References

AquaDjurs takes the next step in efficient stormwater management

AquaDjurs saves millions with new stormwater solution and gains more environmental value

The water and wastewater utility AquaDjurs is introducing a new solution to ensure effective treatment of stormwater. The solution is expected to significantly reduce installation and operational costs while improving the treatment performance of runoff.

Project Facts:

Location	Completion
SydDjurs, Denmark	2025

Vrsta objekta

Municipal

AquaDjurs is taking the next step in efficient stormwater management with a Vault chamber from Uponor. As Syddjurs Municipality develops a new industrial area north of Følle, the specially designed filtration unit will ensure a higher level of treatment and detention of runoff from paved surfaces. The Vault treats stormwater in a controlled environment, and calculations indicate significant savings in both installation and operational expenses.

“We originally planned to treat stormwater in a traditional wet retention basin, but the soil conditions made this more or less impossible and would have caused costs to skyrocket. Therefore, we had to consider other solutions, and Uponor could offer an option with significantly lower construction and operational costs—and with far greater operational reliability,” explains Anders Risager Sørensen, Project Manager at AquaDjurs. He adds:

“With the Vault chamber, we expect annual operating costs of around DKK 5,000. A typical stormwater basin can vary greatly

in operating costs, but over a 20-year period it is usually very expensive. So the new solution is attractive.''

Syddjurs Municipality has been part of the process, which now results in a Vault that provides the initial treatment. The stormwater is then conveyed to a larger dry basin created with minor terrain adjustments in a natural depression. This ensures both treatment and detention of the water before it partially infiltrates and discharges into Følle Bæk.

''It has been an exciting process in which both the utility and the municipality are satisfied with the solution in terms of treatment performance and economy. It is incredibly important to expand treatment solutions for roof and surface water, particularly in situations where there is insufficient space or where it is not technically feasible to establish a wet/dry stormwater basin,'' says Solvei Jensen, Biologist at Syddjurs Municipality.

Savings and increased efficiency combined

The Vault chamber is a complete solution comparable to a wet basin and suitable for tight spaces, as it can be placed under both trafficked areas and green spaces. It is combined with a dry stormwater basin to ensure that the hydraulic capacity of the watercourse is respected.

Uponor's calculations from similar projects show improved treatment efficiency because the chamber captures a much greater volume of pollutants and fine particulate matter. At the same time, installation is simpler, as the system is lowered directly into a smaller excavation as a plug-and-play unit — unlike wet basins, which require extensive earthworks.

''There's no doubt that we will save significantly on installation as well. It is extremely expensive to excavate and dispose of soil, so when digging and transport are minimized, it benefits both the climate and the economy. Meanwhile, Uponor's tests and calculations show that the treatment performance is also optimized, and they deliver a report documenting the treatment results, which is invaluable for regulatory approval. There are many aspects that turn out to be beneficial, and we have very high expectations,'' says Anders Risager Sørensen.

The major savings in operational costs are partly due to the fact that the filter in a Vault chamber is easy to replace—unlike maintaining a large wetland area.

''The Vault chamber has great potential for treating stormwater runoff. Its biggest advantage is that it operates in a closed and controlled environment year-round. This means that treatment performance is not affected by external factors such as heat, light, sunlight, or frost. It also handles flows of up to 1,000 liters per second and ensures efficient filtration of even the finest particles and dissolved substances,'' says Morten Alber Christensen, Solution Specialist at Uponor.

The standard of the future

Uponor expects that the Vault — part of the company's Stormwise brand targeted at stormwater management — will become a standard component in future Danish wastewater projects. The system, documented through laboratory tests and calculations, has shown particle concentration reductions of up to 95 percent, even during heavy rainfall events.

''We are looking at a solution that optimizes treatment, economy, and installation, and interest is growing among Danish utilities. This type of solution represents the future,'' says Johnny Iversen, Technical Project Consultant at Uponor.

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