



## Comfortable warmth for 'Rössli' and 'Kreuz'

Modernization of the heating hydraulics in historical  
hotel buildings with the MIXIT mixing loop solution

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Possibility in every drop



Image: Hotel Balsthal / Jeronimo Vilaplana

## Heating system modernization at the Hotel Balsthal (Switzerland)

Hotels are a place of hospitality, and that includes not least cozy warmth. Historic buildings in particular require intelligent solutions to provide this comfort reliably and efficiently. A typical example is the traditional Hotel Balsthal in Solothurn's Thal Nature Park in the Basel, Zurich and Bern city triangle. The historic ensemble of buildings with the houses 'Zum Kreuz', 'Zum Rössli' and 'Kornhaus' have characterized the village of Balsthal since the Middle Ages. In 2010, the entrepreneurial couple Géraldine Philippe and Walter Heutschi took over the hotel and carefully modernized the buildings in several stages. Today, the ensemble comprises 65 rooms, two restaurants and seminar rooms for 260 people.

### Shortcomings in the heat supply

The hotel was not satisfied with the heating system. "The heating didn't provide constant warmth, it was often either too



cold or far too warm in the rooms, especially in the Rössli," reports Karin Steiner, Restaurant Operations Manager. "Of course, we no longer wanted to put up with this restriction on guest comfort, so we decided to have the building technology thoroughly checked by a specialist company." The hotel commissioned EQUANS,

a leading specialist for energy services, facility management and building technology in Switzerland, to do this. EQUANS carried out an inventory of the current situation at the beginning of 2022 and developed an energy concept with multi-stage solution proposals.

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The inventory analysis revealed why the heating performance in the hotel was unsatisfactory. "During an earlier modernization, the heat supply had been switched from an oil boiler to district heating," explains Peter Schnidrig, Key Account Manager at EQUANS. "However, the hydraulics were retained and the existing pump was used as a district heating pump. The admixing circuit was unsuitable for district heating operation and the pump was not powerful enough. In addition, individual groups were not hydraulically balanced and the control technology was outdated. As a result, the return temperature was too high, the heating output was too low or inconsistent, and the system operation was inefficient."

The most important immediate measure proposed by EQUANS was to replace the main pump in order to provide sufficient pressure for the heat supply in the widely ramified pipe system of the interconnected building ensemble. The existing pump was replaced in 2022 with a powerful, highly efficient Grundfos TPE inline pump.

### Mixing loops with new solution

The main measure was the renewal of the hydraulics and control system. EQUANS carried out the work successively in late summer and fall 2023 during ongoing hotel operations. In addition to the main distribution system, a total of around 20 control circuits were replaced, initially in the technical control center in the Zum Kreuz building, then in the Kornhaus, the Rössli and two other buildings that also belong to the hotel's group of buildings, the Hotel Riverside and a residential building.

The Grundfos MIXIT mixing loop solution was used in most of the circuits. MIXIT is based on a new concept in which all the essential components of the mixing loop, i.e. valves, stepper motor, sensors and intelligent temperature control, are integrated into a compact control unit. This eliminates the need for time-consuming piping and cabling of individual components, especially as the control unit communicates wirelessly with the MAGNA3 secondary circuit pump via an integrated radio interface. Overall, the installation and commissioning effort is reduced by up to 50 percent. The control unit provides up to 170 data points from mixer and pump. One possibility to use the data is via BMS. The control unit is already equipped with a

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Modbus TCP and BACnet IP interface on the hardware side. All that is required for use is a software upgrade via the Grundfos GO operating app. Alternatively, system operation can also be controlled without BMS. Grundfos offers the BuildingConnect cloud platform for this purpose, which can access the data of the control unit in real time via the integrated Ethernet interface and has an intuitive user interface with which the system operation can be conveniently monitored and optimized.

The innovative solution already proved its worth during installation. "The historic basement floors of the hotel have narrow technical rooms with low ceilings," reports Peter Schnidrig from EQUANS. "Conventional mixing loops are practically impossible to install cleanly in these cramped conditions. This was no problem with MIXIT. We were able to optimally position the pump and control unit, and installation was much easier and faster than with conventional mixing loops."



### Precise control

In the course of replacing the outdated control technology, EQUANS set up a decentralized system with on-site intelligence at the Hotel Balsthal. Communication takes place via Ethernet with BACnet/IP protocol. The MIXIT control units are also integrated into the system via BACnet/IP and can be controlled via the BMS with visualization at the operating stations. In addition, the hotel and EQUANS also use the BuildingConnect cloud platform to access some of the control loops equipped with MIXIT.

With the data available via the control unit, the individual circuits can be regulated as required for optimum operation. "Due to the heterogeneous building stock and the complex pipe system, the circuits require very different flow temperatures," explains Peter Schnidrig. "For some circuits, we need a flow temperature of around 70 degrees for a comfortable room temperature of around 22 degrees at an outside temperature of minus 8 degrees. In the Kornhaus, which was completely renovated a few years ago and is very well insulated, a flow temperature of 50 degrees is sufficient. For efficient operation, it is therefore important to precisely control the flow for the different circuits."



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Finding the optimum regulation is an ongoing process. "The key to optimizing a system is data combined with experience from operation," says Schnidrig. "As there was insufficient data from the earlier operation, we first had to calculate the heating load during planning. The experience of the first few months with the new system shows that we were pretty much right. Now we can continue to gradually optimize operation with the help of the data that MIXIT provides us with."

### Expectations fully met

The building technology specialists are satisfied with the role that MIXIT played in the project. "The modernization had three objectives: to improve the hydraulics, to create optimal control and to remain as cost-effective as possible. We achieved this with the new mixing loop solution," says Peter Schnidrig.

For the hotel, it's not just profitability that counts, but also guest satisfaction. Even on frosty winter days, when temperatures in the Jura were almost double-digit below zero, they enjoyed comfortably warm room temperatures in the Hotel Balsthal. One more reason to stay in the historic buildings on Kornhausplatz in the future.