

New packaging lines for Sabic in Italy

Fully automatic bagging in a small space

Based on many years of cooperation in plastic compounding – specifically material handling and extrusion – Sabic decided to purchase six Coperion packaging lines and a common palletising island for its plant in Pontirolo/Italy. The challenge was to install six fully automatic filling machines for valve bags while achieving several goals: flexibility, quick cleaning and continuous tracking of all products by means of barcodes linked to the various recipes.

Sabic is a global leader in diversified chemicals headquartered in Riyadh, Saudi Arabia. In Italy, the company runs two manufacturing facilities – a plant in Olgiate Olona which produces solid and multiwall sheets using Lexan resins and a small lot compounding facility in Pontirolo Nuovo. Sabic Italy is the premier manufacturer for small lots of plastic compounds with highly customised properties requiring specialised process technologies. Based on many years of cooperation Sabic decided to purchase six Coperion packaging lines and a common palletising island for its Pontirolo plant. From the outset, the main project objectives were extreme flexibility, quick cleaning and continuous tracking of all products by means of barcodes linked to the various recipes. The challenge was to install six fully automatic filling machines for valve bags while achieving these goals. Coperion applied years of experience in this field during the design process with Sabic, building a dummy prototype plant in the first phase before proceeding to install all six lines and put them into operation.

Packaging process

The process in the packaging line can be described as follows: the plastic pellets are stored in metallic bins in the extrusion area. These bins are marked with a barcode, to enable each one to be linked to the product inside it in a central database. All phases of the bagging and palletising process can now be checked automatically, so that mistakes are ruled out. The bagging section of the line com-



Sabic Italy installed six Coperion packaging lines and a common palletising island at its plant in Pontirolo

prises six fully automatic valve bag fillers. Above each bagging machine is a docking station to couple and open the bin valve automatically.

Empty bags, which are stored in a double stack warehouse, are loaded at the filling position by robotised pick & place arms. The operator can identify which batch is bagged in

each line on a maxi LC screen simply by repeating the master screenshot. The machines are arranged in two rows, providing a good overview of the bin area and enabling safe and easy cleaning and maintenance.

When the bag magazine is empty, each machine can be moved away from the working position to allow in-depth cleaning and main-



The bagging section of the line comprises fully automatic valve bag fillers



The palletising island is equipped with two four-axis robots which stack the filled bags in 12 palletising positions

tenance access without interfering with the other machines still operating. The robotised bag placing arms remain fixed to the main steel structure. A customised belt conveying line meeting all CE requirements connects the bagging machines to the palletising island, where two four-axis robots stack the filled bags in 12 palletising positions.

Continuous product tracking

Flexibility, a quick cleaning concept and continuous tracking by means of barcodes linked to the various compounding recipes were the most important requirements specified by the customer. Another challenge was the limited space available to install six fully automatic bagging and palletising machines. The complete line comprises a supporting frame for bins, a gross weight valve bag filler for free-flowing products with an automatic single-station bag placer and an empty bag magazine with two stations and a robot palletiser. The line is integrated with a label printer and applicator to ensure full traceability of the product.

The entire line is programmed automatically using a barcode reading system. The products are collected in storage bins, to which a barcode with all batch information is affixed. When the product is ready to be packed, an operator picks up the bin with a forklift and moves it to the bagging zone. After scanning the code with a barcode reader, the operator programs the bagging line for this batch and selects the bagging machine on the touch screen. The bin is then loaded on a bagging

machine and the code is read once again to make sure this machine is the right one. If so, the bin is automatically opened and the packing process starts. If not, an error message advises the operator that the bin is on the wrong

bagging machine and shows where it really should be.

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ASK THE EXPERT

New solution meets customer requirements

cpp: Mr. Moroni, what were your reasons for choosing Coperion?

Moroni: Coperion presented an innovative technical solution which was able to meet all of the requirements at a competitive price. The Coperion brand was also a key factor due to positive experience with Coperion Italy on both a technical and a personal level.

cpp: What are the advantages of the Coperion solution?

Moroni: We used to work with manual bagging machines. By switching to fully automatic bagging machines, we cut out the ergonomic risks associated with manual bagging and palletising operations and freed up resources for other tasks. Furthermore, unlike the alternatives proposed by competitors, this solution allowed us to streamline and simplify cleaning procedures, and also to reduce downtime and oper-



Raoul Moroni,
Process Engineer at
Sabice

ator intervention without any cross contamination issues.

cpp: In your opinion, which improvements can be achieved with this solution?

Moroni: The improvements are mainly related to cleaning and how to automate it. The reliability of the docking system is another area, for example, as are the bins and software aspects such as error diagnostics, ease of operation and emergency line management.