

Tecnomatix

ebm-papst

Flexible assembly processes meet customers' demands

Industry

Automotive, electronics and semiconductor

Business initiatives

Production efficiency

Business challenges

Increasing customer demands
Quantity variations
Shorter product lifecycles

Keys to success

Visibility of entire production cycle
Integrated product development and production planning
Standardized processes
Process data re-use

Results

Flexible assembly lines and manufacturing systems
Optimized assembly cycle times
Increased productivity
30 percent time savings upon project completion
Greater availability of assembly lines

Manufacturer of fans and motors optimizes production with Tecnomatix

Market pressures on motors and fans

The ebm-papst group is one of the world's leading producers of motors and fans. More than 9,800 people are employed in its factories around the world, with approximately 5,000 of them located in Germany. Its customers include all leading automotive manufacturers as well as providers of medical, telecommunications, IT and other equipment.

Suppliers such as ebm-papst must respond to the market's increased demands as the OEMs shift an ever-growing proportion of cost responsibility to them. At the same time, suppliers have to guarantee a high standard of quality while also being able to respond flexibly and quickly. Other challenges include global competition from new suppliers – the majority coming from Asia. There are also quantity variations of up to 200 percent, which require a flexible production process.

To cope with these growing challenges, the ebm-papst facility in St. Georgen, Germany, decided to introduce innovative IT solutions for digital planning and process simulation. With the Tecnomatix® solution from Siemens PLM Software, ebm-papst has been able to optimize its production planning and thus significantly shorten the product development process.

Moving into digital planning

ebm-papst's motors and fans are characterized by reliability, high quality and a long product lifecycle. To ensure that ebm-papst can continue to deliver this level of quality, a dynamic production process is required. Production needs to be specifically adjusted for each individual order, and it is necessary to optimize internal processes using efficient planning tools on an ongoing basis. "In order to keep production in Germany, we need to avoid inefficiency," says Roland Weisser, plant manager at ebm-papst's St. Georgen facility. "We have to make quality checks within the processes. Moreover, we must not only control quality throughout production, but also produce the highest quality possible."



ebm-papst products include fans and motors for the automotive industry as well as medical, telecommunications, IT and other equipment.

“The customer has the huge advantage that we can offer the best product with the same resources and processes and the same quality, and always at the best possible price. These advantages have only come about through the use of Tecnomatix.”

Roland Weisser
Plant Manager
ebm-papst
St. Georgen



Products of ebm-papst have to fulfill distinct quality criteria.

Six years ago following a comprehensive market evaluation, ebm-papst decided to take its first steps into the world of integrated digital planning. “We needed to reflect the requirements of the market in our production workflows,” says Weisser. “This required the fastest possible completion of a project at the lowest prices available with the best possible process and product quality.”

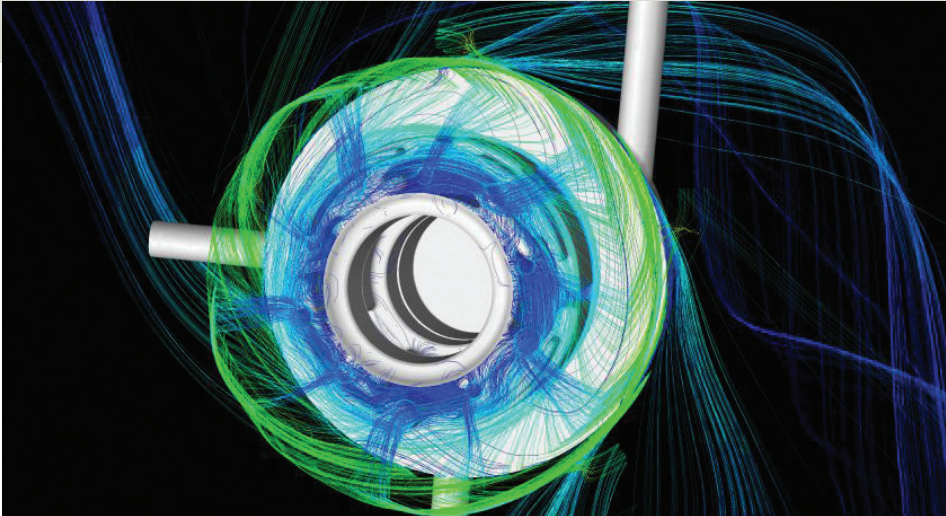
Following a successful pilot project involving the automotive industry in which ebm-papst saved €400,000 through the use of digital planning tools, the company opted for a comprehensive roll-out of the assembly planning and validation offerings within the Tecnomatix suite. Tecnomatix enables production process scenarios to be quickly defined and evaluated in order to draw up the best possible production schedule. The software also enables production planners to incorporate their ideas early in the planning process, and offers a range of methods aimed at optimizing the workflow and automating activities that do not add value. Products can consequently be manufactured without error the first time.

Highly flexible assembly lines

To satisfy customers’ specific requirements, ebm-papst has developed highly flexible production systems through the use of digital production planning. With the Tecnomatix solution, it is possible to check in advance whether the production scenarios that have been developed are feasible and efficient. “Together with our suppliers, we have developed approaches to completely satisfy our customers’ demands in terms of quality and cost,” explains Weisser.

ebm-papst starts production with a carefully calculated volume. Production planners have the option of selecting the existing operating and testing equipment in line with market developments. If a customer’s strategy changes or innovations bring about the need for a different production technique, the production systems can be adapted with minimal outlay.

As a result the customer receives a transparent picture of the required equipment. “The Tecnomatix tools we are using have proven to be extremely helpful in concept bids,” Weisser continues. “In a very early phase we can provide the theoretical proof that we are able to produce a certain product on the base of the calculations. We give sales a transparent and precise calculation base and create a significant competitive advantage for ourselves.”



Digital planning tools shorten the product development process significantly.

“With the Tecnomatix solution, we have succeeded in introducing a fully integrated planning system into our company. From design and planning to the after-sales stage, we are able to map the entire production lifecycle.”

Roland Weisser
Plant Manager
ebm-papst
St. Georgen

Efficient cost calculations

With Tecnomatix software, production planners can simulate processes in advance. based on 3D layout planning, detailed investigations are carried out on individual workstations. Thanks to the standard process library, the production planner can evaluate the various production concepts: full automation, partial automation and manual assembly. For each individual strategy, a cost and investment calculation is carried out.

By simulating material flow, the output, buffer sizes and cycles times are optimized. Following the decision in favor of a particular strategy, the production planner can draw up the production documentation including the work, equipment and maintenance instructions. “With support from Tecnomatix software, we are able to safeguard production very accurately without having to intervene in the production process,” says Johannes Moosmann, project manager for process and product development at ebm-papst. “At all times we have an overview of the production status and we can check whether the defined goals are attainable.”

Thanks to the Tecnomatix solution, ebm-papst has significantly improved collaboration between product and process development. “During the early stages of product development in particular, it’s important to work closely with designers,” says Moosmann. “We need a platform that both departments have access to. Changes made to the design need to be implemented immediately into process planning and included in the cost calculation.”

The integration of Tecnomatix into ebm-papst’s IT environment supports efficient simultaneous engineering (parallel development, planning, production and assembly) and thus ensures greater cost-effectiveness and adherence to deadlines in production.

Quality assurance

One of the main effects of the introduction of digital planning and simulation software is the standardization and optimization of processes. Users were able to implement roughly 90 percent of what they learned from the digital planning tools within their real production environment. The only changes needed were those necessary to make further price and/or process-related improvements prior to project approval.

Solutions/Services

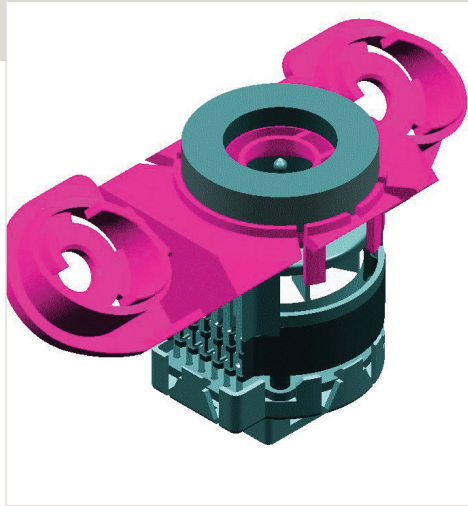
Tecnomatix
siemens.com/tecnomatix

Customer's primary business

The ebm-papst group is a leading global manufacturer of motors and fans.
www.ebmpapst.com/en/index.php

Customer location

St. Georgen, Schwarzwald
Germany



Tecnomatix greatly improves the collaboration between product and process development.

"With the Tecnomatix solution, we have succeeded in introducing a fully integrated planning system into our company," says Weisser. "From design and planning to the after-sales stage, we are able to map the entire production lifecycle. The planning data can be re-used at any time and the production planners can access existing documentation for the same process and the same machine or system."

With the introduction of Tecnomatix, ebm-papst has increased its manufacturing productivity and as a result, its competitiveness. On average, a time savings of approximately 30 per cent has been achieved upon project completion.

Weisser points out, "The customer has the huge advantage that we can offer the best product with the same resources and processes and the same quality, and always at the best possible price. These advantages have been strongly supported through the use of digital planning tools. And in my point of view this is one of the crucial success factors for ebm-papst."

Expanding the advantages

Given the positive experience so far, ebm-papst is planning to use Tecnomatix software in other areas of its company and at other locations. Other Tecnomatix offerings are being evaluated for their ability to help the company continue to bring high-end products quickly and inexpensively to market. Weisser says that the Tecnomatix solution will be used more extensively in the future and with greater integration of customers and suppliers. "All of the parties involved will benefit from the advantages that Tecnomatix offers," he says.

"We are gradually getting closer to the goal of having a completely digital factory – in other words, having an overview of our current production processes at all times and being able to intervene directly and with pinpoint accuracy into each process," says Weisser. "The use of the Tecnomatix solution represents an important contribution to securing a continued bright future for our company."

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