

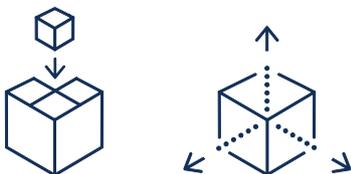
# CUSTOMER REPORT

Bystronic Lenhardt GmbH

For decades, machine tool and plant equipment manufacturer Bystronic has been an innovation driver in the glass industry. By deploying Tacton Design Automation and Lino<sup>®</sup> 3D layout, this enterprise is now utilizing the innovative process accelerators of rules-based, automated variant configuration.



## Professional Layout Planning Enhances Sales Processes

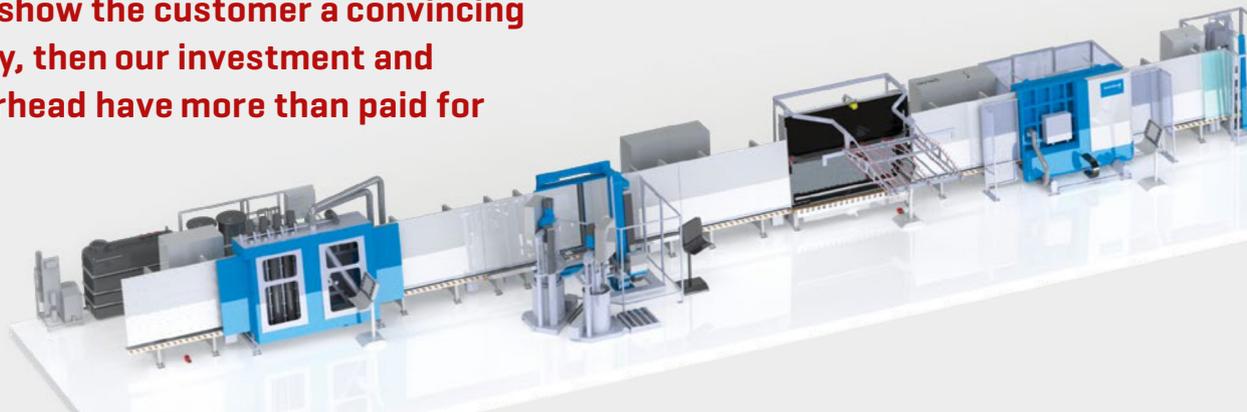


Large, architecturally demanding glass elements are what make the facades of modern buildings so impressive. They determine the visual impression, and their transparency and reflection lend the structures a light and airy aspect. But as a material, glass has more than just aesthetic tasks: insulating glass shields against winter cold and summer heat and sunlight. And builders use laminated glass, which is stabilized by an internal tear-proof film and prevents sharp splinters, to ensure that their buildings are

safe and secure. Producing such glass types in high quality and at high speed demands sophisticated machinery. Bystronic Lenhardt GmbH from Neuhausen, in the state of Baden-Württemberg, is a leading manufacturer of glass-working equipment. For over 50 years, this company from the heart of the Black Forest has been producing machinery and plant equipment for manufacturing and processing of architectural glass. Production lines from Bystronic are able to manufacture multi-glazed insulating glass elements with a surface area of up to 50 square meters automatically.

**“If we’ve sold only one additional system because we were able to show the customer a convincing 3D layout quickly, then our investment and the internal overhead have more than paid for themselves.”**

**Ralf Brotzel**



## Task

- Error minimization and Design Automation
- Attractive, rules-based 3D layout planning
- Seamless direct integration with Solidworks®

## Solution

- Tacton Design Automation for rule-based configuration
- End-to-end variant configuration
- Lino 3D layout for 3D layout planning

## Result

- Convincing presentations for customers
- Accelerated design and layout processes
- Halved project planning time for complex machine lines

### Layouts for layout planning

Bystronic Lenhardt specializes in developing solutions even for extreme customer needs. They are able to do this in part because in principle, their machines and plant equipment are configurable, and thus extremely flexible, and can handle double- and triple-glazed insulation glass, photovoltaic modules and safety glass, very large-format units for skyscraper facades and small elements for single-family homes.

For years now, Bystronic has been using the 3D-CAD solution Solidworks to design its machines and their components. But Bystronic designs not only individual machines, but also the layout of complete plants consisting of linked modules. One key task of layout planning is to match the complex flows of a system to the conditions of existing production facilities. This applies to software interfaces within the company as well as the physical characteristics of the production spaces. To plan production lines, the designers used the 2D-CAD software ME10, developed by Hewlett-Packard.

### Hand-drawn variations

From its customers, Bystronic Lenhardt receives a requirements catalog for the machines and a plan of the intended erection site. “Our sales representatives are the interface between our customers and our design team. Together, they need to find a solution that’s perfect in every respect”, explains Ralf Brotzel, the administrator responsible for CAD, PDM and the SAP ERP at Bystronic. But previously, this process confronted the sales staff with two challenges: For one thing, although Solidworks is ideal for designing machines, automatic variant configuration is only possible using the “on-board” functions. “Whenever the customer’s requirements changed or our sales team wanted to

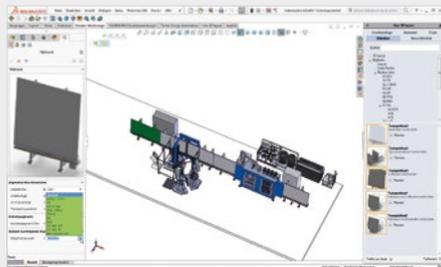
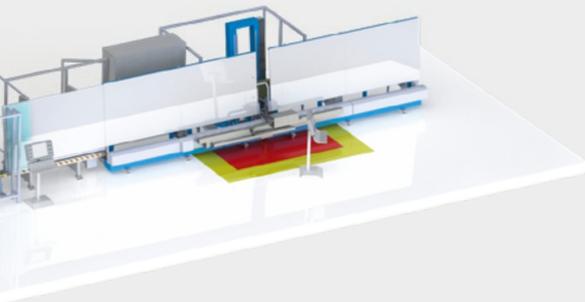
offer alternatives, we had to generate a completely new CAD model. Our machines are highly configurable – but the design process wasn’t,” Brotzel recalls.

Secondly, changing the layout of production lines was extremely laborious and time-consuming. The ME10 software used for this task did not offer any configuration capability either. So, a typical scenario went something like this: The sales representative presented the layout plan for a production line for triple-glazed insulation glass: the first machine applies spacers for the glass panes, the second mates the glass panes and fills the spaces in between with inert gas and the third machine seals the insulating glass units. Then the layout was presented using 2D layout drawings. If the customer requested a change, for instance the possibility of processing significantly larger units, the sales representatives drew the changes into the layout using a pencil. On the basis of this drawing, the design department of Bystronic developed the new layout plan in ME10, which required replacing and repositioning each element individually. Often, it took days before the new layout was ready for presentation. In retrospect, a peculiar prospect for the CAD/PDM administrator: “It was just impossible to show the customer layout changes quickly.”

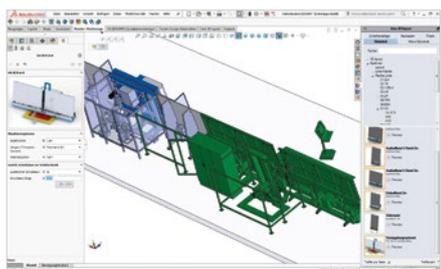
## THE COMPANY

**Bystronic**  
glass

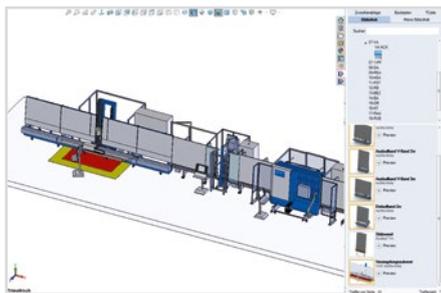
Name	Bystronic Lenhardt GmbH
Location	Neuhausen-Hamberg [Northern Black Forest]
Portfolio	Solution concepts for automated complete systems for manufacturing architectural and vehicle glass
Branche	Machinery/plant equipment
Employees	approx. 450 world-wide
Founded	1966 (Lenhardt Maschinenbau)
Website	www.glaston.net



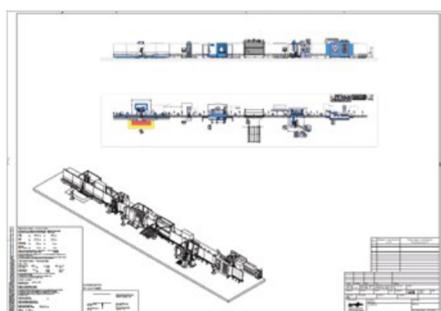
Addition of a conveyor belt to an already configured glass plate washing machine (TPS applicator) in Lino 3D layout.



The sealing machine is integrated into the insulating glass production line by means of joining points (snap).



Completely configured sealing machine with Security scan area (red yellow).



Nearly finished layout, which is used as a quote layout and later as a layout plan. The dimensioning is carried out with Lino 2D fix.

### Attractive presentations for sales

Bystronic Lenhardt GmbH was behind the times in another respect as well: The obsolete ME10 solution could only generate 2D layouts, and only in gray scales. It was time to rescue sales from such ignominy. Although the results were technically precise, but extremely complicated and they were visually unattractive. The sales representatives were often presenting their proposals to purchasing employees who lacked an in-depth technical background. A further problem was the wealth of variants of the Bystronic machines and the many powerful combination possibilities. Even the sales team cannot keep up with all available options. Ralf Brotzel: "We lacked an automated variant configuration that could manage all components and their capabilities and put them at our colleagues' fingertips – ideally right on site!"

The underlying dissatisfaction with this state of affairs intensified as the overhead required to train new employees in ME10 increased: younger CAD operators had no clue how to use this obsolete program. Eventually, management began combing the market for alternatives. "One clear priority for us was that we no longer wanted to work with two parallel CAD systems. Solidworks was defined as the basis, and all required functions had to integrate seamlessly", recounts Brotzel in describing the start of the selection process. A further key requirement was that the complex machines and complete systems had to remain automatically reconfigurable in CAD – uncomplicated and with no performance compromises.

**"Since rolling out Lino 3D layout and Tacton Design Automation, we've generated 100 % more layout plans than before, and thus doubled our order chances."**

**Ralf Brotzel, Administrator CAD, PDM and SAP ERP at Bystronic**

### Variable designs and rules-based layout planning

In his survey of the market, Ralf Brotzel came across Lino GmbH. Its combination of Tacton Design Automation for automated variant configuration and Lino 3D layout for rules-based layout planning stimulated his curiosity. "I couldn't find any other vendor that offered such a powerful package. The integration of the software in Solidworks was particularly attractive", the project head explains. As seamless Solidworks add-ins, all solutions have unrestricted access to the data from the PDM – which offered enormous advantages: the designs are always up to date and correct. And conversely, the parameter set of a quotation can be used as a reliable basis for the subsequent design.

Lino was invited to present the solution in September 2014, and the performance it demonstrated was convincing. Still, the investment decision took some time, as Ralf Brotzel recalls: "The overhead involved in generating the required Tacton rule set seemed very high to us." But it is precisely the initial creation of this database that enables Tacton Design Automation to automate the design process error-free. "As a matter of fact, that went faster than expected, and looking back it definitely paid off," concludes Brotzel. Ultimately, the desire to present production line layouts at the key international trade show glasstec 2016 in a quality not yet seen in this industry was crucial: "The Lino team supported us extremely professionally on our path to that goal – and the 3D layouts for the trade show were truly impressive."

### Acceleration and dependability through automation

Throughout the entire project, Lino also handled user training and ongoing support. Although as the project head notes, very little support time is required and Bystronic is completely independent when it comes to the simple, autonomous maintenance of the Tacton rule set. "For example, we need a lot less time for model variants today than we used to, because we only have to add to a parameter in the rule set, and not generate a new template", Brotzel explains. Five technical sales representatives and one designer are already using the combined power of Tacton Design Automation and Lino 3D layout. Their feedback confirms the project head in his choice of the Lino GmbH solution: "The sales colleagues really like working with

the software. They rapidly generate layouts for customers and implement changes and requirements by themselves, and they're taking their system presentations to new customers to a new level."

**"Thanks to the high learnability and the professional support from Lino, our team was able to generate quickly impressive 3D layouts."**

**Ralf Brotzel**

This acceleration is reflected in the figures: in 2014, Bystronic Lenhardt GmbH generated 258 layouts using ME10. In 2016, the year that Lino 3D layout was implemented, this figure jumped to 395 layouts – for a comparable order situation. Additionally, the software makes it easy to offer customers new products and solutions, as every update in the portfolio can be integrated directly in the layout. The minimization of errors is also a big gain for Bystronic: when machine models or layouts are changed, the rule set ensures that all relevant parts are adapted immediately. For example, if the fresh-water connection in a glass plate washer is moved, the system guarantees that the machine is only placed where fresh water is available. This ensures that no unexpected problems arise later at the erection site. Ralf Brotzel: Since the rollout last year, we've generated close to 250 models for the rules library, with around 20 selection parameters each. Our experiences are so positive that we're now planning to roll out the software at our Swiss site, which manufactures machines for vehicle glass."

**Lino® 3D Configuration Solution**

Lino GmbH is a provider of technology leading software solutions and consulting services for Design and Sales Automation, System Configuration and 3D Visualization. Enterprises in many manufacturing industries realize efficient, end-to-end sales and product development processes with enormous savings potential with the Lino Team along with Tacton Configurator and Software Made by Lino® products.

The Tacton technology sets entirely new standards in Product Configuration and revolutionizes the drafting, configuration and selling of complex industrial products. In combination with Software Made by Lino® products, you can easily integrate applications from CAD, PDM, PLM, ERP, CRM, Web, eCommerce or mobile devices with Tacton software.

Lino is a Tacton Business Partner, Solidworks Solution Partner and Microsoft Partner Gold Application Development. The configuration specialist and software developer operates six offices in Germany and Austria: Bremen, Mainz, Stuttgart, Nuremberg, Dresden and Raabs (A).



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