Ecolean's aseptic filling machines save resources, maximise operations

Just as the company is committed to producing lighter, flexible packaging solutions that help food and beverage producers do more with less, Ecolean's filling equipment is compact and efficient. The EL6 and EL3+ feature higher capacities, a reduced impact on the environment and competitive operational costs, all while maintaining the same footprint, compared to previous versions.

Christian Olsson, Director Filling Lines says, "When launching these higher capacity machines for ambient distribution, we put a lot of effort into lowering the cost per pack for our customers". "It makes a difference, not only on offering an even more competitive Total Cost of Ownership, but also on reducing the environmental impact further. We can now offer an easier machine to operate with higher capacity for our customers, all within the same footprint."

The EL6 features six fillers to increase capacity to fill up to 18,000 portion-sized packages per hour. For use with Ecolean® Air Aseptic 125ml, 200ml, 250ml and 350ml and Ecolean® Air Aseptic Clear 200ml and 250ml packages, the EL6 uses up to 30% less air, water and energy during both production and cleaning.

To complete the EL6 filling line, optional equipment includes a CIP unit, a straw applicator, a package buffer unit and a package conditioning unit as well as easy configuration to secondary packaging solutions.

The EL3+ is replacing the EL3 machine and features a 25% increase in capacity to fill up to 7,500 family-sized packages per hour. For use with Ecolean® Air Aseptic 500ml, 750ml and 1,000ml packages, the EL3+ uses less air and energy during production and up to 50% less water during the cleaning cycle.

An updated control system with moveable HMI screen together with a simplified outfeed, placing packages directly on a downstream conveyor, enable the capacity increase and improved machine performance. Other options for the EL3+ include a CIP unit, an integrated packer and a SnapQuick™ applicator, applying Ecolean's unique and award-winning reclosure SnapQuick™ to the packages.

Christian Olsson, Director Filling Lines, Ecolean Group.

Like all aseptic Ecolean filling machines, an integrated cleaning-in-place and pre-production sterilization system as well as an HEPA filtered filling zone ensure the same high level of hygiene, before and under production. The ready-to-fill packages are sterilized using electron beam treatment, hermetically sealed and distributed on reels from Ecolean plants. Before opening, filling and sealing in the filling machine, the outer surfaces of the packages are re-sterilized using a system of 1% peroxide spray and UV light.

"It is important that Ecolean makes it easier for our customers. The reason for constantly improving our own performance, as well as the efficiency of the Ecolean filling machines, is to maximize results for our customers", says Olsson. "With higher capacities within the same footprint, advanced technology yet easy operations, Ecolean offers a lighter solution." ◆

Ecolean aseptic filling machine EL6.

Ecolean aseptic filling machine EL3+.

Sulzer welcomes new random packing design

To provide optimal column performance, the design of random packings should provide a number of features. Firstly, they should generate a large surface area that brings the liquid and the vapour phases into contact. The packings should spread evenly within the column packing section, creating a uniform surface area distribution to provide an orientation-independent column performance. In addition, the structure of the packings should not create a tortuous flow path for the vapour in order to maintain a low pressure drop. Finally, the shape should discourage nesting between packing elements and promote lower liquid flow resistance.

Combining all of these considerations and providing an optimized structure for random packings can be challenging, but the results offer improved separation efficiency inside the column.

Highly skilled suppliers/providers of random packing can boost the efficiency and performance of columns and the entire plant by providing cutting-edge designs for random packings. In order to ensure the quality of the products, Sulzer's R&D engineers conduct in-house testing before their launch on the market. Some of these tests were verified by an independent institute in the US.

Sulzer's latest advance in random packing design is NeXRing, which provides higher capacity and efficiency compared to conventional random packing designs, as attested by in-house and third-party tests.

The performance of this packing is delivered by a relatively large and accessible ring surface on which the separation process can take place, the special shape of the rings, which allows for a higher packing density and thus a larger available surface, and the open design of the rings, which reduces the pressure drop compared to conventional rings by up to 50%.

NeXRing™ The NeXt generation random packing.

NeXRing packings distribute themselves evenly within the column packing section, while the structure of the rings provides for uniform liquid and gas flow through the column. The shape of the packing appears fragile, but the end flanges and the reinforced ribs give the packing a high mechanical strength.

These packings are used in many industrial sectors, such as for the removal of CO2 and H2S from natural gas or biogas. For this purpose, the gas is brought into contact with amine-based solvents, such as monoethanolamine (MEA), diethanolamine (DEA), methyldiethanolamine (MDEA) or MDEA/piperazine solutions (activated MDEA).

A common feature of these solvents is their strong tendency to foam, which affects the flow of the gas through the separation column. The high open surface area enables separation with less pressure drop and thereby reduces the hydraulic effect of foaming. As a result, the overall column efficiency is increased.

The company upgraded the random packings to the NeXRing model in the two lower sections of the three-part column, where the fouling occurred. Even after half a year of operation no increase in pressure drop could be detected. The open design of the new packings the small particles to flow through unhindered without getting stuck. In addition, in all three column sections, the overall pressure drop in the column is lower than in the previous arrangement. The customer regularly checks the pressure drop for quality assurance in order to ensure compliance with the state's requirements.

Governments globally have adopted stringent regulations to reduce global air pollution from SO_2 emissions. An Asian customer, operator of a refinery, was unable to meet the new government regulations with its existing equipment. To reduce the SO_2 content in the flue gas, a new column had to be built. Sulzer performed the calculations and developed a concept that allowed the customer to meet government regulations using Sulzer's products and a new process arrangement.

SO_2 is removed in several stages using water and alkaline solutions. The goal was a reduction of the SO_2 content in the exhaust gas below 50 ppm. By replacing the original random packings, it was possible to increase efficiency. Since a certain amount of dust is to be expected during the process, the resistance of NeXRing to contamination was also an advantage.

The calculations convinced the customer, which opted for a column equipped exclusively with NeXRing packings. The column is now successfully in operation and the SO_2 content could be reduced to 35 ppm. The total pressure drop is 40% less than required, resulting in significant energy savings over the service life of the column.

Sulzer engineers have developed a design programme called Sulcol that gives customers the ability to design their own columns. Columns of different sizes can be configured with various types of internals. The Sulcol program then determines the hydraulic capacity of the system. Columns can be configured with different types of trays, random or structured packing. ◆

MULTIVAC: Packaging concepts with paper fibre based materials

The reduction of the consumption of packaging and the use of recyclable materials in the production of packaging are currently at the top of the agenda in the packaging industry and among consumers. In the near future, the demand for recyclable packaging in particular will increase significantly. With MULTIVAC PaperBoard, MULTIVAC, as one of the leaders in the market and technology, offers a variety of solutions for the production of packaging based on paper fibre that fully meet the requirements of recyclability.

Primarily, packaging must protect the product. In respect of food, packaging substantially contributes to the improved use and prolonged shelf life. Plastic composites, which have the required barrier properties and can be easily processed on packaging machines, are predominantly used for this purpose.

The new German Packaging Act, which will come into force in 2019, and the EU Plastics Strategy, which was adopted in January 2018, are intended to counteract the massive increase in the production of plastics worldwide. The requirements essentially relate to the introduction of a recycling economy for the plastics industry and the reduction of the consumption of plastics.

At MULTIVAC, these topics are not new. "As one of the leaders in the market and technology, we continuously strive towards developing innovative machine concepts and setting new standards in the market for packaging quality and efficiency as well as the conservation of resources and the reduction of packaging. We are also convinced that the use of alternative materials will create further sustainable prospects for the future," as Valeska Haux, Vice President Corporate Marketing, explains and who is also responsible for the film business at MULTIVAC.

Alternative packaging concepts with MULTIVAC PaperBoard

MULTIVAC PaperBoard offers various solutions for the manufacture of packaging from paper fibre based materials. In this regard, MULTIVAC works with leading manufacturers on suitable packaging materials that can be processed in standard systems. The thermoforming packaging machines and traysealers can be individually customised for the respective performance requirements of the customers. They accordingly offer real added value in terms of package quality, output and process reliability. In addition, by means of combining infeed, outfeed and pack labelling modules, fully automated packaging solutions can be offered that fully meet the requirements in respect of efficiency.

For example, both MAP and skin packs made from paper fibre based materials can be implemented on the MULTIVAC systems. The backing material can be processed either as a roll or as a cut sheet; in addition, prefabricated trays can be used. All the materials can be separated into their respective parts by the end user and the paper backing sent for recycling.

Advantages of packaging made of fibre based materials

The use of functional layers makes it possible to produce paper-based packs that meet the barrier property requirements of plastic composites. Either the paper backing or the entire paper composite can be sent for recycling; in this regard, countries have different regulations that need to be observed.

Another advantage of paper backings is their wide design range for purposes of printing. This contributes significantly to differentiation at the point of sale. Product data can also be displayed on the paper backing so that large labels can be dispensed with.

Processing cardboard trays

For the processing of cardboard trays in MAP or skin packs, MULTIVAC offers both thermoforming packaging machines and traysealers that can be equipped with appropriate modules for the infeed and outfeed of the trays.

In contrast to the trays made of cardboard composites that are processed by the traysealer and that can be separated by type after use, the trays used for the thermoforming packaging machine are made of mono cardboard. In the thermoforming moulding die of the machine, the

trays are equipped with a corresponding plastic sealing layer that can then also be separated from the cardboard after use. The output requirements of the packaging solution significantly influence the decision as to the respective ideal system.

Processing cardboard backing

Skin packs on the basis of cardboard backing can be produced with MULTIVAC thermoforming packaging machines as well as with traysealers. In contrast to the traysealer which processes cut cardboard sheets, the thermoforming packaging machine can use material from a roll, which makes this technology far more flexible in respect of the design of the packs. In addition, processing the material from a roll is also significantly more efficient.

Processing malleable paper

Similarly, MAP and skin packs made of malleable paper composites can also be produced. Paper and cardboard composites with different grammages and different functional layers are used. Pack cavities with a depth of up to 20 mm can be produced with the standard version of MULTIVAC thermoforming packaging machines. As with the previously mentioned packs, the materials of this pack can also be separated according to type and the paper backing send for recycling.

MULTIVAC expertise

In order to achieve optimal results, MULTIVAC supports its customers with comprehensive pack tests that are then used for a holistic assessment of the packs. MULTIVAC, as a system supplier, also offers suitable packaging materials that are designed for processing in packaging machines.

Our pronounced line expertise also enables the development of automatic solutions that fully meet the specific requirements of the processors in terms of output and process reliability. Initial customer projects have already been successfully completed.

In general, MULTIVAC has sufficient experience in the handling of paper-based packs – and will increasingly focus on innovative packaging concepts at future trade fairs.

MULTIVAC celebrates opening of new production facility in Bulgaria

Yesterday, the new production plant of MULTIVAC Bulgaria Production Ltd was inaugurated in Bozhurishte, near Sofia, with a festive opening ceremony. The guests included Boyko Borissov, Prime Minister of Bulgaria, Emil Karanikolov, Minister of Economy of Bulgaria, Gerogi Dimov, Mayor of Bozhurishte and Franz Josef Pschierer, Bavarian Minister of State for Economic Affairs, Energy and Technology, as well as other government officials and local politicians. Also participating in the celebration were representatives of the Agency for Investment and the National Company Industrial Zones EAD, board members of the German-Bulgarian Chamber of Industry and Commerce and managing directors of MULTIVAC Hans-Joachim Boekstegers, Group CEO and Spokesman, Guido Spix, Group CTO and COO, and Christian Traumann, Group CFO.

Ivaylo Dimitrov, Managing Director of Bulgaria Production Ltd., managing directors of MULTIVAC Hans-Joachim Boekstegers, Group CEO and Spokesman, Guido Spix, Group CTO and COO, and Christian Traumann, Group CFO.

The new manufacturing plant of MULTIVAC Bulgaria Production Ltd is located in the industrial area of Bozhurishte and has a total surface area of around 20,000 square metres. In addition to a factory building with the latest technology for the production of MULTIVAC parts, the complex also includes a state-of-the-art warehouse and logistics centre, a training centre and an administration building. In addition to the Bulgarian sales and service company headed by Trifon Filipov, an international Shared Service Centre for IT, Strategic Purchasing, Design and Service will also be housed in the new building.

The groundbreaking ceremony for the new production facility was celebrated in September 2016. A total of 18.8 million euros were invested and more than 150 modern and secure jobs were created. Several initiatives were started by the company as far back as 2015 to attract young professionals in IT and logistics, among other areas.

"We are pleased to celebrate the opening of our first production facility in Eastern Europe here in Bozhurishte after a construction period of roughly two and a half years", said Hans-Joachim Boekstegers, Managing Director and Group CEO of MULTIVAC. "Working in three shifts at this site, qualified specialists will produce machine parts and assemblies that meet the MULTIVAC quality standard. We are using modern turning and milling machines just as we also use at our headquarters in Germany. Incidentally, just a few weeks after commissioning, we are already utilising our full capacity."

Ivaylo Dimitrov, Managing Director of Bulgaria Production Ltd, added: "We are proud that the MULTIVAC Group has opted for Bulgaria as the place to expand its production capacity. Our goal is to be one of the most modern production sites within the Group and to guarantee the high MULTIVAC standards through our specialists."

In addition to the new plant in Bulgaria, MULTIVAC has eleven additional production sites in Germany, Austria, Spain, Brazil, Japan, Finland and the USA, as well as more than 80 sales and service companies worldwide.