

Quick change artist

A new screen printing line built by Kammann minimizes the time needed to change out the inking unit and thus saves money.



One hour - that's the maximum time needed to ready the K15 CNC screen printing press for the next job. Refitting conventional presses can take as much as four hours and extensive mechanical work is involved. A single set-up cycle can thus consume half the running time available in a shift. This is exactly where the German manufacturer Werner Kammann Maschinenfabrik GmbH & Co. applies its ingenuity, employing a concept comprising Rexroth solutions. Particularly in shorter print runs this boosts productivity significantly, emphasizes Ralf Fischer, development and engineering project manager at Kammann. "With our presses the customers can start the next order after sixty minutes at the very latest."

Unlimited choice of inks

Glass, metal and plastic - the screen printing process is used for products made of many different materials. Each has its own special properties and requires specific inks. Executing two orders one after another with the same inking devices is a rarity. To accelerate this changeover, developers at Kammann consist-

ently make use of IndraMotion for Printing, a Rexroth automation concept. This modular design lets the user select the inks to be used in the individual printing steps virtually without restriction, choosing the most appropriate for any particular order. "The K15 CNC offers, for example, space for up to ten UV inking systems or twelve thermoplastic inks," according to Fischer. The software controls the conversion from one product to the next. The drives with their integrated motors move units to their new positions. The operator need only replace the printing unit and processing stations by way of the quick-change system.

If the operator switches on the drives needed to set up a new job, then the machine itself need not be brought to a standstill. The ISO-certified "Safety on Board" feature also incorporates the "safely reduce speed" and "safe operating halt" functions. Here Rexroth Motion Control not only coordinates drive synchronization but also issues the commands for the robot functions built into the K15 CNC. Robots pick up and reposition the printing units so that they can be integrated seamlessly into any pro-

duction line. But it's not just the mechanical design that is efficient and user-friendly. The software comes from the factory with functions typical for printing operations, such as stepless regulation for formats or registration marks. Additional settings needed to print on cylindrical or oblong shapes can be made with a simple user interface. "We have designed it so that the user in the print shop needs no previous programming skills," explains Wilhelm Glauber from the Kammann sales department. The utility is in fact built around PLCopen modules but user entries are made by way of simple graphic elements.

Fast, safe, thrifty

Not only does the K15 CNC get back to work faster than other solutions. It is more energy-efficient, too. "Our switchgear cabinets are about half the usual size," Fischer emphasizes. That in turn significantly reduces the cooling capacity required. The IndraDrive Mi drive concept with its integrated motors makes this space-saving design possible. That's because a single hybrid cable can connect as many as twenty drives in sequence, in

a flexible drive configuration, reducing wiring effort by up to 85 percent. Another advantage Fischer mentions is demand-driven control. "While conventional machines have to work with fixed values, the K15 CNC matches energy consumption to the current process." The servo drives with recuperation capabilities recover braking energy and divert it to other drives. Kammann relies not only on IndraMotion for Printing but also makes use of pneumatic and linear technologies made by Rexroth. The many concrete advantages offered by this printing line proved to be persuasive right from the initial presentation. "Many customers are already rethinking their operations," Glauber reports. "The flexibility afforded by shorter set-up times is the most important approach to saving money in the practical world, which is demanding ever shorter print runs." <

Contact: Ulrich Dittmaier, Bosch Rexroth AG, Germany,
Phone: +49 9352 40-5215, ulrich.dittmaier@boschrexroth.de