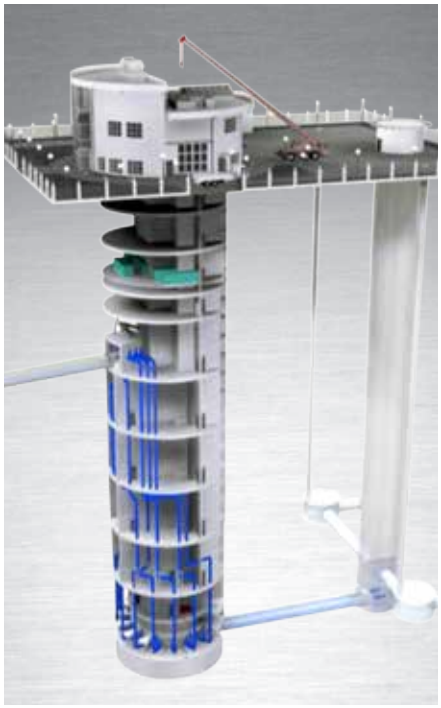
Outstanding performance in Europe's deepest waste water pumping station



SUE "Vodokanal of St. Petersburg"

As well as providing drinking water to approx. 5 million citizens and tens of thousands of companies and enterprises, Vodokanal St. Petersburg also takes care of the disposal of waste water and sewage produced in its home city. A total of 816,266,000,000 m³ of waste water was pumped and treated in 2011.

In early 2013, the overall length of the city's sewer system was approx. 8,120 km, with the main collector's length totalling approx. 240 km.

A major waste water project has been under way in St. Petersburg, Russia, since 2005. The aim is to conserve water resources and to protect the Baltic Sea against the discharge of untreated waste water. One of the most important sub-projects is the URS 422 waste water pumping station.

KSB was involved as early as the pumping station's planning stage, and supported the customer during the planning of all construction work and machinery for the project. The station is equipped with KSB pumps from the Amarex KRT range only; they serve as main pumps, general drainage and sump drainage pumps.

With a depth of 92 metres, URS 422 is the deepest waste water pumping station in Europe, and it is the centrepiece of a twelve kilometre-long tunnel system. Delivering an average flow rate of approx. 600,000 m³ a day, the system will ensure that 98 percent of the waste water in St. Petersburg is fully treated.

The deepest point of the waste water pumping station, having a diameter of 22 metres, is situated at 84 metres below sea level. Twelve dry-installed submersible motor pumps (Amarex KRT K 400-710) are installed in a circle. The pumps are fed from a common sump located at the lowest level in the centre of the pumping station while the waste water from the upstream drainage network consisting of two tunnel channels (combined sewer) is supplied via a collecting shaft. The waste water is channelled to the pumping station via two DN 2000 intake pipes.

The station is used to raise the combined sewage arriving from the two sewer pipes by 54.8 metres. The pumps installed lift the waste water from -84.0 m to a level of -29.2 m from where it can flow freely to the treatment plant.

With a rated motor power of 580 kW, each of the main pumps handles almost 2,600 m³ of waste water per hour at this head. KSB was awarded the contract not only on the basis of its technically advanced solutions and the high quality of its technical equipment, but also thanks to the comprehensive support provided during the installation and commissioning of the pumping station and the on-site training of staff which are both part of KSB's service package.

More information:

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Main pumps Amarex KRT K 400-710

Control cabinets for control equipment

Scope of supply	Technical data
13 x Amarex KRT K 400-710 (main pumps)	Flow rate: 2592 m³/h Head: 59 m Rated motor power: 580 kW (690V)
3 x Amarex KRT K 200-500 (general drainage pumps)	Flow rate: 400 m³/h Head: 70 m Rated motor power: 110 kW (400V)
3 x Amarex KRT F 80-316 (sump drainage pumps)	Flow rate: 50 m³/h Head: 59 m Rated motor power: 25 kW (400V)

- Frequency inverter for each main pump
- Control cabinets incl. control equipment for each pump
- Uninterruptible power supply (UPS) system
- Power and control cables as well as cable ducts

Commissioned:

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