

The ability to utilize systems and components is crucial in the case of large printing machines, not just when building machine tools. The drive link SIMOLINK, the electronic successor to the cumbersome mechanical connection between individual printing units, is a great aid in this connection.

Drive Link via Optical Cable Printed with Flexibility

The initial situation was described as follows by a representative of Tarkett, a company which uses a large, conventional rotogravure system: processing of short printing sheets (short batches) was necessarily uneconomical, changing the carpet design entailed high costs, and setup times were unacceptably long.

Stage for stage the current machine with six printing units is linked with a mechanical line shaft. This means that the operator must waste time and material when changing an ink or design. In fact the system must be brought to a halt (45 minutes) and run up to speed again. In addition, large quantities of material are accumulated as scrap or 2nd choice during run-in, due to the “report shift”.

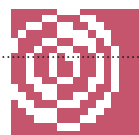
Tarkett decided to upgrade the system to ten printing units and, at the same time, to convert to individual drives with electronic synchronization. The remaining specifications were as follows:

- shorter setup times because dye and design are changed on the fly,
- synchronization of the printing stages on the fly,
- setting up and cleaning free printing units during operation,
- marked reduction of scrap,
- improvement of printing accuracy and



APPLICATIONS

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- cost-effective production of small batches.

In addition, the system was supposed to run from 5 o'clock Monday until 5 o'clock Saturday without interruption. The concept from Tarkett envisaged a very large assortment of electric and electronic equipment. Each of the printing units was fitted with one servomotor (1FT6) as the drive and the SIMOVERT MASTERDRIVE converter system.

All of the drives are connected to a programmable controller via the PROFIBUS-DP field bus. The required high-speed data transfer between the drives utilizes the SIMOLINK. The digital drive link (a plastic optical waveguide is used

as the transmission medium) is effected by a synchronous 11 Mbit/s setpoint specification. This suffices to supply the motor control units (1 x control drive, 10 x press rollers and 10 x cooling rollers) with enough data to create a virtual drive axis. Depending on the machine speed, the control re-establishes each of these “master axes.”

Aside from creating the described flexibility of the printing system, it was also possible to solve the problem of setting the offset with the automation hardware and software.

The engineering tool SIMOVIS handles the commissioning, parameterization and diagnosis of the system. ■