



FAULT-FREE FOAMING

Production optimization with a fully automated EPS silo plant

A fully automated solution based on the M1 system was used for controlling the filling and emptying of silos for pre-expanded EPS beads (expanded polystyrene hard foam). The key aim was to increase the reliability of the production process and optimize productivity.

The raw material used in the manufacture of polystyrene foam materials consists of bead-shaped polystyrene balls, which are heated with steam and “inflated” using a propellant (normally pentane). In order to manufacture molded EPS products, these pre-expanded beads are then filled into suitable molds and then set into

the required shape with further steam and pressure treatment. FoamaTec is a company based in Bogel in the German state of Rhineland-Palatinate, and is an independent service provider specializing in the automation of industrial production plants. In addition to planning and supplying silo systems for bulk material, FoamaTec also specializes in ►►



FoamaTec is a company based in Bogel in the German state of Rhineland-Palatinate. It develops and supplies tailored automation solutions for systems processing bead foam.

► www.foamatec.de



» The robustness of the M1 enables us to run the controllers to the limits where other systems would have soon packed in. «

*Eugen Laubach,
Technical CEO at FoamaTec*

► providing the necessary controls, right through to fully autonomous silo control systems that are connected to pre-expanders. In these kinds of solutions, the pre-treatment of the polystyrene and the subsequent filling of the silos are automatically controlled according to the requirements of the production process.

Efficient stand-alone solution

"In conventional plants, the operator of the molding machine first has to fill the storage silos by hand," Eugen Laubach, technical manager at FoamaTec, explains the difference to the stand-alone solution. "He then has to transfer the raw material to a feed hopper using a fan, select the required recipe and then start the pre-expander. If the silo was full, the operator first had to suck out the remaining material from the feed hopper due to the different recipes before he could start filling the next silo." This was all in all a complex process which FoamaTec has made considerably more efficient with its new solution.

The procedure is simple: The molding machine operator just has to select the required bulk material on the operator panel of the silo controller. The silos

are then filled in a fully automated sequence. The upstream pre-expander starts up automatically with the correct recipe, selects the storage hopper with the raw material and fills the first silo. All selected silos are then processed in turn in the same way. "The operator just has to put new raw material into the storage hopper now and again," Eugen Laubach explains.

Fault-free

This results in far fewer faults occurring with this process: "Previously it wasn't known whether a silo was empty until the downstream machine started producing rejects," Eugen Laubach explains. "The operator then had to go into the silo room, select the right material and reconnect the silo by hand." The fully automated process (load recipe, select material) virtually excludes the possibility of producing any reject molded parts resulting from selecting the wrong material. Furthermore, the manual effort required in production could almost be halved.

Meeting all requirements

Whenever complicated tasks are involved that require extensive data handling, or where the process



technology places demanding requirements on the controller, the engineers at FoamaTec use the Bachmann M1 system. "For us, its outstanding performance, the ability to use different bus systems in parallel as well as the programming with CoDeSys are critical factors," Eugen Laubach describes their choice in favor of Bachmann.

"What also counts for us is the extraordinary robust design, also with regard to use in situations involving high temperature and vibration. The long term availability of the product is also a key point," Eugen Laubach adds.

Bachmann support

The FoamaTec CEO moreover praises the excellent technical support from Bachmann and gives a simple example: "As we often have to refit and modernize old plants, existing components frequently have to be integrated in new controller solutions. This mostly involves the integration of drive components. Bachmann is really helpful here and can implement these types of controller and third party drive combinations relative quickly. The technical openness of the M1 system also offers its usual benefits here."

The next step already in sight

Increased efficiency and plant productivity are the prime objectives of the custom solutions produced by FoamaTec. The engineers therefore also appreciate the simple engineering of the Bachmann solutions which saves time and money. As a further development, a solution giving the operator mobile access to the SCADA system is planned. Bachmann is also able to offer its services here.

