



And suddenly the water is hot

Bosch solution for 1000 showering athletes

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The athlete dares a last look at the skis in front of him. Adrenaline rushes through his body. Then he feels the decisive jolt. Followed by the thrill of speed. Action like this is everyday business on Lake Langenfeld. Four water ski cables and some 500,000 visitors a year, including athletes, bathers and days trippers, make the water ski centre in the Rhineland the largest in the world. The shower facilities also have to live up to this standard. But when the number of visitors rose to 1000 water sports enthusiasts a day in the summer, the showers reached their limits, with the hot water temperature rapidly dropping and the athletes unable to take a relaxing hot shower after the extreme sport. Operator Benjamin Sühs wanted to change this. Together with Bosch, he embarked on a comprehensive modernisation of the sanitary and heating systems. It was import to him to ensure that the sustainable heating and hot water technology is ready for a future expansion of the system. Benjamin Sühs is sure that his future-proof system fits just right.

When the hot water tank runs empty

The first athletes split the water surface of Lake Langenfeld already early in the morning. By the afternoon, the number of sunbathers and water skiers will near the four-digit mark – not only the water ski facilities will then be very busy. Visitor numbers of up to 1000 water sports enthusiasts per day were not uncommon in the record summer of 2019 – not least due to the fact that the water ski centre in Langenfeld features the world's first lake surfing wave. But what happens when 1000 guests want to have a shower after their stay? In short: the sanitary facilities face a mammoth task. The twelve showers are supplied by hot water tanks. Another 24 showers are already being planned to cope with the steadily growing number of visitors. Once the stored hot water had been used up, the system previously needed a long time to refill the water tank with water at the right temperature. As a result, highly frequented operation was possible only to a limited extent, as the responsible installer Markus Ennenbach knows from his own experience: "On busy days, the hot water tank literally ran empty, ultimately sending the water temperature falling from 60 to only 20 degrees Celsius."

Another problem was the increased risk of legionella formation. While the demand for hot shower water is very high during peak periods, far less hot shower water is needed in the autumn and winter months. The hot water tank was not designed for the changes in demand, which meant that hot water was stored for longer periods of time, promoting the formation of bacteria and legionellae, as Markus Ennenbach knows. “The hot water tank has been in operation for about 15 years. After such a long time, the deposition of lime and iron particles at the bottom of the tank is not unusual. But the bigger the tank, the larger the potential breeding ground for legionella.” Even though, the storage tank had always passed the annual inspection by the health authority with good results, it was time to think about a more efficient and more flexible heating and hot water solution.

A heating and hot water solution for all cases

Heating engineer Markus Ennenbach has been loyal to the Sühs family who operates the water ski centre also as an amateur athlete and instructor for many years. This made it all the more important for the 44-year-old to find the ideal heating and hot water solution for the sanitary facilities of the family business. He immediately got planning support from Bosch. Together with Head Planner and Key Account Manager Jörg Vorländer, Markus Ennenbach designed a heating and hot water solution that is geared to the individual needs of the water ski centre. The centre primarily needed a flexible and future-proof hot water supply that takes into account the varying daily capacity utilisation of the system. When the centre is closed in December, the heating and hot water demand drops significantly. Bosch proposed to successively replace the old storage tanks by four Flow Fresh FF 40 S freshwater stations, which, in turn, are supplemented by buffer storage tanks. As the freshwater stations have a much smaller volume than the old storage tanks, there is no risk of legionellae forming. Furthermore, a freshwater station can supply precisely the amount of hot water that is required at any given time. As a guide: if the four stations are connected in cascade, they cover the entire hot water requirements of 160 households. With such an output range, the new system offers exactly the right features to meet the high hot water requirements of the Langenfeld water ski centre. But the freshwater station from heating specialist Bosch is not only suited to cover above-average demand. The heating plates inside the stations permit the selective supply of hot water. Similar to an instantaneous water heater, water is heated exactly when it is needed. The two Stora B buffer storage tanks with a total volume of 2000 litres proposed by Bosch serve as buffer storage tanks for the water that ultimately flows out of the shower heads. When the Langenfeld water ski centre is very busy, the 2000 litres of water are immediately replaced by fresh hot water as soon as they are used up. If no more water is needed, the buffer storage tanks are no longer filled. But the modernisation does not end here, as the 44-year-old boiler will also be

exchanged. A Condens GC7000F will take its place. The possibility of cascading and the resulting outputs of up to 600 kW mean that the new boiler is ideally suited for commercial buildings. Whether consumption is stable or varying, efficiency always has top priority, as the modulating premix gas burner automatically adapts to the current heat demand. As a result, energy is saved at any time of the day and year. The entire heating and hot water concept designed by Markus Ennenbach and Jörg Vorländer is therefore not only a flexible, but first and foremost an efficient heating and hot water solution.

The show must go on – installation during operation

Flexibility in the supply of hot water was one of the key demands made on the new heating system - and the same kind of flexibility was required for its installation, according to Markus Ennenbach. “The water ski centre is open until December. So far, we have therefore had to work while the system is running.” As the showers are in constant use during the day, the water cannot simply be turned off. “It is not possible to work for eight consecutive hours in this project. Instead, we have to push ahead with the changeover from the old to the new system in the early hours of the morning,” the heating specialist explains. The experienced installer is particularly impressed by the flexibility of the new heating solution’s hydraulics: “We not only have to connect the existing showers, but must also take the planned expansion of the sanitary facilities into account already today. Both components must ultimately work together. Even though the installation of the hydraulic system initially requires more planning, this is indispensable for the new heating system,” says Markus Ennenbach. “The main challenge is the continuously changing water demand. Hydraulic systems can easily cope with this and ensure that hot water is flexibly available.”

In Langenfeld they ride green

“I ride green” has been the motto of operator Benjamin Sühs and his family for a long time: “Like the heating system, the old sanitary facilities still functioned, but they were simply not designed for the growing business. Nor are they resource-friendly. The new system is a sustainable investment,” says a confident Benjamin Sühs. Several years ago, the family business already switched to green electricity. The new boiler is equipped with a Solar Inside Control Uni, which permitted effortless integration into the existing solar system – a key criterion for operator Benjamin Sühs. The planned expansion of the sanitary facilities also poses no challenge for the new heating and hot water solution, Bosch specialist Jörg Vorländer reports. “We took into account the additional showers already at the planning stage and dimensioned the number of freshwater stations and buffer storage tanks accordingly. As soon as the showers are installed, they can be integrated into the new system in no time at all.” While he was initially sceptical

about the far-sighted vision of the two experts, operator Benjamin Sühs is now visibly convinced: “Heat and hot water are supplied both efficiently and flexibly in line with our individual needs.” In addition, Benjamin Sühs emphasises that there is a growing awareness for environmental issues among his guests. “While we expect the demands of our guests and, consequently, the overall water consumption to increase, people’s urge to get involved in environmental matters is growing as well,” says the system operator. According to Benjamin Sühs, the new heating system effortlessly masters this balancing act. “In the future, we will heat much more efficiently and hence more environmentally friendly and are also prepared for increasing numbers of visitors.”

A state-of-the-art system

At the start of the planning phase, Benjamin Sühs and his family knew that a major project lay ahead of them. Four freshwater stations, two buffer storage tanks, a gas condensing boiler and the seamless integration of the existing solar thermal solution were to gradually replace a system that had supplied the Langenfeld water ski centre with heat and hot water for about four decades. A few months later, heating installer Markus Ennenbach and Key Account Manager Jörg Vorländer are satisfied with the results of the first test runs. In particular, the clever networking and the easy operation of the control elements convince the experts: “My personal expectations have been exceeded by far,” says Markus Ennenbach. Jörg Vorländer adds: “For us at Bosch, the important thing is to support our customers every step of the way. From planning to selecting the right products to final implementation, we are always at their side.” It was exactly this Bosch promise that was most appreciated by system operator Benjamin Sühs during the project. “For me and my family, the Bosch brand stands above all for reliability and quality. Besides the sophisticated technology, this convinced me most!” As the water ski centre at Lake Langenfeld is to be expanded going forward, sustainable concepts and a trust-based cooperation take top priority: “Bosch is a partner for the future,” Benjamin Sühs now knows for sure.



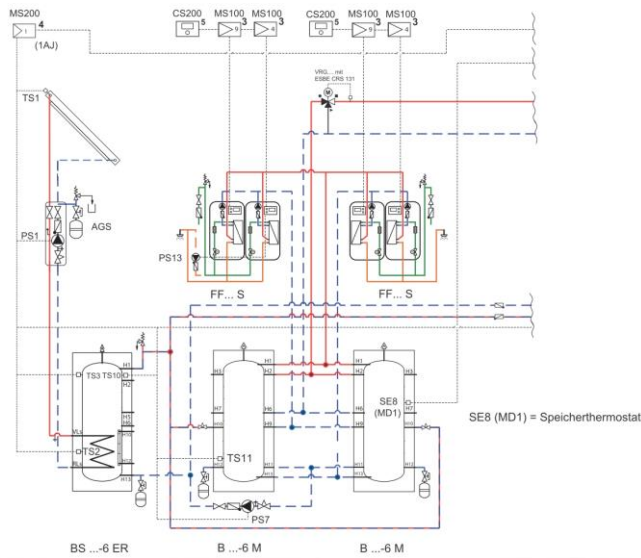
Bosch press photo 01

Almost half a million water sports enthusiasts visit the water ski centre in Langenfeld every year and many of them want to take a hot shower after the sport. (Source: Bosch)



Bosch press photo 02

Heating installer Markus Ennenbach (left), Bosch Key Account Manager and Planner Jörg Vorländer (centre) and the operator of the Langenfeld water ski centre Benjamin Sühs (right) are pleased with the installation of the new heating and hot water system from Bosch. (Source: Bosch)



Bosch press photo 03

Diagram of the new Bosch heating and hot water solution at the Langenfeld water ski centre. (Source: Bosch)



Bosch press photo 04

Four Flow Fresh FF 40 S fresh water stations from Bosch (right) ensure that the right amount of hot water is available for all athletes at all times. (Source: Bosch)



Bosch press photo 05

The Bosch Stora B buffer storage tanks with a total volume of 2000 litres ensure that there are sufficient hot water reserves even at peak load. (Source: Bosch)



Bosch press photo 06

The existing solar system was effortlessly integrated into the new heating and hot water solution from Bosch. (Source: Bosch)



Bosch press photo 07

Heating installer Markus Ennenbach and Bosch planner Jörg Vorländer took into account the planned expansion of the heating solution of the Langenfeld water ski centre already during the planning phase. (Source: Bosch)



Bosch press photo 08

Up to 1000 athletes use the unique water sports facilities in Langenfeld every day and naturally want to take a shower after the sport. (Source: Bosch)



Bosch press photo 09

The world's first lake surfing wave of the water ski centre permits real surfing on an inland lake. (Source: Bosch)

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