



**SIEMENS**

## Siemens SIMATIC® PCS 7

BRAUMAT Compact Craft Brewing Libraries takes Tallgrass Brewery to the next level

### Case Study

*“What do you want to do for the rest of your life?” When Jeff Gill’s wife, Tricia, asked him that pivotal question on April 8, 2006, he had a ready answer. “I want to start a microbrewery!” Gill, a geologist at the time, had been home-brewing his own beer since 2000 and loved his hobby. Brewing had become his passion, and he was ready to turn it into his business.*

*For the next year, while keeping his geology job, Gill acquired the knowledge and experience to run a brewery. In 2007, Jeff, with the support of a group of investors, opened Tallgrass Brewing Company in Manhattan, Kansas, a small college town located in the Flint Hills on the banks of the Kansas River.*

#### Manual process limits Tallgrass growth

“We couldn’t keep up with the demand for our beer,” said Gill, who leads Tallgrass Brewing as the company’s founder and CEO. The company’s 8-Bit Pale Ale and Buffalo Sweat Oatmeal Cream Stout are the two bestselling brands and added to the growing popularity of the brand, but the brewery’s manual production process made it impossible to scale up the operation and also contributed to subtle batch-to-batch inconsistencies that Gill wanted to eliminate.

“Brewing is like playing a musical instrument,” said Gill. “The instrument has to be in tune to play the melody correctly.”

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"I knew the larger breweries relied on Siemens automation," said Gill. "Knowing that gave me more confidence in my decision."

Gill began looking for additional business partners so he could improve the brewing operation. New investors would allow him to expand and automate his production process. Making these connections eventually led him to Custom Metalcraft, Inc. With manufacturing facilities in Springfield and Mountain View, MO, Custom Metalcraft is one of the world's most experienced manufacturers of stainless steel and exotic-alloy processing equipment, transportable storage units, and complex handling systems for a wide range of industries. The company consists of a diverse and talented staff with the technical expertise, innovative engineering and manufacturing resources to deliver complete customer specific solutions. Its focus on quality and innovative product design has made it a preferred provider for a new generation of brewers, vintners, and distillers.

#### **Custom Metalcraft recommends Siemens BRAUMAT**

A significant portion of Custom Metalcraft's recent success is the result of new orders from small producers such as Tallgrass Brewery Co. "That part of the market is on fire," said process system engineer Ralf Hoffmann, Custom Metalcraft. "The demand for craft beer is high, which is why many small producers need a partner who can help them grow."

Employees at craft-scale breweries, wineries, and distillers typically wear multiple hats. Custom Metalcraft has responded by carefully engineering its products to be extremely flexible, durable, portable, and easy-to-clean. Those qualities, in combination with automation allow the brewery to produce greater amounts with higher efficiency and consistency.

For Gill, getting bigger meant increasing the capacity of his 15-barrel operation. "Jeff approached us to build a 50-barrel, four-vessel brew house," said Hoffmann. "He wanted to work with someone who is well-known in the industry and who has established programs and support."

Gill's goal was to create a fully automated brewing operation that was intuitive and flexible enough to support a growing business. "After a lot of phone calls and a couple of meetings, everyone agreed that Siemens offered the perfect fit for this size business," said Timothy Van Rhein, a design engineer for Custom Metalcraft.

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Specifically, Hoffmann and Van Rhein recommended the Siemens SIMATIC® PCS 7 with BRAUMAT Compact craft brewing libraries. This system can control all functions of the brewing process, including grain handling, mashing, and lautering cycles. It also supports filtration, carbonation, and cleaning-in-place. Its brewing libraries enable operators to create, customize, and save brewing formulas, an advantage that helps to ensure consistent results across batches.

"An operator can easily enter new recipes for different styles of beers," said Hoffmann. "But the whole idea behind automation is repeatability. You want to have a consistent flavor in your beers."



**SIMATIC® PCS 7 with BRAUMAT Compact Craft Brewing Libraries produces immediate results for Tallgrass**

Gill's young team of brewers took to the SIMATIC® PCS 7 with BRAUMAT Compact system immediately. "They are all very comfortable with technology, so their learning curve with the process control was minimal. They had everything up and running, making beer, within a few days."

With SIMATIC® PCS 7 with BRAUMAT Compact craft brewing libraries, the brewers can watch and track all the processes in real-time. The system collects production data automatically into a SQL database. The data is easily exported to Microsoft® Excel and analytics programs.

"SIMATIC® PCS 7 with BRAUMAT Compact craft brewing libraries was the key to streamlining production," said Ed Montgomery, food and beverage industry manager for brewing, Siemens Industry, Inc. "Our system gives Tallgrass Brewing speed and consistency regardless of who is running the shift."

Custom Metalcraft provided all the ancillary components for the new brewing operation along with commissioning and training support for the new system. While there is always some troubleshooting with a new brewery, Van Rhein said Siemens provided excellent support during each step in the process.

"We are now able to make two times as much beer," said Gill. "I think Tallgrass Brewing will produce 30,000 barrels this year, but we have the capacity to make up to 90,000 barrels." Tallgrass beers are now sold in 14 states across the upper

Midwest of the United States and parts of the South. The company is also the largest brewery in Kansas. Gill expects to recoup his investment for the new brewery and process control system in just 18 months.

"Small brewers think they can't afford automation," said Montgomery. "Custom Metalcraft and Siemens are showing these businesses they really can't afford not to automate in today's market."

**Business need**

Tallgrass Brewing's award-winning beers were in demand. But its manual production process could not meet demand or ensure a consistent product.

**Unique challenges**

Making different styles of beer is an involved process. Tallgrass Brewing's new facility needed an automated and flexible solution that would allow it to make more beer with consistent results across batches.

**Solution and benefits**

Custom Metalcraft implemented the Siemens BRAUMAT Compact package with the SIMATIC PCS 7 process control system. Tallgrass Brewing now has a precise way to brew customized beer formulas. The company expects to recoup its entire investment within 18 months.

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