

The oldest Slovenian thermal spa is now a stunning hotel and spa, powered with ultra-modern green technology.



Terme Dobrna is the oldest working Slovenian thermal spa, with a history dating back 600 years. Today it is the most luxurious and stylish boutique hotel and spa, offering health and tranquility, with super-modern thermal efficiency, courtesy of a low carbon energy system using Thermia ground source heat pumps.



### Fascinating history

The history of this thermal resort begins thousands of years ago, when the mild climate without fog or cold winds attracted the first settlers. In prehistoric times, a fortified settlement was built on the nearby hillock Gradišče and archaeological findings reveal that Dobrna and its thermal water were well known by the Celts and Romans.

The first Slovenian settlers at this thermal spring named the upper part of their settlement 'Toplice' (Spa) and the lower part 'Dobrna' after the pedunculate oak (in Slovene: 'dob'), which is common to the surrounding area. The Dobrna spa and thermal spring were first mentioned in written records in 1403.

In 1624, the Spa Centre was built, boasting marble thermal baths to enjoy the healing water. In 1862, Hotel Dobrna was added to the spa complex and was soon hosting

visitors from all over Europe. Then, in 1979, came a hotel with a thermal swimming pool, a health centre, a restaurant, a café, and other rooms.

### The next chapter

In 2020, to improve and enhance the facilities, Terme Dobrna dd, decided to modernize and retrofit one of the buildings into a hotel with six luxury apartments, each

featuring a private spa with its own wooden massage tub with thermal water. This required a huge amount of heated thermal water for bathtubs and showers, to be delivered by a system that is not in view, to preserve the aesthetic of the apartments. In addition, in line with Terme Dobrna's commitment to sustainable tourism, this needed to be delivered with minimal environmental impact.





### Green technology that heats and cools

The key requirement was rapid heating of a large volume of thermal water, allied with a high storage capability, as the 6 tubs each have a volume of 2 m<sup>3</sup>. The system also needed to be discreet and noiseless, as the apartments are located in a quiet location, surrounded by green and beautiful tranquility.

After examining the client's energy demand and simulating different solutions, we calculated we needed about 60 kW of power to be able to quickly refill the volume of hot water in the tank, so that it is ready to fill the next tub in the shortest possible time, as well as providing hot water to the thermal showers in the apartments, which adds to the hot water demand.



### Fact Box:

**Investor:** Terme Dobrna d.d.

**Location:** Dobrna, Slovenia

**Year of installation:** 2021

#### Characteristics of the building

- Hotel and apartments
- Building size: 800 m<sup>2</sup> existing boutique hotel + 500 m<sup>2</sup> newly built luxury apartments
- Insulation of the building: old part without insulation, new part built according to modern standards

#### Applied solution:

- Thermia Mega L (14 – 59 kW) ground source heat pumps
- Energy source: vertical collectors in boreholes
- Heating capacity: 60 kW
- Heat/cool distribution: floor and convector heating



The natural beauty and tranquility of the Boutique Hotel and spa Suite Dobrna is perfectly complemented by its state-of-the-art, low carbon, renewable energy system.



We proposed a powerful and highly efficient ground source heat pump (the Thermia Mega L), which could not only deliver the hot water required, but also heat and cool parts of the building, when necessary.

### **One solution for two buildings**

Although significant heating capability was required for the apartments, the full capability would rarely be required. The general requirement for the apartments was approximately 15 kW, which left a residual capacity of 35 kW.

Next to the new building is a boutique hotel which was heated by pellets and cooled by a chiller, so connecting this building to the new system was the logical solution.

The Thermia Mega L takes energy from the ground, in this case from a vertical collector located in the borehole. Since the new building stands on its own plot and the neighboring land is owned by the municipality, we had to install the collector underneath the foundation slab. Before the foundation slab was poured, 10 boreholes were drilled, each with a depth of 100m. Then, connections were made between the vertical collectors and the ground source manifold under the foundation slab.

From the start to the installation of the ground source manifold took less than 14 days, thus ensuring minimal hold-up for other installation work. When construction was completed, the heat pump was installed and

connected to the neighboring boutique hotel. In the final phase, we adapted the existing heating system in the boutique hotel so that there is one system to control heating and cooling in both buildings.

When all testing had been done and the heat pump commissioned, it was integrated via the ModBus protocol with the central control system of Terme Dobrna. From that moment, their technical staff could control and manage all the functions of the system remotely.

*'We are in close contact with the user and have made additional optimizations since the launch. We are available whenever they need us.'* Yasin Jodeh - Managing Director, Atlas Trading d.o.o





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*“A big advantage is the flexibility of our tailor-made solutions. Since the company was founded in the late 1980s, we have repeatedly launched onto the market innovative, high-quality and efficient products. This remains the reason why we are a pioneer in the heating and cooling industry and why we represent some of the most well-known brands for energy efficient heating and cooling on the market today”, explained*



Yasin Jodeh, Managing Director at Atlas Trading d.o.o.

Examining the existing situation, Atlas Trading recommends a system solution with correct sizing,

a comprehensively prepared execution plan and a complete operational test run, with all the work carefully supervised to bring the system into full operation.



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### Born in Sweden

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