GEMÜ®

VALVES, MEASUREMENT AND CONTROL SYSTEMS

Test plant of the dairy school in Kempten

for thermal treatment of milk, yoghurt, blancmange and similar products

Dairy specialists and engineers at the Bavarian State Institute for Agriculture in Kempten (a teaching, testing and technical centre for the dairy industry) have a new and innovative UHT-ESL testing plant at their disposal for training purposes in the college. In collaboration with plant engineers, the latest technological concepts and components have been developed and integrated into the plant. In addition to globe valves, ball valves and aseptic diaphragm valves, GEMÜ also supplied suitable stainless steel multi-port valve blocks so that the students can learn about the state-of-the-art in sterile plant engineering.*

GEMÜ has been involved from the beginning in the development of a new, state-of-the-art and flexible testing plant for the dairy school. Since the design of a UHT-ESL testing plant with minimal deadleg was one of the primary goals, all of the media-wetted components were carefully selected during the planning phase of the plant. Thanks to space-saving components, such as the multi-port valve blocks from GEMÜ, it was possible to build an extremely compact plant which nevertheless offers excellent access for servicing work thanks to its modular design.

*There was a particular focus on the CIP and SIP capabilities** of the plant. The relevant recommendations of the EHEDG (European Hygienic Engineering and Design Group) were implemented across-the-board, making this plant one of the best designed dairy processing lines in terms of its hygienic aspects.*

Functions of the UHT plant

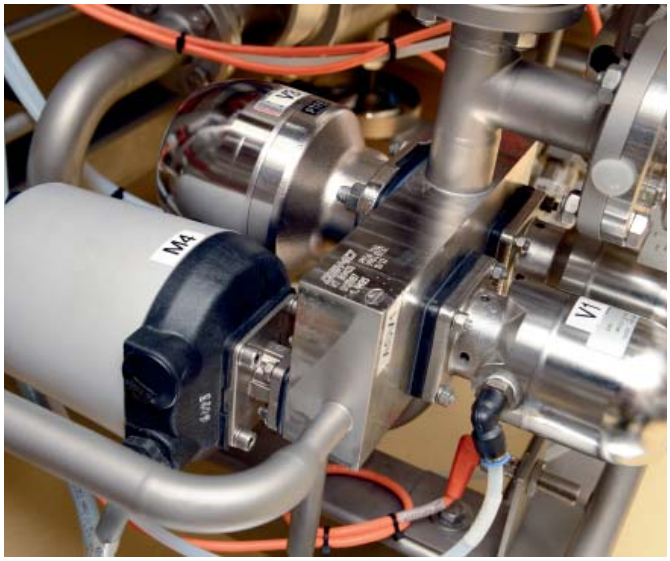
The plant is able to thermally treat milk and highly viscous products such as yoghurt or pudding using different processes. It is designed for a throughput of 250 l/h and can process batches ranging from 10 to 4000 l. Heating of the product up to 150 °C is carried out indirectly, with the provision of steam infusion heating. The plant can be operated in a safe manual mode for teaching purposes or fully automatically. The operating time can be up to 16 hours, made possible by controllable temperature differences in all heaters. For standard products, formulations can be programmed freely and the plant can also process multiple batches from different sources in sequence on a fully automatic basis. Heat holding times of up to ten minutes can be achieved for all usual temperature levels. The unavoidable cooling of product during extended heat holding periods is counteracted by clever positioning of the water heaters in the holding sections and appropriate insulation.

This complex plant allows all relevant practical scenarios which may be encountered in a dairy production facility to be replicated demonstratively on a college-level scale. The plant is also capable of both septic and aseptic homogenization.

UHT-ESL testing plant at the college

GEMÜ multi-port valve block made of stainless steel

GEMÜ multi-port valve blocks made of stainless steel



GEMÜ multi-port valve block made of stainless steel

GEMÜ products and solutions

In addition to globe valves and ball valves from GEMÜ, the plant also features the company's diaphragm valves, which are designed for optimized draining. This ensures that all high points are vented and all low points are drained during steam sterilization of the aseptic tank coupling points. The EHEDG-certified seal system of the diaphragm valves prevents additional deadleg.

The customized multi-port valve blocks from GEMÜ make a considerable contribution to the compact and maintenance friendly design of the overall plant. These allow multiple valves including piping and fittings as well as different functions to be combined in a compact unit. This reduces the number of welds, which speeds up assembly and improves plant reliability through the avoidance of possible leakage points. Due to the reduction in piping, the media-wetted surface area is reduced and the deadleg is lower compared to conventional designs. A range of design-specific measures have thus allowed the best possible hygiene concept to be achieved on the UHT-ESL testing plant. The plant is currently undergoing hygienic validation as part of a master craftman's qualifying exam.

* *UHT = Ultra High Temperature; ESL milk (Extended Shelf Life)*

** *CIP = Cleaning in place; SIP = Sterilization in place – the plant is cleaned/sterilized without significant disassembly of the wetted surfaces.*

GEMÜ 550 globe valves with 1434 positioner

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