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Hold closed doors and flaps Hygiene-relevant safety technology in dairy product packaging

The bottling, filling and packaging of dairy products is a sophisticated undertaking. The processing of food products such as milk and yoghurt etc places the most demanding requirements on hygiene. At the same time though, flexibility is required to reflect faster product cycle turnarounds and the importance of packaging as a marketing instrument in the sector. With the Combiseptic 81, Gasti has developed an unusually adaptable cup filling and sealing machine with which innovative product ideas can be realised. Schmersal has contributed here with its safety technology which is just as flexible as it is hygienic.

With increasing popularity of its products both inside and outside of Finland, the Finnish dairy company, Valio, is going for expansion on the international market. This is why, at the end of 2014, it ordered a Combiseptic 81 from Gasti, making it the fifth cup filling and sealing machine purchased from the German packaging machinery manufacturer in Schwäbisch Hall. „We've successfully used this model for many years“, said Martti Kimpimäki, Plant Director at Valio in Oulu. „With the new machine we can further boost our production capacities and hence expand our international market position.“ Gasti is part of IMA Dairy & Food, one of the leading plant and machinery manufacturers of primary packaging in the food processing industry with seven production sites in four countries and a global distribution network.

At the Valio plant in Oulo, North Finland, various dairy products are filled with the Combiseptic 81 using two dosing units into 75 millimetre diameter preformed cups. The machine can achieve an output of up to 16,000 cups an hour. Despite high-speed transportation of the containers to the sealing station, movement is steady and continuous, with no starts and stops, which prevents product spillage. Used with additional dosing units, the Combiseptic 81 can also process single and multi-layer desserts as well as spiralled or vertical layer products.

The filler also distinguishes itself by its quick-change format for different cup diameters. The modular construction of the individual functions means changeover to another cup diameter is possible within just 15 to 30 minutes. Alongside format flexibility, the machine can also fill two formats at once, for example 75 and 95 millimetre cup diameters. The Combiseptic 81 is available in the versions „hygienic“ (standard) or an „ultra-clean“. Cups are transported in an enclosed space with sealed doors. A controlled supply of sterile air and a sealed clean area prevent re-infection during production. Large windows allow observation of processes and quick access to the functional modules in the clean area. A variety of rotatable safety guards, vertical sliding doors and smaller flaps prevent contamination entering the machine and at the same time facilitate operation and maintenance.



Two AZM 300s for securing two rotatable safety guards with SD bus connection

Gasti uses the AZM 300 from Schmersal to secure the guards. „This safety technology offers a multitude of benefits,“ said Kurt Wolf, Director of Operations & Procurement at Gasti. „The AZM 300 is the first IP69k-compliant interlock. The stainless steel screws allow quicker installation and quicker replacement during repairs. Thanks to the SD BUS system, the design of this safety solution was straightforward. The solution enables a simple definition of the functional models and provides extensive software-based diagnostic capabilities.“

The safety switch's special characteristics include the new patented operating principle with a Maltese cross. „This pulls the safety guard closed when it reaches its end position and holds it there with the minimum of slack“, explains Siegfried Rüttger, packaging industry branch manager at Schmersal. „The solenoid interlock has an integrated guard catch which means we don't have to fit one ourselves and because the AZM 300 doesn't need an external actuator, it's also a lot easier to clean“. Use of the AZM 300 is particularly flexible for two reasons:



Securing the magazine in which the preformed cups are located

- The integrated and easy-to-adjust latching function means the switch can be used for large safety guards requiring a large latching force as well as for smaller guards with a correspondingly smaller latching force.
- The Maltese cross interlock device allows the interlock to be approached from three directions. This means guards with left or right handed catches or sliding guards can be secured with one and the same appliance.

The Combiseptic 81 contains 24 AZM300 solenoid interlocks on eight SD bus lines which are evaluated by an SD bus gateway. This solution requires considerably less cabling and hence reduces the number of potential contamination sites. In addition the connecting cables are fitted with V4A nuts which have proven to be particularly resilient to everyday cleaning agents and disinfectants. The use of V4A nuts and the installation of connecting cables in open V4A mesh cable trays makes machine cleaning easier. „Easy cleaning and simple cabling in food packaging machines is becoming more and more relevant,“ explained Rüttger. „This is why cables should be installed in open stainless steel mesh cable trays as it stops pockets of debris forming.“ For Wolf, the service provided is just as important as the wide choice of safety components:

„We value competent partners. During problem solving, engineers in particular should demonstrate flexible as well as innovative and uncomplicated ways of thinking. Schmersal fulfils this requirement.“



The Combiseptic 81 filling and sealing machine achieves an output of up to 16,000 cups per hour at the Valio dairy company in Finland

In matters safety technology, IMA Dairy & Food and the Schmersal Group have long been united on many levels. For example, the AZM 300 is not only used by Gasti but also by Hassia. The company manufactures the P 300 which can form, fill and seal 20,000 to 63,000 deep-drawn portion cups an hour. The position of the transparent safety guards is monitored with the safety switch. Hambar Filltec is another IMA Dairy & Food affiliate. The AZM 300 is used to secure the double rotatable safety guards on the filling and sealing machine for pre-formed cups.

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