



**GRUNDFOS PUMPS  
WILL HELP PROTECT  
ST. PETERSBURG  
AGAINST FLOODS**

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think  
innovate

**GRUNDFOS** 

## Grundfos submersible pumps are installed at the St. Petersburg Flood Prevention Facility Complex, helping protect this Russian city against storm surges during floods.

The St. Petersburg Flood Prevention Facility Complex (KZS) is a system of dams and related hydraulic structures situated in the water area of the Gulf of Finland and extending for 25.4 km. The KZS comprises two navigation passes (C1 and C2) with approach canals, six water gates (B1 – B6), eleven protective dams (Д1 – Д11) and a six-lane highway with a tunnel, bridges and road interchanges passing on top of the protective dams.

### The situation

Navigation pass C1 is one of the most important facilities of the complex. It consists of floating segmental gates, a motorway tunnel under the navigable canal (the canal's width is 200 m and the oversill water is 16 m), as well as other engineering structures. Under normal conditions the segmental gates (floating gates) are located in 'dry' docks. When a flood threatens, the dock chambers are filled with water, the floating gates rise to the surface and are moved to the middle of the navigable canal, reducing the storm surge degree of impact upon the Neva Bay water area. When the flood danger recedes, the floating gates are led back into the docks and the water is pumped out.

### The solution

The draining of the dock chambers is carried out by Grundfos equipment. For

this purpose three Grundfos S1 pump units are installed at each of the pump stations at the northern and southern sides of the navigable canal (dry vertical installation). These pump stations are placed in cast-in-situ reinforced concrete framing at the C1 facility below the water line. The drainage (regeneration) water that may accumulate at the lower level of the hydraulic structure is drained by Grundfos S1 submersible stationary pumps (installed at 22 m below the water line).

All the pumps have special design features: the flow parts have a protective wear-resistant coating, and the submersible pumps are equipped with additional means of protection against corrosion (anodes) and stainless steel impellers.

### The outcome

*"The Saint Petersburg Flood Prevention Facility Complex is one of the most important facilities in St. Petersburg, protecting the city against storm surges during floods. That is why the management of our company has decided that it is Grundfos equipment that should be installed at the KZS facilities. We consider Grundfos pumps to be the most reliable among pumps for industrial applications and they meet all the latest requirements for pump units at such*

*important facilities as the KZS,"* says Alexander Zlobin, Operations Director of the Saint Petersburg Flood Prevention Facility Complex. *"Grundfos is the world's leading producer of high-quality pumps that has long deserved its fine reputation."*

It is noteworthy that Grundfos pumps are also successfully employed at other KZS facilities, where they provide for wastewater removal (including those incorporated in complete sewage pumping stations), and in fire-fighting water supply systems. In particular, the fire-fighting pump stations at the Northern and Southern sides of the navigation pass C1 operate CRN90 vertical multi-stage stainless steel pumps, and those at the navigation pass C2 use SPN160 stainless steel submersible pumps.

*"The Grundfos equipment has once again proved its high quality and reliability, working faultlessly and fulfilling the customer's expectations,"* comments Konstantin Tyutin, Deputy General Director of Promenergo, ZAO, an official dealer and service partner of Grundfos. *"We are proud of the fact that we have taken part in the designing and construction of such a large-scale facility as the Flood Prevention Complex, which is critical for St. Petersburg."*



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