

Milk processing companies in South Tyrol are focusing on an ice water system using pumps with frequency control



The massive use of energy in the processing of dairy products means that dairies and milk processing companies are obliged to seek economic and more efficient solutions for electric energy management. Today the supply of heat and cold during the various processes requires conscientious management to keep down costs and remain competitive. Lowara pumps play a crucial role in systems that produce ice for cooling milk.

The Milchwahlfabrik Vipiteno dairy at Vipiteno in South Tyrol chose to adopt this policy and, as part of a complete renewal, has fitted out its yogurt production system and stockroom with the latest technology. The dairy cooperative is one of the oldest in South Tyrol and one of the leading suppliers on the Italian yogurt market. Every day the company processes 130,000 liters of milk, 80 per cent of which is made into yogurt, butter, milk, cream and cheese, while 20 per cent leaves the dairy as fresh milk. The cooperative's yearly turnover in 2008 was about 61 million euros.

To manage the daily delivery of milk from about 470 dairy farmers, the South Tyroleans have invested in a new ice production plant for cooling milk at time of delivery and then, after pasteurization, cooling it again and keeping it chilled until the next process.
Maximum energy requirement in summer

Since the entire energy consumption of a milk processing company reaches its peak in the summer months, due to the greater demand for milk and the higher outdoor temperatures, more cold is required to cool the milk. In this case, thanks to its thermal storage capacity, the ice water system offers the possibility of exploiting advantageous overnight rates and reducing current consumption during the day when the energy rates are higher. In managing the system, the South Tyrol dairies can benefit from a further energy saving potential thanks to the use of frequency-controlled pumps made by a specialized company, ITT Lowara of Großostheim. The SHS 50-160/55 pumps used, with cold conductor and Hydrovar control device, convey the ice from the respective storage tank into seven consumer circuits by means of a distributor, thus ensuring that the use of the system is suited to necessities and to energy saving. Thanks to smart control of the

pumps, the Vipiteno Dairy can achieve an additional saving of as much as 70% electric energy during pump operation.

Supply of ice water suited to the demand

The pumps supply a total of 11 pick-up stations, starting from the two milk delivery points and arriving, through the heaters, at the product coolers. The amount of ice water required to cool dairy products varies a great deal depending on the production volume, the time of the year, the necessity at various times of the day, and the difference between the theoretical temperature and the actual temperature. In order to guarantee supply by means of the seven circuits, the pumps are regulated according to the pressure of the ice water by the frequency converter and they are switched on and off as required. The number of working hours of the three single Lowara pumps is regulated by the pump control device, so as to ensure a uniform load of all the pumps.

The management of the Vipiteno Dairy is very satisfied with this solution. In comparison with the old system, a decisive improvement has been achieved in the production rate and the energy consumption of this elementary dairy product processing sector.

The companies involved in the project, besides ITT Lowara of Großostheim, were ABS of Babenhausen, which assembled the system, ELPO of Brunico / South Tyrol (control), Frigoplan of Bolzano / South Tyrol (compressors), Fafco of Biel, Switzerland (tanks for ice water) and Schneider Energieanlagen of Absam / Austria (design).



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