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.

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 m³/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 m³/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 m³/h, a head of 17.9 mca, and a discharge pressure of DN 200.

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.
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.

<table>
<thead>
<tr>
<th>Product data</th>
<th>XFP 201G CB2 PE200/6</th>
<th>XFP 200J CB2 PE350/6</th>
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</thead>
<tbody>
<tr>
<td>Flow</td>
<td>422 m³/h</td>
<td>475.2 m³/h</td>
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<tr>
<td>Head</td>
<td>11.6 mca</td>
<td>17.9 mca</td>
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<tr>
<td>Impeller diameter</td>
<td>305 mm</td>
<td>360 mm</td>
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<tr>
<td>Frequency</td>
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</tr>
<tr>
<td>Hydraulic efficiency</td>
<td>72.3%</td>
<td>73.5%</td>
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</tbody>
</table>

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