

Wheaton Brasil optimizes the production of glass packaging



→ Wheaton Brasil, based in São Bernardo do Campo, Brazil, is one of the world's leading suppliers of glass packaging for the cosmetics, pharmaceuticals and food industries. Part of the company's success is based on its rich tradition of openness towards new technologies, which it uses to anticipate and meet the growing demands of the global market. An automatic rejection system utilizing Beckhoff I/O components replaces the previously used manual selection and inspection procedure for glass containers.



Bus Terminal Controller replaces manual selection process

During the production process, the molds in Wheaton's forming machines have to be lubricated. The glass containers produced during this short lubrication period have to be monitored for quality so any reject containers can be removed. After lubrication, a control signal is issued for a mechanism to automatically remove the still hot containers from the moving conveyor. The number of glass container units and the frequency of this operation are pre-set, and the process runs automatically.

Wheaton Brasil decided to use the BC7300 Bus Terminal Controller with Modbus interface for implementing this automatic rejection system. Each rejector has a BC7300 with 8 digital input terminals, 2 digital output terminals and an SSI sensor interface. Through the KL5001 encoder terminal, the small Beckhoff controller determines the correct point of rejection by means of a mathematical algorithm. The digital input terminals receive the rejection request command. Once the correct rejection position has been determined, the output terminals activate solenoid valves that operate a pneumatic system for removing the correct number of units from the moving conveyor.

Prior to the installation of the automatic rejection system, the rejects had to pass through the complete production, only to be checked and removed manually during the final processing stage. The automation of the procedure led to significant savings in material and time and resulted in Wheaton installing this system at four other production lines.

I/O components help eliminate safety hazards to machine operators while increasing production quality and volume

The success attained through the use of Beckhoff I/O components motivated Mauro Poltronieri, director for automation systems at Wheaton Brasil, to develop additional projects for increasing the productivity of the company. The aim was to replace a mechanical cam system in the production machines for glass packaging units. Each machine has up to 8 sections, producing up to 4 units each. The mechanical system involves very long set-up times due to the precise adjustment required by various components.



Wheaton Brasil

The Wheaton Brasil group can look back on 100 years of corporate history. The specialist for glass packaging for the cosmetics, pharmaceuticals and food industry has been present in the Brazilian market for 50 years. Wheaton Brasil also produces domestic textiles that are exported worldwide. The production plant at São Bernardo do Campo extends to 86,000 sq.m. Four continuously running glass furnaces feed the 21 production lines, which are designed for 2,100 units per minute, corresponding to a daily production of 300 tons of glass products.

Wheaton Brasil

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Mauro Poltronieri – director for automation systems at Wheaton Brasil – next to the control desk for the new control system.

“The Beckhoff I/O system will enable us to drastically reduce the set-up time for these machines, with a resulting increase in production output and much improved accuracy,” said Poltronieri. “With our conventional machines, we had to make adjustments with the machine running or we had to stop the section to be adjusted, which interrupted production. Additionally, making manual adjustments with the machine running creates a high safety risk for the operator. The Beckhoff system enables all adjustments to be made “online” via the supervisory control, completely eliminating the risk of accidents and improving the production volume and quality,” Poltronieri added.

Marcos Giorjani from Conexel, the Beckhoff partner in Brazil supporting the project, said, “The system currently being tested involves seven BC9000 Ethernet controllers, one of which acts as a master. It receives a signal from an encoder, which is connected with the principal axis and coordinates the transfer of information to the other six stations. Each of these stations controls a particular section of the production plant.”

Poltronieri further explained the strategy, “During the test phase, we use IP 20 Bus Terminals. In the final version, we will use the IP 67 Fieldbus Box modules in order to reduce the length of the wiring between the circuit board and the field devices.”