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Photo Courtesy of Wacker





The green LEDs of the SIKO AP10S position indicator indicate clearly that the stations on the Z.PACK are set up correctly and the packaging process can continue. (Photo credit: ZAHORANSKY AG)

Case Study:
Bus-Compatible

Position Indicators

Optimise Blister Packaging Machines

Packaging machines from ZAHORANSKY benefit from bus-compatible SIKO position indicators that enable reliable and efficient size changeovers.

By **Ms. Michaela Wassenberg**, SIKO

Intelligent solutions that can increase system availability, reduce setup times, minimise waste and ensure product safety where size changeovers in production systems are concerned are what manufacturers are looking for today. The same applies to ZAHORANSKY, the worldwide full-range supplier for (tooth) brush production, packaging machines, mold construction and automation solutions.

ZAHORANSKY has now integrated a monitored size changeover system, known as ERCO (Ergonomic Rapid Changeover), into the packaging lines for all types of blister packaging. This involves the electronic position indicators for monitored size changeover from SIKO, one of the leading manufacturers of industrial measurement and drive technology.

The packaging machines that are equipped with the ERCO system are in the Z.PACK series. They are suitable for blister packaging

of all types, for anything from stationery, tools, electronic items and automobile accessories to cosmetics and medical products. Each Z.PACK machine has various stations of different designs and lengths through which the blister packs pass during the packaging process.

Mr. Jörg Philip Zimmermann, Head of Product Sales Packaging, explained ZAHORANSKY's requirements for the packaging machines: "Our aim was to design the Z.PACK in such a way that the process would be reliable enough to eliminate operating errors and therefore waste and damage to the machines. We also wanted to reduce the refitting times significantly and thus save money for our customers."

Bus-Compatible Position Indicator with Status LEDs

The distinctive feature in the Z.PACK machine lies in its linear movement for which a monitored size changeover is implemented.

The individual stations on the packaging line move in a straight line on two guide rails and are repositioned precisely for each changeover. The ERCO concept already plays a part in this: thanks to the quick changeover system, the individual stations can be moved with minimum effort using your little finger.

In order to further ensure its process reliability, ZAHORANSKY opted for AP10S electronic position indicators from SIKO with a linear magnetic sensor connected to them. This facilitates precise linear measurement of the manual slide adjustment on the guide rails. Thanks to bus integration in the position display, the process reliability required is achieved centrally via the machine controller (PLC). The PLC sends target values to the position indicator and reads the actual values measured. The target values are set up in a recipe management system within the machine controller, i.e. there is a recipe with all of the relevant target values, such as the station positions, for each of the products to be made.



The stations mounted on guide rails can be adjusted easily and quickly on the Z.PACK – thanks to SIKO position indicators. (Photo credit: ZAHORANSKY AG)

By means of the position status transmitted, the machine controller does not enable the entire system until feedback is received to confirm that all the manually set positions are correct, effectively preventing waste and damaged format parts that can occur if the adjustment axes are set up incorrectly.

The position status is displayed visually by means of LEDs: green for “Correct Position” and red for “Incorrect Position”. This provides the operator with immediate and clear information about whether the station in question has been positioned correctly or readjustment is necessary. The external magnetic sensor for determining the correct position measures extremely precisely with an absolute accuracy of up to +/- 35 µm. The packaging machine can only resume operation when all of the LEDs turn green following adjustment.

Z.PACK: Standard Modules and Additional Functions

The Z.PACK standard machine with a chain length of four meters includes the following stations,

Z.PACK 4 with semi-automatic insertion handling – all stations are equipped with SIKO position indicators for the shortest possible refitting times. (Photo credit: ZAHORANSKY AG)

each of which can be equipped with the AP10S position indicator: the material infeed, into which the blister film is fed via a chain system, is followed by the heating and deep drawing systems, into which the SIKO position indicators can be integrated.

Here the film is preheated and deep-drawn with a blister mold that matches the mold stamp – as a positive or negative mold. The product is then inserted, either by hand or fully automatically by means of a pick-and-place unit. Then the cover material, such as cardboard, Tyvek, aluminum, PET or PVC film, is fed in and the whole thing is sealed, either by heat sealing or, optionally, ultrasound sealing. Finally, partial or complete cutting is carried out.

Depending on the needs of the customer, additional stations can also be integrated (possible on Z.PACK series with a chain length between five and eleven meters), which can also be equipped with position indicators for size changeover: insertion of leaflets, laser or inkjet printing, blind imprinting on the packaging edge, perforation of cardboard and film, folding of the filled blisters, camera-aided monitoring and scanning of barcodes are all possible. All stations must be adjusted to the new film width on every product change – and this must be done very precisely.

Refitting Times Halved

Inclusion of the AP10S is optional for ZAHORANSKY customers, but it is always recommended because of the

positive impression it has made. Especially for customers who have to carry out size changeovers on their systems frequently, such as contract packing companies, setting up monitored size changeover pays off.

The cost-efficiency argument is particularly important for ZAHORANSKY.

Mr. Zimmermann explained: “The benefits are immediately perceptible. Setup work is cut to a minimum; conversion to a new product takes place more quickly, precisely, safely and ergonomically for the operator. In fact, we are able to halve refitting times with the SIKO position indicators.”

This has a positive impact on the availability of the system, which is ready for production much more quickly, and on output, as waste is avoided completely.

Mr. Moritz Müller, PositionLine Product Manager at SIKO said, “Our mechanical position indicators have long been part of the basic equipment in numerous ZAHORANSKY machines with size changeovers. In recent years, the company has taken a number of steps in the direction of monitored size changeover and in doing so has put its trust in SIKO’s technical competence. In view of the high level of process reliability and the significant reduction in setup times, the demand for intelligent, monitored size changeover is increasing among Zahoransky customers. This has now led to an extension of our cooperation in the packaging division.” **FBA**

