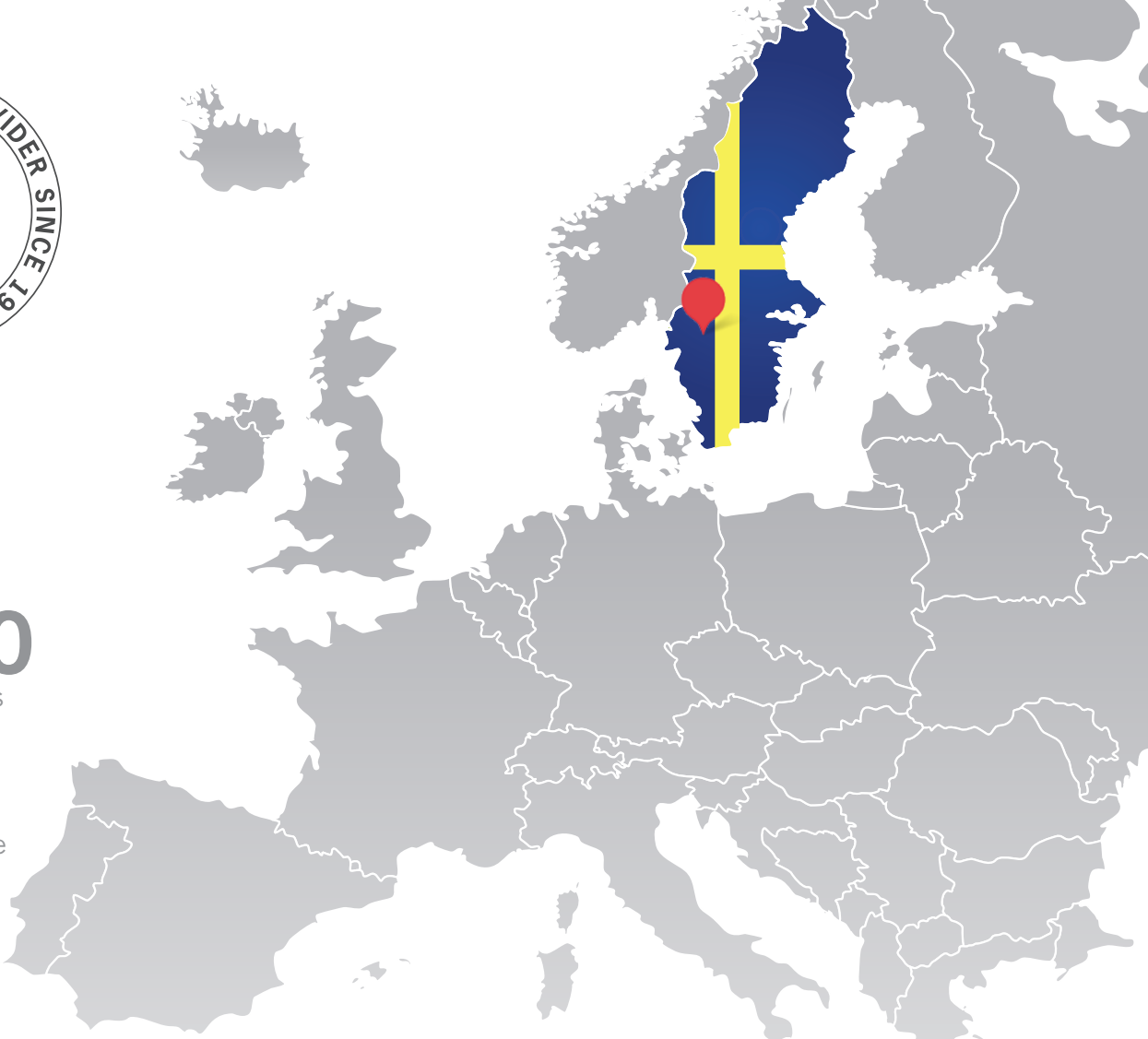


Unbeatable geothermal energy solutions for tomorrow

With 50 years of experience, Thermia is a market leader in heat pumps. Our latest Thermia Mega series combines advanced capabilities with an intelligent approach to creating ever more versatile and flexible answers to complex building requirements.

THE ULTIMATE ENERGY PROVIDER SINCE 1923

Thermia



Over
30
countries

Over
2 500
trained installers

Over
100
years experience

Thermia - **The choice of professional installers**

"It is a pleasure working for Thermia. They have some of the best heating solutions on the market and an expert team you can always rely on. Choosing a Thermia heat pump gives you a top-quality product that will last for many years to come.

Johan Collaert,
GeoTherma BVBA, Belgium

"Thermia has everything you look for in a heat pump – performance, reliability and low running costs – with the bonus of beautiful design and a user-friendly interface. We have supplied hundreds of Thermia heat pumps and have the highest levels of customer satisfaction.

Yasin Jodeh,
Atlas Trading d.o.o., Slovenia

"Our company has been selling Thermia heat pumps since 2005. The product range and quality are fantastic. As a sales partner, we feel very much at home in the Thermia family and are satisfied with our long-term, successful cooperation.

Monika Frese,
IWS GmbH Intelligente WarmeSysteme, Germany

We look forward to **discussing your project** with you

Talk to us or to one of our authorised resellers about finding the ideal solution for your planned installation.

Installing a heat pump for a commercial application is very different from a simple domestic project. Our many years of experience involving thousands of projects is your guarantee of expert advice. That and our precious reputation.

With over five decades invested in becoming a world leader in heat pump technology, we can ensure that you make the right choices, so you can enjoy the benefits of renewable energy for many years to come.

Please visit our website to find your nearest authorised reseller.
We will be pleased to arrange a meeting with you to discuss what you need.

thermia.com

THERMIA. PASSION FOR INNOVATION SINCE 1923.

PIONEERING HEAT PUMPS

For more than 50 years, we have dedicated all our resources and knowledge to developing and endlessly refining one product: the heat pump. Our focus on geothermal energy has led to world-leading knowledge in heat pump technology.

ENGINEERED WITH PASSION

Developing the best possible, highest performing, heat pumps can only be achieved with passionate, dedicated and uncompromising experts. Some of Europe's most highly qualified engineers can be found in our own R&D centre.

INSTALLED BY EXPERTS

Expert planning and installation are critical to the effectiveness of your system and all Thermia heat pumps are installed by a Thermia heat pump expert, who will not only ensure the best possible result, but also be on hand to help post installation.

Photo on the left: 1973 – JBC was the first heat pump to combine a ground source heat pump, hot water tank, controls and auxiliary heating all in one unit.
Photo on the right: 2025 – the Thermia Calibra, a ground source heat pump with 184 liters hot water tank, advance controller, colour touchscreen display and auxiliary heating

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