



HEAT PUMPS

RELIABLE SOLUTIONS FROM THERMIA





Heat pumps – smarter use of energy

A heat pump from Thermia will create a comfortable indoor climate in your home. And while it's supplying your home with heating, hot water and cooling, you're cutting your energy costs. In some cases by as much as 75%. When you choose a heat pump from Thermia you're also doing your bit for the environment, which will feel good when you select a new source of energy for your home.

Economical

Solar power generates large amounts of free energy that is stored in the air, bedrock, ground and water. A heat pump will help you unlock this free energy. By extracting this heat efficiently you can reduce your energy costs considerably. The cost savings are often so large that you can pay back the installation investment in just a few years.

Comfortable

A heat pump requires virtually no maintenance or re-filling of fuel and it's very simple to use. You can adjust your indoor temperature with just a touch of a button. And your heat pump won't take up a lot of room, normally it just requires the same space as a fridge.

Eco-friendly

By choosing a heat pump you're helping to reduce the impact on the environment. The technology is well-tested and the EU classifies heat pumps as a renewable source of energy. The amount of solar energy the heat pump extracts is much greater than the amount of energy it consumes.

Reliable

Buying a heat pump is an investment for many years ahead, it will just run and run. After developing and supplying heat pumps for over 35 years for the severe Nordic climate, Thermia can guarantee a reliable solution.

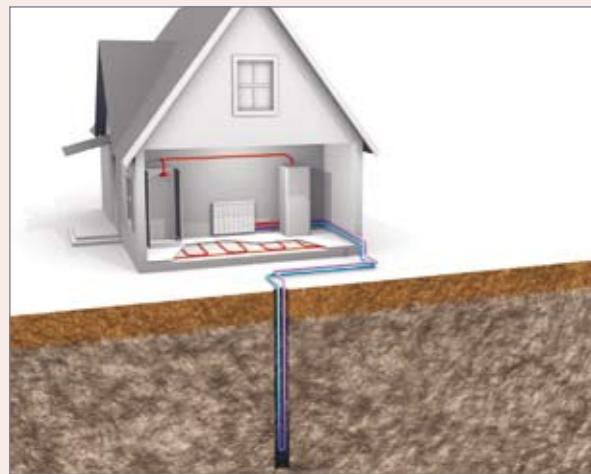
Four different ways to collect energy

The rock shelf, soil, groundwater and air all contain stored solar energy, which can be used for heating. A heat pump exploits this inexhaustible and environmentally friendly heat source and converts it into heating for your house.

Every day the sun heats our air, ground and waterways. A heat pump extracts this free source of energy very efficiently.

Ground source heat pumps

Vertical ground loop



The vertical ground loop collects solar energy stored in bedrock. A hole is drilled into the bedrock and a pipe is laid to a depth of between 100 and 200 metres. The exact depth depends on the house, size of heat pump and surrounding conditions.

There is a common myth about heat pumps that they will not work if several homes in the neighbourhood have already drilled down to the bedrock. This is definitely not the case! The Earth's ability to store heat is almost endless – there's enough heat for everyone.

Advantages:

- A large plot is not necessary.
- Small impact on the plot.
- Cooling is possible.

Horizontal ground loop



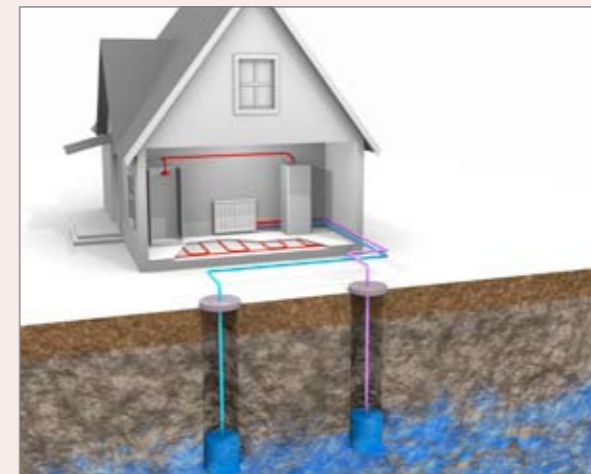
The horizontal ground loop collects solar energy stored in the ground surface. If the bedrock is too deep, or if you do not wish to drill for other reasons, this alternative is a good choice.

The loop is buried around one metre beneath the surface of the land and energy is extracted from the ground. The length of the loop depends on the house, the size of the heat pump and local ground conditions.

Advantages:

- Lower installation cost compared with vertical ground loop.
- Can also be used to extract heat from lakes.
- Cooling is possible.

Groundwater



A groundwater heat pump collects energy from the groundwater. The water is pumped up from a water borehole to a heat exchanger, where the energy is recovered.

The water is then discharged back through another well. This solution can be the right alternative when groundwater is readily available.

Advantages:

- High and even temperature in the groundwater all year round.
- Cooling is possible.

Air source heat pumps

Air source



With an air heat pump there is no need to dig or drill. Instead you take the energy straight from the surrounding air.

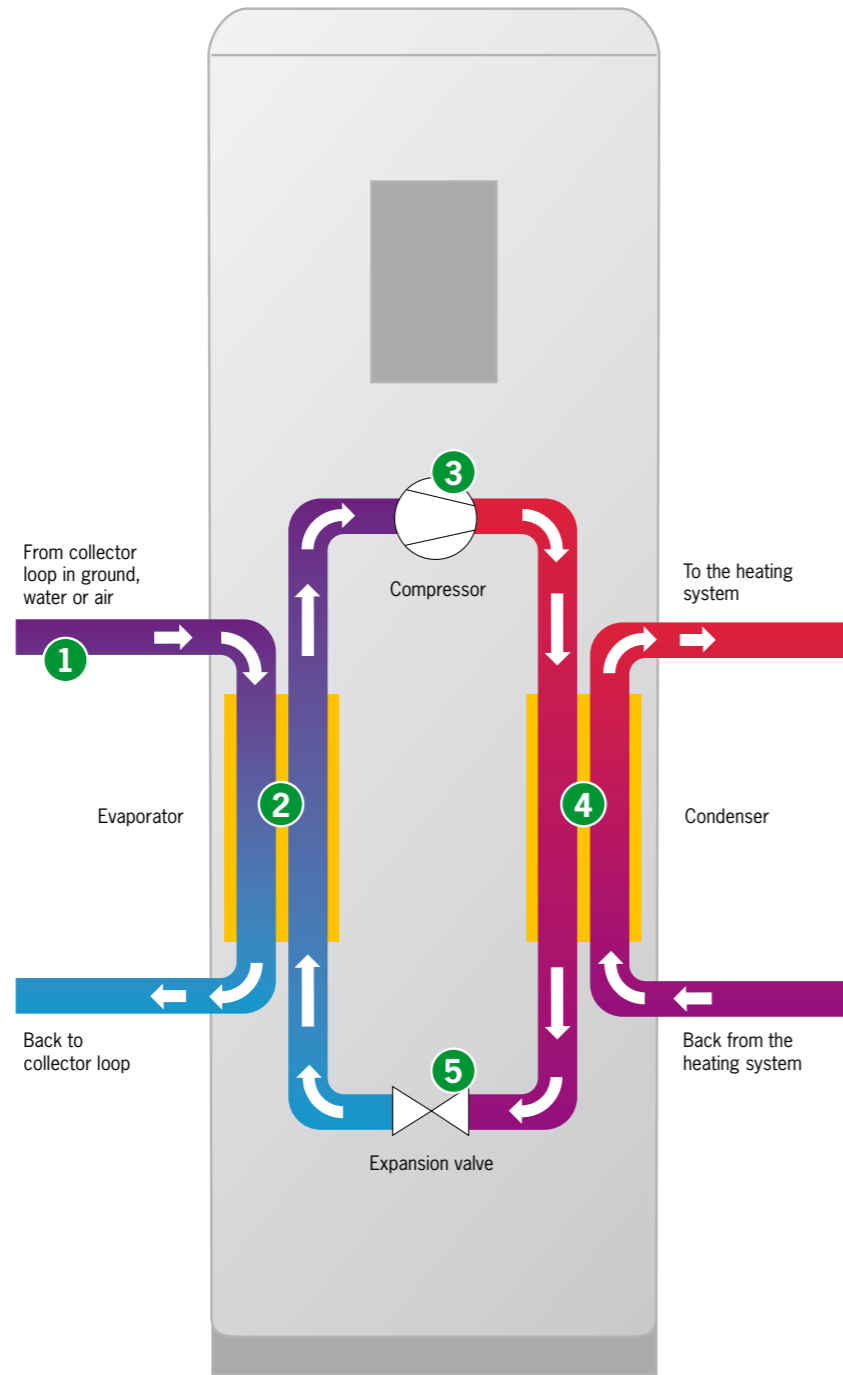
To obtain a complete system that covers all your heating requirements, including hot water, you need an air/water heat pump. In comparison, an air/air heat pump is only capable of supplying heating, not hot water.

Advantages:

- Lower investment cost.
- No impact on the ground.
- No large plot needed.

How a heat pump works

- 1 A brine* circulates in a collector loop and absorbs heat energy from the bedrock, ground, air or water.
- 2 In a heat exchanger (evaporator) the tepid brine in the collector loop meets refrigerant** circulating in the refrigerant loop. The refrigerant heats up and converts into gas.
- 3 The pressure of the refrigerant is raised in the compressor, which also raises the temperature to a useable level.
- 4 Via a condenser, the refrigerant releases the heat to the heating system for the house, and in connection with this the refrigerant is cooled.
- 5 The refrigerant circulates further. The pressure is lowered in an expansion valve. It reduces the temperature, the refrigerant returns to liquid form. The process restarts when the refrigerant once again meets the brine.



* Brine is a mixture that cannot freeze, for example water together with alcohol or glycol.

** These days environmentally friendly refrigerants such as carbon dioxide and hydrocarbons are used. Freon was previously used.

Heat pumps are based on the principle that when a gas is compressed it heats up, while gas that expands becomes colder.

Thermia – a safe investment

Installing a heat pump is a long-term investment. You can rely on it to provide a comfortable indoor climate with the largest possible cost savings. Year after year, day by day, minute by minute.

When you choose a heat pump it's important to understand the basics. The following pages will guide you through the three areas you need knowledge about to make the right decision.

- 1 Annual efficiency
- 2 Hot water production
- 3 Comfort and cooling



As a buyer you want to know how efficient a heat pump is. There are different ways of measuring this.

COP – efficiency in specific conditions

One way of measuring a heat pump's efficiency is the COP (Coefficient Of Performance). At a specific test condition, the heat pump's ability to deliver heating is established in relation to how much energy is required to operate the heat pump.

Bear in mind that a high score at a specific test condition will not give an accurate picture of how the heat pump

will perform over time in more variable weather conditions.

Annual efficiency – the actual outcome

Another way of measuring performance is called annual efficiency or SPF (Seasonal Performance Factor). At Thermia we think this is the most honest method of judging performance because it takes the whole year into consideration, hot and cold periods, as well as hot water consumption.



Efficiency

The relationship between consumed and supplied energy. Often only given in one operating situation (COP).

Annual efficiency

The average relationship between consumed and supplied energy over a comparison period of one year (SPF).

Technology for maximum savings ►

Several of Thermia's solutions contribute to higher annual efficiency. These are the solutions that give the best possible indoor climate at the lowest possible cost.

Higher annual efficiency with Optimum technology

Thermia's Optimum technology is based on regulating the speed of the circulation pumps to optimize conditions in both the heating system and the brine collector. The temperature difference between supply line water and return line

water is kept constant between 7-10°C. For the collector a difference of 3°C between inlet and outlet is optimal. A heat pump with speed-controlled circulation pumps ensures that the ideal conditions are maintained.

Effective scroll compressor

At the heart of a Thermia heat pump is a specially developed scroll compressor. The unique feature is that it has high efficiency even when producing heating and hot water above

40°C. Another advantage is that it contains fewer moving parts than a conventional compressor. That means low sound level and a longer life.

Controller for optimal operation

The controller runs and coordinates the heating system to provide the best possible indoor climate at the lowest possible cost. Thermia's controller manages the supply of

heat at the source rather than in the heating system. This solution gives an annual saving of up to 15 percent compared to traditional technology.

Unique solution for positioning the air heat pump indoors

Most air/water heat pumps on the market are based on the solution of outdoor placement. Thermia has designed a unique solution whereby the heat pump is placed indoors (the Atria range). This means that unavoidable heat losses

from the heat pump benefit the home, and since the unit is protected from the weather it operates even more reliably and its lifetime is extended.

Demand-controlled defrosting for air heat pumps

Outdoor air units require defrosting at low temperatures to ensure an unrestricted air flow through the fin coil. Thermia has developed a technique for defrosting only when needed and for as long as needed; this in contrast

to standard solutions which defrost even when this is not required. Demand-controlled defrosting minimizes the energy consumption.

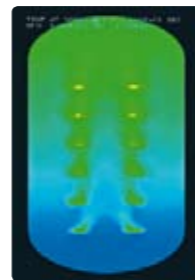
Thermia's Research & Development department continually works to develop, improve and refine heat pump technology. With TWS and HGW we have created market-leading technologies for hot water production. Read more about these technologies, how they work and their benefits.

TWS technology for exceptional hot water production

Thermia's heat pumps produce hot tap water using the patented TWS technology (Tap Water Stratificator). This provides more effective heat transfer and more efficient layering of the water in the hot water tank. The results are impressive. Heat pumps equipped with TWS technology are the best on the market for hot water production. This method ensures plentiful supplies of hot water, quickly and at low operating cost. However, it won't produce unnecessarily hot water, which means that

a heat pump with TWS increases your annual efficiency.

Thermia's heat pumps are factory-set to increase water temperature to above 65 degrees once a week. This is to eliminate the risk of legionella bacteria. The normal temperature is sufficiently high to prevent bacteria growth but this system provides extra safety.



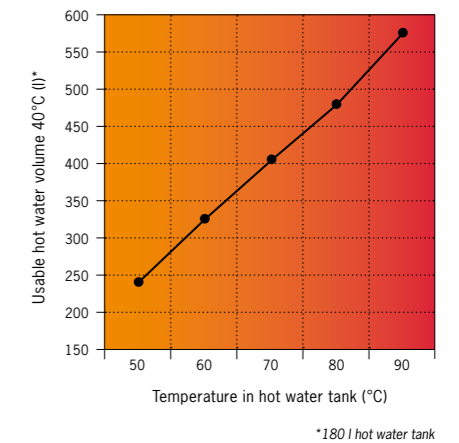
TWS hot water tanks are specially designed for heat pumps. The technology layers the hot water in the hot water tank so that the heat can be used in the best way. (In the photograph, the hot water is represented by the green colouring and cool water by the blue.) The amount of energy used to create hot water by TWS could only create lukewarm water in a conventional hot water tank.

Boosting annual efficiency with HGW technology

With HGW (Hot Gas Water heater), Thermia has developed a new and unique method for producing hot water. With the new technology we have also succeeded in solving a seemingly impossible combination; higher annual efficiency and hot water production with higher temperatures and increased volumes. Thermia Diplomat Optimum G2 features HGW technology.

At the same time as the water is heated to be distributed around the house's

heating system, a small proportion flows via an extra de-superheater, which heats the water to a very high temperature before it enters the water heater. This means that during the part of the year the house is being heated, you get lots of hot water at a very low cost. This results in up to 20 percent higher annual efficiency. The COP for hot water production can be as high as 5, which means that the production of hot water is five times as high as the supply of energy.



By using the HGW technology the temperature in the hot water tank can reach up to 90°C. This radically increases the volume of usable tap water.

Traditional technology

In a traditional water heater for heat pumps the heater is surrounded by the hot water from the heat pump. This gives poor and slow heat transfer.

After peak consumption that has drained the hot water tank of hot water, it takes 50 minutes*, using traditional methods, to produce a full tank of hot water again.

*The time is calculated when heating from 40°C.

TWS technology

In a TWS hot water tank, the hot water is led from the heat pump in a coil through the water that is to be heated. It provides more effective heat transfer and more hot water.

After peak consumption that has drained the hot water tank of hot water, it takes just 21 minutes* to produce a full tank of hot water again.

*The time is calculated when heating from 40°C.

HGW technology

- 1 A small proportion of the heated water that is routed out into the house's heating system, passes the extra de-superheater.
- 2 It is then heated up further to between 50–90°C before going into the water heater.
- 3 The result is that, without additional cost, you get extra and even hotter water during the months of the year that the house is heated.



Perfect indoor climate all year round

Thermia's heat pumps are complete units for a comfortable indoor climate all year round. When it is cold outside, heat is produced and when it is hot outside, you are provided with comfort cooling.

By adding a cooling unit to your heat pump you gain a comprehensive climate comfort system that gives you a perfect indoor climate all year round. It's also much less expensive than a traditional solution.

There are two ways to cool your home with a heat pump: passive and active cooling.

Passive cooling

Passive cooling is absolutely the least expensive way to produce cooling. By circulating the cool brine in the ground loop, cooling is created at a cost corresponding to the energy consumption of a couple of light bulbs.

Passive cooling is included as standard in Thermia Comfort and is optional on all of Thermia's heat pumps by means of a separate passive cooling module

(not applicable on air-source heat pumps).

Active cooling

Passive cooling is normally sufficient, but if necessary, extra cooling can be produced using the compressor system. Using the system this way means that cooling is produced much more efficiently compared with traditional air conditioning.

Active cooling is optional on all of Thermia's heat pumps by means of a separate active/passive cooling module.

Passive cooling can be used to cool an area, such as a wine cellar.



Extend the pool season with your heat pump

During the months when the house is being cooled by an active cooling module, the excess energy can be used to heat the water in the pool. Of course, the pool can still be heated by a heat pump without a cooling module. If you have an indoor pool, you can easily dimension the heat pump so that it keeps the pool heated all year round. By using all the advantages of the heat pump in this way, heating, cooling, and hot water are provided at the same time, all at a low cost and with regard for the environment.

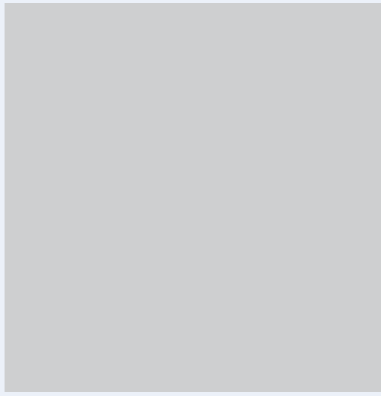
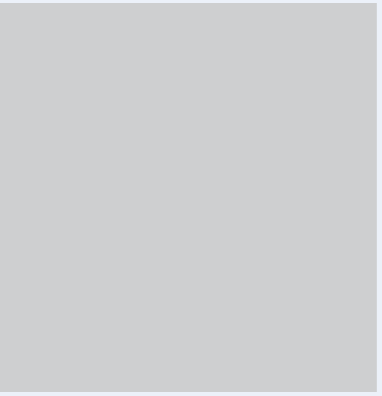
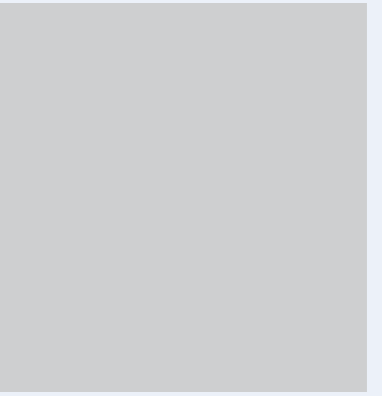


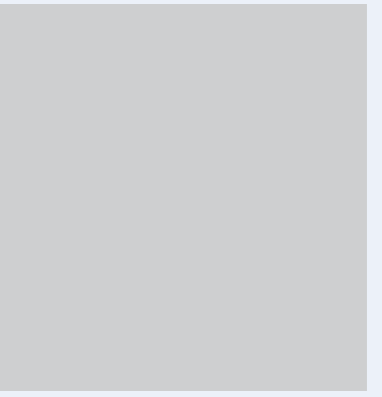





Which is the best heat pump for you? On the following pages you can get to know our range and see which one best suits your needs.

Ground source heat pumps

	Integrated hot water tank	Separate hot water tank	
HGW		<p>Diplomat Optimum G2</p>  <ul style="list-style-type: none"> • HGW technology • Optimum technology • TWS technology 	
Optimum		<p>Diplomat Optimum</p>  <ul style="list-style-type: none"> • Optimum technology • TWS technology 	<p>Diplomat Duo Optimum</p> <p>Same heat pump as Diplomat Optimum, but with separate hot water tank</p> 
Standard	<p>Comfort</p>  <ul style="list-style-type: none"> • Integrated cooling • TWS technology 	<p>Diplomat</p>  <ul style="list-style-type: none"> • TWS technology 	<p>Diplomat Duo</p> <p>Same heat pump as Diplomat, but with separate hot water tank</p> 

Air source heat pumps

	Integrated hot water tank	Separate hot water tank	
HGW			
Optimum	<p>Atria Optimum</p>  <ul style="list-style-type: none"> • Optimum technology • Indoor placement • Can work efficiently down to -20°C • TWS technology 	<p>Atria Duo Optimum</p> <p>Same heat pump as Atria Optimum, but with separate hot water tank</p> 	
Standard	<p>Atria</p>  <ul style="list-style-type: none"> • Indoor placement • Can work efficiently down to -20°C • TWS technology 	<p>Atria Duo</p> <p>Same heat pump as Atria, but with separate hot water tank</p> 	<p>Atella</p> <ul style="list-style-type: none"> • Outdoor placement • Can work efficiently down to -16°C • Flexible system build-up 



Diplomat

Reliable and efficient

Diplomat is an efficient and reliable heat pump. It's the ideal heating system for homes where no maintenance and low running costs are important.

The hot water tank incorporates our TWS technology, which means that the hot water is produced faster and at higher temperatures than with traditional technologies.

Like all Thermia heat pumps, Diplomat has an intelligent, integrated control

system. The control panel is easy to use and you can adjust the indoor temperature and operating parameters with the touch of a button.

Despite its compact footprint, the unit has all essential parts and functions built in; circulation pumps, flexible hoses for connections etc. As close to a plug-and-play unit as you can come.



Diplomat Duo

Diplomat is also available with a separate hot water tank, perfect if you have a low ceiling or need extra hot water.

Diplomat	4	6	8	10	12	16	SP4	SP6	SP8	SP10	SP12
Refrigerant type	R407C	R407C	R407C	R407C	R407C	R407C	R407C	R407C	R407C	R407C	R407C
Mains supply	400V 3-N	400V 3-N	400V 3-N	400V 3-N	400V 3-N	400V 3-N	230V 1-N	230V 1-N	230V 1-N	230V 1-N	230V 1-N
Auxiliary heater	3/6/9 kW	3/6/9 kW	3/6/9 kW	3/6/9 kW	3/6/9 kW	3/6/9 kW	1.5/3/4.5 kW	1.5/3/4.5 kW	1.5/3/4.5 kW	1.5/3/4.5 kW	1.5/3/4.5 kW
Volume, hot water tank	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres
Dimensions DxWxH	690x596x1754 mm	690x596x1754 mm	690x596x1754 mm	690x596x1754 mm	690x596x1754 mm	690x596x1754 mm	690x596x1754 mm	690x596x1754 mm	690x596x1754 mm	690x596x1754 mm	690x596x1754 mm



Diplomat Optimum

Minimum energy consumption thanks to speed control

Diplomat Optimum is a highly efficient heat pump featuring speed-controlled circulation pumps that continually adjust operation to meet your immediate requirements and the current conditions. Optimum regulation keeps the heat pump working in ideal conditions at all times. That means maximum efficiency and minimum energy consumption – second by second, all year round.

Brings TWS technology one step further

The hot water tank incorporates TWS technology, and Optimum technology

brings this solution one step further. By controlling the circulation pump (warm side) during hot water production, Optimum technology will allow even quicker charging of the hot water tank and a completely controlled stratification of the hot water.

Test winner

Diplomat Optimum has been ranked number one in the categories of most water and hottest water in the test of heat pumps carried out by the Swedish Consumer Agency.



Diplomat Duo Optimum

Diplomat Optimum is also available with a separate hot water tank, perfect if you have a low ceiling or need extra hot water.

Diplomat Optimum	6	8	10	12	16	SP6	SP8	SP10	SP12
Refrigerant type	R407C	R407C	R407C	R407C	R407C	R407C	R407C	R407C	R407C
Mains supply	400V 3-N	400V 3-N	400V 3-N	400V 3-N	400V 3-N	230V 1-N	230V 1-N	230V 1-N	230V 1-N
Auxiliary heater	3/6/9 kW	3/6/9 kW	3/6/9 kW	3/6/9 kW	3/6/9 kW	1.5/3/4.5 kW	1.5/3/4.5 kW	1.5/3/4.5 kW	1.5/3/4.5 kW
Volume, hot water tank	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres
Dimensions DxWxH	690x596x1848 mm	690x596x1848 mm	690x596x1848 mm	690x596x1848 mm	690x596x1848 mm	690x596x1848 mm	690x596x1848 mm	690x596x1848 mm	690x596x1848 mm



Diplomat Optimum G2

Save energy and money without compromising on hot water

Like its predecessor Diplomat Optimum, the G2 model is equipped with Optimum and TWS technology. In addition it features a unique method for producing hot water.

HGW technology

With the patented HGW technology you get hot water as a bonus when you heat your home. This results in a higher annual efficiency.

The predecessor ranked number one in the categories of most water and hottest water in the test of heat pumps carried out by the Swedish Consumer Agency. We've now moved up yet another notch and in addition Diplomat Optimum G2 operates at a 20% higher annual efficiency than standard heat pumps.

Diplomat Optimum G2	6	8	10	12	16	SP6	SP8	SP10	SP12
Refrigerant type	R407C	R407C	R407C	R407C	R407C	R407C	R407C	R407C	R407C
Mains supply	400V 3-N	400V 3-N	400V 3-N	400V 3-N	400V 3-N	230V 1-N	230V 1-N	230V 1-N	230V 1-N
Auxillary heater	3/6/9 kW	3/6/9 kW	3/6/9 kW	3/6/9 kW	3/6/9 kW	1.5/3/4.5 kW	1.5/3/4.5 kW	1.5/3/4.5 kW	1.5/3/4.5 kW
Volume, hot water tank	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres
Dimensions DxWxH	690x596x1848 mm	690x596x1848 mm	690x596x1847 mm	690x596x1848 mm	690x596x1848 mm	690x596x1848 mm	690x596x1848 mm	690x596x1848 mm	690x596x1848 mm



Comfort

The complete climate control system

Comfort is a complete climate installation for the best possible indoor comfort – heating in the winter, cooling in the summer and heated water all year round. This is made possible by the passive cooling module built into the unit. By circulating the cool brine in the ground loop, cooling is created at a cost corresponding to the energy consumption of a couple of light bulbs.

Installation is simple thanks to the system being capable of use for distribution of both heating and cooling.

TWS technology

The built-in hot water tank incorporates TWS technology, which means that the hot water is produced faster and at higher temperatures than with traditional technologies.

Comfort	6	8	10	4H	5H	7H
Refrigerant type	R407C	R407C	R407C	R134a	R134a	R134a
Mains supply	400V 3-N	400V 3-N	400V 3-N	400V 3-N	400V 3-N	400V 3-N
Auxillary heater	3/6/9 kW	3/6/9 kW	3/6/9 kW	3/6/9 kW	3/6/9 kW	3/6/9 kW
Volume, hot water tank	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres
Dimensions DxWxH	690x596x1754 mm	690x596x1754 mm	690x596x1754 mm	690x596x1754 mm	690x596x1754 mm	690x596x1754 mm



Atria

Air heat pump that utilizes energy down to -20°C

Atria consists of two units – one indoors and one outdoors. Energy is taken from outdoor air, even down to temperatures as low as -20°C .

Thermia's defrosting of the outdoor unit is automatic and demand controlled. It is only activated when it is needed and for as long as is necessary, which minimises the energy consumption required to keep the outdoor section of the system free of ice. This will of course improve the annual efficiency.

The pipes connecting indoor and outdoor units contain brine, which improves flexibility in terms of the positioning of the outdoor unit. It can be placed up to 30 metres away from the indoor unit. The risk of the pipes freezing in the event of a power cut is also eliminated.

The hot water tank incorporates our TWS technology, which means that the hot water is produced faster and at higher temperatures than with traditional technologies.



Atria Duo

Atria is also available with a separate hot water tank, perfect if you have a low ceiling.

Atria	6	8	10	12	SP6	SP8	SP10	SP12
Refrigerant type	R404A	R404A	R404A	R404A	R404A	R404A	R404A	R404A
Mains supply	400V 3-N	400V 3-N	400V 3-N	400V 3-N	230V 1-N	230V 1-N	230V 1-N	230V 1-N
Auxiliary heater	3/6/9/12/15 kW	3/6/9/12/15 kW	3/6/9/12/15 kW	3/6/9/12/15 kW	1.5/3/4.5 kW	1.5/3/4.5 kW	1.5/3/4.5 kW	1.5/3/4.5 kW
Volume, hot water tank	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres
Dimensions indoor unit DxWxH	690x596x1754 mm	690x596x1754 mm	690x596x1754 mm	690x596x1754 mm	690x596x1754 mm	690x596x1754 mm	690x596x1754 mm	690x596x1754 mm
Dimensions outdoor unit DxWxH	630x1175x1200 mm	630x1175x1200 mm	630x1175x1200 mm	630x1175x1200 mm	630x1175x1200 mm	630x1175x1200 mm	630x1175x1200 mm	630x1175x1200 mm



Atria Optimum

Air heat pump with increased control to boost your savings

Atria Optimum has the same features as Thermia Atria, with the addition of speed controlled circulation pumps that continually adjust operation to meet your immediate requirements and the current conditions. Optimum regulation keeps the heat pump working in ideal conditions at all times. That means maximum efficiency and minimum energy consumption – second by second, all year round.

Brings TWS technology one step further

The hot water tank incorporates TWS technology, and Optimum technology brings this solution one step further. By controlling the circulation pump (warm side) during hot water production, Optimum technology will allow even quicker charging of the hot water tank and a completely controlled stratification of the hot water.



Atria Duo Optimum

Atria Optimum is also available with a separate hot water tank, perfect if you have a low ceiling.

Atria Optimum	6	8	10	12	SP6	SP8	SP10	SP12
Refrigerant type	R404A	R404A	R404A	R404A	R404A	R404A	R404A	R404A
Mains supply	400V 3-N	400V 3-N	400V 3-N	400V 3-N	230V 1-N	230V 1-N	230V 1-N	230V 1-N
Auxiliary heater	3/6/9/12/15 kW	3/6/9/12/15 kW	3/6/9/12/15 kW	3/6/9/12/15 kW	1.5/3/4.5 kW	1.5/3/4.5 kW	1.5/3/4.5 kW	1.5/3/4.5 kW
Volume, hot water tank	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres	180 Litres
Dimensions indoor unit DxWxH	690x596x1848 mm	690x596x1848 mm	690x596x1848 mm	690x596x1848 mm	690x596x1848 mm	690x596x1848 mm	690x596x1848 mm	690x596x1848 mm
Dimensions outdoor unit DxWxH	630x1175x1200 mm	630x1175x1200 mm	630x1175x1200 mm	630x1175x1200 mm	630x1175x1200 mm	630x1175x1200 mm	630x1175x1200 mm	630x1175x1200 mm



Atella

Air heat pump fully adapted to your home

Atella is a flexible heat pump that operates at high performance. Energy is taken from outdoor air, and Thermia Atella can operate down to temperatures as low as -16°C.

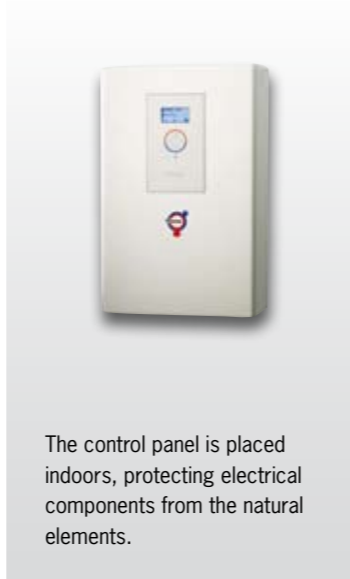
Thermia Atella consists of two major units, the outdoor heat pump and the indoor control unit, which makes installation quick and smooth. And since the heat pump is located outside, it will not occupy any indoor space.

Flexible solution

With Atella you are given the possibility to connect the heat pump to your existing

heating system, or parts of it, for example the water heater. If you need a complete solution, you can easily supplement your Atella with the parts you need.

Thermia's defrosting of the outdoor unit is automatic and demand controlled. It is only activated when it is needed and for as long as is necessary, which minimises the energy consumption required to keep the outdoor section of the system free of ice. This will of course improve the annual efficiency.



The control panel is placed indoors, protecting electrical components from the natural elements.

Atella	6	8	10	12	SP6	SP8	SP10	SP12
Refrigerant type	R407C	R407C	R407C	R407C	R407C	R407C	R407C	R407C
Mains supply	400V 3-N	400V 3-N	400V 3-N	400V 3-N	230V 1-N	230V 1-N	230V 1-N	230V 1-N
Dimensions outdoor unit DxWxH	661x1167x1290 mm	661x1167x1290 mm	661x1167x1290 mm	661x1167x1290 mm	661x1167x1290 mm	661x1167x1290 mm	661x1167x1290 mm	661x1167x1290 mm
Dimensions control unit DxWxH	204x380x600 mm	204x380x600 mm	204x380x600 mm	204x380x600 mm	204x380x600 mm	204x380x600 mm	204x380x600 mm	204x380x600 mm



Hot water tank that works quickly and efficiently

The Thermia MBH is a hot water tank designed for compatibility with the Thermia heat pumps.

The water heater's TWS technology assures highly efficient heat transfer and better layering of the water than traditional technology (see page 10-11).

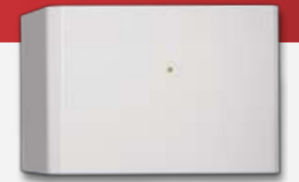
This means your water is heated more quickly, less energy is consumed and the hot water lasts longer when using large amounts.

The water heater is available in two sizes, 200 and 300 litres, and is available either with a copper-lined steel tank or a stainless steel tank.

Exhaust air module – recycling used heating

Thermia Vent is a heat exchange unit, an accessory that can be combined with all of Thermia's heat pumps. It helps you to utilize the heat in indoor air emitted from your home to pre-heat the brine to your heat pump.

This means recycling heat that would otherwise have been wasted, increasing the annual efficiency of your heat pump even further – benefiting both the environment and your budget.



Buffer tank for combination with alternative heat sources

Thermia Extender helps you combine a heat pump with alternative heat sources, such as solar panels, so that you can further extend the annual efficiency of the heat pump system.

Thermia Extender pre-heats the water before it reaches the heat pump, which results in higher volumes of available hot water. The large buffer capacity makes it possible to adapt operation to

utilize the lowest electricity prices and thus cut heating costs.

All domestic heat pumps from Thermia feature a control program that supports the buffer function.

Thermia Extender also enables two separate heating systems, such as underfloor heating and radiators, to be combined.



Thermia Robust – suitable for larger buildings

Thermia Robust is the heat pump for large houses and buildings. The heat pump meets all large capacity requirements and features an intelligent control system for total efficiency and control.

Thermia Robust produces heating, hot water and comfort cooling. It fits into any type of building and up to eight units can be connected together to produce an overall output of up to 550 kW.

Intelligent control system

Generating maximum savings and comfort places large demands on the control system. Thermia Robust's intelligent control system displays all settings and information about the unit's status in a logical menu system. The control functions monitor extra heating, hot water, shunt groups, cooling and legionella checks.

Integrated web server

Each Thermia Robust is equipped with an integrated web server so that you can control your heat pump from all over the world. You can adjust alarms and check operating history and current temperatures.

Operating history is presented in graphs using database records by the second, minute or hour. You can import the data into an Excel sheet.

All of these features help to optimize operation, but they are also invaluable for service or support. And if anything goes wrong you will be automatically notified by text message or email. If you have units on several different sites, this internet solution is a vital aid for boosting efficiency. And your Thermia system will communicate with other monitoring systems on the market.

Flexible

Flexibility in the control system enables the use of all types of existing heating systems, which means that other forms of heating can be run in parallel with your heat pump. Whether the other heating is based on gas, electricity, oil, pellets or district heating, your heat pump can be docked into the other system.

Test Internet Control

You can log into our demo page and test Thermia's internet control.

Go to:

www.thermia.com/products/heatpumps-buildings.asp

and follow the instructions.

A commercial heat pump installation in Spain. Seven Thermia Robust units connected together to produce heating and cooling.



Robust	20	26	35	42	21H	25H
Refrigerant type	R407C	R407C	R407C	R407C	R134a	R134a
Mains supply	400V 3-N-50Hz	400V 3-N-50Hz	400V 3-N-50Hz	400V 3-N-50Hz	400V 3-N-50Hz	400V 3-N-50Hz
Dimensions DxWxH	692x593x1474 mm	692x593x1474 mm	692x593x1474 mm	692x593x1474 mm	692x593x1474 mm	692x593x1474 mm

This is Thermia

Thermia launched its first heat pump in 1973. Since then thousands and thousands of heat pumps have been delivered to satisfied customers across Europe.

Thermia has been the leader in the technical development of heat pumps for almost 40 years. Today we operate one of Europe's most advanced research and development centres for heat pump technology.

The centre features a climate chamber that provides invaluable guidance when we design heat pumps to operate in every possible form of climate.

Thermia is owned by Danfoss, a privately-owned Danish company with around 21,000 employees and activities all over the world.

Our heat pumps are developed and manufactured in Sweden.



Milestones

1923

In 1923 aktiebolaget Thermia-Verken is created. manufacture was concentrated on three main products: modern fuel-efficient cooking stoves, heat conduction stoves with the accompanying radiators and water heaters.



1973

In 1973 Sweden's first heat pump with integrated hot water tank is developed by Thermia as a result of a collaboration project.



1980

In 1980 we presented a revolutionary heat exchange development with significantly increased heat transfer and reduced amounts of refrigerant. The latter, a benefit from an environmental point of view.

1984

Four years later, in 1984, the control computer for fully automatic control of the heat pump, hot water and additional heater is introduced to the Thermia range.

2000

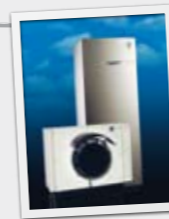
In 2000 it becomes possible to control and monitor the heat pump remotely. The foundation was laid for the Internet service Thermia Online.

2004

TWS technology launched in 2004, resulted in the first hot water tank adapted for a heat pump and delivering the best hot water production on the market. The technology is based on more economic water heating in layers.

2005

In 2005 the Thermia Atria air heat pump is launched. The first air heat pump that could convert energy from the air down to -20°C.



2008

In 2008 Thermia revolutionizes the heat pump market again – now with Thermia Diplomat Optimum G2 with HGW technology; the new technology for water heating.



2009

Thermia Atella is launched – a flexible air/water heat pump built to match each customer's individual needs.



2007

Thermia museum in Arvika opens. Boilers, ovens and wood-fired water heaters from the last century together with modern heat pumps are gathered in the same premises that Thermia occupied between 1923 and 1968.

In 2007, Heat Pumps R&D Center in Arvika was opened by Sweden's Prince Carl Philip. The centre develops heat pumps that cover everything from tropical to arctic climates, which means that Thermia can satisfy global requirements.





Thermia Värme AB | Box 950 | SE-671 29 Arvika, Sweden

Tel: +46 (0)570-813 00 | Fax: +46 (0)570-188 40

www.thermia.com