

PENTAIR BREWING SOLUTIONS

SUMMIT BREWING COMPANY

CASE STUDY

KEY FACTS

CUSTOMER

Summit Brewing Company

St. Paul, Minnesota USA
Regional Craft Brewer
135,000 US Barrels / year - 2014

Founded in 1986 by Mark Stutrud, Summit Brewing Company has stayed close to its roots, serving the Upper Midwest and Great Lakes region of the United States. Summit produces 12 varieties of premium craft beer, including year-round, seasonal and limited release beers.



PENTAIR SOLUTIONS @ SUMMIT

HAFFMANS

- CO₂/O₂ Gehaltemeter, c-DGM
- (5) O₂ Gehaltemeters, OGM
- Inpack TPO/CO₂ Meter, c-TPO
- Membrane Deaeration System
- Carbo Controller

SÜDMO

- DSV Complete Mix Proof Valves and Valve Manifolds
- IntelliTop 2.0 Control Units
- Mix Proof Butterfly Valves
- Butterfly Valves

SUMMIT BREWING COMPANY - A MORE MEANINGFUL BREW

Summit Brewing constantly faces the challenge of balancing growth, sustainability and quality while brewing the best beer possible. The brewery's experienced and dedicated team provides the foundation for the brewery's success. In 2009, Summit began a partnership with Pentair when Summit purchased its first Haffmans quality control instrument.

"When we purchased the DGM [a carbon dioxide (CO₂) Gehaltemeter], this was our entry into the Haffmans world," said Tom Thomasser, Chief Operating Officer at Summit Brewing. Since then, Summit has come to trust and rely on a wide range of Pentair Brewing Solutions.

Haffmans Quality Control Equipment

Summit upgraded from the DGM to the CO₂/O₂ Gehaltemeter, type c-DGM, that provides CO₂ and optical oxygen (O₂) measurements that replaces older O₂ measuring technology. According to Paul Sadosky, Summit's QA/QC Manager, the c-DGM is easier for operators to use, requires less maintenance than other dissolved oxygen (DO) instruments as it doesn't need frequent calibration, has better measurement accuracy than other technology, and saves labor by having both CO₂ and O₂ in one instrument.

To extend Haffmans' quality control technology throughout the brewery, Summit installed in-line O₂ Gehaltemeters, type OGM on the wort, keg filling, bottling, and water lines. By measuring O₂ "in place" Summit has immediate insight to the processes, which allows operators to more quickly spot problems and provides better process control. As a safety feature, thresholds are set and the process is stopped if parameters exceed the desired O₂ levels.

Summit's most recent quality control addition is the Inpack TPO/CO₂ Meter, type c-TPO that provides differentiated measurement of headspace oxygen (HSO) and DO for immediate insight into the performance of the filling operation. The most significant benefits Summit receives from the c-TPO are extending the beer's shelf life and flavor stability.



"The beauty of the Haffmans c-TPO is separate measurement of HSO from DO," Sadosky said. "This provides data that we couldn't get any other way. The c-TPO has allowed us to optimize our filling process to an extent that we couldn't have without it."

Haffmans Compact Units

When Summit converted its filtration system from sheet filters to a centrifuge the change created the need for deaerated water, as any O₂ in the water could contaminate the beer and effect its shelf life and taste. Using hollow fiber membranes and low pressure, the Haffmans Membrane Deaeration System (MDS) achieves a very low residual DO content in the deaerated water. Because there is virtually no O₂ in the water processed through the MDS, deaerated water is also used as a seal in pipes to protect O₂ from crossing barriers and to push out the filtration lines.

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"Deaerated water equals quality in the brewing process," said Eric Harper, a Summit brewer.

Just as the deaerated water from the MDS equals quality, Summit's most recent addition from Haffmans, a **Carbo Controller (CCR)**, equals consistency.

Summit naturally carbonates its beer, but at times needs to add CO₂ at the bright beer tank. Originally, a carbonating stone was used and while this process worked, it had limitations.



Haffmans' CCR allows Summit to supplement natural carbonation while processing. This saves time and preserves the desirable characteristics of the beer.

Pentair Südmo Process Automation

As part of a \$6 million expansion that was completed in June 2013, Summit added 7,632 square feet of cellar space with twelve 600-barrel fermentation vessels that doubled production capacity to 240,000 barrels per year.

As part of this project, Summit installed **Südmo's DSV Complete Mix Proof Valves** to automate the new cellar. As Summit still operates its original cellar, which uses manual hose connections, the improvements provided by Südmo's valve technology is very apparent to Summit's brewers.

"The valves are great for labor saving," said Harper. "To switch tanks in the new cellar we do not have to drag 100 foot long hoses that are full of beer and very heavy, like we do in the original cellar. The automation allows one person to do more work."

In addition to saving labor, the valve automation also provides a safer work environment due to the integrated CIP system, which eliminates the need for employees to move chemicals around. Also, in the new cellar the tank tops are hard piped to vent the CO₂ out of the building. This removes the issue of potential CO₂ build-up in the cellar room.

"I am very impressed with the valve system," said Damian McConn Summit's Head Brewer. "It is a very reliable, robust system that provides consistency, flexibility and functionality."



Thomasser, pictured above, adds, "To date, Summit Brewing has not had any issues with the valves or control technology. They work perfectly."



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