

## Successful HUBER overall concept for beverage industry

With a tradition of more than 180 years Jamnica is the biggest mineral water and soft drink producer in Croatia bottling about 350 million litres of mineral water and non-alcoholic beverages per year. In 1993 Jamnica became a member of Agrokor Group and has since developed to one of the most modern enterprises in the European beverage industry due to its careful investment into the modernisation and development of its company. The company focuses on the high quality of its products but also wants to communicate its idea of environmental awareness to its customers. In order to further improve the company's eco-friendly image, Jamnica developed a concept for the treatment of the production wastewater in their Jana and Jamnica factories. At Jana they bottle spring water and produce soft drinks. Mineral water is produced and bottled at Jamnica. In cooperation with LOVECO, partner of HUBER SE in Croatia for more than 15 years, an offer was



Croatia's biggest mineral water and soft drink producer

prepared for two turn-key plants. The scope of the offer included the following machines of the HUBER program that have well proven over many years:

- ▶ ROTAMAT® Micro Strainer Ro 9
- ▶ ROTAMAT® Rotary Drum Fine Screen Ro 2
- ▶ HUBER Dissolved Air Flotation Plant HDF
- ▶ ROTAMAT® Screw Conveyor Ro 8t
- ▶ ROTAMAT® Screw Press RoS 3Q

To meet the high requirements on effluent quality and ensure the problem-free reuse of the treated water as service water, the innovative HUBER VRM® membrane plant was offered in addition. Owing to their extensive experience in the treatment of municipal and industrial wastewater and reputable references HUBER could win the trust of the decision makers and convince them with the well prepared and detailed offer. The purchase contract for the two wastewater treatment plants was signed at Zagreb at the beginning of 2009. In the following phase of detailed technical planning great accuracy was applied to create construction and pipeline plans, building services plans, wiring and cable diagrams. The work on site was predominantly carried out by local companies and coordinated under the lead of LOVECO. The first plant erected was that at Jana. It was successfully put into operation in spring 2010. The second part of the project at Jamnica is planned to be completed in the course of 2011. The major part of the wastewater treated at Jana is production wastewater and wash water from machine and pipeline cleaning but also sanitary wastewater is fed into the treatment plant. The first section of the plant is so-called CIP wastewater treatment. "Cleaning In Place" means that surfaces in contact with the medium are cleaned without the need to dismount the machine. The CIP wastewater is delivered from a pump station into two aerated mixing and balancing tanks where the pH of the cleaning water is adjusted. The pre-treated CIP wastewater, along with the process and sanitary wastewater, is treated in the ROTAMAT® Rotary Drum Fine Screen Ro 2, size 780 with 1 mm bar spacing. As the production wastewater shows strongly

varying inflows and concentrations, the wastewater is passed through the mixing and balancing tank, which is equipped with a stirrer and aeration system. As an option, phosphate and nitrogen may be added to the mixing and balancing tank to ensure perfect bacteria mass formation in the following biological treatment stage in order to obtain a balanced nutrient ratio.

The biological sludge is pumped from the aeration tank into two membrane chambers. Each of these chambers is equipped with a HUBER VRM® ultrafiltration membrane plant, size 30/320. These membranes provide a total filtration surface of 1,920 m<sup>2</sup>. Due to their fine pore width of 38 nm not only sludge is physically separated from the wastewater but also retained are virtually all bacteria and germs. The permeate from the membrane plant is solids-free and crystal-clear. After a four-week run-in phase excellent COD effluent values of below 30 mg/l could be achieved, which is a reduction in excess of 97%! Part of

the treated wastewater is reused as wash water for cleaning purposes and as wash water for the HUBER machines. The part of the effluent not reused can without problems be discharged to the receiving water course. The excess sludge generated in the biological treatment stage is discharged discontinuously into a storage tank with stirrer for sludge equalization to ensure constant feeding of the ROTAMAT® Screw Press RoS 3Q, type 280. Prior to being fed into the screw press the sludge is conditioned with polymer to obtain a stable macrofloc that is very easy to dewater. After detailed preparation of the offer and thorough planning, successful supply, installation and start-up performed by HUBER in cooperation with LOVE-CO, the plant was “handed over” to the well instructed and competent operating staff at Jana. The wastewater treatment plant concept with well-proven HUBER machines and innovative membrane technology has been implemented to the full satisfaction of the customer. Owing to Jamnica’s far-sighted investment policy, they substantially contribute to environmental protection and communicate their idea of ecological awareness to their employees and customers.



*The goal is to reinforce the company's eco-friendly image*

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*Mixing and balancing tank, bio-tank and HUBER MBR system*