

Heavy-duty pumping tailored for altitude. Briançon, France

A TAILOR-MADE SOLUTION

Briançon is a city located in the Hautes-Alpes, famous for its 300 sunny day per year and its ski resort. This is where Grundfos has been selected by the Lyonnaise des Eaux to supply the electromechanical equipment for lifting stations, in particular in the hamlet of Fontenil, where three high-performance Grundfos S wastewater pumps have been installed. The aim was to facilitate the transporting of sewage to the city's water purification plant. From construction to final operation, Grundfos helped in every step of the process.

Until recently, the sewage of some of the villages in the valley was discharged in the nearby river, because of the lack of a sewage transport system. To protect nature and follow European rules, the Briançon district community decided to invest in a top-quality sewage transport system.

Daily use is managed by the Lyonnaise des Eaux, a subsidiary of Suez Environnement. The new water purification plant at Briançon (85,000 inhabitants) was built by Degrémont, another subsidiary, and has been functioning since 2008. The transport pipes to be installed in the other villages are not yet linked to the network.

A section was built between the ski resort of Montgenèvre and the hamlet of Fontenil in Briançon, to transport their sewage to the purification plant, which required 12 kilometres of pipes. A station had to be built below Fontenil to lift the level of the sewage.

Grundfos was chosen by the Lyonnaise des Eaux to supply equipment. The two firms have been working together on this project since 2006. "We designed the whole station and helped with its construction," explains Yann Cadalen, Project Manager at Grundfos France. We also helped with the civil engineering and made sure that the system worked as it should."

TOPIC:

Lifting stations. Transporting of sewage to the city's water purification plant. From construction to final operation, Grundfos helped in every step of the process.

LOCATION:

Briançon, Hautes-Alpes, France

COMPANY:

Lyonnaise des Eaux

One lifting station instead of two Mountain sites and the critical differences in height are challenges to networks builders. Three massively powerful Grundfos S wastewater pumps (115kW each) have been installed four metres under the level of the station's floor. They are able to pump a substantial TMH (total manometric height) of 93 metres in water lift: it means that the system requires 93 metres to transport the fluid from the suction reservoir to the discharge reservoir (the height of a 31-storey building).

Cédric Geneys, Project Manager at Lyonnaise des Eaux, comments: "The solution offered by Grundfos enabled us to save one lifting station, as we wanted at first to install a series of two stations. We saved on maintenance and money."

The installation in dry dock was chosen for its many advantages. Access to the machine is made easier; the pumps are in a horizontal position on a carriage. For servicing, it is easy to uncover the impeller by moving the engine thanks to the clamp.

HOW TO SAVE TIME

The electric wiring, located above the dry dock, means the condition of the pumps can be followed. "It was developed with Grundfos, to match our needs and the firm's standards," explains Karim Fadil, in charge of electronics in Lyonnaise des Eaux.

The pump arrives on site already wired, so that time is saved. "The staff has only to connect it up to the pumps on site," says Yann Cadalen, Grundfos. Each pump is equipped with a phased starter.

For preventive servicing, a system of probes called Water in Oil (WIO) is linked to the IO111 module in the electric wiring. This Grundfos innovation means that how the oil quality changes and thus the wear of the mechanical seal can be followed over time. An orange warning light informs when there is oil in the water and a red warning light when the mechanical seal has to be replaced.

To link other districts to the water purification plant at Briançon, Grundfos took part in the delivery of nine other lifting stations. In the Briançon area, 20 stations are equipped with Grundfos solutions.

AS IF BRAND NEW

Through time, the impeller is damaged largely due to sand in the sewage, which increases recirculation phenomena. A traditional pump would have to be disconnected and taken to pieces to adjust the wheel system. But with the Grundfos SmartTrim system, this isn't a problem. The system means the pump can be run at maximum output, as if it was brand new.

SmartTrim helps reduce service costs and has been placed on every high flow pump. It is used, for example, on the 28 sewage transport pumps at the second biggest water purification plant in the world located in Shanghai, China. A maximum performance of the equipment is necessary to pump the 1.7 million of tons of sewage produced daily by the city of 8 million inhabitants.

FOCUS ON THE BRIANÇON AREA

At the very heart of Southern Alps and at the crossroads of Provence and Italy, the Briançon area is composed of five valleys with amazing beauty spots. It is surrounded by the Ecrins national park (92,000 hectares) and the Queyras regional park (65,000 hectares). The ski resorts of Serre-Chevalier and Montgenèvre as well as bathing and swimming areas attract many tourists – the population grows from 20,000 to 90,000 people during vacation periods. Every year, 500,000m³ of sewage is discharged into nature. It was therefore necessary to install a sound sewage transport system of sufficient capacity to protect the environment.