Step by step label production

When shopping, consumers tend to orient themselves to the information provided on the label, but hardly anyone thinks about the production of the labels themselves. Blumer Maschinenbau AG, based in Otelfingen, Switzerland, is one of the leading world-wide manufacturers of systems for label processing. They produce, for example, special systems that cut or die-cut various forms of labels from printed stacks of strips.

In particular, labels for the food and beverage industry as well as telephone cards, ID cards, game cards or loyalty cards made of plastic and cardboard are die-cut to the desired form and banded for further use using card and label production systems manufactured by Blumer Maschinenbau AG. When building these types of systems, quality and cost-effectiveness are at the top of the priority list. Users appreciate systems from Blumer because, for one, their advanced developments continually provide possibilities to further optimize processes on the machines. The company places high demands on itself and also on its suppliers, such as B&R, regarding the modularity, uniformity and reliability of systems and components.

The degree of automation on the systems is mainly determined by the type of products being manufactured, the printing process used and the infrastructure available to the user. In 2003, Blumer had already started changing over the control systems for their entire machine manufacturing line to products from B&R. PLCs, drives, operator interfaces and visualization systems now come from a single manufacturer - and since the changeover, all devices can be programmed with the uniform programming tool Automation Studio. Training of customers and employees was also significantly simplified by the uniform programming interface.

From stacks of strips to bundles of labels

The modular line of Atlas systems, which can be adapted perfectly to specific conditions, was designed especially for efficient processing of labels, for example for beer and mineral water labels or aluminum foil bottle neck labels, and has already been successfully implemented by over 400 users. For example, the Atlas1110LS label die-cutting system mainly consists of a loading table, strip feed unit, cutting unit, break-through die-cutting machine and banding module. On this system, the labels, which have been printed but are still connected in strips, can be cut and die-cut into all conceivable forms.

Strip feeding, stack separation, banding, output: the new machine concept allows complete processing, from strip stacks to label bundles.

Automation components from one source

The entire control system comes from B&R, including PLC functions, drives and visualization systems for the machines. And this is not only the case with all of the new machines and systems because machines that have already been in use for years are also retrofitted with the current automation system.

Products from B&R's ACOPOS servo drive line are used, for example, for positioning the paper strips. With their 400 µs scan times, these servo drives are able to react to application-specific events very quickly. Because they use the embedded parameter chip on the motor with all the relevant mechanical and electronic data, it's not necessary for machine manufacturers to make time-consuming and error-prone parameter settings, which shortens commissioning times substantially. During service work, additional relevant data can be queried. The servo drives perform well for precise measurement tasks with two highly precise trigger inputs. A servo motor with an ACOPOS drive is used on each machine on the back gauge feed unit where the strips are pushed under the pressing bar and the cutting blades. Because the multi-turn encoder for the motor is capable of absolute position measurement, lengthy homing procedures are no longer necessary and no additional measuring systems are needed on the workpiece.

The system has approximately 80 digital and analog I/O modules as well as temperature modules from the X20 System for querying sensors and movements as well as for controlling pneumatic and hydraulic valves.

The X20 System is more than a remote I/O system, it meets all requirements for a complete control solution. Especially for modularly designed systems, it is a huge advantage if the software for the bus module automatically detects the components in the system and provides the necessary functions. Since the terminal blocks can be separated from the electronic module, complete switching cabinets equipped with X20 System devices can be pre-wired.

Convenient visualization and operation

In order to be able to set various parameters individually, Blumer uses a Power Panel as central operating and control unit. The individual control, drive and visualization components are networked via CAN bus and X2X bus.

Power Panels, like the PP41, are especially suitable for automating small and mid-sized machines and systems that require maximum component density. In addition to a powerful PLC, they also include a visualization system and digital I/O.

A clear automation concept for a clear system concept

Blumer Maschinenbau AG has many decades of practical experience in both the manufacturing of mechanical equipment and the development of control systems. The company counts on the professional expertise of its technicians for successful development, construction and manufacturing of its products. Of course, they handle all engineering in-house including the implementation of the control systems. In this regard, Roger Loeliger, who is in charge of the electrical systems, stresses the fact that Blumer's clear machine concepts and B&R's equally clear automation concepts are designed with a very straightforward structure and therefore harmonize excellently.

Blumer:

BLUMER
Winning Technology in Print Finishing

Founded: 1897
Locations: Otelfingen (CH), subsidiaries in USA and HK
Products & Services: Blumer builds production lines for labels and cards satisfying the most varied requirements

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