Saugatuck beers are mixed and brewed using classic recipes from around the world with some modern inspiration. "We brew various types of beer in the classic styles, but we are now increasingly developing new recipes," explains Ron Conklin, Brewmaster at Saugatuck Brewing. "While we still had a production capacity of around 500 barrels (approx. 60,000 liters) in 2009, we hit over 2,000 barrels (approx. 240,000 liters) in 2011. Our goal is to more than double our beer production again in 2012," explains Ric Gillette, CEO of Saugatuck Brewing. "We can only achieve that with state-of-the-art production technology and control solutions."

Now the PC- and EtherCAT-based control platform from Beckhoff ensures an ideal, constant carbonation level. A compact CP6607 Industrial Panel PC with the TwinCAT automation software platform and EtherCAT communication system functions as an integrated controller and HMI. The pressure is now controlled fully automatically on the 5.7-inch touch screen; the brewery staff need only set the appropriate parameters. "This has made the system much more efficient and throughput is greater than ever because we can intelligently pulse CO₂ for better carbonation," says Ron Conklin, praising the benefits.

The Beckhoff control platform also controls the glycol valves, which are installed in the bright tanks for temperature control. The tanks can be set individually with different temperature, CO₂ quantity and pressure. Bottling previously entailed much back and forth in an effort to maintain the correct pressure level in the tank; now the tank is adjusted once and maintains the pressure with an accuracy of 0.0069 bar (1/10 psi).

The I/O signals are integrated via the Beckhoff EtherCAT Terminals and the EK1100 EtherCAT Coupler. Outside the control cabinet, Saugatuck also utilizes sturdy EtherCAT Box modules with IP 67 protection for connection to valves and sensors. They are ideal for use in the brewery environment as they resist the excessive moisture levels and airborne particles from the brewing process.

"The openness of TwinCAT and EtherCAT has proven to be very beneficial," explains Jason Conklin, Application Engineer from Beckhoff Automation USA: "It only took three months to install the new PC-based carbonation system and
integrate five bright tanks. If Saugatuck Brewing continues to grow at this rate and adds tanks, the main job is to simply add I/O to the system. With TwinCAT software it’s simple to link the I/O and expand the system to quickly incorporate more tanks.

Cracking open new markets

Moving beyond the fermentation and carbonation tanks, future plans for Saugatuck Brewing include the option for Beckhoff controllers on the expanded bottling lines and automated barrel washers. “When I give tours of the brewery I explain to our guests that small breweries like Saugatuck typically don’t have such automation systems,” explains Ric Gillette. “However, that is precisely what gives a microbrewery like ours a competitive advantage.”

Further Information:
www.saugatuckbrewing.com
www.beckhoffautomation.com

Saugatuck Brewing programmed its HMI using TwinCAT PLC software. In addition, the pressure is now controlled fully automatically. Brewmaster Ron Conklin need only set the appropriate parameters on the touch screen display.