Top form

the filling business

Form-fill-seal machinery is being increasingly used to package a range of food and beverage products. Tom Woerndl reviews recent launches in the category

Flexibility is increasingly key to success in the food and beverage industry. If manufacturers have flexible production techniques, they are better positioned to respond quickly to changes in the market.

Form-fill-seal (FFS) technology gives food and beverage companies greater control – and therefore flexibility – over their production because it allows the manufacture and filling of packaging on a single machine. It also removes the need for producers to stockpile empty packaging, saving warehouse space, and gives them agility when responding to changing consumer demands.

FFS machines are now suitable for a broad range of product applications and, with flexible packaging increasing its presence on the food and beverage segments, the demand for this technology is increasing.

In the dairy segment, German company Illig recently launched its FSL 48 machine for combined thermoforming and multi-lane filling. The Heilbronn-based company says the unit features an integrated IML (in-mould labelling) station that offers decoration of products during the packaging process.

It is able to produce most conventional cup formats and can be equipped with both CIP (clean in place) and SIP (sterilisation in place), providing the variety of hygiene levels demanded by the food industry.

According to the company, the thermoformer has a footprint of 4.8m by 3.2m, which is adjustable to enable production of single or double cups in four- or six-pack trays. The FSL 48 has an output of up to 30 cycles per minute.

"By employing the new multi-lane filler, dairy products of different flavours can be filled and labelled on a single machine," says the company. Illig has already sold one line to a customer that fills four different flavours of dairy products at the same time using a 12-pack layout.

"Subject to the format layout of the FSL 48, packs containing up to six different flavours can be produced at the same time and packed directly in a crate suitable for the supermarket shelf," adds the company.

Additional features of the machine include the use of servo motors, which Illig says enables "extremely smooth" running. "This means that even very fluid products can be packed and there is no danger of product spilling on the sealing rims," it says.

A number of plastics materials can be used on the FFS line, including polystyrene, PP, and multilayer materials such as a combination of PS/EVOH/PE. APET and even foils made of PLA biopolymer are also compatible with the machine.

Cavanna's Slim form-fill-seal machine is compatible with a range of products, including chocolate bars and biscuits

Germany's Illig supplies a range of packaging machines, including systems suitable for dairy products

The FSL 48 is completely enclosed with hygiene levels maintained by a constant flow of sterile air, while packaging closures are sterilised by UV radiation or the addition of a complete aseptic unit.

The IML section of the machine is integrated in the packaging forming station with printed label blanks fed from an external magazine. A number of decoration options are said to be possible, including a range of label shapes with barcode information.

"Thanks to the addition of IML, a great variety of cup shapes can be smoothly decorated with attractive labels in photo quality," notes Illig.

Because IML is part of the thermoforming process, Illig says that it is more cost-effective than IML injection moulding. The investment costs for moulds and maintenance costs are lower compared to injection moulding, says the company, while thermoformed packaging can be manufactured with thinner walls, and therefore use less raw material.

Highlighting the versatility of FFS technology, Italian group Cavanna Packaging has launched its Slim machine, which is designed for packaging products such as chocolate bars, confectionary and biscuits.

The continuous motion, horizontal packaging machine wraps products by using thermosealable and/or cold-sealable materials taken from a reel. The company says the main feature of the technology is that it is very compact, with dimensions of 2m by 1m. "Furthermore, it is possible to combine two parallel machines – known as Twin Slim. Both machines are very easy to access and can be integrated with robots to provide primary and secondary wrapping.

"This machine can reach the speed of more than 1,000 packs per minute depending on the characteristics of the product processed, and of the wrapping material being used."

Cavanna presented a dual lane version of the machine at Interpack 2014, with orders being placed by major international food manufacturers.

To ensure the correct amount of products are sent to its packaging machines, the company has additionally developed a volumetric loader called MAF. The electronic, numerical loader is available in a number of input rates ranging from four to eight, and is said to ensure precise loading levels for a range of products

"This kind of feeder has an independent system for receiving flat products and moving and counting them at same time," says Cavanna.

"Once the desired number is reached, this is discharged into the flight bar chain of an existing packaging machine. This loader can reach discharge speeds up to 35 cycles per minute depending on the length of the slug and the characteristics of the product."

More information from:

Illig, Robert-Bosch-Strasse 10, Heilbronn 74081, Germany. Tel: 49 713 1505 259. Fax: 49 713 1505 1259. www.illig.de

Cavanna, Via Matteotti, 104, Prato Sesia, Novara 28077, Italy. Tel: 39 0163 829 111. Fax: 39 0163 829 237. www.cavanna.com P

Form fillers: Illig's FSL 48 machine forms, fills and seals plastics cups