Blaser Swisslube AG

Process visualization saves money and protects the environment

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Martin Siegenthaler, Process Automation and System Support, Blaser Swisslube AG

Result

- Easier troubleshooting

- Reduced downtime

- Up to 45% reduction in energy costs

- Reduced CO_2 emissions

- Increased security through central data storage

- Local backup tasks are no longer required

- Simple programming and configuration

- Easily upgradeable

- Web access

About Swisslube AG

Headquartered in Hasle-Rüegsau, the Swiss family-owned business Blaser Swisslube AG has been producing and selling cooling lubricant worldwide for 70 years. Cooling lubricant, which is used in the metalworking industry, has played a significant role in the business's history. The production of cooling lubricant generally consists of four basic processes: dosing, agitating, heating and circulating. In detailed terms, carrying out these activities is by far much more complex; depending on the formulation, for example, when between 10 and 20 components are combined.

Using CIMPLICITY, the production staff member logs his system along with the starting time and temperature onto the energy management system of the power station. After the last heating cycle of a batch, the system automatically logs off again.

Thanks to the visualization, for example, in the filling station, the majority of the system faults can be remedied without interrupting the filling process.

Expertise meets high tech

The production facilities located in the Swiss Emmental region have demonstrated that the expertise accumulated over generations and employing high tech applications are not contradictory.

Here, approximately 100,000 liters of (cooling) lubricant, cutting oil and grease are produced each day. GE Digital's solutions support the individual production steps and the networking needed to accomplish the tasks.

GE Digital's HMI/SCADA CIMPLICITY visualization system is utilized in the individual production areas, such as the mixing, filling, transport system or the power station. Its Historian server—a database that has been optimally tailored to industrial demands—saves all process data, such as temperatures, filling levels, added ingredients, along with all raw material codes, etc. And ultimately, thanks to its web-based design, the software enables access to all historical and online data globally.

The commendable onsite support provided by the Balsthal-based B+I Automation AG, which is the official Swiss sales partner of GE, is one reason why the lubricant experts chose the automation expert company as their solution provider. "We have been working with their employees for years and know that we have been well advised. As questions or problems have arisen in the past, we have always received immediate reliable support," reports Martin Siegenthaler, who is responsible for the process automation and system support at Blaser Swisslube AG. "And since we believe service and product availability are equally important as the purchase price itself, the decision in the matter was made relatively easily."

HMI/SCADA CIMPLICITY Software Concept
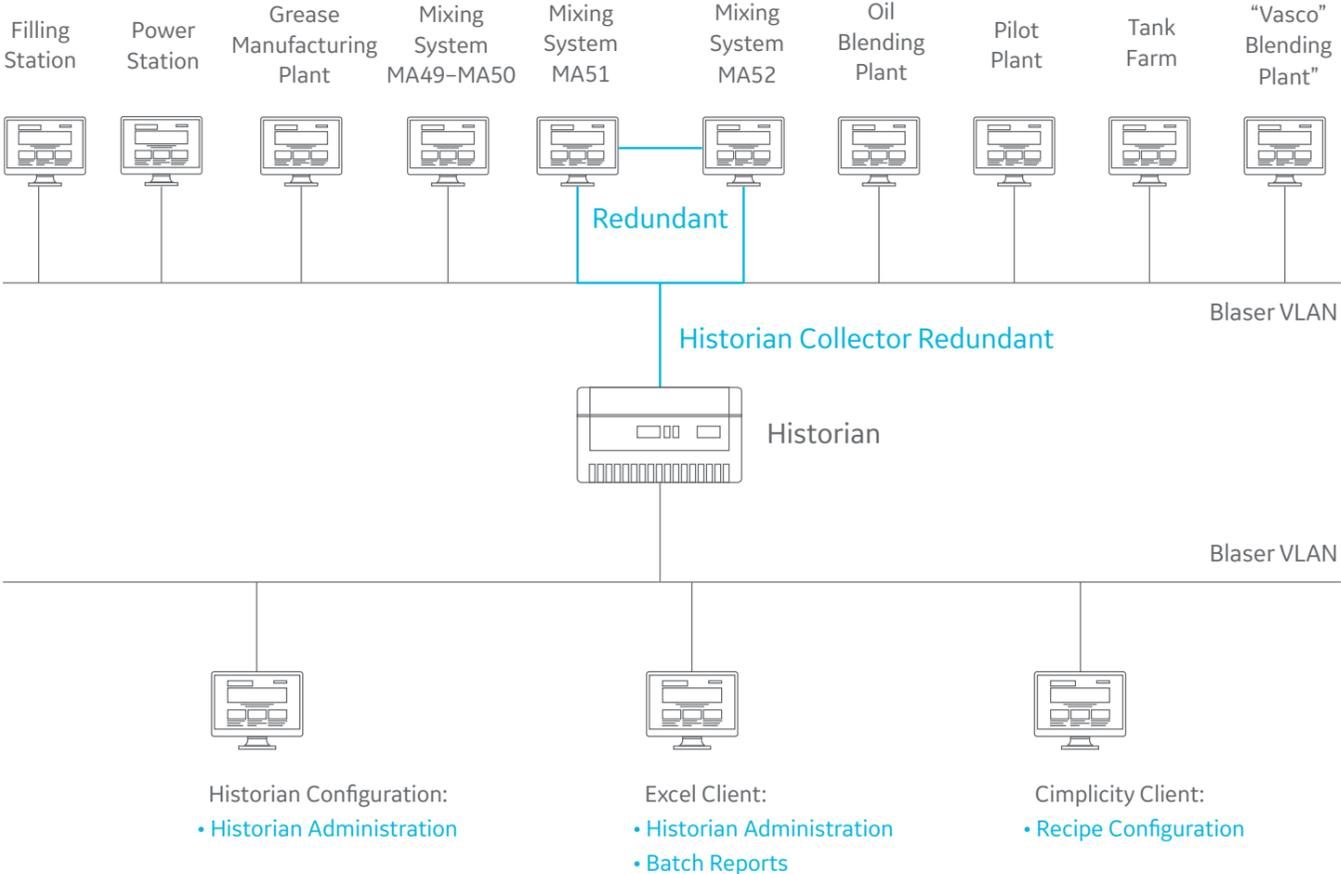
Software concept at Blaser Swisslube AG: CIMPLICITY with Historian. CIMPLICITY and Historian redundancy on the MA51/52 mixing system.

Visualization facilitates daily operations

The convincing factor for Blaser Swisslube was not only the good support, but the product as well. "We of course also looked at rival products. In doing so, we realized that no other products were as convenient to program and configure as CIMPLICITY," said Siegenthaler.

The ability to easily create visualizations both facilitates activities as well as makes them more productive in many areas. This is exemplified in the filling system in the lubricant plant located in Emmental, Switzerland. The barrels to be filled are delivered by truck, transferred onto pallets and automatically transported to the filling station using various transfer points equipped with conveyor belts. Up until now, if faults occurred, the system manager needed to connect his notebook to the system control (PLC) and analyze the corresponding inputs/outputs until he located the problem. Sometimes this was considerably time-consuming and resulted in significant downtimes.

Today, thanks to the practical process visualization, the system manager can find and remedy most of the faults much faster. A typical example: one of the pallets is damaged. Therefore, the sensor does not detect it at the transfer point. The visualization now allows the system manager to obtain detailed information using the causes of the alarms. In this case, he sees which sensor is triggering the alarm. During the inspection, he discovers that the sensor is fine and only the pallet is slightly damaged. Therefore, there is no reason to stop the filling process. After analyzing the problem, he can manually intervene in the procedure and continue the process using the process visualization. This can be managed in just a few minutes.

"One important aspect becomes clear here and it provides motivation time and time again: using GE Digital's software has enabled us to demonstrably increase productivity and significantly improve the process quality. In addition, the software facilitates the daily work of our staff. However, using the system in no way diminishes the importance of their jobs," said Siegenthaler.
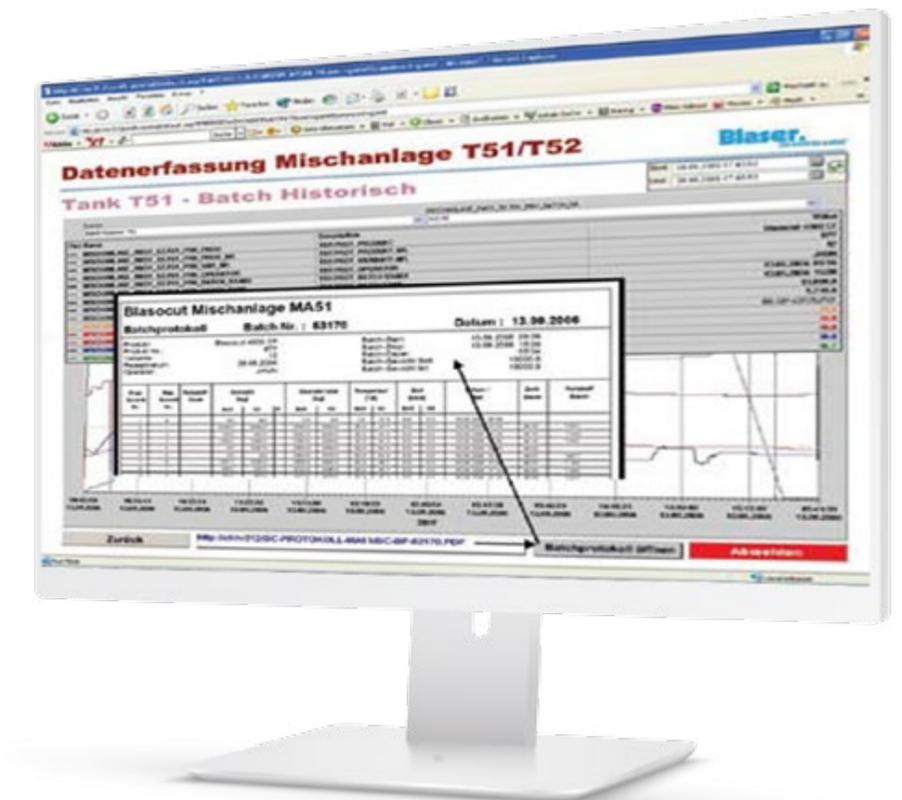
Current and historical data on the individual production units are visualized.

Solution helps save money while protecting the environment

Various ingredients with the most diverse viscosities are combined together to produce the lubricant.

In order to also mix these together, the process temperature must be correct. To achieve this, the mixing container heats the different production systems. Up until now, the thermal energy has been supplied at a constant defined temperature using thermal oil or hot process water. However, a closer look at the production process showed that the tanks must only be maintained at the correct temperature during relatively short time spans. At this juncture, the lubricant experts saw a starting point for improvements and in conjunction with the construction of a new power station, they are trying to save energy and costs by utilizing an intuitive energy management system and operating an active energy return system.

The formulas for each manufactured product not only contain the ingredients, but also the required temperatures. Using GE Digital's software solution, it was quickly determined that the 750 kW thermal oil boiler was not always required, but that, in many cases, the smaller 250 kW boiler was sufficient. Depending on the requirements, one or two thermal oil boilers are utilized and the system switches to the second boiler only after the boiler currently in operation has reached its highest burning level at full capacity and additional energy is required.

The hot process water is generated in similar fashion. Before this solution was implemented for generating heat, production consumed approximately 150,000 liters of heating oil annually. By utilizing the new power station and the energy management system, current annual heating oil consumption has dropped to 85,000 liters resulting in a substantial savings of nearly 45%. At the same time, the system actively contributes to protecting the environment by saving fossil resources along with significantly reducing CO_2 emissions.
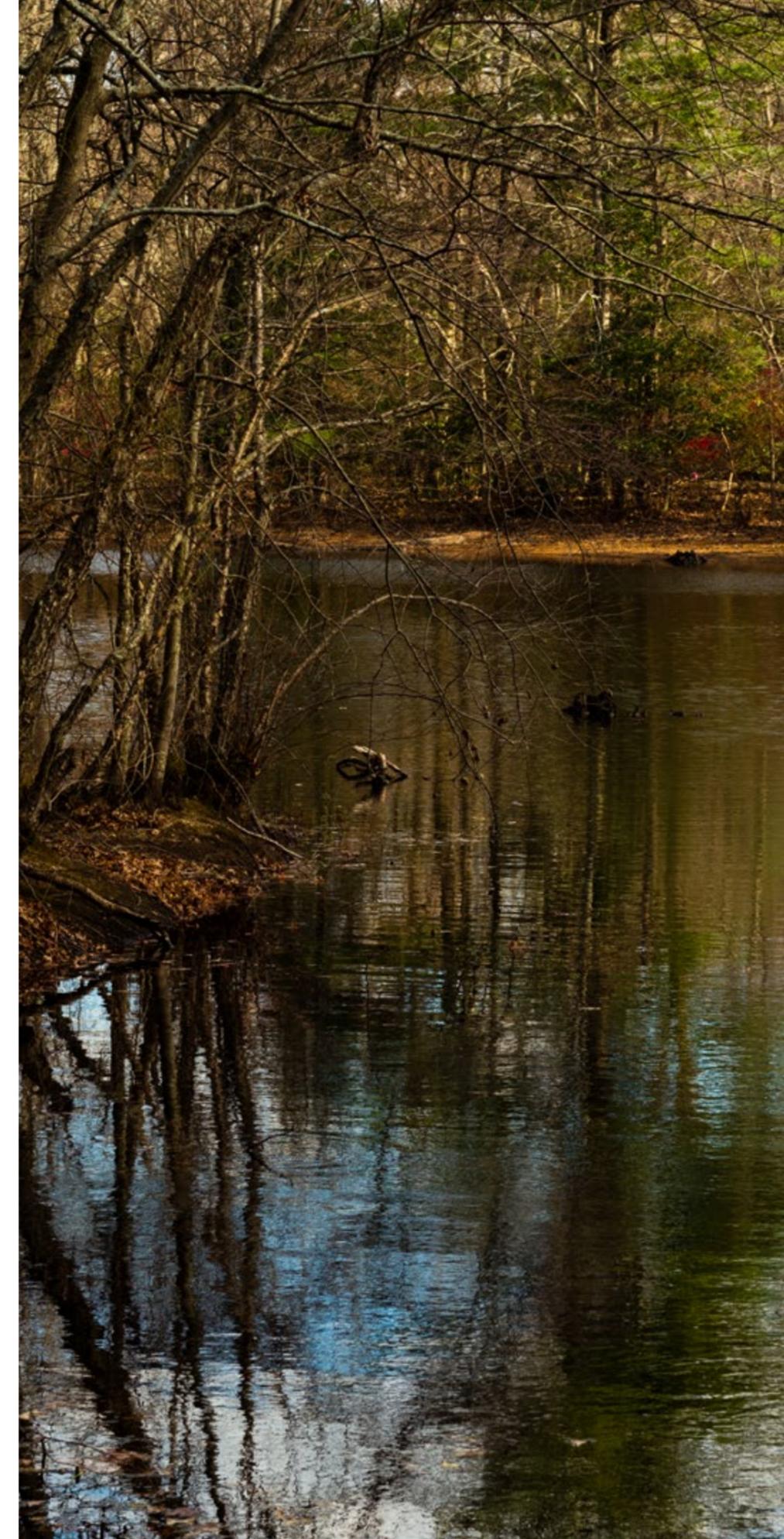
Centralized data management facilitates work and helps prevent errors

GE Digital's Historian server is a robust and effective storage system for the accumulated system data and constitutes the heart of the process visualization at the production company based in Emmental, Switzerland.

If required, vast quantities of historical or real-time data and operating information can be quickly and easily recorded, archived and distributed.

The advantages are displayed in the following example: the reports (logs) on the individual manufactured production units (batches) are saved on the server as PDF files. All process parameters are also saved directly in the Historian server at the same time. Up until now, after a batch was concluded, the corresponding report was printed and a hard copy was saved. For a customer inquiry, the laboratory had to determine whether an error occurred in production using the printout. By centrally storing the information on a data server, the printout is no longer necessary and the laboratory personnel also have access to the complete data directly from their PC workplace.

At the same time, Siegenthaler has constant access to the historical and current process data from his office workplace during working hours and can monitor current processes or make future decisions based on the historical data.

The energy management system helps save costs: only the heat that is absolutely required is generated for production and both the power and temperature requirements for the building heating are subjected to an ingenious energy management system.

Redundancy lowers risk

Another project is currently being implemented at Blaser Swisslube AG at the MA51/52 cooling lubricant production plant, which is the heart of production and is virtually in constant operation.

"A plant outage here would come at a high cost to the company and cause supply shortages. Therefore, we are planning to integrate a CIMPLICITY/Historian redundancy solution that will drastically increase the security in this respect," said Siegenthaler.

The formula handling will also be modified in conjunction with this project. Up until now, the formulas for the mixing system were saved at decentralized locations. In the future, the formulas will be managed in the central server and opened, processed and resaved using the same server. The formulas will be opened on the mixing system from the same server and loaded into the PLC.

Since the data had been saved and processed at different locations, there was a risk that all file versions were not identical and an incorrect formula could have accidentally been used. The central data storage creates more security in this respect as well.

Siegenthaler sees no major concerns in the pending upgrading tasks. Konrad Bussmann from the B+I Automation AG, who has installed and upgraded numerous systems with GE's products confirmed, "Thanks to the open architecture, client/server setup and the modularity of the product range, upgrading individual components can be done without any problems.

Thanks to the GE Digital software, production data can be called up, analyzed and visualized using a single integrated tool.

About GE

GE (NYSE: GE) is the world's Digital Industrial Company, transforming industry with software-defined machines and solutions that are connected, responsive and predictive. GE is organized around a global exchange of knowledge, the "GE Store," through which each business shares and accesses the same technology, markets, structure and intellect. Each invention further fuels innovation and application across our industrial sectors. With people, services, technology and scale, GE delivers better outcomes for customers by speaking the language of industry.

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