

GRUNDFOS NEW WASTEWATER HYDRAULICS

Case story

New Open S-tube® hydraulics resolve ongoing clogging issues at a wastewater pumping station in Budapest, Hungary

When the representatives of Budapest Sewage Works asked Grundfos to resolve ongoing clogging issues at a combined wastewater and stormwater pumping station in Budapest, Hungary, Grundfos supplied an Open S-tube® impeller. The installation has now run for two years without any clogging incidents.

The pumping station on Erdősor Street in Budapest is just one of many managed by the company Budapest Sewage Works Ltd., whose major owner is the Municipality of Budapest.

The situation

The wastewater pumping station consists of eight dry-installed wastewater pumps: two small, three mid-sized and three large. The small pumps are used daily to cope with regular sewage flows. When it rains, the mid-sized pumps operate when needed to pump sewage combined with rainwater. When these pumps clogged, they then switched to the three large pumps, which are oversized for this purpose and not the optimal solution.

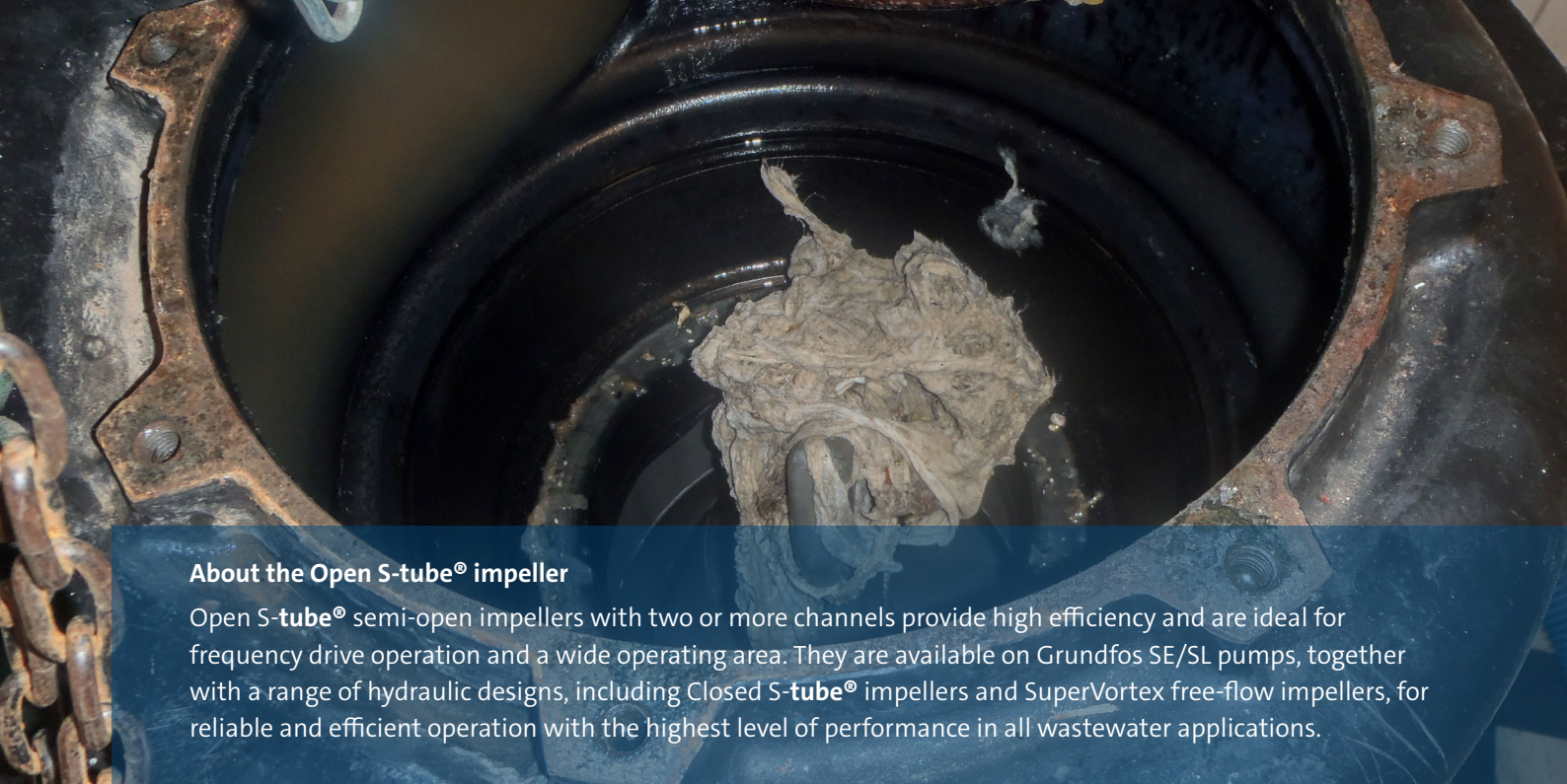
Since the installation of the three mid-sized wastewater pumps, the water utility has experienced constant clogging issues. Following lifting and cleaning, the pump has on occasion only operated for 10 minutes before clogging again. This pattern of clogging issues after a short period of operation has been reported with all three pumps, due to the extreme level of contamination with huge amount of fibrous material. The requirement was to ensure a non-clogging solution for the three mid-sized pumps. This would avoid the three large and oversized pumps cutting in when not otherwise required.



Facing clogging issues

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Possibility in every drop



About the Open S-tube® impeller

Open S-tube® semi-open impellers with two or more channels provide high efficiency and are ideal for frequency drive operation and a wide operating area. They are available on Grundfos SE/SL pumps, together with a range of hydraulic designs, including Closed S-tube® impellers and SuperVortex free-flow impellers, for reliable and efficient operation with the highest level of performance in all wastewater applications.

The solution

There have been many failed attempts to resolve these issues over the years, including changing the pump impeller from 2-channel to 1-channel type, replacing the suction elbow, setting up the controller logic to decrease the possibility of clogging, and building in a special flow deflector device, called a shark fin, to change the turbulence in the suction pipe. Finally, an Open S-tube® impeller was installed in one of the three mid-sized pumps, and the remaining pump 22kW has been replaced entirely which is also equipped with an Open S-tube® impeller.

The result

Since installation of the Open S-tube® impeller in April 2019 operation has to date been clogging-free, with no noticeable wear on the impeller. This result is based on about 2000 running hours per year.

Budapest Sewage Works Ltd. and the Municipality of Budapest are satisfied that the long and difficult circumstances resulting from the added flow from sewage combined with rainwater is resolved.

The result is especially satisfying, as the journey to a nonclogging pumping solution has happened in close cooperation between Grundfos and the water utility.



Open S-tube® impeller and suction cone

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