References

Vault treatment chamber for Ishøj Utility

Where high treatment efficiency, compact design, and reliable operation come together

When Ishøj Utility needed a new stormwater treatment solution, treatment efficiency was only one part of the equation. The solution also had to accommodate large runoff volumes, fit within the available footprint, and ensure efficient long-term operation and maintenance. The result was a customised Vault filter chamber, developed in close partnership between Ishøj Utility and GF.

Project Facts:

Location
Denmark

Completion
2026

Building Type
Municipal

Partners

Builder: Ishøj Forsyning

Stormwater runoff from paved surfaces can carry both sediment and dissolved pollutants. Before the water is discharged into the receiving environment, it must be managed and treated in accordance with environmental requirements. This was the starting point for Ishøj Utility when seeking a stormwater treatment solution for a catchment area of approximately 40 hectares.

The challenge was not simply to find a system with sufficient capacity. The solution also needed to accommodate the project's specific site conditions while meeting the treatment requirements set by the authorities.

Turning treatment requirements into a practcal solution

The dialogue between Ishøj Utility and GF therefore began with the project requirements themselves: How much runoff needs to be managed? Which pollutants must be removed? What treatment performance is required? And what physical constraints must the solution work within?

Based on these considerations, a Vault treatment tank was selected and designed specifically for the project. Part of GF's Stormwise stormwater management concept, Vault combines multiple treatment processes within a single integrated system. This enables both particle-bound and dissolved pollutants to be removed before the treated stormwater is discharged into Køge Bay.

For Ishøj Utility, the collaboration with GF also provided an opportunity to tailor the solution to the project's specific requirements rather than adapting the project to a standard product.

A three-stage treatment process

Inside the Vault system, stormwater passes through a multi-stage treatment process. First, larger debris and coarse sediments carried by runoff are captured. The water then passes through a treatment stage designed to remove suspended particulate pollutants. Finally, it flows through a specialised filter media that targets dissolved contaminants.

While each treatment stage serves a distinct purpose, it is the combination of these processes that delivers a high level of treatment performance. This approach also makes it possible to size and configure the system according to the specific characteristics of the catchment area and the project's treatment objectives.

Optimised for more than available space

Site constraints play a significant role in the design of any stormwater treatment facility. For the Ishøj project, the Vault solution was configured to fit the available footprint while accommodating the project's overall requirements. This allowed multiple factors, including placement, hydraulic capacity and treatment performance, to be optimised within a single solution.

However, the project team also looked beyond the installation itself.

Designing for long-term operation from day one

A stormwater treatment system must continue to perform long after installation has been completed. For this reason, future maintenance and servicing requirements were considered from the earliest stages of the design process.

Through close collaboration between Ishøj Utility and GF, access to key system components was prioritised, ensuring that operational staff can efficiently inspect and replace filter elements when required. This improves both maintenance procedures and working conditions for operators.

As a result, long-term operation was not treated as an afterthought. It became an integral part of the solution design.

A treatment solution designed for long-term performance

The project at Ishøj Utility demonstrates an approach to stormwater treatment in which treatment performance is only one part of the overall equation. Runoff volumes, pollutant loads, site constraints, installation requirements and long-term

operation all influence one another. By considering these factors together from the outset, a stronger and more resilient solution can be achieved.

By becoming involved early in the design phase, GF was able to contribute technical expertise throughout the dialogue with the utility and design team. The value extended beyond supplying a treatment system. It was about translating the project's specific requirements into a practical, long-term solution designed to perform for years to come.

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