

# Processes for high quality dairy desserts

SPX

**W**ithin the dairy industry making high quality desserts can be one of the more challenging applications. In the production of non-cooked, fresh dairy desserts, there are three main processing areas for consideration: Mixing, sterilisation and storage.

## Mixing

The quality of mixing has a big impact on the quality of the end product. A recipe requires consistency to be continually correct, homogenised and stable. Traditional, top, gravity fed systems allow air into the mixture which reduces mixing efficiency and increases hydration time. For ingredients which are difficult to dissolve, they may also require heat to be applied to assist the mixing process. SPX addresses these problems with products such as the APV brand Flex-Mix Instant which is one of an extensive range of mixing solutions from SPX. This mixer uses a vacuum to suck powder beneath a circulating liquid in a closed configuration which ensures excellent mixing results without the need for additional heating. The technology also delivers high quality results with high shear for good dispersion and the creation of tighter emulsions with narrow particle size distribution to ensure desirable product texture. As one of a range of mixers, each with specific benefits, Flex-Mix Instant ensures high quality product results. It is well proven within the dairy desserts market area and highly recommended to handle the high solids content (25-40%) seen in dairy dessert production.



SPX Innovation Centre in Copenhagen



SPX Flex-Mix Instant

## Sterilisation

For the sterilisation of dairy desserts SPX has developed solutions that are based on years of experience and understanding of the particular challenges faced in the production of these products. Although there is a relatively new area of acidic desserts, the vast majority of application requirements are based on a PH neutral mix requiring thermo-resistant bacteria to be killed. For fresh products, sterilisation takes place at 130-138°C and for the majority of applications SPX recommends two types of solutions: indirect heating plate heat exchangers or direct infusion sterilisers. A tubular heat exchanger is sometimes an alternative but this has restrictions because of the high pressure involved and tends to only be used for single product production where no system flexibility is required.

The direct infusion steriliser involves injecting the dessert mix into a chamber of steam. This technology offers high quality, fresh tasting results with very fast processing times but does come at a higher investment cost than the plate heat exchanger. The cost implications mean that the plate heat exchanger is by far the most popular solution and is used in a majority of installations. The infusion unit tends to be selected for dessert mixes with high protein content and in the production of UHT desserts.

Traditional plate heat exchangers can present challenges in dairy dessert processing because of the high pressures they exert on the product mixture. SPX has created a solution with a specific plate de-

sign which has a larger gap to ensure pressures are kept to 10-12bar with low shear. This ensures consistent recipe formulation without the need to compensate for pressure and maintains optimum profile and texture, resulting in creamier desserts. It further offers significant reduction in the required volume of stabilisers within the product, improving consumer appeal and reducing the cost of the recipe.

## Storage and filling

Once mixed and sterilised, fresh dairy desserts tend to be stored in ultra-clean hot storage tanks at 70 to 75°C. This method of storage offers cost efficiency, as only hot water sanitisation of the tanks is required, while ensuring bacteriological safety. It does, however, limit the storage time to around six or seven hours before filling must take place and whipped desserts will require cooling prior to entering the whipping unit during mousse production. Cold storage tanks do offer the potential for unlimited storage time (within food safety limits) but require aseptic tanks with costly steam sanitisation both of the tanks and of downstream equipment. As always, the best solution is dependent on specific application requirements.

## Complete solutions, complete expertise

SPX offer complete solutions and cover all areas of dairy dessert production. Rice or semolina puddings are cooked in 500-1,000 litre kettles which preserves the integrity of the grains within the mixture, while some go into ovens. Additional process steps include cooling, whipping and cooking. Cooked desserts, such as rice pudding or crème brûlée, use the processes described above with a cooking stage at the end.

With brands including APV and Gerstenberg Schroder, SPX has wide ranging and in-depth understanding of the application of technology within the dairy industry. Its solutions are designed to handle modern challenges with continued drives for improved efficiency and production flexibility. SPX works in partnership with its customers to ensure they get the best from their processes. Its Innovation Centres give them the opportunity to trial and test different processes and recipes to ensure they can meet production goals and bring new products to market quickly.

Innovation is a priority at SPX and, with a continued research and development programme focussed at dairy production, it has many solutions which deliver real benefits in efficiency and reliability to the wider dairy industry. The Cheasly process, for example, produces



SPX LeanCreme process

fresh cheese from native milk protein concentrate without the need for whey separation. The BMX Butter Mixer enables in-pipe dosing and immediate butter mixing for a highly efficient, continuous process. The LeanCreme™ process combines the thermal and mechanical treatment of whey protein concentrate into one step to add greater value to surplus whey and produce a superior quality end product. These are just a few examples of the many innovative solutions which can be found throughout the SPX product ranges.

For the production of dairy desserts, innovations do not come only from theory but from decades of experience in how to get the most from the required processes. The use of the specially designed heat exchanger plates to keep pressures low offers a cost efficient installation for the production of high quality product which requires less additives, resulting in a reduced recipe cost. From high performance mixers to storage and filling tanks, SPX solutions are designed to get the most out of a process. Whether a specific product or a complete turnkey solution, SPX ensures high quality, efficiency, flexibility and reliability is obtained for the production of all types of dairy desserts. Customers return with confidence knowing they are getting market-leading solutions and market-leading expertise.