



Three-stage well water treatment

Modern mineral water treatment

Mineral Water Management at Magnus Mineralbrunnen

With more than 65 million bottlings per year, Magnus Mineralbrunnen (Mineral Springs) is one of the largest beverage producers in northern Germany. The family-run company looks back on more than 100 years of tradition and distributes its products from the Norderstedt site primarily to Hamburg and Schleswig-Holstein, but its delivery area also includes Bremen, Lower Saxony and Mecklenburg-Western Pomerania.

The company is thus clearly committed to the region. A diverse product range with the highest quality standards is the hallmark of the company. For example, the low-sodium mineral

water Magnus Medium has already been awarded the grade “very good” several times by the German consumer magazine “Öko-Test”. At the Norderstedt site, almost 20 soft drinks are

bottled exclusively in environmentally friendly glass containers. The product range extends from mineral water to spritzers and other near-water beverages. With Magnus Imperial,

the independent fountain company also offers a product line for the hotel and restaurant industry.

In recent years, Magnus has invested in a further bottling line and in extensive modernization. In addition to modern filling technology from Krones, the company also attached great importance to the highest quality standards in fountain water management and opted for process technology by Centec from Maintal, Germany. For more than four decades, Centec has stood for fully automatic, skid-mounted process systems and high-precision measurement technology from a single source. Our systems and sensors are designed to meet the most demanding requirements of breweries, food, and beverage producers. In recent years, we have systematically expanded our "Water Treatment" business with experienced product and sales specialists and gained significant new customers in Germany and abroad.

Well water management

Company owned wells and the associated brands are the real capital of a mineral water business. The careful handling of the springs and thus the responsible use of these natural resources are therefore core tasks for the companies.

Modern water management includes, not least, resource-saving water pumping that operates safely and fully automatically and must be flexible yet solidly designed. The aim here is to ensure the best possible mineral water quality at all times.

Part of the overall concept is the planning and execution of the entire resource management, starting with the monitoring of sources, extraction, storage capacities in line with demand and the appropriate pipe routing.

The highest demands are placed on quality assurance and quality management in the design of the plant. Keywords here are: Hygienic design, CIP/cleaning concepts and smart conception of the entire water management.

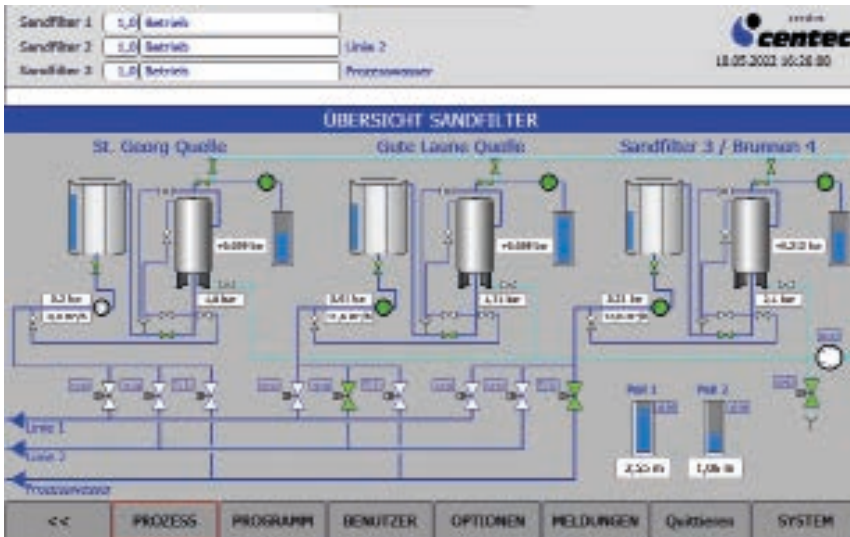
"We need traceability, product safety and excellent water quality - from well



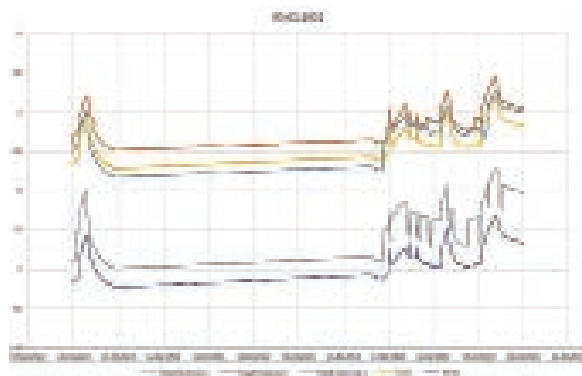
Inline air mixer (Vortex-injector)



Mineral water supply with distribution manifold



HMI general overview “water management”



Well level records

to production to storage tanks and from distribution manifolds to bottles - and ultimately to the consumer.” This was the basic task of Magnus Managing Director Gaby Gassmann. The Centec concept was convincing in the planning phase and is now in the implementation process.

The plant supplied by Centec meets all requirements, from computer-based data management to fully automatic, process-technological control and provisioning in the bottling plant.

Magnus manages several of its own springs, with the focus on the premium brand Magnus, which is fed from the “Gute Laune” (good mood) spring. The natural spring water is provided in accordance with the requirements of the Mineral and Table Water Ordinance by means of iron/manganese precipitation in the water house.

The supplied plants mainly consist of water aeration and filtration through inert filter materials. The permitted processes are designed to be simple

and natural, thus they require sophisticated technologies as well as know-how to achieve the desired results with the sensitive product water very efficiently and safely.

Centec mineral water treatment with Vortex and Filtec

The well water is aerated with specially designed Vortex inline mixers using sterile compressed air and thus saturated with oxygen. This addition of oxygen enables the subsequent precipitation of iron and manganese on the filter materials used.

While iron removal is usually fast and immediate, a special filter material was used for manganese removal, which also ensures manganese removal virtually ad hoc. As a side effect, it also provides improved iron removal with lowest effluent concentrations for both Fe and Mn of <0.01 mg/l each.

After initial start-up, the Centec filters are fully operational within a

few hours and supply the mineral water in the required excellent quality without a long running-in period.

Each well is equipped with its own filter system and is also assigned to a water tank. One of the wells is used for process water supply, the other wells are routed to filling. A fully automatic valve manifold with frequency-controlled pumps ensures correct allocation and use.

Automation and logging

The automation of the operation was carried out on a Siemens S7 1500 TIA Portal and enables extensive control functions and flexible operating options:

- Selection of the well with quantity definition and regulation of the withdrawal at the well
- Quantity recording and level measurement of the individual wells including logging and archiving of the data
- Calendar preselection with criteria overlay for triggering automatic filter flushing. This enables efficient flushing of the filters at the appropriate time and guarantees high availability of the lines during the filling days.
- Alarm management in case of malfunctions of important parameters (pressures, flow rates, air supply, etc.)
- Automatic email messaging system to plant management

Summary

The expansion of business relations with mineral water companies and soft drink producers represents a focal point of Centec's activities. With the project at Magnus Mineralbrunnen in Norderstedt, we were able to obtain another important reference. We would like to express our sincere thanks for this and for the trusting cooperation with the customer. ✎

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