Weckerle GmbH gets packing
World market leader converts a new carton packer to an integrated Motion Control System

A multitude of work steps and motion sequences have to be precisely coordinated every second in order to pack lipsticks, other cosmetics and pharmaceutical products automatically into small folding cartons. Weckerle GmbH, based in Weilheim, Southern Germany, is a leading manufacturer of cosmetic production machines. It has chosen to obtain its integrated automation equipment from one source. It has recently expanded its range to include tailor-made carton packers. As a result, Weckerle GmbH now offers a complete range of machines covering everything from the preprocessing of the basic material through to the product packed ready for shipment. Everything revolves around our drive-based Motion Control System that integrates the essential performance and functionality in a compact form.

Gaining from integration

Siemens control and visualization equipment had already been an indispensable part of most Weckerle machines for a long time. The company has now found the high-performance drive and control solution it had been looking for by coupling the SIMOTION® D445 drive-based Motion Control System and converters with the matching SINAMICS® S120 modular family. Weckerle programmer, Leonhard Habersetzer, explained: “The decisive advantage of the new solution is that, in future, we’ll have everything under one roof. That means we’ll be able to configure and program logic, Motion Control and visualization on one and the same software platform.” The complete integration of the configuration of the HMI system (in future: SIMATIC® WinCC flexible) into the SCOUT engineering system (for logic and Motion Control) has now eliminated the previously typical time-consuming replugging and reloading of separate projects, and significantly simplified the engineering. This gives a timesaving of around thirty percent. The graphic support makes working with the SCOUT engineering system quick and user-friendly.

Everything obeys a single command

The carton packer has to pack the just finished lipsticks into folding cartons. That means transforming a cyclical process into a continuously running process. The master for all motions is a virtual master axis generated in the SIMOTION system, which is electronically linked to all the other axes and units.
• The feeder takes the products from the outlet of the previous machine, and places them on the double-chain conveyor belt.
• As soon as the product lies in the loading slot ready for packing, the suction unit of the box-erector picks up a flat pre-cut box from the stockpile with each revolution.
• The gearboxes are synchronized with the master to ensure that the conveyor belts also run as a synchronized unit.
• Instead of the previous pneumatic system, the lipsticks are now simply slid into their boxes under electronic control. This harmonizes the motions which, in turn, minimize the loads on the mechanisms.

Retool in minutes!

Because all the axes are equipped with electronic drives, formats can be changed almost at the touch of a button on the operator panel. This has reduced the retooling time from some two hours to a few minutes. That’s an obvious advantage wherever products have to be changed frequently.

Space-saving solution

The Control Unit CU320 of the SIMOTION D445 controls a total of eleven real axes. A single regenerative Active-Line module supplies five double-axis and one single-axis motor module from the SINAMICS S120 drive family. Last but not least, this new Siemens drive line-up is considerably more compact than the previous solution. That saves valuable space in the control cabinet.

All on a single line

All SINAMICS drive components are connected to each other via a digital DRIVE-CLiQ system bus. That simplifies not only the wiring but also maintenance because drive data are stored in the control unit, and replacement units can be virtually automatically identified by their electronic rating plates.

Special features:

• Spare part supply and support on the customer’s premises minimizes downtimes, and ensures high machine availability.
• The new drive line-up is significantly more compact then the previous solution. That saves valuable space in the control cabinet.
• All axes are equipped with electronic drives. This enables a format to be changed almost at the touch of a button on the operator panel, and has reduced the retooling time from some two hours to a few minutes.

www.weckerle.com