

GEOTHERMAL ENERGY  
**SUPERB  
CLIMATE SOLUTION  
WITH A PROVEN RECORD**

Thermia Diplomat Optimum G3

[thermia.com](http://thermia.com)

## LOW-CARBON HEATING IS THE KEY TO SUSTAINABLE DEVELOPMENT

With the twin goals of reducing costs and maximizing sustainability, pressures on building design, operation and performance continue to grow. Today's trend towards low-energy building or so called 'nearly zero energy buildings' reflects radical changes in the way buildings are being designed and constructed to reduce their environmental impact.

More than a quarter of Europe's CO<sub>2</sub> emissions come from heating, lighting and running appliances in our homes. 80% of this is attributed to our space heating and hot water alone. Clearly, we need to find alternatives and more efficient means of heating our homes and water.

Heat pumps harvest 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.

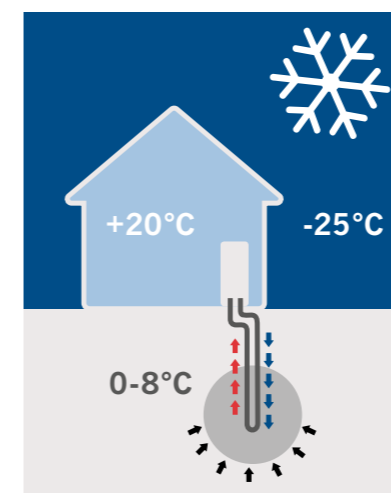
**Air and ground source heat pumps have the potential to reduce your home's CO<sub>2</sub> emissions by up to 50% and can act as your individual contribution to the commitment to source 20% of European energy from renewable sources by 2020.**

## RENEWABLE ENERGY ECO-FRIENDLY HEATING AND COOLING

As an endlessly renewable energy source for any home, heat pumps should be considered at the earliest design stage. Incorporating renewable heating and cooling into your project will significantly reduce annual energy consumption, operating costs and your carbon footprint.

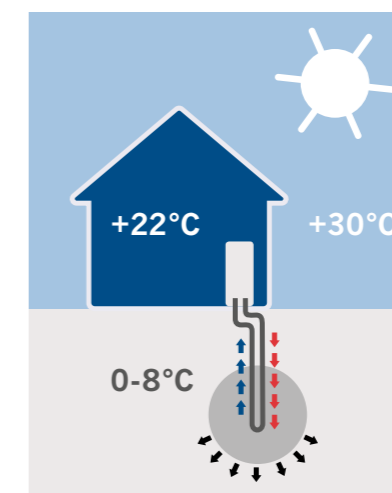
The basic principle is as simple as it is brilliant: take the free energy that exists in the air and ground – and convert it into heating for your home.

Geothermal heat pumps operate on a simple principal: they move heat from one place to another via a refrigeration process. The energy stored in the ground or ground water is simply extracted and transferred to the heat pump via the borehole – and vice versa – and can be used for heating, hot water and cooling. In this way, nature provides us with superior indoor comfort in an economical way with nearly zero negative impact on the environment.



### Warm in the winter

The heat pump concentrates low-grade heat from below ground and raises its temperature. The heat is then transferred to the house's energy distribution system – usually radiators, hydronic floor heating or fan coils.



### Cool in the summer

In the summer, the process can be simply reversed. The heat pump collects heat from the house and deposits it into the ground borehole to provide cooling. This is far more cost-efficient than traditional air conditioning.



## OUR BRAND STORY BORN IN SWEDEN

Thermia started 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, 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."

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. Since then, we have been 100% dedicated to developing, refining, manufacturing and pioneering superior heat pumps.

Read our story at [story.thermia.com](http://story.thermia.com)

# PRESENTING TESTED AND PROVEN RENEWABLE ENERGY SOLUTIONS

**We are proud to present the Thermia Diplomat Optimum G3 ground source heat pump: designed, built, tested and proven in Sweden, one of the harshest European climates.**

The Thermia Diplomat Optimum G3 is a domestic heating, cooling and hot water system based on energy stored in the ground. It represents a complete and cost-effective alternative to a fossil fuel boiler.

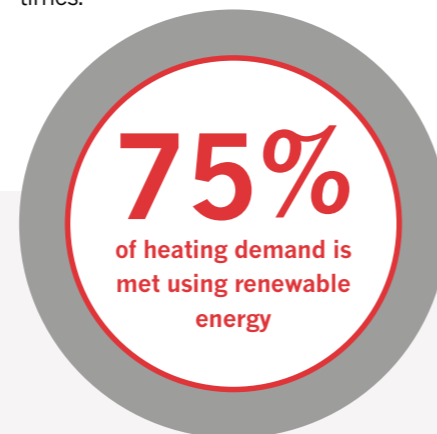
The G3 is designed to provide an excellent indoor climate, maximum reliability and optimum cost efficiency. While supplying you with heating, hot water and cooling, you can benefit from a staggering reduction in energy consumption of up to 75%.

The Thermia Diplomat Optimum G3 offers a low-carbon alternative to traditional boilers in modern buildings, whether new-builds or refurbishments.

## The essence of Scandinavian design and durability

Thermia heat pumps are designed, tested and manufactured in one of the harshest climates in Europe. Swedish winters can be very hard. February is usually the coldest month, with temperatures dropping as low as -30°C or even lower in the north and heating is essential from September to May.

The Thermia Diploma Optimum G3 is built on 40 years of experience in developing and supplying heat pumps and has been one of Thermia's best-selling products since 2012. State-of-the-art technologies are one secret behind its excellent performance and ability to ensure a perfect indoor climate at all times.



## THERMIA DIPLOMAT OPTIMUM G3

### Thermia Diplomat Optimum G3

Available in output sizes: 6, 8, 10, 13, 17\* kW  
Electrical connections: 400 V 3N

### Thermia Diplomat Optimum G2

Available in output sizes: 6, 8, 10, 12 kW  
Electrical connections: 230V 1N

\*available only with a separate hot water tank

Energy class according to Eco-Design Directive 811/2013:

- A+++** When the heat pump is part of an integrated system
- A++** When the heat pump is the sole heat generator



The Diplomat Optimum G3/G2 is also available with a separate hot water tank – perfect if you need extra volume.

# TAKING COMFORT TO THE NEXT LEVEL



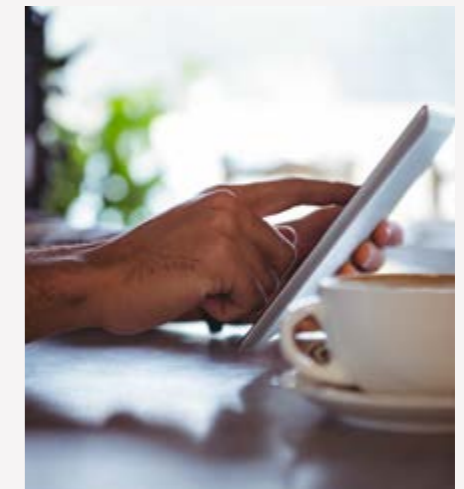
## A complete climate solution

Thermia heat pumps are designed to provide a perfect indoor temperature and climate all year round. The Thermia Diplomat Optimum G3 supports optional cooling, pool heating, solar panels and other secondary heat sources.



## More hot water, faster

The unique HGW (Hot Gas Water) heater and integrated TWS (Tap Water Stratification) technologies increase the annual efficiency of hot water production by about 20%. Domestic hot water can be produced simultaneously with heat to provide plenty of hot water during the heating season at a very low cost. Thermia technologies produce hot water much faster and at higher temperatures than traditional alternatives.



## Control your heat pump from anywhere

With the Thermia Online accessory, you can check that your heating system is working properly and adjust it according to your needs at any time and from anywhere. In addition, our online system provides installers with comprehensive diagnostics data and also enables them to respond promptly to notifications or access a live feed on system performance.



# CO<sub>2</sub> SAVINGS MAKE US ALL WINNERS

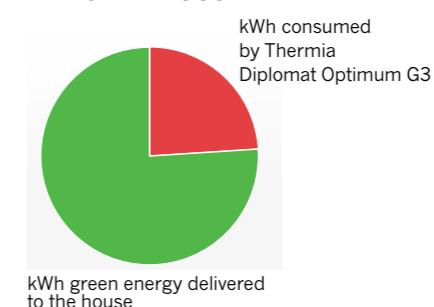
## Real operational savings – performance that speaks for itself

Here is a summary of a case study involving a Thermia Diplomat G3 heat pump, installed in a newly built 235 sqm family house in central Slovenia, around 15 minutes from the Alps. The Thermia G3 provides the house with heating, domestic hot water and cooling, as well as heating a Jacuzzi that is in use throughout the year.

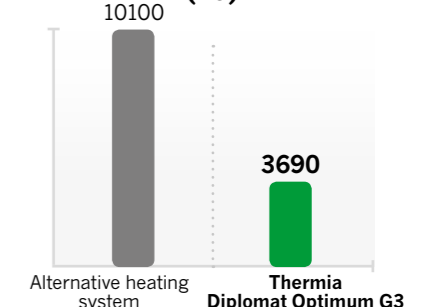
Energy delivered by the heat pump to the house was 95,000 kWh (accumulated over three years). Over the same period, the owner paid for just 22,777 kWh, meaning that 75% of the energy used is pure renewable energy taken from the groundwater. Measured performance (SPF) after three years is 4.17 – the perfect result.

Carbon emissions have been reduced by 63% compared with the alternative oil system.

### ENERGY DELIVERED TO THE HOUSE



### CO<sub>2</sub> EMISSIONS (KG)



You can read the full Slovenian case study on [www.thermia.com](http://www.thermia.com): 'Low-carbon heating and cooling system for a single family home'.

# Thermia DIPLOMAT OPTIMUM G3

The Diplomat Optimum has been designed to provide optimum performance across all climate zones in Europe – with an unrivalled focus on minimizing energy consumption and providing maximum comfort through state-of-the-art technologies.

## Controller – the brain of the heat pump

The Thermia controller uses an algorithm that ensures the lowest possible running cost – while maintaining the desired indoor temperature. Using the Thermia control system reduces the number of thermostats needed and means that no pumps, valves, zone valves or time clocks are required.

## 180-liter unvented hot water tank

The integrated Tap Water Stratification (TWS) technology enables hot water to be produced significantly faster and at higher temperatures than traditional alternatives. The large surface area and orientation of the TWS coil ensures the fastest possible recovery time.

## High-quality components

The components we use inside our heat pumps are supplied by respected European brands. These include Class A speed-controlled circulation pumps and the high-performance heat exchanger known as a MPHE (Micro Plate Heat Exchanger). The hot water tank is made from stainless steel to ensure hygiene. Unlike enamel tanks, it doesn't require anodes. The quality of the components we use ensures many years of trouble-free operation.



## Hot Gas Water (HGW) technology

HGW technology extracts a percentage of the high-temperature gas after the compressor and before the condenser. This results in a higher domestic hot water temperature, fewer domestic hot water start cycles, a greater volume of hot water and significantly enhanced seasonal performance over the heating season.

## Opti technology - adaptive performance

The control system ensures that the correct delta temperatures are constantly monitored and maintained. This is achieved by voltage regulation of the circulation pump, which alters the speed accordingly. Opti technology means that performance is constantly adjusted to the prevailing requirements and conditions of the heating system.

## Silent cabinet

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



## INTELLIGENT CONTROL SYSTEM WITH EASY MENU

The controller coordinates and controls the heating system. Thermia heat pumps work with complete precision to give your home the best possible indoor climate at the lowest possible cost.

Our controller is very easy to use. It displays visualized heat curves and, once it is set, you never need to think about it again. Raising or lowering the temperature can be achieved at the touch of a button.

## LET THE HEAT PUMP DO THE COOLING

**Use your heat pump to produce heat during the cold season and enjoy comfort cooling when the weather is hot.**

By adding a cooling unit to your heat pump, you get a comprehensive climate comfort system that gives you a perfect indoor climate all year round. It is also significantly more economical than conventional systems in terms of both initial investment and running costs.

### Passive cooling

By taking advantage of the cool brine in the ground loop, cooling is created at a cost equivalent to the energy consumption of a couple of light bulbs. Passive cooling can be provided by the G3 model by simply adding a separate module.

### Active cooling

If necessary, extra cooling can be achieved by using active cooling, in which cooling is produced using the compressor system. With this method, cooling produced by a ground source heat pump is still more cost efficient than traditional air conditioning.





# Thermia THE ULTIMATE ENERGY PROVIDER SINCE 1923



## Pioneering heat pumps

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

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.



## Born 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 specialist, Danfoss, among our technology partners.

