

WATER TREATMENT IN GERMANY

Clausthal-Zellerfeld: new waterworks in the network

Two identical waterworks at the locations of Hirschler Teich and Bockswieser Höhe have been supplying the town of Clausthal-Zellerfeld in the Harz mountains with drinking water since 2023. Surface water collected in ponds serves as the source of raw water.



Pond water has been used to supply drinking water in the Harz region for decades. The treatment method stemming from the 1950s had been outdated for years and only functioned effectively to a limited degree if chemicals were used extensively.

The new treatment process is based on the experiences of the HydroGroup® with ozone bio-filtration used to treat drinking water in Norway. It comprises CO₂ dosing coupled with filtration in calcium carbonate to elevate pH levels and provide stabilisation, flocculation, pre- and post-ozoning, bio-filtration and final UV treatment. The treatment capacity totals 240 m³/h, provided in two buildings optimised for functional aspects, each housing three lines capable of treating 40 m³/h, and two intermediate storage tanks with pumping stations holding 75 m³ each.

The plants were planned, constructed and put into

operation in record time in less than 2 years. With a water hardness level of 4-5° dH, the treated drinking water is hygienically pure and maintains stable buffering to a sufficient degree while continuing to be classified as soft water.



WATER STORAGE

Europe's largest stainless-steel drinking water storage system in operation

Gradually put into operation in late 2023, the currently largest stainless steel drinking water storage system was built in Kuhberg for the municipal services company Stadtwerke Ulm (SWU) between 2021 and 2023 and holds a total volume of 12,000 m³ (3 x 4,000 m³).

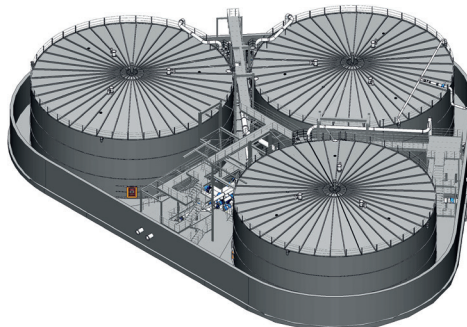
The plant serves as proof that stainless steel tank systems can be constructed very effectively and economically even on this scale. The innovatively designed building enveloped in weathering steel cladding gently encloses the three round system tanks and blends elegantly into its location from an architectural standpoint as a landmark.

To save on materials for the building construction, the steel framework was structurally optimised, designed with minimal cross-sections and three stainless steel columns placed in the centre of the stainless steel tanks for roof support, which is an inspired choice for stainless steel drinking water storage systems. The tank roof structure design, the manufacturing concept to construct the stainless steel tanks and, in particular, the automatic cleaning facility were developed specifically for the plant at Kuhberg.

The core of the new drinking water storage system consists of three stainless steel tanks, each with a volume of 4,000 m³, a diameter of 24.8 m and a shell height of 8.8 m. They were manufactured using Hydro-Elektrik GmbH's winding method, which has been successfully used and continuously developed for many years.

Opting for stainless steel HydroSystemTanks was largely driven by the significant advantage of automated cleaning for the three large drinking water tanks. SWU decided in favour of

automated cleaning of all interior surfaces, including the roof, shell and floor. High-pressure nozzles guarantee effective mechanical wet cleaning by spraying cleaning water onto the surfaces at high speed in close proximity. The surfaces are not only wetted but cleaned of potential deposit build-ups as if with a high-pressure cleaner. The operator can control the automated process from the operator platform with the tank closed. This significantly reduces the time and effort required to clean these tanks compared to concrete drinking water storage tanks.



A comparative life cycle assessment conducted on the Kuhberg project showed that the solution with stainless steel tanks saves on CO₂ equivalents when contrasted with conventional solutions. The assessment was carried out within defined system boundaries and in accordance with EN 15804.

WATER TREATMENT IN NORWAY

Ozone bio-filtration plant connected to the water network

Situated north of Oslo in the municipality of Eidsvoll, home to around 27,300 inhabitants, the existing waterworks has been extended and equipped with an ozone bio-filtration system.

The entire process plant and machine technology with a treatment capacity of up to 550 m³/h were completely planned, constructed and put into operation based on the proposals submitted by the Hydro-Elektrik GmbH/HydroGroup® during a competitive tendering process for the system. Trial operation commenced in early October 2023 and the plant was connected to the network in early December.

The treatment system is located in the north of the municipality area, a few kilometres from the village of Minnesund, in mountainous terrain with limited access. The existing plant needed to remain in continuous operation to guarantee water supply. Another challenge was contending with the COVID-19 pandemic restrictions: the existing plant could not be visited in person; only planning documents and photos of limited use were available; all contract negotiations needed to be conducted during a series of Teams meetings with all parties involved. Throughout this process, the initially proposed concept, which formed the foundation for the system tender by the original engineering firm (changed shortly before the tender), underwent a complete transformation, optimised with regards to operation and financing and meticulously planned. The municipality now has an efficient, state-of-the-art drinking water plant featuring two vertical ozone reaction tanks, four large stainless steel filters manufactured locally and a stainless steel pure water tank with a capacity of 1000 m³.

Process water treatment

RWT GmbH high-performing part of HydroGroup® for 22 years.

RWT GmbH is highly renowned as a highly effective partner for industrial enterprises in the treatment of process waters. Serving a diverse range of clients, including paper mills, power plants and food processing and pharmaceutical companies, the company uses reliable processes to treat process waters. Process water treatment starts with filtration as the initial step and, depending on the application, includes decarbonisation or demineralisation before producing ultrapure water as the final product.

One area of growth is the recycling of generated process waters or concentrates and the upgrading and optimisation of existing systems. Ways to save on chemicals present a significant market potential for the future, along with initiatives to enhance the water balance of production-inten-

sive operations and the treatment of ultrapure water for the hydrogen economy. The latter is a future-oriented area of interest and a compelling argument for employee recruitment.



The acquisition of an adjacent residential property and its conversion into an office building with an up-to-date infrastructure have created contemporary workspaces for current and future re-

quirements in sales, planning and administration. The process water treatment range within the RWT GmbH portfolio will remain a steadfast cornerstone within the HydroGroup®'s structure.



HYDRO-ELEKTRIK AS

New managing director at Hydro-Elektrik AS

Hydro-Elektrik AS is investing in the future after almost twenty years of successful operations developing and supplying water treatment systems on the Norwegian market.

The newly appointed Managing Director Fredrik Høye is assuming leadership and taking on both commercial and technical responsibilities for the sales and marketing of Hydrogroup's water treatment systems in Norway and the Nordic region.

Peter Paskert, the former Managing Director, has gone into well-earned retirement but is still available as a senior advisor.

Hydro-Elektrik AS has grown rapidly in recent years and is the first point of contact when it comes to water treatment in Norway. That is why the plan is to broaden expertise and expand capabilities in Norway over the coming years through the recruitment of additional staff. Besides water treatment, business operations will also focus closely on water storage in stainless steel tanks.



COMPANY MATTERS

All good things come to an end

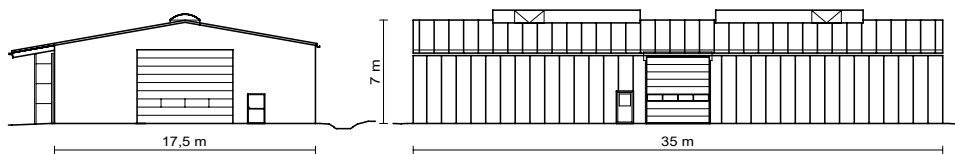
We started our Water News newsletter 22 years ago with the aim of combining information with communication. It was a time when social networks didn't exist and mobile phones were primarily used for making calls. Much has changed since then. Mobile phones have become high-performance computers and the Internet can be accessed virtually anywhere at any time. Artificial intelligence (AI) is gaining ground on the internet and will become a daily, ubiquitous presence in our future lives. The HydroGroup® has now established a presence on social media networks such as Facebook, Instagram and YouTube, where it regularly posts news items. It is time for Water News to bid farewell with this **last edition**.

However, you will find us on social networks and we'd love you to follow us, engaging with our posts through likes and shares in the future.



Kühle GmbH

Storage hall construction at the Tannheim production site



"Nothing lasts longer than a makeshift solution." This also applies to the provisional storage tent, where a great deal of material has been stored in Tannheim until now. The tent erection permit has been extended several times and is now expiring. As a result, a new storage hall with 610 m² of storage space or 470 pallet spaces is being built. The paved outdoor area will serve as a temporary storage

space for container construction. The façade will match existing façades using identical sandwich panels. The steel hall's position means that a photovoltaic system can be installed on at least 60% of the roof surface. 35 metres long and 17,5 metres wide, the hall is expected to be completed by April 2024. This construction project ensures that transportation and electricity costs can be reduced.

LEGAL INFORMATION



HydroGroup
www.hydrogroup.de

Publisher

Hydro-Elektrik GmbH
Angelestrasse 48/50
88214 Ravensburg, Germany
info@hydrogroup.de



Editorial team

Manfred Brugger
mb@hydrogroup.de

Layout

Silvia Mesmer
silvia.mesmer@hydrogroup.de

Printed in house

Reprinting in whole or in part only with written permission. This issue is distributed free of charge to interested parties. No legal claims are possible.