

Processing technology

Bühler

Leading process technology partner uses advanced tools to increase value for its customers

Products

Tecnomatix, NX

Business challenges

Increase completeness of the solution offered to customers

Deliver a cost-effective solution for unloading ships

Increase effectiveness of food production equipment operation

Keys to Success

Provide field engineers and sales with a cutting-edge software to demonstrate solution superiority

Analyze different ship unloading solutions

Select the optimal production sequence

Results

Cut cost of unloading ships by embedding proprietary algorithm in a simulation model

Reduced operational cost of mixing plants by using optimal production sequence

Plant Simulation enables the delivery of complete solutions

Innovative automation solutions delivered with Swiss accuracy

Did you know that 65 percent of the chocolate and 40 percent of the pasta manufactured globally is done so with the machines of the Swiss company Bühler Group? Bühler is a specialist and global technology partner for plant, equipment and services for processing foods and manufacturing advanced materials.

The organization holds leading market positions worldwide in the fields of technology, such as processes for

transforming grain into flour and animal feeds, producing pasta and chocolate, and manufacturing die-cast components. Bühler's core technologies are in the areas of mechanical and thermal process engineering. With its expertise and over 150 years of experience, Bühler enables its customers to succeed by consistently rolling out unique and innovative solutions. Over the years, Bühler has acquired a reputation as a reliable partner, thanks to its global presence and commitment to customer value.

Bühler operates in over 140 countries, and has a global payroll of over 10,000 employees.



A Bühler chocolate production line.

“Offering a Plant Simulation model and methodology as a means to optimize the operation of the equipment our customers are buying from us is an important step in increasing our competitiveness and the completeness of our solution.”

Klaus-Jochen Lisner
Head of Intelligent Process Control
Corporate Technology
Bühler

To increase its operational efficiency, Bühler uses product lifecycle management (PLM) solutions from Siemens PLM Software: NX™ software, and the Plant Simulation solution in the Tecnomatix® portfolio.

Ship unloading solution validated with Plant Simulation

As part of its grain handling products, Bühler delivers ship unloading solutions to its customers. The unloading process for a ship requires many hours, and every hour the ship is in the port is very expensive. As a result, there is a high motivation to unload the ship as safely and quickly as possible.

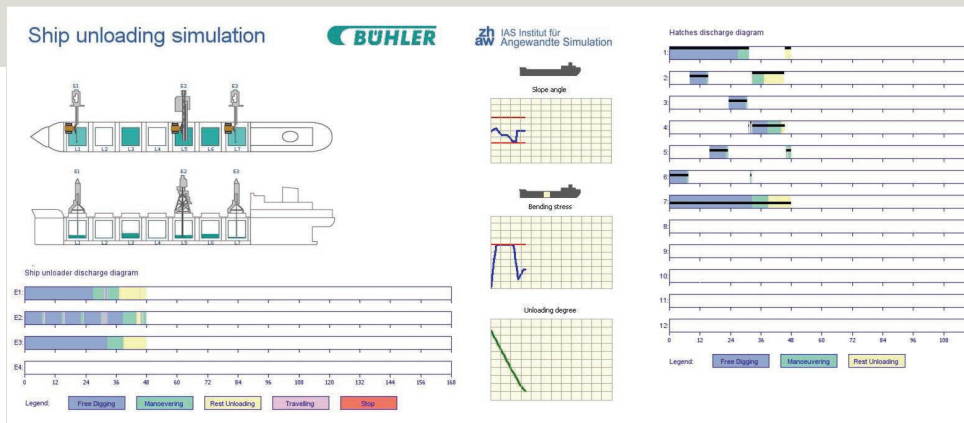
During the unloading process, the ship's center of gravity shifts and the ship tilts.

Any tilt above the allowed tilting angle during unloading might break up the ship. Therefore, the sequence of unloading the different compartments of a ship is very important. Moreover, there is a need to balance the unloading of neighboring compartments.

When a company is interested in acquiring a new ship unloading solution or modifying an existing system, it must consider the number and type of unloaders that will be needed. Naturally, there is a compromise between the number of unloaders, the type and the unloading time. This compromise can be optimized by analyzing different scenarios.



Bühler ship unloading solutions.



Ship unloading simulation with Plant Simulation.

Bühler field engineers and sales representatives had challenged the Bühler Corporate Technology department with finding a solution that would help prospects resolve this complex decision. Such a solution should enable a customer to easily define an unloading scenario for a specific ship, simulate different scenarios and compare them.

“We analyzed several potential solutions and realized that an event simulation tool would be the most suitable for this task,” says Dr. Mukul Agarwal, expert for Intelligent Process Operation, Corporate Technology at Bühler. “Since we were already using Plant Simulation, we decided to use it for the ship unloading scenarios

analysis. So we created a simulation model and embedded in it an unloading algorithm that we developed. We are very pleased with our usage of Plant Simulation, as it allows us to easily test different scenarios with little effort, and embed it in the simulation of our own algorithms.”

Mixing production equipment operation optimized with Plant Simulation

Bühler delivers a complete mixing solution, including process definition, plant engineering, process automation, manufacturing, installation and startup, as well as customer service. An example of a mixing application would be the blending done by flour mills, which mix different

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Dr. Mukul Agarwal
 Expert for Intelligent Process Operation
 Corporate Technology
 Bühler

A Bühler mixing production line.



types of flour and sometimes add additional ingredients.

In its drive to increase its competitiveness and the completeness of the solution it delivers to its mixing production equipment customers, Bühler decided to check the feasibility of also offering a software tool which would enable it to test different production scenarios. Therefore, it created a model using Plant Simulation that is easy to use and identifies the recommended production sequence.

Bühler conducted several pilots to validate the benefit of this simulation model. "We analyzed the performance of an existing line, and compared the production sequence that was used with an optimized production sequence suggested by the analysis done with Plant Simulation," notes

Dr. Agarwal. "When implementing the suggested sequence identified using Plant Simulation, we found there was a significant reduction in the overall production time and the number of delayed order deliveries was minimized. When quantifying the expected improvements into an economical benefit, we found an impressive cost reduction benefit as well."

"Offering a Plant Simulation model and methodology as a means to optimize the operation of the equipment our customers are buying from us is an important step in increasing our competitiveness and the completeness of our solution," says Klaus-Jochen Lisner, head of Intelligent Process Control, Corporate Technology at Bühler. "It directly supports our slogan, 'Engineering Customer Success'."

“When quantifying the expected improvements into an economical benefit, we found an impressive cost reduction enabled by the usage of Plant Simulation for the production sequence determination.”

Dr. Mukul Agarwal
Expert for Intelligent Process Operation
Corporate Technology
Bühler

Solutions/Services

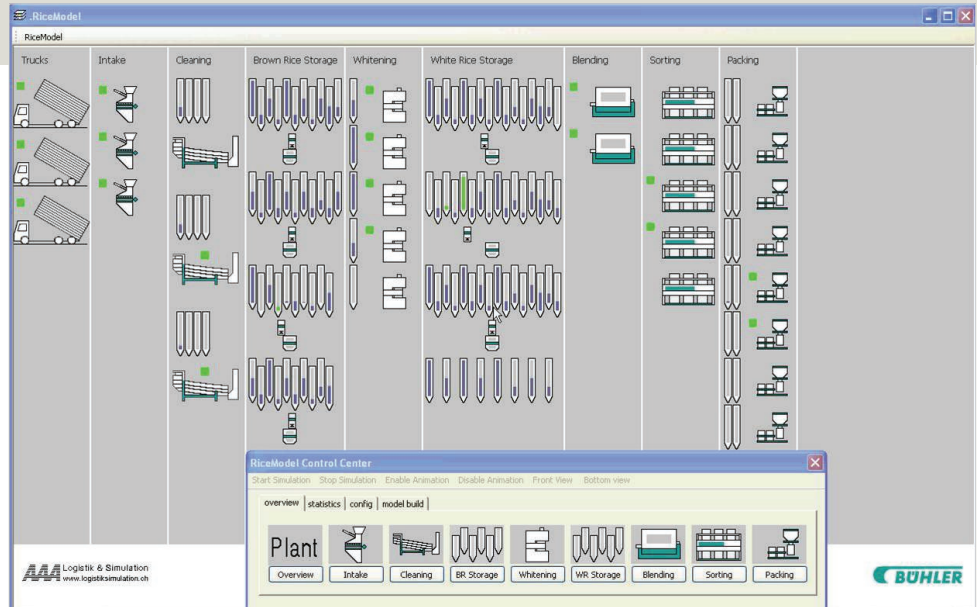
Tecnomatix
Plant Simulation
www.siemens.com/tecnomatix
NX
www.siemens.com/nx

Client's primary business

Bühler is the specialist and technology partner for plant, equipment and services for processing foods and for manufacturing advanced materials.
www.buhlergroup.com

Client location

Uzwil
Switzerland



Food production simulation with Plant Simulation.

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Dr. Mukul Agarwal
Expert for Intelligent Process Operation
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