

Case Story | Residence Hotel Antares

Convenience, reliability and simple execution are the key words when it comes to revamping an HVAC system

With a focus on energy savings and efficiency, the Residence Hotel Antares in Selva di Val Gardena (Bolzano) installed an HVAC system that uses Grundfos MAGNA3, MAGNA1 and ALPHA2 circulator pumps and the new mixing loop solution, Grundfos MIXIT.



Find out more on [grundfos.com](https://www.grundfos.com)

GRUNDFOS 

Possibility in every drop



The situation

Located in the centre of Selva di Val Gardena and surrounded by the majestic scenery of the Dolomites, the Residence Hotel Antares offers its guests a unique alpine experience where customers can discover relaxation and comfort.

Director Diego Pozzatti, at Cos.mo. SpA, “the aim was to achieve an overall improvement in the system’s performance, and be able to control and manage the heating throughout the hotel”.

In addition to the main hotel building – a 50-room hotel that accommodates 100 beds and exclusive services such as a swimming pool, sauna and wellness centre – the complex also includes two nearby serviced apartment blocks for tourists, which contain 60 rooms and space for up to 150 beds. Over the years, the hotel has been constantly modernised and recently, in order to save energy and improve energy efficiency, the owner – the Residencehotels SpA family group – decided to renovate the HVAC system that was previously managed by separate boilers.

“We wanted high-efficiency and high-performance products, so firstly we put our trust in the expertise of the design studio BIOEngineering Srl in Trento, which we have known for some time, having already collaborated with them on several occasions. We then called the local installer Hofer Group GmbH Srl from Santa Cristina Valgardena (Bolzano), which was familiar with the history of Hotel Antares and had previously managed its activities and operations. Designers Ruggero and Marzia Celva proposed Grundfos solutions and innovative products that we later adopted, spurred on by our trust in the brand and its products, which are already been used across numerous facilities in the Residencehotels SpA Group.”

“The need arose to unify the setup and update the HVAC system”, says Technical

Location

Residence Hotel Antares – Selva di Val Gardena (Bolzano)

Client

Residencehotels SpA – Trento

Technical Director

Diego Pozzatti, Cos.mo. SpA – Trento

System design

Ruggero and Marzia Celva, BIOEngineering Srl – Trento

System implementation

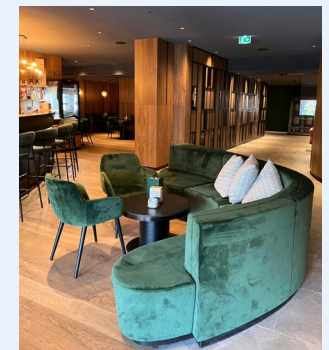
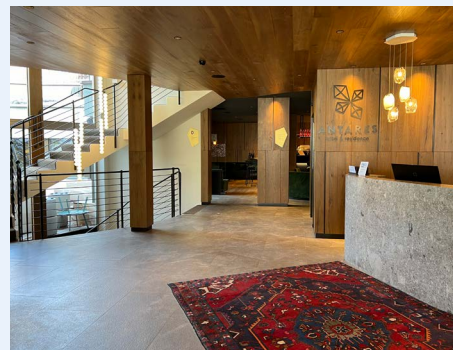
Walter Mairhofer, Hofer Group GmbH Srl – Santa Cristina Valgardena (Bolzano)

In addition to the hotel, the complex also includes two nearby serviced apartment blocks for tourists, which contain 60 rooms and space for up to 150 beds. Designed in a typical alpine style, the hotel includes exclusive services such as a swimming pool, sauna and wellness centre.

“We adopted the Grundfos solutions and innovative products, spurred on by our trust in the brand.”

Diego Pozzatti

Technical Director at Cos.mo. SpA



The solution

The heating system was renovated by opting for an internal district heating system and centralising the boiler system, which currently supplies heat to several exchangers with substations located within the three separate facilities (the hotel and the two adjacent serviced apartment blocks). Specifically, 35 Grundfos MAGNA3, MAGNA1 and ALPHA2 wet rotor circulator pumps were installed, which send the carrier fluid from the boiler room to the substations at the individual facilities to ensure a continuous high-efficiency service, as well as eight innovative MIXIT mixing loops. “The MAGNA3 D pumps installed in the HVAC system enable the hot water to circulate to the exchanger and feeds both the heating circuit and the domestic hot water circuit. Then there are other pumps installed directly on the heating circuit”, clarifies Diego Pozzatti. “The advantage they have is the fact that they are electronically controllable variable speed pumps, easy to monitor and able to ensure flow rates that can be adjusted in relation to demand and the number of people in the hotel. Meanwhile, the MIXIT mixing loop features a pump that already connects directly with the mixing valve within a unique circuit, which can measure a whole range of very important data in terms of hotel management in an integrated way, such as consumption parameters. You therefore benefit from a mixing valve and a pump installed within the same group, saving space and assembly time.” MIXIT is an all-in-one mixing loop, equipped with flexible features and functionality designed to meet the various needs of heating and cooling systems.

Designer Ruggero Celva at BIOEngineering Srl explains how it works. “We have installed four MIXIT loops in the hotel substation alone. We use these mixing systems to regulate the operating temperature of the heating circuits according to an external climatic curve. Then, we modulate the flow

temperature of the circuits according to the temperature that we detect outside the building through several probes. Focusing on these two requirements, we use a climatic curve to regulate the flow temperature: our goal is to try and keep the return water as cold as possible to bring the system into condensing mode (usually below 45–40 °C in relation to the return temperatures in the boiler). The MIXIT loops are used to lower the return temperatures, firstly by looking at higher boiler performance and guaranteeing a flow temperature according to the external temperature, in order to have an appropriate level of comfort in the rooms, circuits and heating terminals.”

MIXIT simplifies commissioning and balancing by making these processes faster, smoother and more efficient, as all components are adjusted and balanced automatically according to the needs of the system to ensure energy savings up to 25%. By monitoring the HVAC system, energy consumption can also be reduced further. In terms of installation, expectations were met and there were no notable interruptions, according to the Technical Director: “The setup is simple and saves time and space when assembling the HVAC system, since there are no pipes in or out linked to pumps and mixing valves on the circuits. Not to mention that you enjoy more accurate control over consumption.” A step-by-step approach was used to complete the systems, working on the HVAC system and MAGNA3 D pumps, leaving the substations unchanged and then focusing on the substations and MIXIT loops. “It took us two or three months to install everything, since the assembly of the distribution manifold – composed of large pipes from which all the branches and risers start – was quite complicated”, says Pozzatti. “Work lasted two off-seasons, when the hotel was closed, while the assembly of the MIXIT loops alone took about a week.”



Technical Director
Diego Pozzatti,
Cos.mo. SpA

The result

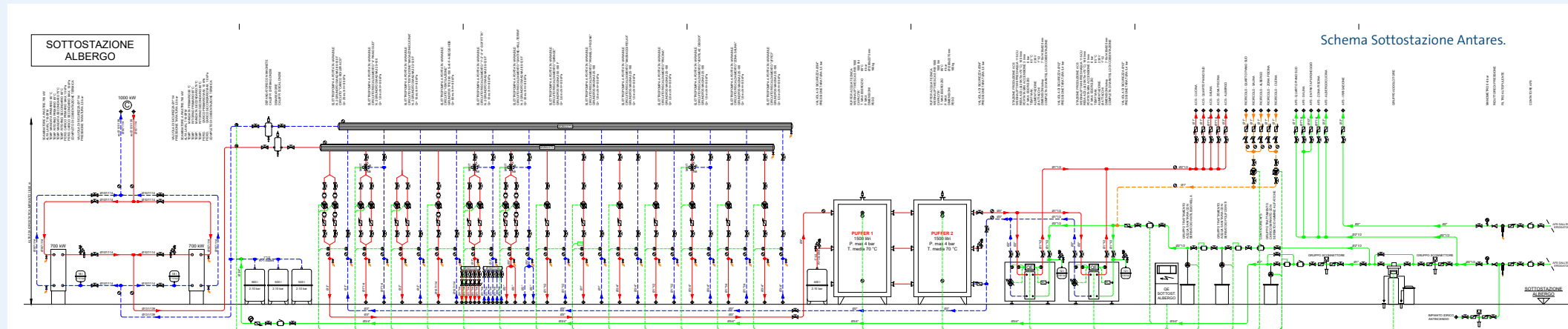
For two years now, the installed pumps and MIXIT loops have been managing the heating and domestic water for 67 apartments and 43 hotel rooms – for over 100 lodgings in total – without any problems or service interruptions. Thanks to a dedicated Building Management System, which enables the system to be monitored remotely, the system's various parameters can also be monitored remotely, allowing any prompt intervention as required. "On many occasions we happened to notice a problem, and within an hour we were able to fit everything back together", confirms designer Ruggero Celva. "This is the great advantage of remote monitoring. Once trained, the internal maintenance technicians can also check on the system parameters two or three times a day through a web server or any application that has a web browser, without having to physically go and look at



Overview of the HVAC system with the installation of mixing circuits using the MAGNA3 and MIXIT solution

“All components are adjusted and balanced automatically according to the system’s needs, ensuring energy savings up to 25%.”

Ing. Ruggero Celva
Director of BIOEngineering Srl



the HVAC system, all thanks to a summary screen where the boiler and domestic water temperatures and the status of the pumps can be observed, with any anomalies highlighted.” The Technical Director points out that Cosmo SpA has supplied Grundfos devices for several years now, welcoming their efficiency and the huge reliability they guarantee. “We have already noticed big savings in terms of consumption”, Pozzatti continues, “although currently we still can’t quantify this precisely, mainly because of the various systems already present in the building, which are not comparable with the current ones. The savings are clear, thanks to the optimal operation of the boilers in a single integrated system

and the lower electricity consumption of the current pumps, with variable frequency. We are storing all the useful data for any future comparisons”.

Grundfos also organised a special meeting inside the Residence Hotel Antares to present the new MIXIT system to around 30 interested installers. The interest of the participating audience was clear, including in the HVAC system. “To ensure that there are no issues with the system, in the initial phase Grundfos always requests a lot of data from the designer to avoid any unknowns or doubts during installation”, notes Celva. “Having precise data from the beginning means that



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the installer can make fewer mistakes or can take better and informed decisions.

“Having a single supplier and representative for the pumps and MIXIT loops makes the installation easier, not only when managing the purchase order, but also later during the start-up phase when dealing with a single customer support centre.”

Ing. Ruggero Celva
Director of BIOEngineering Srl

Having a single supplier and representative for the pumps and MIXIT loops makes the installation easier, not only when managing the purchase order, but also later during the start-up phase when dealing with a single customer support centre. We have already completed two other systems for Residencehotels”, concludes the designer, “and based on the level of satisfaction achieved with this system as well, we have once again opted for Grundfos devices”.



Grundfos products installed

- 35 MAGNA3, MAGNA1 and ALPHA2 pumps
- 8 MIXIT loops

Advantages of Grundfos systems:

- Innovative products
- Single supplier and point of contact for materials and customer support
- Reliability and guarantee of continuity of service
- High performance and energy efficiency
- Straightforward commissioning and installation
- Cost savings
- Contact personnel for technical aspects
- Remote monitoring



Hot water storage circuit
and domestic hot water
recirculation

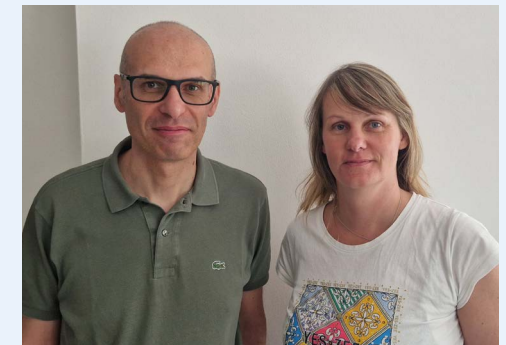
The testimony

“We’ve been working for Residencehotels for years and share a long-standing relationship of mutual trust. The owner’s requirement was to revamp the HVAC system of the Residence Hotel Antares, covering several buildings, along with the modification of the traditional domestic water storage systems. In fact, due to the issue related to Legionnaires’ disease, for some years we proposed that Residencehotels replace the traditional storage tanks with drinking water storage devices combined with a heat exchanger. This means that cold water would come from the water mains at 10 °C, therefore free of contamination from legionella (a bacterium that proliferates between 25 and 45 °C), and that, through a system of exchangers, hot water would be produced at 60 °C in real time and according to requirements. Combining these needs, it was decided to revamp the building’s heat generation system, opting for a small internal district heating system and centralising the boiler system. We chose Grundfos devices because, based on the experience we’ve gained over the years across several professional facilities (hospitals, tourism, manufacturing, industry, etc.), this company has always guaranteed us the benefit of using reliable, high-performance products. These fundamental characteristics ensure the continuity of system operations, as well as an uninterrupted domestic hot water and heating service. We weren’t familiar with

MIXIT. It was the first time we included this product in a project and tested it on the field, but we went ahead with it based on trust, thinking “if Grundfos has taken this path, this is definitely a product that guarantees a performance standard up to the level of reliability we’re looking for”.

“And we weren’t wrong. Taken on over several seasons during breaks when the facilities were closed, the project was very complicated to carry out and required a significant commitment in terms of time and investment. But Grundfos was always right on hand to provide information, including via a specialised channel dedicated to any technical aspects. The company has trained persons who are specialised in certain products: this is a rare thing and very much appreciated.”

Ruggero Celva and Marzia Celva
Directors of BIOEngineering Srl



The testimony

“I believe that this installation, also thanks to the choice of MIXIT mixing loops, was easier than those we usually handle, because there were fewer components to deal with and they were also already pre-assembled in the factory. Commissioning was really quick: it was easy and intuitive for technicians to understand the operations to be carried out. We opted for this solution to have on-board adjustment and the integrated energy meter, even if it doesn't have MID certification. These devices ensure that operation is guaranteed and completely autonomous, which is a significant advantage. In our Group, work teams are always composed of two people and the assembly time obviously depends on the size of the systems. However, in this case I would say that it took us from two to three hours to install the larger devices, but



in some cases it was difficult to maintain the minimum distance of half a metre between the pump and the MIXIT loop. So, while I would make the same choices again for new systems, especially large ones, I would also increase the maximum distance between the MIXIT loop and the circulator. Any suggestions? For systems like these, it would be better to have clean heating water. We always had to rinse the system, which in any case would have been necessary regardless of whether or not a MIXIT loop was used.”

Walter Mairhofer

Design office for plumbing and heating systems
at Hofer Group GmbH Srl

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***With reference to the MIXIT solution**

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