

## HUBER wastewater treatment technology for the biggest factory of the milk processing company Berglandmilch



Berglandmilch reg.Gen.m.b.H. is one of the biggest food processing companies in Austria. After its fusion with Landfrisch dairy about 1,050 employees process approximately 930 million kg milk per year on nine different production sites. Besides, Berglandmilch Group cooperates with about 12,500 suppliers who are at the same time company co-owners.

Berglandmilch operates six factories in Austria (Geinberg, Feldkirchen, Garsten, Aschbach, Voitsberg, Klagenfurt) and since 1999 one in Bavaria (Rottaler Milchwerk). Together with Landfrisch-Werke in Wels and Rohrbach, Austria, Berglandmilch is one of the biggest dairies in Central Europe. Traditional Berglandmilch brands are 'Schärdinger', 'Desserta', 'Jogurella', 'Berghof', 'Alpi', 'Rottaler Milchquell', and also Landfrisch's brands 'Landfrischkäse', 'Rollino' and 'Streichgenuss' are well known beyond the Austrian borders.

On Berglandmilch's biggest production site Aschbach (Lower Austria) up to 1 million litre of milk are processed per day. With Austria's most modern high rack storage and bucket conveyor system, the Aschbach factory focuses on the production of butter, cream cheese and the complete 'white palette' (from fresh milk to fruit yoghurt). To be able to still meet higher requirements as a result of ever increasing production figures, they expanded the capacity of their own wastewater treatment plant in 2009.

Up to 1,800 m<sup>3</sup> wastewater per day, or up to 110 m<sup>3</sup> per hour, flows to the wastewater treatment plant. Its pH can vary greatly depending on its source of generation in the production process. This made it difficult for the old plant to effectively clarify the water. As the clarification capacity of the biological treatment stage was insufficient, the treated wastewater would flow via the intercepting sewer to the municipal WWTP Amstetten with its discharge value limitations. A capacity expansion concept was worked out by the civil engineers HiPi GmbH, Dipl. Ing.re Hitzfelder + Pillichshammer, that included preliminary mechanical wastewater treatment by means of a 3 mm perforated screen, intermediate (existing) buffer tank to

compensate variations in wastewater quantity and quality (pH), and a new chemical-physical wastewater treatment stage consisting of a dissolved air flotation plant to reduce the load on the customer's biological treatment system. The sludge treatment line design took into account locally available sludge utilisation possibilities and their requirements on sludge quality. The concept provides for the disposal of the generated sludge to the digester of the municipal sewage treatment plant of GAV Amstetten where cost-effective disposal of about 18 m<sup>3</sup> viscous sludge per day is possible.

After a strict selection process with the focus on quality, cost-effectiveness and overall economic efficiency HUBER SE finally received the order to supply, install and commission the mechanical equipment for the three main components of the new wastewater treatment concept: wastewater screening, dissolved air flotation and sludge thickening.



HUBER Disc Thickener RoS 2S size 1

As pre-screening system, a ROTAMAT® Pumping Stations Screen RoK 4 size 700 with 3 mm perforated plate was installed directly in the customer's pumping station to the wastewater treatment plant. The screen reliably retains and removes packaging residues and other undesired solids to provide for the sufficient operating reliability of all downstream system components (flotation and biological treatment but also valves and pumps). Furthermore, pre-screening prevents clogging with solids of the downstream wastewater buffer.

Subsequent chemical-physical wastewater treatment is achieved with a HUBER Dissolved Air Flotation Plant HDF size 10 designed for the maximum throughput of 110 m<sup>3</sup> per hour. By using a chemical pre-treatment stage, including pH correction, precipitation and flocculation, the flotation plant is able to reduce COD by about 80% of the initial load. In the long run, an average load of only about 500 to 550 mg/l COD flows to the downstream biological treatment system, instead of previously 2,950 mg/l COD. This solution considerably reduces the load on the biological treatment stage at Aschbach, which consists of a mechanically aerated diversion trench and secondary clarification tank. The customer benefits from new reserves and additional safety.

A ROTAMAT® Disc Thickener RoS 2S size 1 is installed to treat the sludges generated in the biological treatment stage and flotation plant to ensure the sludge quality required for disposal is reliably achieved. Surplus and flocculate sludge are collected separately and sludge-specific flocculants added before the sludges are treated alternately in the Disc Thickener. With throughput rates of 4 - 10 m<sup>3</sup> per hour the solids contained within the surplus sludge can be increased from 1- 1.7 % DR to 5 - 6.5 % DR and the solids content in the flocculate sludge from 4 - 7 % DR to even 8 - 11.5 % DR. This means that sludge transport costs are more than halved.

In cooperation with HiPi engineers HUBER SE could significantly improve plant operating reliability with the expansion and refurbishment of Berglandmilch's wastewater treatment plant at Aschbach described above. Installations in other Berglandmilch factories and other internationally operating milk companies (such as Müller Group) give proof of HUBER's competence in the treatment of dairy wastewater.

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*HUBER Dissolved Air Flotation Plant HDF 10 during start-up*



*HUBER ROTAMAT® Pumping Stations Screen RoK 4-700-3 with insulation*