

PRESSE RELEASE

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A good plan: Modular retrofit for increased production

Ensinger, a specialist for high-performance plastics, is meeting its customers' high demands with far-sightedness and future-oriented planning. With a view to future production increases, the manufacturer used a digital twin to analyze its production sequences for weaknesses and develop modular solutions together with retrofitting specialist Vollert, to be gradually integrated into the existing production until 2027. This provides planning safety for investment costs and guaranteed delivery capacity at any time.

Ensinger Group develops, manufactures and markets compounds, semi-finished products, composites, finished parts, and profiles made from technical plastics. Further development of tried and tested production methods, new applications, and international expansion have secured a place in its industry's top tier for this family-owned company from Swabian Nufringen: 2,600 employees and 33 branches around the world are rendering top performance for many customers from mechanical and plant engineering, the construction industry, automotive industry, medical technology, as well as aviation and aerospace. Demand is high, and Ensinger is expecting further production increases of up to 25 percent in the years to come. To ensure smooth processes for its customers, the team foresightedly analyzed its existing production sequences based on a digital twin in 2020 already – quickly uncovering several bottlenecks in the available plant technology. "A comprehensive analysis showed us exactly which plants were going to reach their capacity limits when and would then hinder production sequences," explains Dieter Scharf, head of site logistics for the semi-finished products segment at Ensinger. After recognizing this, Ensinger developed its intralogistics concept 2027, listing all decisive plant parts and establishing a schedule for solving issues based on priority. Ensinger found Vollert Anlagenbau from Weinsberg to be a suitable retrofitting partner for detailed planning and execution.

Removing bottlenecks, increasing throughput

The target of retrofitting at Ensinger is adjusting production capacities to rising demands while at the same time increasing failure safety of the plants. Following a contact at LogiMAT, Vollert supported this project with spare part production and delivery for retrofitting of an existing storage and retrieval machine that kept causing outages in the first step. A trusting basis for cooperation was quickly found – also due to the spatial proximity and short paths to decision within the two family-owned companies. Vollert drafted comprehensive plant

layouts for the next steps to achieve the planned throughput figures. The proposed changes include several existing and new workstations, return lifters, various transport systems with buffer storage, and conveyor systems in the annealing furnace area. Redundant systems were also included in the plans to keep the plant running in the event of a fault. Buffer stations in various locations are also going to help compensate for bottlenecks.

Modular planning for five years

The plans considered all Ensinger's special features - both for retrofitting and for additional new installations, such as the extension of the high-bay warehouse or the possible conversion of the manual conveyor technology located in the basement to automatic operation. Vollert provided price information for the investment plans with a time horizon until 2027. The measures can then be ordered and implemented one by one in the coming years. In this context, the retrofitting experts learned about the processes and equipment in detail during several on-site meetings. "Ensinger has a highly experienced and good maintenance team. The colleagues are very closely familiar with the internal processes - and their weaknesses," reports Bernd Frisch, responsible project manager at Vollert. The team was always involved in the plannings and able to contribute its ideas and wishes. "Easy maintenance, robust technology, and parts that are identical with those in the existing facilities - these were important aspects for Ensinger." The team at Vollert added some further ideas. "Of course, we did some advance work," Jürgen Braun, head of retrofitting at Vollert, says, "but we think that good preliminary planning is indispensable for integrated plant retrofitting. We need to become closely familiar with the plants to truly understand them. A great many details need to be discussed and coordinated in advance to make all requirements and wishes come true in the end. We invest the corresponding amounts of time in this."

First step: performance increase in dispatch

Implementation of the overall retrofitting concept at Ensinger has already commenced. A first partial order eliminated a bottleneck in dispatch, where plastic rods and slabs are removed from high-bay storage in 3.3-meter-long baskets of various widths, referred to as skids. They have a total load of about 2.5 tons. A chain cross-conveyor then moves the skids to the worker, who will remove the required number of slabs and rods before the skid returns to the high-bay warehouse. There were not enough buffer stations, causing delays in retrieval for goods removal repeatedly here in the past. "Our analysis showed that there was a quick need for action. Calculations suggested that we were going to face clear delivery delays in the foreseeable future," Dieter Scharf from Ensinger says. This was why the

existing chain cross-conveyor was expanded by four additional buffer stations together with Vollert – two each in the delivery and return sections. Now, multiple skids can be buffered up- and downstream of the workstation, avoiding waiting times for the workers in picking. For this the engineers extended the existing chain cross-conveyor by 3.5 meters per side to integrate it into the existing control technology. The new chain conveyor elements are now equipped with state-of-the-art, energy-saving drive technology. Vollert also ensured that service-compatible screw connections were used instead of welds and added additional supporting bases to increase stability.

Retrofitting – a growing area at Vollert for years

Retrofitting of complex plants has been a growing area of tasks for machine and plant manufacturer Vollert. “We have lots of experience in the team thanks to our many retrofitting projects – particularly for third-party facilities. You really need experts for this, also regarding conformity testing and CE marking,” reports Jürgen Braun. Vollert precedes any intervention in existing plants by determining risk and performing a service life calculation. The retrofitting engineers need to figure out what they are allowed to do, how to solve any issues that may arise, and what costs to expect. Vollert also considers current rules and standards for work safety and noise protection in its plans. “We perform noise measurements in the environment and adjust new plant technology to limitations,” project manager Bernd Frisch reports. “Ensinger has many chain conveyors in use. We want to replace some of them by less noisy roller conveyors.”

The next steps at Ensinger are going to follow a clear schedule from here onwards. The planning offers safety in terms of the necessary measures and costs, with the modular retrofitting concept leaving enough leeway to adjust to economic and order development. All measures are also planned so that interventions can be made without stopping production, making Ensinger ready for further growth in the years to come.

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Image 1 - Chain cross-conveyor before
Bottleneck in production. Too-short conveyor sections in an existing chain cross-conveyor kept causing delays and waiting times in storage and retrieval of a high-bay warehouse at Ensinger.



Image 2 - Chain cross-conveyor expanded
Together with Vollert, the existing chain cross-conveyor was, therefore, expanded by four additional buffer stations to create capacities for future performance increases. This makes it possible to buffer skids up- and downstream of the workstation.

