SIEMENS

Background information

Nuremberg, April 6, 2016

500 years of the German Purity Law

Siemens: supporting the brewery industry worldwide

Siemens – most people associate the name with power, industry, and shares. Only a minority are aware that the technology giant also has a connection with beer and has cultivated long-term links to the brewery industry. A high proportion of brewers rely on technology from Siemens to prevent any disruptions to production and keep the golden liquid flowing freely.

Siemens' involvement with beer started around the end of the 19th century, when the brewery F. Oettler in Weißenfels an der Saale was one of the first beer producers to install a pioneering new system comprising distributed electric motors, marking the beginning of a period of headlong technological development. Another interesting but little known fact: beer was the first freight to be transported on Germany's first railway track from Nuremberg to Fürth in 1836. In 1901, the company went on to complete the electrification of a brew house in Nuremberg. While initially Siemens' involvement was restricted to individual components such as electric motors, the technology which energized the production of beer quickly evolved into far more sophisticated solutions.

From the simple motor to the complex process control system

Siemens automation solutions based on electronic controls have been in existence since the beginning of the 1970s. From 1973 onwards, ever more complex Siemens controls were used for automation of the production process, starting with the Simatic Industry Controller. 1997 saw the launch of a new process control system "Braumat" – combining the German word "Brau" for brewery with "automation" – which was registered as a protected trademark. The first control-based automation system for brewers and brewing recipes went on to conquer the market. The new system was initially developed by Siemens in Nuremberg and Munich, then from 1985 onwards in Würzburg.

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Braumat is a software package whose modules run under a shared user interface. A single process control system is able to simultaneously manage several areas such as the brew house, cellar, filtration and power supply, visualizing all processes used to manufacture beer on a single modern graphic user interface. This allows brewers to keep a watchful eye on valves, pumps, measured values or controllers, and conveniently carry out any necessary control processes. Faults can be quickly localized and remedied. The technology also works on a recipe-controlled basis. This leaves the responsible brewing engineers with more time to exercise their creativity with new, individually crafted recipe ideas. This is a vital factor, not only for small-scale breweries but for every scale of brewing operation. After all, there is more to hops and malt than just Pils and wheat beer. An ever growing array of flavored beers is hitting the supermarket shelves with exotic-sounding choices ranging from chocolate to citrus, from lychee to peppermint – crazy but highly popular. Although beer mixes cannot be labeled “beer” in Germany due to Bavaria’s strict beer purity legislation which protects the labeling of the golden brew, inventive producers are evading the restrictions by using legally acceptable alternative names. A mix with a coffee additive, for instance, has been dubbed “top-fermented coffee specialty” by one imaginative brewer. The capacity to develop individual recipes and the controlled dispensing of ingredients are areas in which the high-tech brewery comes into its own. This flexibility is also required for production of the craft beers which are currently enjoying such a wave of popularity. These beers need to be produced in small quantities by independent brewery companies using traditional methods – naturally all in strict compliance with hygiene and other regulations.

500 years of the German Purity Law – more than just a traditional tale

The drink consumed by our forebears over 500 years ago had little to do with what we now call “beer”. Apart from cereal, a whole range of ingredients such as beans, peas and other starchy grains which could be processed into malt were added. To prevent the brew turning sour or to mask any sourness, brewers resorted to all kinds of extraneous substances such as eggs, ham, tar, ox gall, horse-heal, soot or chalk. Brewers cultivated their own patent recipes to make the beer “drinkable” – which was reflected in the way most beer tasted. It was on Georgi Day on April 23, 1516 that the Bavarian co-rulers Duke Wilhelm IV and Ludwig X issued a decree in Ingolstadt to the effect that “from henceforth in all cities, markets and in the country, the only ingredients used for the brewing of beer must be barley, hops and water”.

With this edict, the world's oldest food law came into effect, and has remained in force to this day.

The German Purity Law is known throughout the world and is seen as a guarantee of the quality of German beer. Around 500 years ago, land owners were most urgently concerned to protect wheat and rye as cereals for the production of bread and to prevent starvation. Another concern was to protect the population from intoxicating and dangerous ingredients such as henbane or opium poppies. In the modern age, the stipulations of the purity law protect consumers and help brewers. With this aim in mind, the developments of the digital age and the ancient Purity Law work together in the interests of creating lasting value and ensuring premium quality. Automation safeguards process quality. Although it cannot guarantee that brewers adhere to the strict purity legislation, it can ensure that processes run correctly and provide verification of compliance. Modern technology helps to support the concrete implementation of this ancient law in line with the German saying: Mix water with malt and hops to make a few nobler drops!

This background information and further material are available at www.siemens.com/press/500-years-reinheitsgebot

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