Complete reconstruction of screw pump stations

Flood retention basin Breisach/Burkheim, Germany

Challenge

The Breisach/Burkheim flood retention basin imposed high demands on flood protection and water level regulation in the residential area of Burkheim. During periods of high water levels in the River Rhine, the water backed up effected adjacent water bodies. This led to critically elevated groundwater levels extending into the built-up area.

The objective of the project was to reliably prevent these potential flooding situations in the future while ensuring the safe operation of the retention basin. The key technical challenge was to control and discharge large volumes of water under varying hydraulic conditions, without causing uncontrolled water level rises outside the retention area.

Given the limited space available along the flood protection dike, a robust and operationally reliable solution was required. By integrating high-performance screw pumps, new drainage systems and regulating structures, the water level is now stabilised in a controlled manner, ensuring sustainable protection of residential areas and agricultural land.

Solution

Noardling transformed an outdated and complex preliminary design into a compact, cost-efficient and low-maintenance pumping solution. This included redesigning the existing concept into compact screw pumps. For the construction of three new pumping stations, each equipped with four screw pumps, Noardling was responsible for the complete detailed engineering. The civil works were fully aligned with the screw geometry, including integration with the on-site transformer stations.
The scope of supply comprised 12 semi-compact Archimedes screw pumps for flood protection, delivered in an operator-friendly design, with a total project duration of two years (2022–2024).

Result

The solution ensures reliable and safe operation of the pumping stations while significantly reducing maintenance requirements. It therefore makes a sustainable contribution to the long-term protection of surrounding residential areas and agricultural land.

Landustrie
Water Treatment Solutions

Flood retention basin Breisach/ Burkheim (Germany)

Regional government Freiburg

Technical Details

Supply	Archimedes screw pumps
Type	Semi-compact design
Number	3 x 4
Diameter	2000 mm
Flight length	8990 mm
Capacity	1250 m^3/s
Speed	33.4 rpm
No. of flights	3
Weight	4100 kg
Coating	acc. BAW specifications
Equipped with	drive and screw cover
Lower bearing	grease lubricated

Testimonial

"At no point did we regret awarding the contract to Noardling (formerly Landustrie). Mr Spoor supported us throughout the project as an experienced and highly competent contact. The transfer of the screw pump drawings and the detailed coordination with the structural concrete designer worked flawlessly. Noardling proposed several improvements during the project, which were successfully implemented. The choice of construction (compact screw pumps) proved to be the right one and will be continued in future pumping stations. The entire installation is easily accessible, low-maintenance and user-friendly. We look forward to successfully realising similar projects together in the future."

Mr Michael Drumm, Project Engineer, Civil Engineering of Regierungspräsidium Freiburg

Our expertise

Partially restricted crane positioning areas and limited accessibility for tandem lifting posed additional challenges during implementation. Noardling ultimately delivered a turnkey commissioning, including control technology, in which the regulating structures were fully integrated into the control system.

Our project partner was Mountec Automatisierungstechnik GmbH from Teningen, responsible for electrical engineering, instrumentation and control (I&C), and automation.

Drive unit of Landy semi-compact screw pump

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Landustrie is part of Noardling

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