Packaging machine with optimal safety and hygiene concept

Speed, safety and hygiene are just a few of the basics that food manufacturers have come to expect. Meypack Verpackungssystemtechnik GmbH is now able to offer a unique new development in the form of its VP 600 cardboard packaging machine, which is capable of processing smaller products in smaller formations in a smaller floor area. The safety solution, based on an SD bus system, which is provided by Schmersal, is as space-saving as it is hygienic and supports the machine concept.

Meypack Verpackungssystemtechnik GmbH of Nottuln-Appelhülsen supplies its packaging machines to customers around the world, carefully developing and manufacturing each one to very specific requirements. Ranging from cardboard packaging systems to film wrapping and stretching and winding systems, Meypack machines are currently used in more than 50 countries.

The new VP 600 cardboard packaging machine has been specially modified for the processing of liquid food and drink pouches, which require additional care during processing. The model satisfies current market needs for ever smaller packaging units and expanding product and packaging variety — the continuous plant occupies the smallest of areas thanks to its compact machine dimensions.

The machine operates in fully automatic mode to package small pouches with closure caps in small trays without covers, taking great care

not to damage the pouches, which are both soft and sensitive. The format dimensions range from 70 x 50 x 80 mm to 200 x 150 x 200 mm (W x L x H). Fewer coordinated format parts enable rapid, reproducible format changes that can be carried out without any need for tools.

Door offset tolerance

The ability to carry out rapid format changes can be attributed to the open and easy access design, a principle that also simplifies troubleshooting procedures and maintenance, in turn helping to enhance system availability. Packaging systems from Meypack, including the VP 600, are equipped with large, transparent safety doors, which means that a certain offset in the safety door cannot be ruled out while the system is operational. 'It's one of the reasons why we're so pleased to have the AZM 300 safety interlock and RSS 260 safety sensors from Schmersal in the VP 600. These components permit a much greater mechanical

tolerance with door offset. The doors don't need any readjustment', explains Thomas Beßler, Head of Electrical Design at Meypack. The RSS 260 is also extremely flexible, with the sensor capable both of being installed on aluminium profiles and of being used with other door structures such as glass and plastic thanks to the alternative target models that it can be supplied with.

Streamlined wiring

'A further advantage of this safety component is the individual coding for enhanced manipulation protection,' explains Thomas Beßler. The AZM 300 safety interlock and RSS 260 safety sensors operate on the basis of RFID. Integrating RFID technology into the sensor system has helped to achieve a high coding level, satisfying ISO 14119 on the individually coded version. Thomas Beßler adds, 'In addition, both components achieve performance level PL e.' In view of the stringent

hygiene requirements imposed by the food and drink industry, the VP 600, like all Meypack machines, has been designed in accordance with the CleanDesign® concept. The overall number of surfaces, bolt joints and assemblies has been kept to a bare minimum, and those surfaces that do remain have been rounded off and inclined to prevent dirt from collecting and to make cleaning easier and more efficient.

Schmersal's safety solution offers a further boost to the stringent hygiene requirements at Meypack, as both the AZM 300 safety interlock and the non-contact RSS 260 safety sensor have been designed with strict hygiene in mind, including IP 67 and IP 69 degrees of protection for robust safeguarding against cleaning agents. But the highlight of this safety solution is undoubtedly the SD (serial diagnostics) bus system from Schmersal. Where previous systems had multiple wires stretching from individual sensors and interlocks into the control cabinet, data is now forwarded to the higher-level control system through a Y-distributor. 'With the sensors and interlocks

connected in series through the SD bus, there's really only one cable harness running through the entire machine. This means that the wiring is much more streamlined, which in turn reduces costs,' explains Steffen Richter, Sales Manager at Schmersal. Thomas Beßler adds, 'In designing this packaging machine, we set out to minimise the number of wires feeding into the control cabinet and the number of terminals to keep the size of the control cabinet down and save space. That also fits with our CleanDesign® concept, as fewer cables means less surface area for dirt to stick to.'

An Industry 4.0-capable solution

Safety sensors and safety interlocks connected in series through an SD interface are capable of transmitting a wide range of diagnostics data via the SD gateway and a field bus to a control system. These data can include error notifications to allow for rapid rectification, as well as information concerning numbers of switching cycles, operating hours or mechanical movements (door open/door close) to allow

predictive maintenance and avoidance of machine downtime. These functionalities are the cornerstone of Industry 4.0.

'Schmersal was a great help to us with the SD bus. It's a solution that's as much about adapting software as it is about the hardware,' continues Thomas Beßler. 'And our customers no longer need to ask questions when they learn that our switches are from Schmersal. The Schmersal name is as recognisable on the other side of the world as it is here.'

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