

Case | Serbia

Efficient district heating with Grundfos MIXIT solution

Grundfos MIXIT helps the Niš City Heating Plant, Serbia, maximise efficiency and comfort.



GRUNDFOS 

Possibility in every drop



The Situation

The direct heating system of the building at Druge proleterske brigade 16, 18 and 22 was very old and had no modifications since the construction of the building itself. This example shows a low-capacity local system of district heating, where one heat source, a 1.2 MW-boiler room located in the basement of the building, heats several buildings and one family house in the immediate vicinity of the building. The direct heating system was implemented in all buildings, using the heated water transported directly from the boiler room to the radiators of end users.

Over several decades of exploitation, the energy efficiency of the heating system in these buildings became very low, while the automatic heating management system of the building was not in operation. Heat loss was high and there was no way to rationalise the existing system and save energy. This decreased end users' comfort and resulted in higher bills for thermal energy consumed on the one hand, while, on the other, it increased the amount of fuel the City Heating Plant used to heat the buildings.



The Solution

The primary and secondary parts of the installation were separated using a hydraulic switch. This complete separation allowed for the independent distribution of thermal energy to the buildings themselves at the primary level while the secondary level is equipped with the Grundfos MIXIT system. With the help of this system (and the built-in heating curve) that is connected to the external temperature sensor, each building takes as much energy from the hydraulic switch as it needs to heat the building as per the current outside temperature. At the request of the City Heating Plant, the heating curve is set at five points.

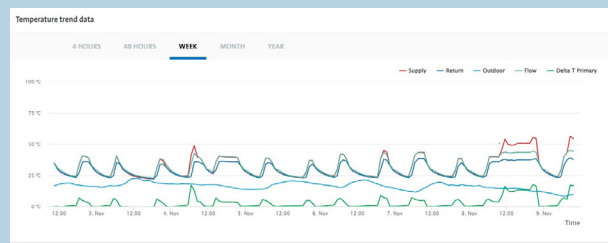
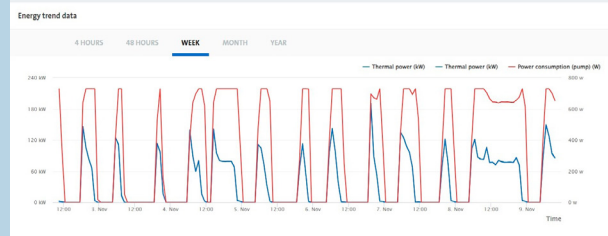
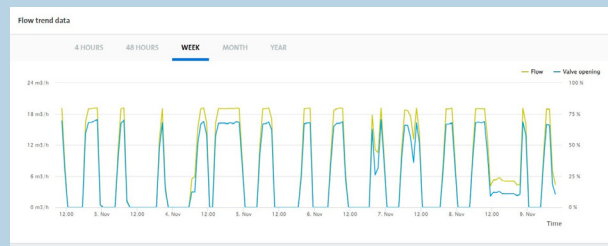
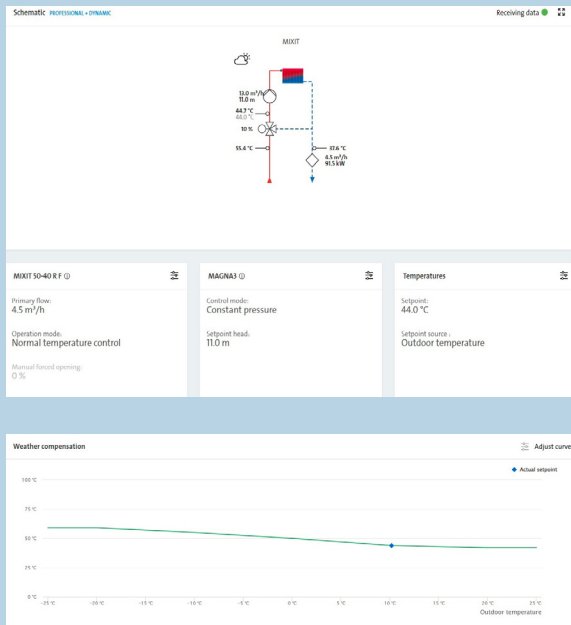
Second, at the request of the City Heating Plant, a temperature sensor in front of the hydraulic switch at the primary level was installed, which stops the Grundfos MIXIT system, and consequently, the heating of the residential building, when the water temperature on the primary side of the system drops below a specific threshold causing the boiler to cease operation. When the boiler plant starts and the water temperature at the primary level reaches the desired



threshold, the sensor gives a signal to the MIXIT system which starts working and heats the residential building.

The Dynamic upgrade hydraulically balances the heating system and limits the water flow to 100% of the heat load. And that is not all – the Grundfos MIXIT system provides 24-hour system monitoring with the help of the Grundfos BuildingConnect platform. With the help of this platform, it is possible to remotely monitor thermal energy consumption and current temperatures in the primary and secondary parts of the system.

Data on the current flow and pump load are available in real time, including data on the openness of the MIXIT device, which provides a good starting point for analysing the operation of the production part of the district heating system and an opportunity to save primary energy.



With the Grundfos BuildingConnect platform, Niš heating plant saved additional money given the remote system monitoring without the need for additional connection to the BMS and SCADA.

This solution streamlines the functionality of the system, reducing the number of installed components significantly. That not only decreased the investment cost of the reconstruction but also lowered the consumption of thermal energy and primary energy.

Grundfos MIXIT

Built-in Grundfos products:

MAGNA 3 50-180 F

MIXIT 50-40 RF



Grundfos MIXIT 50-40 RF



Grundfos MAGNA3

Outcome

The implementation of the Grundfos MIXIT system resulted in a 27% saving of the energy used to heat the building, thereby further reducing the tenants' heating bills by providing the building with just the amount of energy it needs for the current heat load. In addition, we have reduced the consumption of the primary energy source by 24%.

Niš City Heating Plant, as the main producer and distributor of thermal energy in Niš, now benefits from a modern heating system and the potential for further energy savings through the monitoring and analysis of the data it receives from the Grundfos BuildingConnect platform. Tenants are more satisfied, pay lower heating bills with improved comfort and living conditions.

Summary

District heating systems using Grundfos MIXIT can achieve great savings in energy consumption, reduce CO2 emissions, improve people's living conditions and reduce heating bills for their users. They allow for remote access to buildings heated at no extra cost of BMS and SCADA System installation.

Grundfos MIXIT

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