



Retrofits for
refining lines.

Chocolat Frey AG, Buchs (CH).

BUHLER

Everything running smoothly again.

Retrofit solutions at Chocolat Frey.

The chocolate refiners of Buhler are very much like the legendary Volkswagen “Beetle” – they just keep on running and running. When their control systems become obsolete over the years and have to be replaced by new ones, and when one or the other retrofit program is implemented, the refiners will continue to run as if they were brand new. This was recently demonstrated at the Chocolat Frey company in Switzerland.

Buhler refiners have an above-average life expectancy. In order to achieve a maximum uptime of these tried and true chocolate refiners in the long term, the Buhler Chocolate & Cocoa business unit is now offering a replacement for obsolete ERD and ERE controllers, for which some components are no longer available: the new FineControl-E refiner control system. But this new control system for two-roll and five-roll chocolate refiners does more than just replace the old system. Equipped with the powerful newest-generation Siemens PLC (programmable logic controller), it automatically controls and monitors all the relevant process parameters and displays them on an easy-to-use touch display. FineControl offers additional options for selecting settings, making checks, and performing diagnostics which further optimize the refining process and increase its robustness. Chocolat Frey – the chocolate factory owned by Switzerland’s largest retailing chain – has relied for years on Buhler production systems. The managers at Chocolat Frey decided to implement a number of projects designed to systematically upgrade all the company’s machine

control systems. Thus, the Buhler retrofit specialists step by step upgraded the entire range of equipment of the refining lines to a state-of-the-art level over the past two years. In addition, they carried out a number of different retrofits. The purpose of the entire package of measures was on the one hand to ensure the availability of the equipment and to reduce spare parts inventories over the next three years. On the other hand, it allows the refining process to be fine-tuned by improving the setting options.

Two production lines

As the last upgrade project, the production lines 5 and 6 were completely updated. The two tandem production lines are made up of an SZAE two-roll refiner serving as a pre-refiner, six SFLE refiners, and two SFL five-roll refiners. On all nine machines, the ERD control systems were replaced by PLC control systems and retrofitted with new operator terminals. In order to enable the control system to be converted, the potentiometer-based gate angle detection system of the SZAE and SFLE refiners was replaced. The new solution using an eccentric disk and a proximity switch ensures reliable, accurate, and non-contacting measurement of the gate opening angle. In addition, the key-operated switch for the gates was rebuilt in order to increase its operating reliability. Finally, the dry-running protection system of the SFLE and SFL refiners was changed to the new FineLux system. The two refiners, which were still controlled by relay systems, had to be prepared for incorporation of the new PLC system; this also required a conversion of the mechanical system. The hydraulic components were adjusted, the mechanical roll gap adjustment system was renewed, and the knife pressing mechanism was converted from hydraulic to pneumatic.

Minimized downtime

The two production lines 5 and 6 in place at Chocolat Frey are highly automated and intensively used. Converting their control system was therefore a special challenge. Thus, the interfaces with the process control system had to be precisely adjusted. The new control system was also to be quickly accepted by the line operators and easy to operate. Moreover, the high utilization rate of the two lines required that the downtimes be minimized.

The excellent preparations and the painstaking planning of resources allowed the rebuild to be carried out within two weeks and production to be restarted as scheduled within two weeks, including production support. The updated production lines 5 and 6 were accepted by the operators within a short time and are now running smoothly.

Range of retrofit programs

The Buhler Chocolate & Cocoa business unit offers its customers an extensive retrofit program. Named "Fine" various measures are available for updating existing chocolate production lines and ensuring high uptime. Besides optimized control of lines by the FineControl system, the FineLux dry-running protection system provides effective protection of the rolls, FineSense allows online measurement of the particle size, FineGap enables electronic roll gap adjustment, and FineAngle ensures accurate product feed. In addition to roll reconditioning, the rebuild kits for roll cooling and cooling of the hydraulic fluid are also included in the retrofit product range for extending the equipment's life cycle. (bos)



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