

Perfect for your business,
for the environment
Thermia heat pumps for commercial applications

www.thermia.com

Thermia - more than 90 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 use alike.

Thermia began life as one man's passion. Way back in 1889, Per Anderson began developing some of the world's first energy-efficient 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 and efficient heat pumps in the world. And we keep making them better.

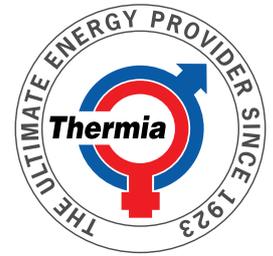
Yet remarkably, perhaps, thousands of people across Europe are still using the very first heat pumps we manufactured in the mid-1970s. 50 years of constant use and they are still going strong – long after they repaid their owners' original investment.

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 – and protecting the environment – far into the future. For Thermia and for our customers, sustainability is a way of life.

We are proud that the name Thermia is known across Europe for outstanding quality, innovation, comfort and sustainability. We look forward to writing the global future of Thermia in the years ahead.

Read our Thermia story:





Welcome to **Thermia** – the pioneers 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 pioneers 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 center, we work continuously to take geothermal energy and heat pump technology to the next level in terms of energy efficiency, ease of use, sustainability and – not least – comfort for the people who benefit from our products.

If you are looking for the ultimate energy-efficient, high-power and reliable heat pump for your project, I believe 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 smart energy for large, public and private buildings.

*Hans Wreifält,
Sales Director Thermia Europe*

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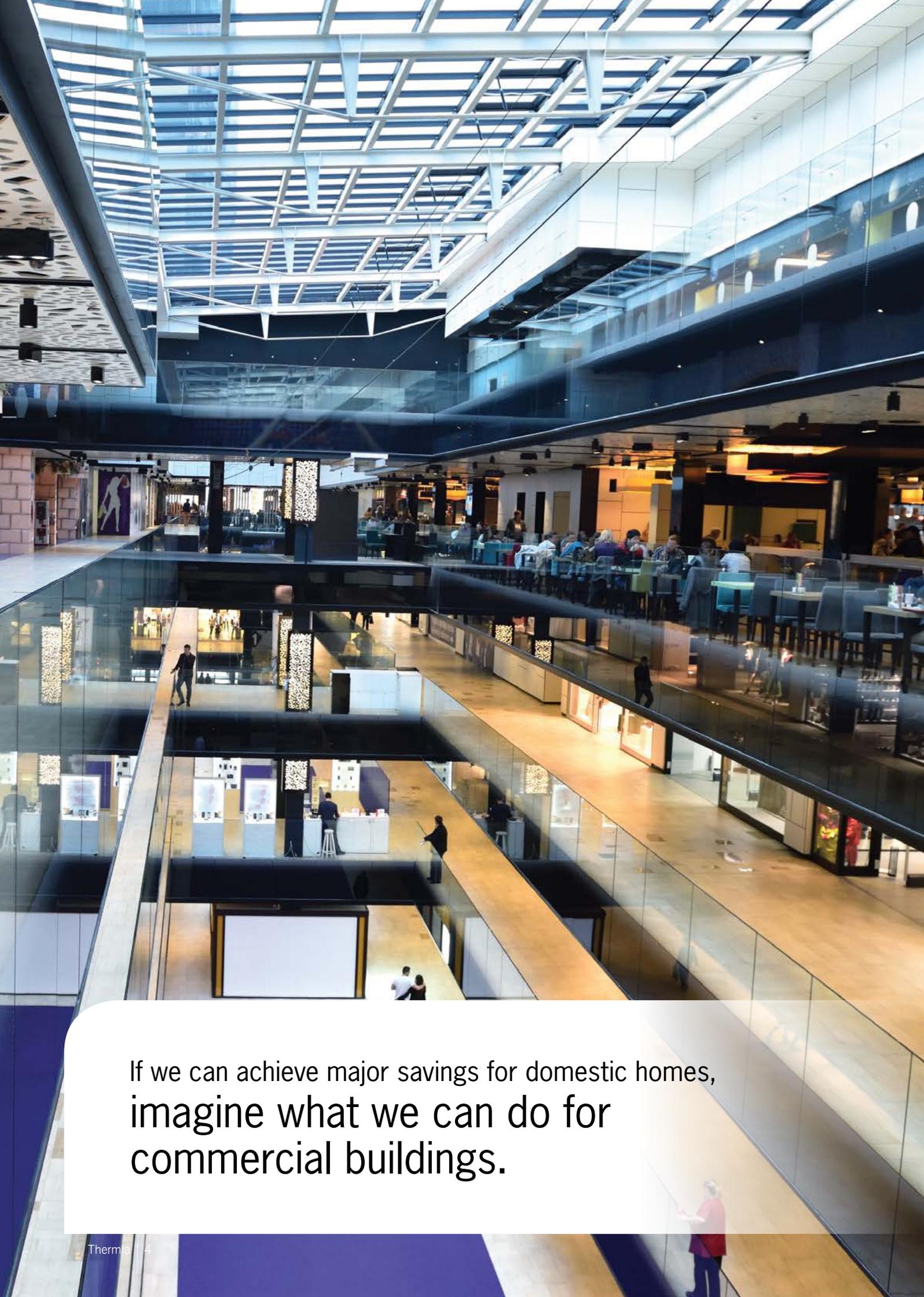
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Born in Sweden, made for the world

- Thermia heat pumps are designed, tested and manufactured in one of the harshest climates in Europe.
- The geothermal energy experts since 1973
- One of Europe's leading R&D centers
- Unbeatable heating solutions for tomorrow



If we can achieve major savings for domestic homes, imagine what we can do for commercial buildings.

Geothermal technology for commercial buildings

Increasing the energy efficiency of buildings is a fundamental political and economic goal in many European countries. With their extreme energy efficiency, 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 economical and eco-friendly 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, reduced energy consumption and CO₂ emissions to significant savings on operating and maintenance costs.

Geothermal heat pumps – the best of the best

Geothermal heat pumps represent the most efficient 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 supply of endlessly renewable, ultra-cheap 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.

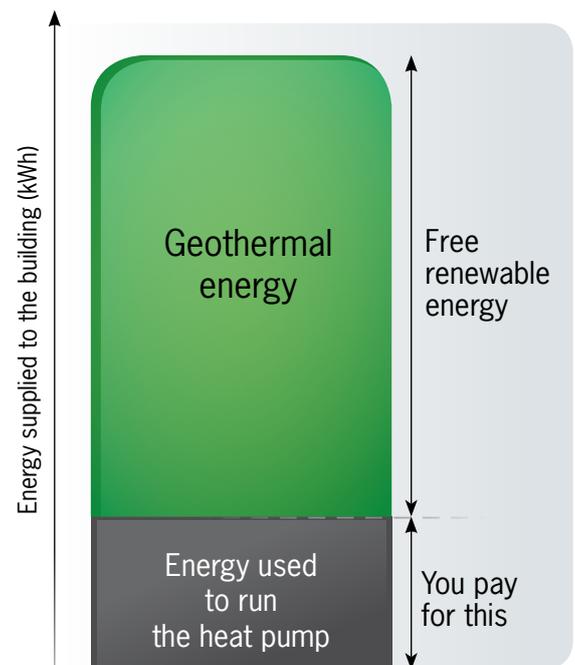
Comfort for building users and tenants

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.

CO₂ reductions – meeting planning targets

Geothermal heat pumps require only a small amount of electricity to run, enabling you to significantly reduce both your consumption of oil or natural gas and your carbon footprint.

If you choose to get your electricity from a renewable source, your carbon footprint will virtually disappear.



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 m² in an average weather year.

Geothermal energy is the key to **sustainable development**

With the twin goals of reducing costs and minimizing waste, pressures on building design, operation and performance continue to grow. Based on a constantly renewable energy source – geothermal energy – Thermia solutions can help you successfully meet these challenges.

Today's trend towards low-energy building reflects radical changes in the way buildings are being designed and constructed to reduce their

environmental impact.

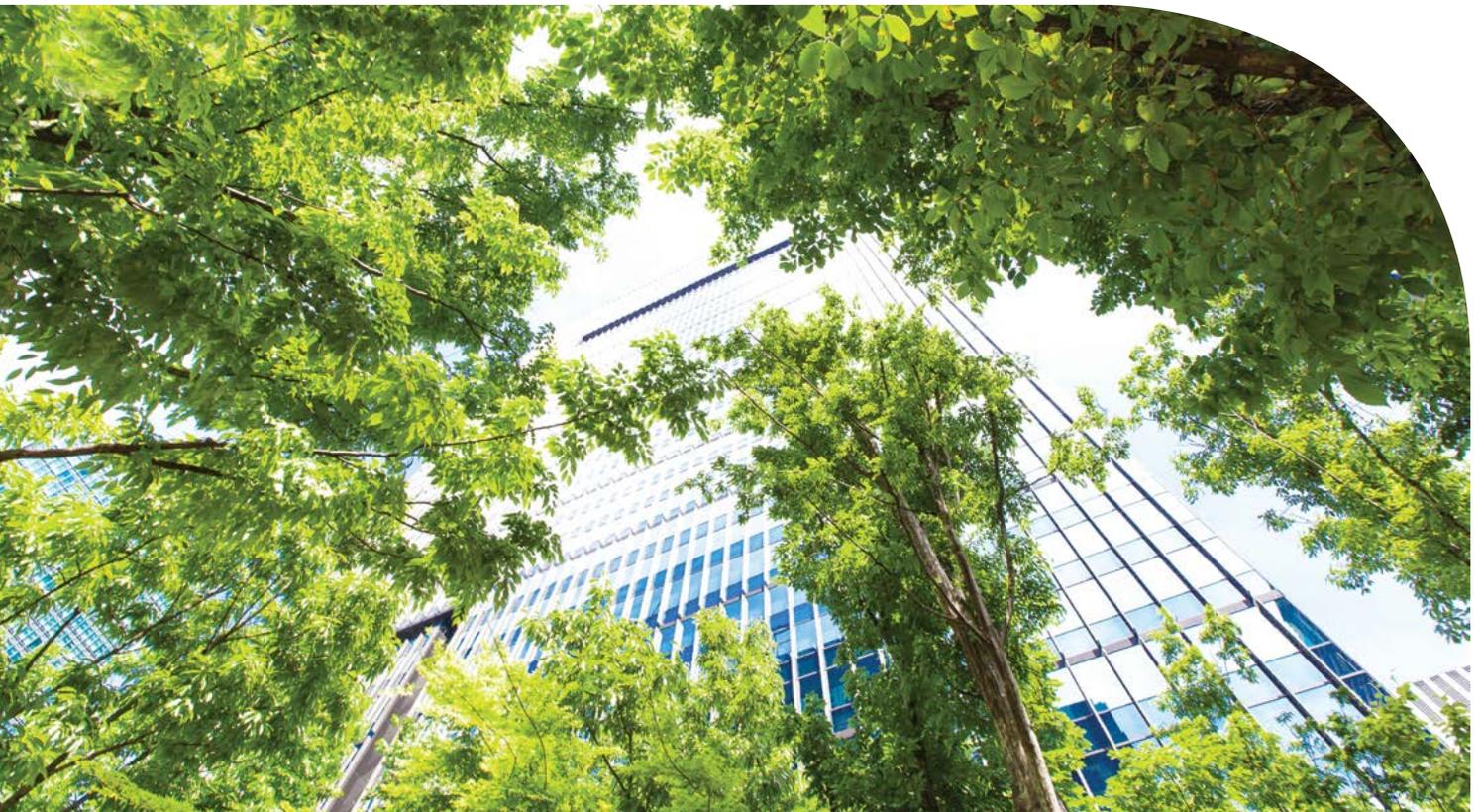
For heating and cooling, the most efficient solution for large-capacity buildings is geothermal heat pump technology.

As an endlessly renewable energy source for any commercial building, heat pumps should be considered at the earliest design stage.

Incorporating geothermal heating and cooling into your project will significantly reduce annual energy

consumption and operating costs.

Heat pumps allow greater flexibility in the interior layout of the building and the absence of external installations like cooling towers gives architects more freedom in the exterior design of the building.



“Being green” - the higher the building, the bigger its carbon footprint

Heat pumps harvest geothermal energy stored in the ground, air or water and convert it into an environmentally sustainable indoor climate for the building. Because no fossil fuels are burnt, heat pumps are extremely environmentally friendly and help you achieve your emissions targets.

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.

By installing a heat pump, you are playing a significant part in improving the climate, with sustainable reductions in CO₂ emissions of up to 49%.*

* “Heat pump technology and environmental impact”
Swedish Heat Pump Association



Geothermal heat pumps
will work in any commercial building

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 centers 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 sustainable, 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, such as solar or gas.

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.



All Thermia heat pumps fully comply with the **Ecodesign Directive**

The European Energy Related Products Directive (ErP) sets out minimum efficiency standards for energy-using equipment. In September 2015, this was extended to include heat pumps and other heating sources.

The energy efficiency rating system for heat pumps classifies them into nine categories, with the best being A+++. The labels are applied to heat pumps according to their intended use: as a single source of heating,

combined with domestic hot water preparation, or as part of an entirely integrated system that includes solar thermal power, domestic hot water preparation, temperature control, etc.



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 – in a class of their own

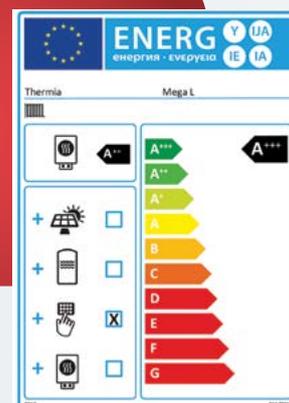
In their stand-alone form, heat pumps receive a maximum A++ rating. As part of integrated systems, they can be rated as high as A+++.

In contrast, no heating boiler (oil, gas, bio-mass) is rated higher than A. In some cases, they can be as low as C or D.

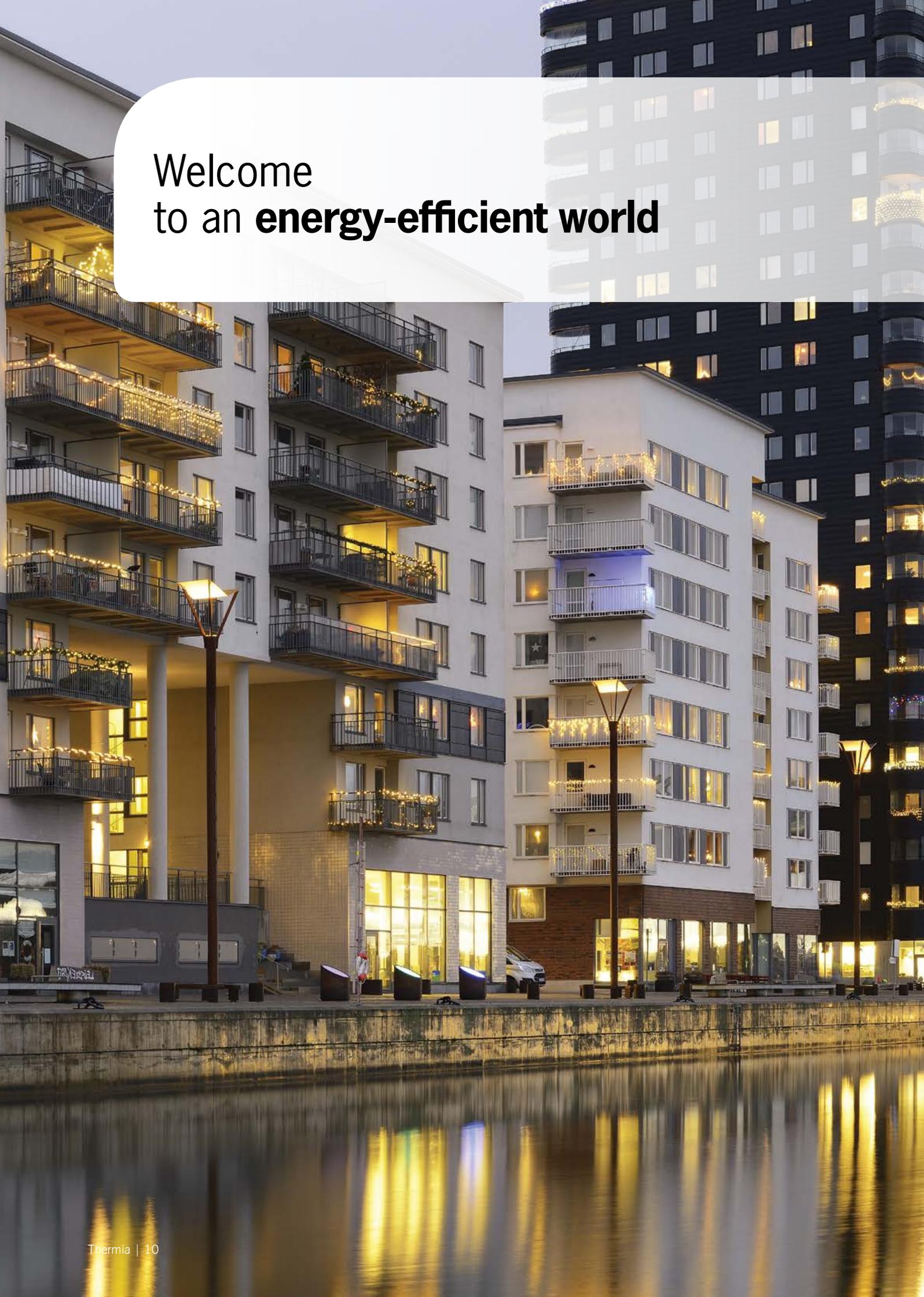
All Thermia large-capacity heat pumps come with the highest possible rating from A+ up to A+++ depending on the model of heat pump, the choice of heat receiver and the level of system integration.

Did you know?

All products intended for installations up to 70 kW and water heaters up to 500 liters must have energy labels.



Welcome
to an **energy-efficient world**



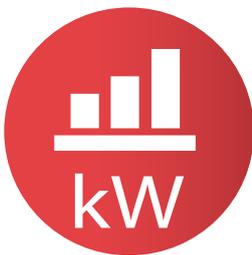
What to consider when choosing a commercial heat pump

Thermia commercial heat pumps are available in a variety of sizes and offer different functions, allowing them to be configured to precisely suit the needs of your building.

We work closely with system designers to help create a heating and cooling system that will maintain optimum comfort, achieve low operating costs and require almost no maintenance.

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?

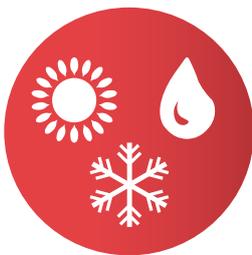
Do you plan to extend the building after a few years?



For small to medium buildings with simple systems or for retrofitting projects, choose *Thermia Solid Eco*.

For larger buildings with more advanced requirements – or if you plan to extend your building in the future – choose *Thermia Mega*.

Which functions do you need?



How many occupants/ tenants does the building have?

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

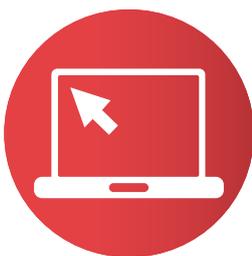
Does your building need all functions – heating, hot water and cooling – or just heating?



If your building requires a stable source of heating with one type of heat distribution system, choose *Thermia Solid Eco*.

If you need heating and cooling – especially if you want to benefit from simultaneous heating and cooling – or if demand for domestic hot water is high, choose *Thermia Mega*.

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?



All Thermia commercial heat pumps can be monitored via the internet: if you need to integrate the heat pump into the building management system, choose *Thermia Mega* or *Robust Eco*.

NEW
Inverter
technology
inside!



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 with advanced heating and cooling systems and very high demands on both energy-efficiency and functionality.



Why choose Thermia Mega?

- ✓ Reduces heating costs by up to 80%
- ✓ Reduces energy consumption by over 30% compared to a fixed-speed compressor and heat pumps with tandem compressors
- ✓ 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
- ✓ Authorized Thermia consultancy for system design

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

Thermia Mega is available in three output sizes: 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.

Inverter technology adjusts precisely to real-time demand

Our inverter technology makes 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.

Powerful and user-friendly control system

For maximum ease of use, Mega features a color 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.

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.

A+++

A+++ energy class when the heat pump is part of an integrated system in low-temperature applications

A++

A++ energy class when the heat pump is the sole heat generator

Energy class according to Eco-design Directive 811/2013



The best technologies for **the most efficient** commercial heat pump

Online function and BMS integration

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, maximize the efficiency of building systems and reduce energy consumption and operating costs. An effective BMS provides energy to rooms based on an occupancy schedule and monitors performance and device failures in all systems.

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

5-year warranty

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

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

If a covered repair is needed, an authorized reseller will respond promptly and make repairs using only original Thermia parts.

Condenser

The latest Micro Plate Heat Exchangers (MPHE) improve heat transfer and heat pump efficiency. Because they have been made smaller, they require less refrigerant, which in turn reduces the CO₂ footprint.

Frequency controlled low-energy circulation pumps

Hot Gas Water technology

Patented Hot Gas Water (HGW) technology produces hot water at higher temperatures than traditional alternatives and enables hot water to be produced at the same time as heating.

Acoustic performance

Acoustically engineered design ensures one of the lowest sound levels on the market.



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

Controller

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



Powerful and unique control system

- Menu and algorithms developed by Thermia
- New color touchscreen
- User friendly, intuitive menu with icons and info-graphics
- 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

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 maximizes the efficiency of the refrigerant circuit and saves energy.

New inverter technology

- Premium quality compressor and inverter – the functional core of the heat pump – supplied by industry leader Danfoss
- 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)

Thermia Robust Eco

Geothermal heat pump for advanced applications with capacity up to 336 kW



Thermia Robust Eco is the natural choice for larger buildings with advanced heating and cooling systems.

Why choose Thermia Robust Eco?

- ✓ Reduces heating costs by up to 75%
- ✓ Multiple functions in one device: heating, domestic hot water and cooling
- ✓ Simultaneous heating and cooling
- ✓ Capacity up to 336 kW for the flexibility to expand your system as your needs grow
- ✓ Cascading up to 8 units
- ✓ Built-in web server and online remote monitoring
- ✓ Integration with other systems (Building Management System)
- ✓ Acoustic performance (low noise)
- ✓ Designed and built in Sweden from top-quality European components
- ✓ Authorized Thermia consultancy for system design

Heating capacity: 22, 26, 33, 42 kW

Thermia Robust Eco is available in output sizes 22, 26, 33 and 42 kW. It is also possible to "cascade-connect" up to 8 units to get up to 336 kW (8x42 kW). Cascade-connected pumps start in sequence depending on energy need, minimizing energy consumption regardless of output.

Advanced control and ease of use

You can control up to 9 separate heating systems in the same building and cool certain areas of the building at the same time as other areas are heated. Simultaneous heating and cooling offers a number of energy-saving benefits. For example, as a hotel conference room is cooled, the excess heat removed is re-used to produce hot water for the swimming pool or spa.

Integrated web server – online function

Robust Eco's integrated web server enables you to control and monitor settings such as alarm management, operational data and temperature from anywhere in the world. In the unlikely event of an error, you or your installation engineer will receive a text or e-mail alert. Online control and monitoring optimizes energy efficiency for property owners with buildings in different locations.

Integration – ready for BMS

The advanced control system of this large-capacity heat pump constantly monitors all functions, providing you with a reassuring overview. Robust Eco can communicate with other control systems. It can also be controlled and monitored via a management system that gathers information on alarms, ventilation and other systems in the same building.

A+++

A+++ energy class when the heat pump is part of an integrated system in low-temperature applications

A++

A++ energy class when the heat pump is the sole heat generator

Energy class according to Eco-design Directive 811/2013



Thermia Solid Eco

Geothermal heat pump for stand alone applications with capacity up to 42 kW



Thermia Solid Eco is an economical choice that still provides all the most important functions. It is the perfect solution for less complex commercial buildings that do not need special applications.



Why choose Thermia Solid Eco?

- ✓ Reduces heating costs by up to 75%
- ✓ Two functions in one device: heating and domestic hot water
- ✓ Optional function: cooling
- ✓ Online remote monitoring
- ✓ Acoustic performance (low noise)
- ✓ Designed and built in Sweden from top-quality European components
- ✓ Authorized Thermia consultancy for system design

Heating capacity: 22, 26, 33, 42 kW

Thermia Solid Eco is available in output sizes 22, 26, 33 and 42 kW. Cost-effective and economical, Solid Eco is ideal for meeting basic heating and cooling needs at a minimum cost without sacrificing performance. It is perfect for larger buildings that don't need advanced extra functions, such as schools, churches, business premises, sports halls and more.

Simple control and ease of use

Solid Eco can control 2 separate heating systems in the same building at the same time. The intelligent controls make it easy to monitor and control other parts of the system, such as supplementary heat, hot water, cooling, etc. The system can be fine-tuned at any time to suit current needs and conditions, creating optimum efficiency and energy savings.

Online function

The heat pump can be equipped with Thermia Online, a function that allows remote control and monitoring using a smartphone or computer. You can view current temperatures and set operating parameters whenever you like. Thermia Online also has a user-friendly calendar function and an alarm function, which automatically alerts you in the unlikely event of an error.

A+++

A+++ energy class when the heat pump is part of an integrated system in low-temperature applications

A++

A++ energy class when the heat pump is the sole heat generator

Energy class according to Eco-design Directive 811/2013



Finding the **perfect heat pump** for your building

Designing your ideal system

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 cooling.

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

Heat pump functions	Your benefits	Mega	Robust Eco	Solid Eco
Inverter technology - variable speed compressor	Precise adjustment to current heat demand. 100% of heating needs can be provided without an auxiliary heater.	●		
Fixed-speed compressor	Outstanding efficiency in fixed-speed range.		●	●
Newly designed color touchscreen display and USB slot for software update	Easy and convenient software upgrade.	●		
Energy source control	Heat pump capacity load can be adjusted to the capacity (temperature) of the ground source.	●		
Full overview of the refrigerant system	Compressor 'envelope' visualization reassures you that the heat pump is working efficiently	●		
Cascade function (master/slave)	A single control unit switches multiple heat pumps on and off in sequence, optimizing efficiency and keeping costs as low as possible.	●	●	
Simultaneous heating and cooling	Enables you to cool certain parts of the building at the same time as other parts are heated.	●	●	
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.	●	●	●
Intelligent controls monitor all system functions	User-friendly, intuitive navigation via the control menu ensures optimum energy saving and comfort.	●	●	●
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.	●	●	●
Control of external heat source (back-up heater)	Existing heat source can be used to provide supplementary heating for very cold periods.	●	●	●
De-superheater - hot gas heat exchanger for extremely effective hot water production	Hot water production is 13% cheaper than traditional systems. Cost-effective protection against legionnaires' disease. **	●	●	●

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

**Based on a comparative study of the risk of legionnaires' disease via a hot gas system compared to a traditional system with an electric heater, conducted by Thermia R&D Center in November 2009.

Why choose Thermia heat pumps?

For the last 50 years, we have developed unique technologies that ensure you enjoy maximum performance, functionality, energy efficiency and cost savings. Added to that is 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 energy savings, it's easy to see the

enormous long-term value that a Thermia heat pump can deliver.

Controller: 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 while start-stop operation of the compressor ensures excellent durability and energy efficiency.

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 provides increased energy savings.

Energy bills can be reduced by over 30% compared to a fixed-speed compressor.

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.

Remarkable efficiency with simultaneous heating and cooling



Simultaneous heating and cooling enables 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.

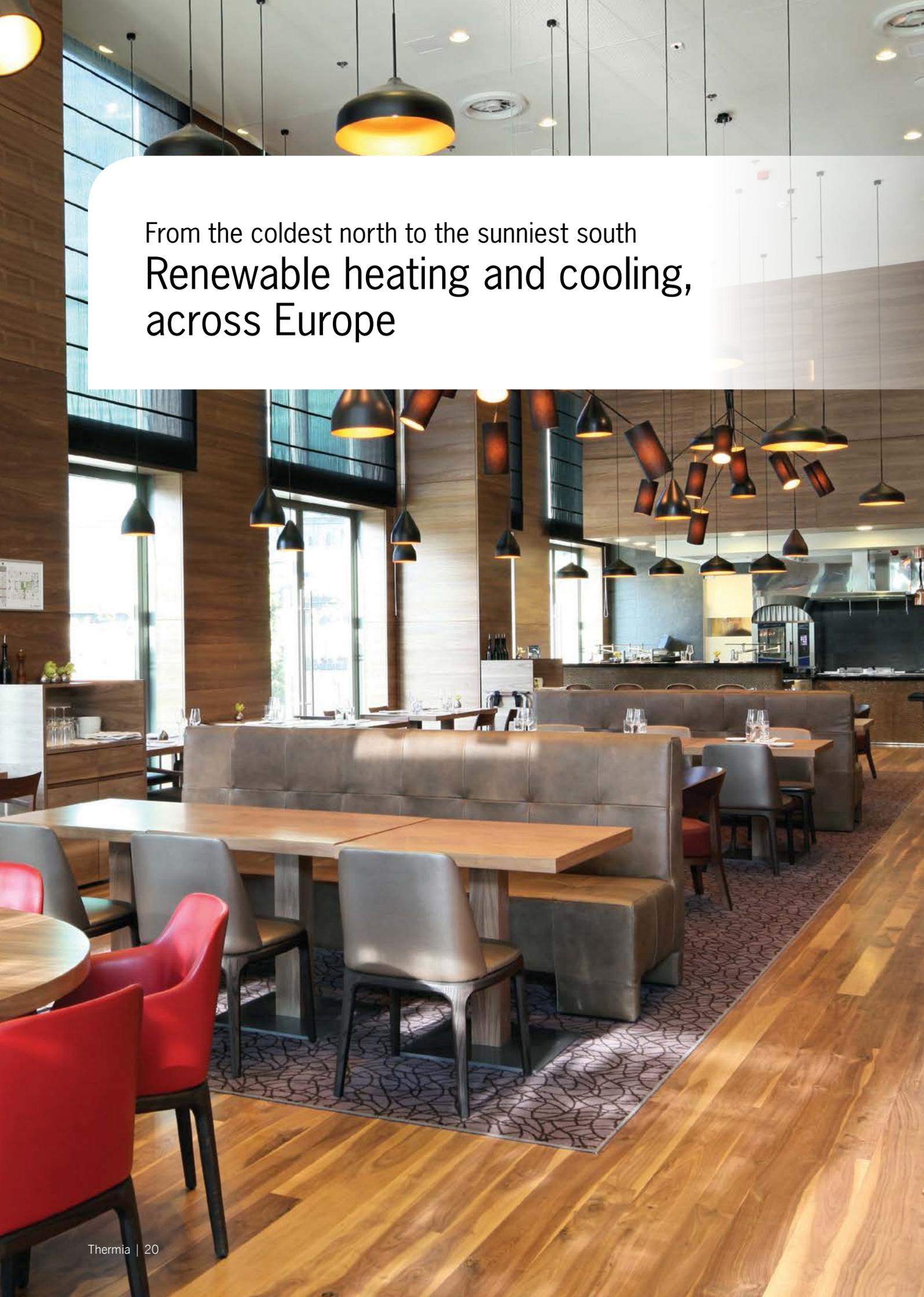
At the same time as water is heated for distribution through the building's heating system, hot water is produced at very high temperature by an extra de-superheater.

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™.



From the coldest north to the sunniest south
Renewable heating and cooling,
across Europe

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.



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 Robust Eco 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 cozy and warm in winter and the housing association is also able to save up to 65 000 Euro during every single heating season. That’s a remarkable outcome.”

Modern ceramic tile-laying products and **geothermal technology** in one building



Butech – faithful to its environmental commitment

Butech supplies a wide range of materials and construction systems for homeowners, installers, builders and architects.

In 2008, they decided to build a new headquarters facility. Given the company's commitment to environmentally friendly technologies, using geothermal energy for heating and cooling was a natural choice.



Thermia heat pumps – heating and cooling in one system

The new HQ extends to over 3 200 m² and the Thermia system comprises 36 boreholes 120 meters deep, which feed the building's HVAC system throughout the year. Heating and active cooling are provided by seven independent Robust heat pumps operating in master/ slave mode.

During the summer, the heat pumps remove surplus heat from the office buildings and transfer it into the ground. This means that the summer heat can be used as ground source recovery before the winter season starts. Heating and cooling are provided simultaneously from the same source. This advanced geothermal solution is able to supply 100% of the facility's heating and cooling needs.

Energy efficiency, comfort and environmental awareness

An evaluation of the building's energy needs and consumption revealed remarkable results. Energy requirements for the whole year were 462 805 kWh and total electricity consumption, including circulation pumps, was 116 870 kWh. This represents an SPF of 3.96 and savings of 345 935 kWh per year, equal to a total saving of 74.75%!



Ultimate wellbeing at the Hotel Goldene Zeit in Bavaria

Relaxation in ecological comfort

The Goldene Zeit is a cameral**** hotel with wellness and seminar facilities. The hotel's wellness offers include various types of massage, baths, skin care treatments and an extensive canyon room and sauna.

Creating an ecological environment is a priority for Goldene Zeit's owners and the building includes a variety of ecological and biological features. Heat is provided by geothermal energy while part of the electricity is generated by the hotel's own photovoltaic system. The hotel also uses a biological wastewater treatment plant.

The central ventilation system supplies all rooms with fresh, pollen-free air through heat recovery using the ambient room temperature. This makes the hotel ideal for allergy sufferers.



Comfort through renewable energy with a reduced environmental footprint

Heating is provided through a combination of wall and underfloor systems. The total heat demand of around 35 kW is supplied by a Thermia Robust 42. The ground source is a 2 500-meter horizontal loop laid 1.2 m below ground. The heat pump provides 100% of the hotel's heating and hot water requirements.

Modern spa resort with a contemporary **eco heating system**



24 000 m² of hotel rooms, 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 meters from the sea and the harbor 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 Robust 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.



Choose **geothermal energy** for your business and enjoy a greener future





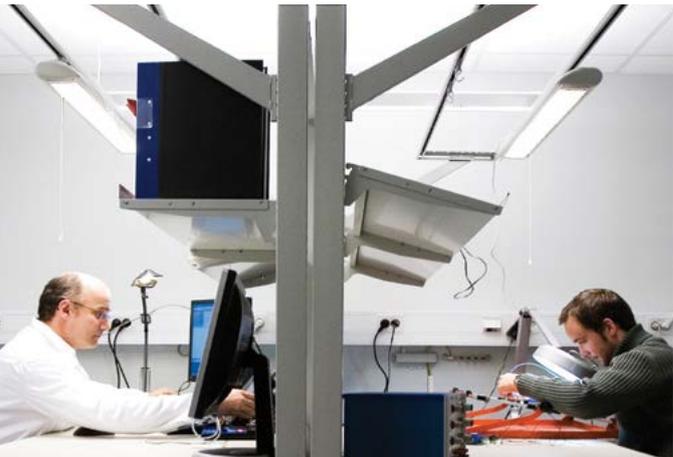
Born in **Sweden**, made for the world

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. Many of our very earliest products are still in use today. By concentrating solely on geothermal energy over the last four 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 centers

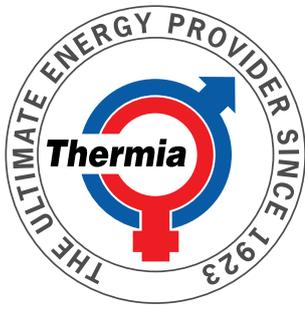
Thermia's facility in Sweden includes our 3 000 m² global R&D center for heat pumps. The centre has a state-of-the-art climate chamber where any type of climatic condition can be simulated for testing purposes.

The R&D center 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

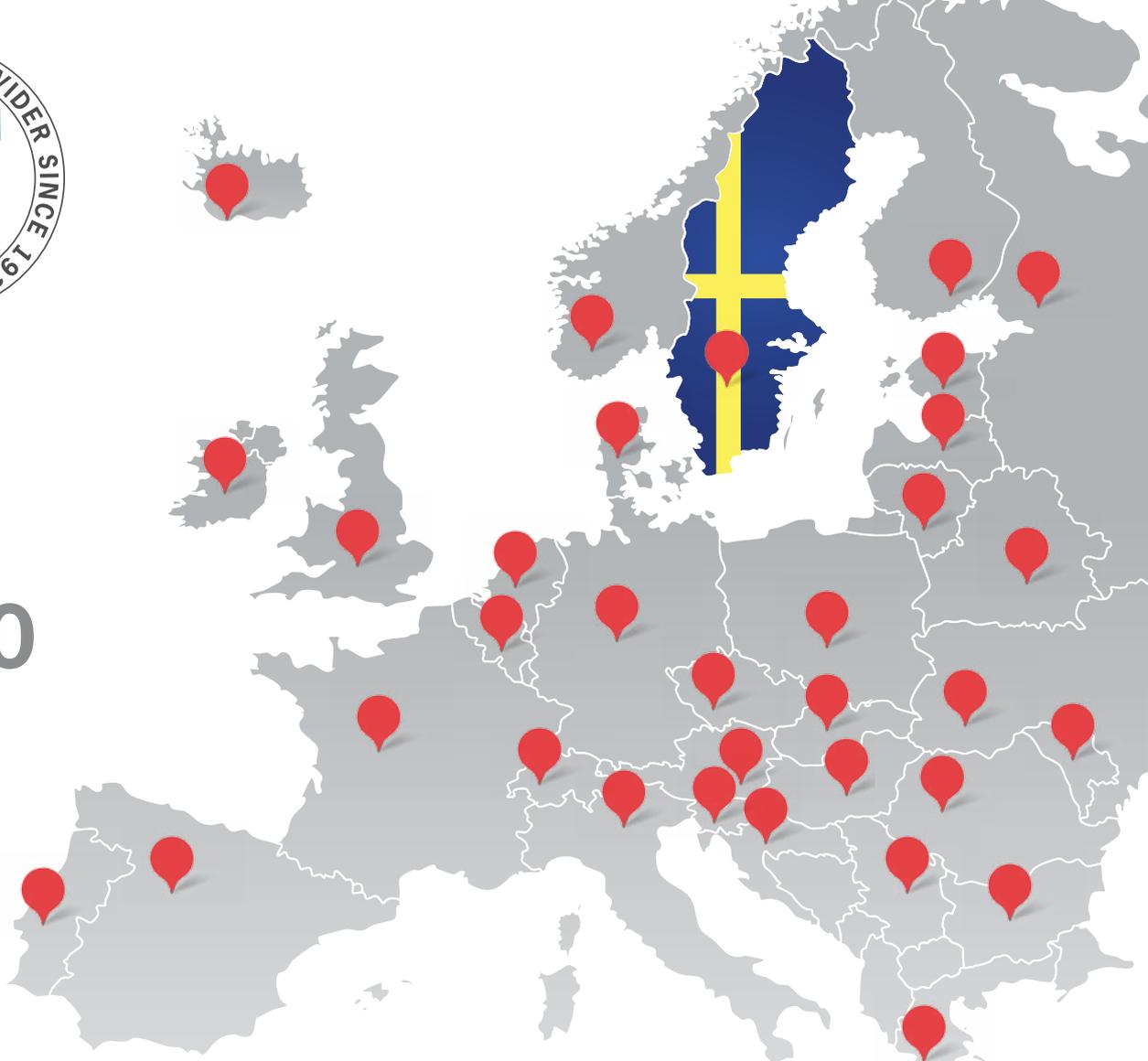
With 50 years of experience, Thermia is a market leader in heat pumps. Our latest Thermia Mega series combines advanced capabilities with an intelligent approach to creating ever more versatile and flexible answers to complex building requirements.



Over
30
countries

Over
2 500
trained installers

Over
90
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 serve you for many years to come.

Andreas Kiiveri,
Värme & Kylteknik AB, Sweden

“ Thermia has everything you look for in a heat pump – performance, efficiency and reliability – with the bonus of smart design and a user-friendly interface. We have supplied hundreds of Thermia heat pumps and have 100% customer satisfaction.

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

“ Since its foundation, our company has sold different kinds of heat pumps. More than 10 years ago we began cooperating with Thermia. They have proved themselves a great partner with excellent products and outstanding experience with heat pumps.

Peter Michalzik,
Multitherm Handels GmbH, Germany

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

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

Installing a heat pump in 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 four decades invested in becoming a world leader in heat pump technology, we can ensure that you make the right choices. So you can enjoy ultra-efficient, endlessly renewable heat for many years to come.

Visit our website to find your nearest authorized reseller.

We will be pleased to arrange a meeting with you to discuss what you need.



www.thermia.com



Thermia

The Ultimate Energy Provider since 1923

A century of pioneering energy-efficient solutions

We have been working on energy-efficient solutions for every possible building type for almost a century. For the last 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 given us world-leading knowledge in heat pump technology.

Engineered with passion, in every detail

Developing truly sustainable renewable energy solutions 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 center. We are always here for you – ready and willing to provide expert advice to ensure that you achieve the perfect solution.

Made in Sweden



All our products are designed, manufactured and tested in Sweden using the latest technology and the highest quality components. We are proud to count world-leading industry specialists Danfoss among our technology partners.

Thermia Professional Partner:

