



# PC-Based for Greater Productivity

A retrofit enables increased production capacity without requiring investment in additional machinery. A Siemens Automation Solution Partner finds convincing solutions with PC-based automation.

For the production of pipes, steel sheets several centimeters thick are first bent on the edge by a machine with rolls and then welded

**U**nia, Universelle-Industrie-Automatisierungs-GmbH, a long-standing Siemens Automation Solution Partner based in Kreuztal, Germany, specializes in PC-based automation. With successfully installed applications in fields where speed and cost are critical, such as the packaging and printing industries, Unia has proven its expertise with many powerful and competitive real-time solutions using Simatic IPCs with the WinAC software controller, the WinAC ODK (Open Development Kit) software tool, and visualization through Simatic WinCC or WinCC flexible. "From our point of view, complex controls with large amounts of data can be realized more cost-efficiently if they are PC-based instead of using PLCs. As far as robustness is concerned, we've had the best experience with Simatic IPCs, and WinAC ODK allows us enough freedom to integrate C++ special solutions," says Axel Schumacher, Unia CEO.

### 30 percent more productivity realistic through retrofit

Unia's core competencies also include automation solutions for the steel and sheet metal processing industry. This sector has a long tradition in the area where Unia has its headquarters. Robust machines of a mechanical quality that is hardly affordable nowadays have often been in use here for decades. Therefore, a retrofit of the existing machines is usually the most economical solution when it comes to the modernization of plants. Schumacher explains the advantage: "Thirty percent greater productivity is definitely realistic if processes are automated and the potential of an existing machine is fully utilized. This results in greater flexibility and reserve capacities without requiring an extension of the existing machinery."

### High-performance pipes for the global market

The most recent example of a retrofit is a bending machine for sheet steel that has been used by Eisenbau Krämer GmbH in Kreuztal for about 20 years. The company is a global player in the production of longitudinally welded pipes for liquid and gaseous energy sources. Long hauling distances through varying, sometimes difficult environmental conditions and the need to convey abrasive material continually

make new demands on these pipes. This situation calls for continuous development of raw materials, adjustments in machining, and a highly flexible production process. In the first step of the process, steel sheets several centimeters thick and up to 13 m in length are initially bent on the longitudinal edges that will be welded later. To do so, the machine moves along the edge to be processed and bends it over two movable rolls. The actual form is given to the sheet steel by stamping machines.

The general principle is always the same, but adapting the machine parameters to the varying steel grades and sheet thicknesses requires a great deal of know-how and experience. The feed motion angle, movement speed, and number of repetitions required in the bending process depend on the strength and material properties of the sheet steel to be formed. For this purpose, a basic formula stored in the machine is manually adjusted by experienced op-



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erators. However, the original machine control proved too inflexible for the increasing diversity of sheet steel grades, and new positioning programs could no longer be saved. When the productivity of the bending machine became too restricted by the outdated electronics, Eisenbau Krämer contacted Unia for a retrofit. »