Keeping up with the latest dairy trends

As an expert providing the worldwide dairy industry with packaging and filling solutions perfectly suited to the requirements of local markets, Serac is well positioned to get an overview of emerging trends and their consequences on packaging equipment.

Focusing on dairy products packaged in bottles and cups, this article details evolutions and innovations brought by Serac to its machinery in order to help manufacturers differentiate from their competitors, from bottle manufacturing (for which Serac received this year the Dairy Innovation Award) to product filling.

Bottles

Technology fosters diversity

The plastic bottle is still strongly developing on a worldwide scale for various products with constantly widening ranges such as coffee whiteners, drinking yogurts, chilled or aseptic milks, as well as for premium recipes of soy based drinks and value-added niches such as aseptic nutritional drinks. Looking for example at the drinking yogurt market, bottle is by far the leading packaging and promises significant growth in the years to come. Market trends also favor the development of small to medium-sized bottles ranging from a few dozens of milliliters to one liter which, through the use of new materials and manufacturing technologies can now display vivid colors and original shapes.

Colored polystyrene bottles thermoformed by Agami technology.
Simplified high precision bottle forming technologies

This year, Serac received the Dairy Innovation Award for its Agami thermoforming machines which create bottles from plastic sheet reels in a vertical process that requires few plastic processing skills. After polystyrene PS, which offers the possibility to choose amongst a wide variety of vivid colors, Serac now offers the possibility to use polypropylene PP on its Agami machines: an option that has already shown quite successful in the drinking yogurt industry with registered new orders in the U.S.A and Europe. Agami machines come with a global support around packaging development that includes model design and prototyping, material testing, sealing and capping recommendations.

Serac’s success with PET stretch blow molding technology integrated in single block blow-fill-cap units named Combox for orders in the dairy market come from America for the packaging of drinking yogurts and chilled milks.

A real alternative to HDPE, both technologies offer more simplicity in plastic processing while being extremely precise. They are particularly favored for portion packs dedicated to children as they allow to produce funny bottles that have the shape of a fruit, a spring or a cartoon character.

Multi-purpose filling lines adapted to smaller packagings

Serac’s H2F filling units have been designed to be highly flexible and thus authorize to fill equally HDPE, PET, PS or PP bottles, thus enabling manufacturers to diversify their offering. Flexibility comes from the bottle neck transfer system which requires only a few tooling parts to be changed to switch from one bottle model to another.

Based on the weight filling technology, H2F units are known for their accuracy which is critical on small-sized packagings. They have recently been upgraded to provide still higher performance on bottles ranging from 60 ml up to 2 liters. Serac offers bottle neck transfer associated with weight filling in its H2F filler.
Sophisticated recipes and return to more traditional packagings generate specific requirements on filling units

The yogurt and dessert market is developing through organic products, limited editions and increasingly sophisticated recipes (several layers of yogurt and fruit, fruit, nuts or cereal chunks included in the product or dosed in a separate compartment to be mixed just before eating...) which make dosing operations more complicated. The market quest for authenticity also leads to the return of traditional packagings such as glass jars or cartons with quaint shapes that cannot be stacked up. Such packagings require specific technical adaptations on filling units. In Europe and especially in France, authenticity is also a way to develop the spreadable cheese segment with recipes using traditional blue-veined or pressed cheeses that call for particular dosing equipment.

Sophisticated dosing units to upgrade existing lines

Nova dosing systems can easily be integrated to existing lines, whatever the make of the machine. They include up to 24 filling heads and provide perfect control for all kinds of products through a complete range of nozzle solutions. They are adapted to the most sophisticated filling methods, from layered and spiral filling of different ingredients to complex dessert combinations.

An owner of several Nova lines has recently upgraded its dosing units to cope with an increasing number of recipes. The greek yogurt specialist can now produce simultaneously up to 4 fruit mixes in the same cup and several recipes that are gathered in multi-flavour packs. Two filling methods on the same Nova line can also be used alternately.

Specific transfer systems for non-stackable packagings

For non-stackable packagings such as glass jars or conical cartons, Serac proposes to adjust both its Nova fillers with specific storage units, conveyors and transfer plates that provide efficient machine feeding with no jam.

Hot filling of highly viscous products

The Nova fillers are capable of dosing pasty and highly viscous products. For spreadable cheeses that require a hot filling process, Serac has developed a specific tank equipped with a motorized agitator, a double or triple jacket with water circulation that maintains the product at the right temperature (around 75 - 80°C) and a full temperature monitoring system.

The dosing system is associated with nozzles dedicated to viscous runny products.
Machinery

Machinery required to bring more flexibility and food safety

Whatever the product considered, markets are characterized by an explosive growth of the number of recipes which, in addition to specific adjustments on the machines, call for the highest possible levels of flexibility. Second global trend on the market: upgraded levels of hygiene in order to increase food safety. Depending on the market considered, upgrades can be limited to packaging decontamination or require the implementation of aseptic filling units.

Pilot lines for R&D and market testing

Whether for consumer testing on flavors and packagings or for real conditions market testing, an increasing number of manufacturers are looking for dedicated multi-purpose equipment.

In order to meet this expectation, Serac has developed aseptic pilot bottling lines tailored to the production at low rate of a wide variety of recipes in different packagings (plastic materials and sizes). These pilot lines are derived from Serac’s aseptic filling lines and thus offer the same features for packaging sterilization, process hygiene and cleaning procedures.

Maximum flexibility with a minimum footprint

Flexibility has always been one of the main pillars of Serac’s philosophy. This is why the filling lines proposed by the company enable fast production changes from one packaging or recipe to another through neck transfer systems and quick change of recipes from control panel.

To further increase flexibility on its aseptic machinery, Serac has also worked out easily cleanable equipment that allows recipes to follow each other without having to go through a 4 hour long cleaning and sterilization process. With a single injection of sterile water, pipes can be ready for the next batch. And in the best case one recipe can even be used to drain the other.

With the integration of on-site bottle manufacturing solutions in single block blow-fill-cap unit (Combox machines) and new solutions for thermoforming bottles out of pre-printed plastic sheets, Serac also contributes to reducing the footprint of complete packaging lines by avoiding the need for storage tanks, unscramblers, sleeves or labels applicators. For products packed in cups, Serac is working with the same objective on end-of-line integration of case packers for its linear filling machines.

Modular solutions for food safety

In order to meet all levels of safety requirements, Serac is proposing modular solutions that range from packaging decontamination to fully documented aseptic lines ready for qualification by health authorities.
The group offers an expert solution for H$_2$O$_2$ controlled decontamination of bottles, cups and caps that provides a better uniformity of treatment and an increased control on decontamination parameters. Active components concentration and decontamination parameters are continuously monitored and the control system stops the machine as soon as a parameter is out of the tolerance limits. This solution is also interesting from an environmental point of view, since it requires low volumes of H$_2$O$_2$ and no water.

Serac has also developed first-class aseptic filling lines that include dry sterilization at all stages plus sanitization of the filling unit itself; a 100% sterile zone plus a controlled area below the neck of the bottle for pharmaceutical level of hygiene within the aseptic enclosure, and enhanced security through the doubling of all gas filtration systems plus constant monitoring of a wide range of sterilization parameters.

In order to assist customers looking for qualification of their line by health authorities, Serac can document its aseptic lines with risk and functional analyses, as well as all necessary certificates.

Whatever the country, competition is fierce within the dairy industry and all manufacturers, whatever their size, focus on creating distinctive brands that will retain consumers’ loyalty.

Their efforts are supported by technological innovations that offer multiple options from which to choose.

Finally, aiming at being unique, newly developed products call for manufacturing equipment that is modular and adjustable rather than highly standardized.

This is why Serac is committed to providing dairy manufacturers with scalable and flexible solutions, plus close technical support throughout their projects.