

High-quality water treatment in hydroponic cultivation

**The water is treated and reused
in a fully automatic system**

MELLIFIQ

Blomsterboda, Vallentuna, Sweden

Blomsterboda is one of the Nordic region's largest producers of flowers and plants. The company has a constant focus on streamlining and increasing the quality of the entire production. So it was expected that the plant in Vallentuna north of Stockholm would stop cultivating bulbs and tulips in soil and switch to hydroponic cultivation.

Blomsterboda delivers full service of flower departments to grocery stores all over Sweden. The roots go back to 1912 when John Rydell started selling flowers from local commercial gardens at Kornhamnstorg in Stockholm. From the greenhouse in Vallentuna and together with local growers, flowers are sold to 550 grocery stores all over Sweden. The company is the largest in Sweden for bouquet binding and a large grower of tulips. Blomsterboda had sales of EUR 44 million in 2018.

Facts

Name:	Blomsterboda
Location:	Vallentuna, Sweden
Industry:	Greenhouse
Purpose:	Treatment and disinfection of circulating water in hydroponic cultivation
Capacity:	Treating the recirculating water during cultivation of 11 million tulips per year

Solution:

Ozonetech RENA Vivo A-series

Dimensions (HxWxD):	1,800 x 1,200 x 800 mm
Input power:	0,9 kW

The problem

When Blomsterboda switched to hydroponic cultivation they needed to find a solution to treat and disinfect the recirculation water. They also needed a way to add

nutrients and limit the growth of bacteria, algae and other unwanted substances in the water.

The solution

The solution became disinfection with ozone and the supply of chlorine and nutrients in a fully automatic system. The benefits of hydroponic cultivation are well known. One major advantage is that the water demand is

reduced by 50-80 %. Another great advantage is that it is possible to grow more with lower footprint. The volume can be more than doubled. A third advantage is that procurement and transports decrease.



Collection of drainage water.



Large particles are removed with a static arc filter and a fleece filter.

Powerful ozone treatment

The reclaimed water from the cultivation is treated with and purified by ozone. The ozone is produced onsite by the oxygen in the surrounding air. The ozone is then dissolved in water which is continuously fed to the drainage tank where the treatment takes place, in a circulating system. The treated water is then returned to ozonation again. The purified water in the drainage tank is continuously transferred to the clean water tank. To ensure the high degree of treatment, the redox potential is measured continuously.



Ozone purification takes place in the drainage tank (40m³). The redox value is continuously measured and controls the amount of ozone. The RENA Vivo ozone system produces ozone of the oxygen in the ambient air. The clean water is collected in a clean water tank (40m³) for distribution.

Secondary cleaning minimizes growth

The clean water tank is supplied with chlorine and nutrients. The function of the chlorine is to maintain the purity of the water by minimizing the growth of microorganisms. To be able to supply the right amount of chlorine, the chlorine content in the outgoing water is measured continuously. The amount of chlorine added has decreased by 80-90 % as a result of the upstream ozone treatment.



The chlorine is added to the clean water tank to limit the growth of unwanted microorganisms throughout the culture.

Nutrient are supplied contiuously

The water for cultivation needs to be supplied with nutrients in the quantities required by the bulbs and tulips. Therefore, the outgoing water from the clean water tank is continuously analyzed to ensure that the right amount of nutrients is added. With ozonation, the nutrients are not effected negative by any contaminants in the circulating water.

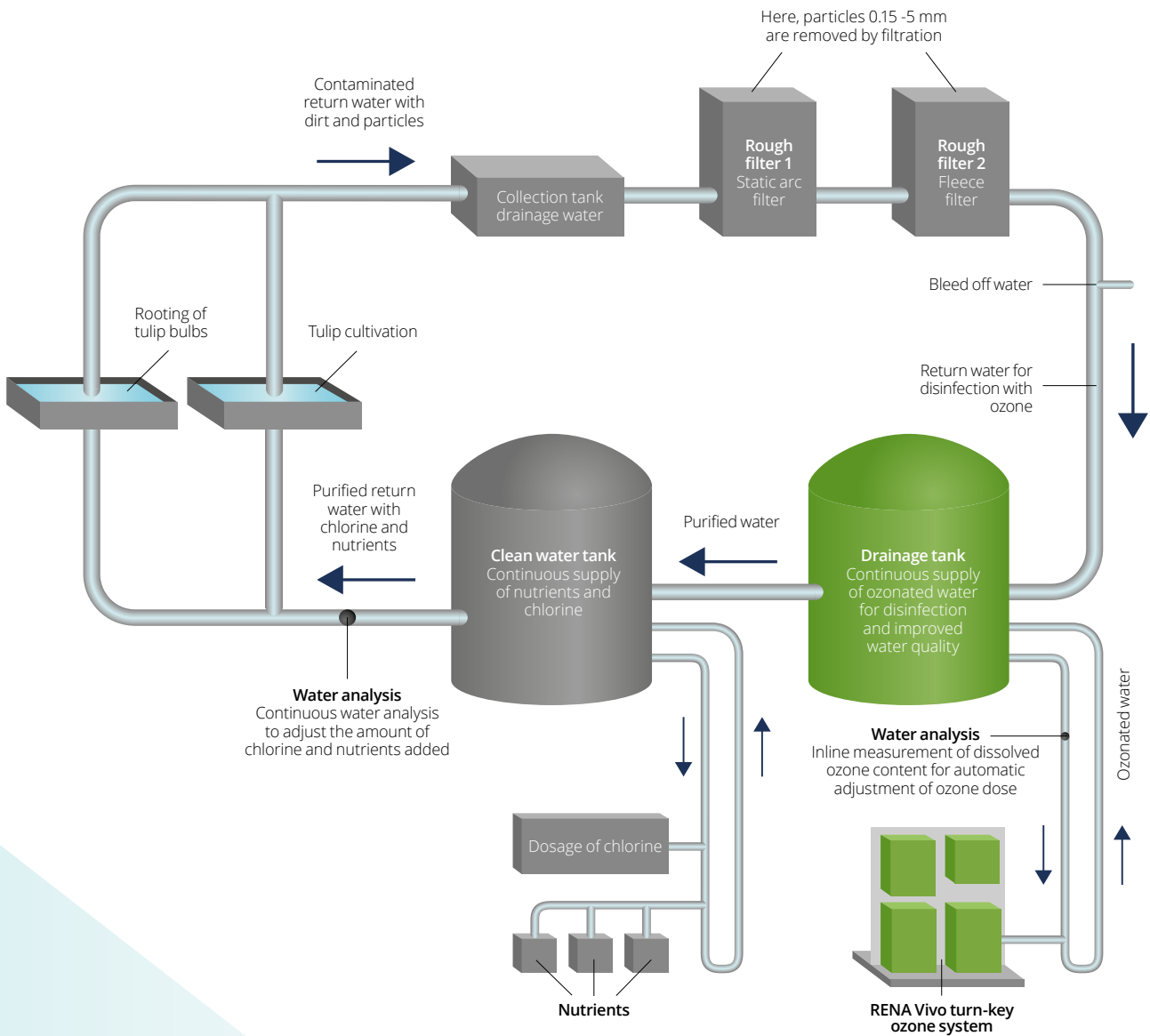


Nutrients are added to the treated water. The amount of nutrients is adjusted based on continuous measurement of the levels in the outgoing water.

Evaluation

Along with the automatic addition of nutrients and chlorine, the automatic production and addition of ozone for water disinfection has freed up time for the staff. It is usually sufficient to supervise and to ensure that there are nutrients in the tanks.

This lead to a more reliable and efficient production with less chemical use and therefore reduced operational costs.



Ozone is produced onsite and continuously cleans the recirculating water.

About Mellifiq

Mellifiq is a multi-awarded environmental service company group, that has since the early nineties evolved into a world leading system and solution provider with multiple groundbreaking applications for industrial, municipal, and real estate clients. We supply cutting-edge technologies to manage the most sophisticated air, water, and energy challenges.

Mellifiq offers a complete range of air and water treatment technologies and solutions across multiple industries such as processing industry, energy sector, food and beverage, pharmaceutical, wastewater treatment and commercial real estate.

Mellifiq offers strong and renowned brands, such as Ozonotech, Nodora and Water Maid, and world-class engineering services combined an excellent track record of more than 40 years of innovation. We help our clients achieve the most efficient and sustainable solutions while creating the maximum value for their businesses.

With several business units across Europe, Mellifiq is headquartered in Stockholm where research and development, production, QA and certification all take place. Our unique technology and our extensive expertise have made us the Center of Excellence for the world's most complex projects, and a global player with installations on all six continents.

Everyday millions of people rely on our solutions for ventilation, disinfection, sanitation, and odor control. We are committed to raising the bar for the concept of clean and the industry standard for engineering, technical services and general contracting.

For additional information, visit our website at www.mellifiq.com

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