Flexibility in product type and composition

Development of an automatic bag sealing installation for a meat processor

de Man Automation + Service GmbH & Co. KG has now developed an automatic bag sealing installation for Heinrich Nölke GmbH & Co. KG, one of Germany’s leading sausage producers. The project aims to optimise in-plant production cycles. One new aspect of this facility is that it combines all procedures involved, for instance withdrawal of layers from the E2 crates and the link with a sealing station, a design that has never before been realised in this form.

By Tobias de Man

Hardly any other operational field offers such high potential for optimisation as in-plant material flows. Systems that are coordinated for storage, transport, picking, sorting and packaging of goods and materials can make major contributions to reducing both costs and time inputs. Despite a high level of automation, it is still possible to retain a large measure of flexibility.

A current example of this is the automatic bag sealing installation built by de Man for Nölke. The meat processing company from Versmold seals finished sausage packs together in layers of different sizes for delivery to customers. In view of the increasing quantity of goods involved, the work that has so far been carried out manually was to be automated. Further arguments driving this decision were that automation would lead to distinct savings in time and costs, that errors would be avoided and that staff would no longer be tied up unnecessarily. The contract was awarded to de Man Automation + Service GmbH & Co. KG from Borgholzhausen (Germany) on the grounds of their competence in the field of innovative logistic solutions and the preceding project that they had already concluded successfully. The special challenge consisted in the requirement that the installation was to be suitable for sealing different products, yet at the same time flexibility regarding the composition within the bag was to be maintained. Further specifications concerned the rate to be achieved (420 bags per hour) and the use of a bag sealing machine from BVM.

Complex system with several components

The automatic bag sealing installation created by de Man consists of a number of different transport segments, robots, camera and the sealing station. The E2 crates with the loose merchandise are conveyed on a transport segment to an elevator that raises them to the higher level transport segments. A handling robot with a suction device extracts complete layers from the crates by suction and places these on an acceleration belt arranged next to it, where the layer is broken up. The correct positioning of the individual products is checked with the aid of a camera. A following FlexPicker places them in the desired arrangement in the sealing device, e.g. three next to each other and five on top of each other. The respective layer is sealed (vertically and horizontally), labelled and conveyed to a layer table. Once all the bags for an E2 crate are on the layer table, this is retracted and the sealed product drops together into the crate placed waiting beneath that is palletised for further use. The installation can be modified flexibly as regards product type and composition and the conveyor equipment component required.

Project handling from a single source

The company de Man was responsible for the complete realisation. The FlexPicker was supplied by ABB.

Fig. 1: Transport segments connect the individual plant components and convey the goods to be packed.

Fig. 2: Complete layers are lifted from the E2 crates using a suction device.

Fig. 3: A FlexPicker positions the individual products in the desired arrangement in the sealing device.
the bag sealing
machine by BVM, as desired by
the customer. The contract was
awarded in March 2008 and the
installation has been in operation
successfully since July
2009. Problems initially encountered
in the test phase related to
the withdrawal of the packages
from the E2 crates. It was necessary
to rework this segment, as
well as the functionality of the
bag sealing machine. However,
both problems could be eliminated
promptly. The responsible
staff at Nölke were given two detailed
coaching sessions on site in
order to ensure smooth operation
of the system. Altogether
the customer expectations –
short implementation phase,
process optimising and high user
acceptance – were satisfied in full.

Complete solutions from a
single source

de Man Automation + Service
GmbH & Co. KG from Borgholzhausen
has been specialising in holistic
automation solutions and competent service
since 1973. The delivery spectrum ranges
from automatic storage systems, via
conveyor equipment and robot
systems, right through to identity
systems. In addition de Man provides
professional service, such as repair,
maintenance, spare parts and retrofit.
The company’s developments thus allows
extremely flexible and lean design of
production processes, a factor that is
becoming increasingly important
against the background of ever greater
momentum in market growth.

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Fleischwirtschaft International 6/2009