Sulzer submersible pumps replace self-priming pumps in Florianópolis, Brazil

Located in the state of Santa Catarina, in the Southern Region of Brazil, Casan – Santa Catarina Company for Water and Sanitation – is present in 201 municipalities. Altogether 2.5 million inhabitants benefit from the company's services. The coverage ratio of Casan's water supply services represents 96.5% of the resident population in the municipalities served. Of the 201 municipalities, 167 are served in full.

Casan operates in the collection and treatment of wastewater with multiple wastewater treatment plants and numerous lifting stations for collecting and pumping. The revitalization project includes two lifting stations, both located in the city of Florianópolis, state capital and one of the main tourist cities in Brazil, with approximately 450'000 inhabitants.

> *Florianópolis was confronted with a recurring problem due to the more than 30 years old pumping stations with obsolete equipment. Sulzer modernized the stations and this resulted in improved performance and reliability as well as remarkable energy savings.*
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> **Manoel Pedro M. de Lima, Project Manager**

The Sulzer difference

- Increased reliability and improved performance.
- Up to 44% in energy savings and no unexpected downtime in the first months following the installation of the pumps type ABS XFP.
- Up to 13 percentage points' gain in hydraulic efficiency per installed pump.

CASAN lifting station in Florianopólis: complete modernization with Sulzer equipment

The challenge

Both stations had two obsolete self-priming pumps with low reliability and requiring frequent maintenance for the mechanical seal and primer flap. Poor operation and frequent stoppages for maintenance created high operational costs and contributed to excessive consumption of electricity. In addition, excessive noise was caused by the dryness of the belts.

BC SES Florianópolis Lifting Station – Insular I Municipal Market: The customer had two horizontal motor pumps for dry well application, self-priming, with a unit flow rate of 439.2 m^3/h, 16 mca head and a hydraulic efficiency near 60%.

A1 SES Florianópolis Lifting Station – Insular I Fire Department: The customer had two horizontal motor pumps for dry well application, self-priming, with an efficiency near 60%, a unit flow rate of 361.76 m^3/h and 9.11 mca head.

The solution

The motor pumps of BC SES Florianópolis Lifting Station – Insular I Municipal Market were replaced by two Sulzer submersible pumps type ABS XFP 200J CB2 PE350/6. They are mounted on fixed bases and reach a unitary flow rate of 475.2 m^3/h, a head of 17.9 mca, and a discharge pressure of DN 200.

The pumps have a Contrablock impeller system with two open channels, 360 mm diameter and a solids passage of up to 100 mm. The Contrablock system ensures a free passage of solids of at least 75 mm (3 inches). Moreover, they allow the passage of the vast majority of fibrous materials between the impeller vanes, rather than depend on the cutting action of the bottom plate.

The hydraulic efficiency of the ABS XFP 200J pumps is rated at 73.5%. As a result the customer made a gain of 13 percentage points in hydraulic efficiency per pump installed.

To replace the pumps at A1 SES Florianópolis Lifting Stations – Insular I Fire Department, two pumps type ABS XFP 201G CB2 PE200/6 were supplied and mounted on fixed bases. For the A1 Station, the customer's gain in hydraulic efficiency was approximately 12 percentage points per pump, considering that each pump provides an efficiency of 72.3%.

Besides the supplied equipment, Sulzer carried out the installation and start-up of the pumps in both lifting stations, and also supplied the control panel of the units. In addition to the pumps, Sulzer provided for both stations electrical panels with frequency converter, pump controller type ABS PC 242 and submersible pressure sensor type ABS HSC 2, including installation and start-up.

Customer benefit

With the pumps and solutions provided by Sulzer, the customer obtained higher reliability in operation of the lifting stations. No unexpected downtime has occurred in recent months - a recurring problem with the previous installation.

Furthermore, the XFP submersible pumps represent a significant energy saving, which combined with the higher efficiency of the Premium IE3 motor ensure low power consumption and improved operational sustainability.

Product data

	XFP 201G CB2 PE200/6	XFP 200J CB2 PE350/6
Flow	422 m^3/h	475.2 m^3/h
Head	11.6 mca	17.9 mca
Impeller diameter	305 mm	360 mm
Frequency	60 Hz	60 Hz
Hydraulic efficiency	72.3%	73.5%

Pump controller type ABS PC 242 installed in CASAN lifting stations

For more information on our submersible pumps, please visit sulzer.com.

Contact

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