Complete lines for every need

New solutions for the bottling and for the end-of-line will be presented in worldwide preview during Drinktec 2013 - Stand Hall A6 Stand 303

The right design of a complete bottling line, the proper sizing of both machines and plants and the smooth operation of the whole system are key factors for the "food & beverages" companies which need to assure an efficient production, low costs of operation and a good profit margin on their market competitors.

SMI System Engineering Department (SED) designs turnkey systems suitable for the customer's specific needs, focusing on their compactness, efficiency and cost-saving.

The numerous "line engineering" solutions devised by SMI's SED can be grouped into 3 main categories, according to the output rate required:

PET lines up to 7,000 b.p.h

"essential" compact lines, for the bottling and packaging of still and carbonated liquids (water, drinks, oil and milk) in PET containers up to 3 L;
HC "essential" compact lines, for the bottling and packaging of still liquids (water, oil and milk) in high capacity (5-10 L) PET containers.

PET lines up to 14,000 b.p.h

"energy-saving" compact lines, for the bottling and packaging of still and carbonated liquids (water, drinks, oil and milk) in PET containers up to 3 L, specifically designed for energy saving;
traditional lines, for the bottling and packaging of still and carbonated liquids (water, drinks, oil and milk) in PET containers up to 3L.

PET lines up to and over 25,000 b.p.h

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traditional lines, for the bottling and packaging of still and carbonated liquids (water, drinks, oil and milk) in PET containers up to 3 L.

All the "line engineering" solutions offered by SMI include a preliminary study of the project during which the dynamics of accumulation, distribution and movement are accurately analysed so as to guarantee a smooth and constant production and the best operational flexibility of the machines installed.

The use of a state-of-the-art automation and control system, which employs sophisticated sensors spotted in the most strategic points of the line, enables to keep high levels of efficiency during the whole production cycle; moreover, a remarkable automation optimises the use of raw materials, of the workforce and of the energy sources, thus supporting the environmental sustainability of the solutions offered by SMI.

Compact lines

All the solutions developed by SMI to achieve production rates up to 7,000 b.p.h (PET containers of 1.5 L) come under this series of lines.

These plants, as it can be inferred from their name, are devised with the aim of offering the latest technologies for the bottling and packaging in a basic and essential way, by removing the complementary equipment not required for the proper operation of machinery. Thanks to it, SMI can market these turnkey systems at one of the best quality/price ratios in its sector.

An "essential" compact line is usually made up of an integrated system of the Smiform **ECOBLOC®** series for the blow-moulding, filling and capping, a low speed Smiflexi (LSK series) or Smipack (Betapack series) automatic shrinkwrapper for the secondary packaging and a manual or semi-automatic palletising system.

SMI "essential" complete lines allow the installation of a bottling and packaging business in the food & beverage market segment with low initial investments and the main advantages offered by modern technologies; furthermore, these solutions are particularly suitable for the already operational enterprises which want to shift from a manual or semi-automatic system to a much more automated and efficient one.

In the end, thanks to the integrated solutions widely employed in these lines, both operating costs and maintenance ones are dramatically cut if compared to those of the "full optional" solutions available on the market.

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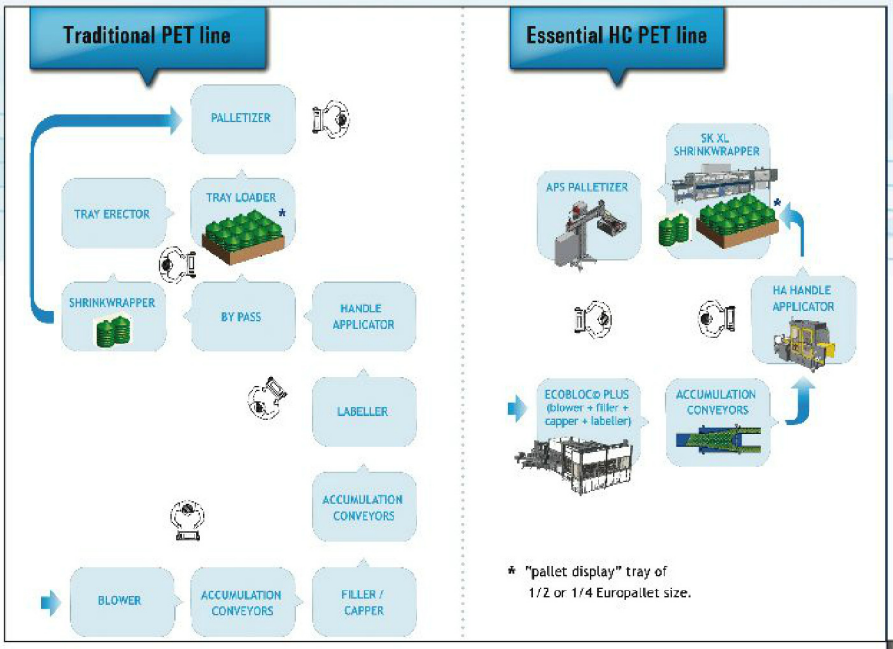

Energy-saving

For outputs up to and over 25,000 b.p.h, SMI System Engineering Department supplies complete bottling and packaging lines equipped with state-of-the-art technological solutions for the energy saving and the cut in costs.

Among the projects SMI recently supplied, the turnkey system installed in the bottling plant of Stella Alpina stands out as it outputs up to 14,400 bottles/hour in a more efficient and economical way if compared to traditional plants. The plant is located in Mojo de Calvi (Bergamo) and covers a surface of just 800 m² where it bottles still and carbonated water.

Complete lines for every need - continued

HC "essential" compact lines for high capacity containers

This solution offered by SMI entails the installation of a turnkey production plant in less than 1,000 m² including:

- an Ecobloc® HC integrated system of the Smiform division for the blow-moulding, filling and capping of PET containers of 5, 8 and 10 L with outputs up to 7,000 bottles/hour (5 L containers);
- an automatic shrinkwrapper of the Smiflexi division for the packaging in film only and/or tray only in the "pallet display" format (¼ pallet or ½ pallet);
- an automatic palletising system of the Smipal division;
- a limited number of conveyor belts of the Smiline division for the handling of loose containers and packs.

The simplification of the line is achieved through the integration of different machines into few "multi-tasking" units:

- upstream, a unique block for the blowing, filling and capping (Ecobloc®), performing all the operations traditionally divided into at least 2 different machines;
- downstream, an integrated system providing a Smiflexi packer and a Smipal palletiser: the packer can handle both the traditional packs in film only and the "maxi" corrugated cardboard trays in the "pallet display" format (½ pallet or ¼ pallet).

If compared to traditional solutions, this type of complete line drastically reduces the need for accumulation tables and the subsequent pressure and crushing that loose products undergo; in addition to this, the cut in the number of "stand-alone" machines lets a faster switch from a type of production to another one – and from a pack format to another one – depending on market trends.

The installation of fully integrated and automated systems cuts the operating and maintenance costs, allowing the reduction of the personnel working on the line (one operator suffices to operate the whole system).

The technological innovations SMI designers conceived for this installation enable to drastically reduce operating costs of each bottle of water produced, specially thanks to the energy-saving devices and those for streamlining the production cycles the machines are equipped with.

In more detail, the new Stella Alpina bottling line is made up of 2 blocks of machines which, thanks to their high level of integration, assure a reduction in sizing, costs and consumptions.

The first block is composed of the Smiform **Ecobloc® PLUS,** gathering in a unique plant the functions of blow-moulding, filling, capping and labelling; the second block, called PACK BLOCK and whose function is the end-of-line packaging, is made up of a Smiflexi shrinkwrapper integrated into a Smipal automatic palletising system.

The Stella Alpina project achieved remarkable outcomes as far as the reduction of both primary and secondary packaging material is concerned:

- reduction up to -30% in the plastics (PET) employed in the production of bottles, thanks to the use of ultralight preforms of 11-12 and 23-24 grams for containers of 0,5 L and 1,5 L respectively;
- reduction up to -50% in secondary packaging material (shrinking film), thanks to a new film-cutting system (knife) with motorised blade and controlled by digital servo drives, which allows the use of shrinking films of 30-40 microns thick (against the 50-60 microns usually employed) for the 3X2 pack configuration of 0,5 L bottles.

However, the most important improvements, if compared to traditional bottling plants, concern the reduction in energy consumption and the excellent use of resources:

- reduction up to -90% in the use of water employed for cleaning;
- reduction up to -15% in energy consumption, thanks to the use of cutting-edge technical solutions like:
  - an air-recovery system installed on the blow-moulding module, which allows a reduction up to -40% in the high pressure compressed air consumption;
  - a recovery system of the heat coming from both the blow-moulder and the air compression systems, which partly recycles heat for the preheating of preforms, and partly conveys it to the shrinking oven of the end-of-line shrinkwrapper;
  - use of lighter preforms and thinner shrinking films, which require less heat generated by both heat lamps and the electric-powered resistances;
  - use of highly energy-efficient motors on the conveyor belts connecting the 2 main blocks.
- reduction up to -50% in CO^2 emissions.

Traditional lines

SMI also supplies complete bottling and packaging lines **up to and over 25,000 bottles/hour,** designed according to traditional criteria and consisting of separate "stand-alone" machines for each specific operation (blowing, washing, filling, labelling, etc.) connected one another through conveyor belts and accumulation / discharge tables.

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