



New brewing site for traditional Gaffel Kölsch beer **Production extension with Bosch steam boiler** Steam consumption reduced by 50 per cent

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For the extension of its production, the privately owned brewery Gaffel Becker & Co. OHG decided to implement a new steam boiler plant from Bosch. The production capacities at the Eigelstein location in the centre of Cologne were too small for satisfying the production demands. Up to four million litres are produced every month, trend increasing. The portfolio ranging from the traditional Gaffel Kölsch beer up to liqueurs and refreshing soft drinks. The new brewing site in the South-Eastern part of town, Porz-Gremberghoven, is a better location in terms of logistics, but also provides more effective production conditions. The new process heat supply also contributes to this: With the more efficient Bosch boiler system and the improved brewing equipment, the steam consumption could be reduced by 50 per cent. Intelligent data recording and analysis keeping energy costs constantly low. In addition, the brewery can profit from an evenly high steam quality and efficiency at all load ranges. The installation of the entire steam boiler plant was done by the engineering company Dankl Dampfsysteme.

The selected Bosch boiler type UL-S can provide up to 8 000 kg steam per hour for the high process heat requirements in the brewery. And there are also further energy consumers, such as CIP plants for cleaning and the dealcoholisation plant. The industrial boiler is designed for the sudden load changes of the steam consumers, typical for a brewery. Due to the large control ratio of 1:10 of the natural gas burner, the plant operates flexibly and efficiently at every operating point, even low loads are covered efficiently. Another advantage is the speed controlled burner fan. Electricity savings are the result for the brewery, thanks to a reduction of the fan speed depending on the current burner output.

High efficiency is a very important aspect in the energy-intensive brewing process. With the integrated flue gas heat exchanger of the boiler, the steam demand for heating the feed water and thus the fuel consumption during steam generation are reduced. The boiler efficiency is around 96 per cent. In order to keep emissions low, the natural gas burner has an internal flue gas recirculation. Part of the flue

gas is returned from the combustion chamber to the burner mixing device. This lowers peak temperatures in the flame and thus considerably reduces the thermal formation of nitrogen oxide – a contribution to the environment. In addition, the integrated oxygen probe enables evenly high burner efficiency and reduced fuel consumption.

The high degree of automation of the steam boiler plant offers optimum user comfort and allows intelligent data analysis. The SPS based boiler control BCO records and saves all important operating data, such as for example the amount of burner starts, cold starts or desalting values. With the software Condition Monitoring, this data can be displayed and evaluated efficiently. Consequently, the operating personnel at the Gaffel brewery and the responsible Bosch service technician can react immediately, e.g. in case of high energy losses during desalting. Also the feed water deaeration and chemical dosing are completely automated and designed to demand.

In summary, the Gaffel brewery profits from a dynamic steam supply, that is entirely energy-efficient and customer-specific configured. But not only in the technical range, also in design, Bosch shows flexibility. Instead of the common red/grey combination, the boiler is designed in the Gaffel corporate colour dark blue. The control cabinets are in stainless steel, just as required by the customer.



Since 1908, the brewery produces the traditional Gaffel Kölsch. Kölsch is a kind of beer with a protected geographical designation of origin. Only breweries in Cologne and of the Cologne brewery association may produce the beer speciality.



Brewing beer is an energy-intensive process. Most of the heat consumption is generated in the brewhouse, mainly for mashing and cooking. Modern energy supply plants help to reduce operating costs and emissions.



Bosch steam boiler UL-S for continuously high steam quality and constant efficiency – even at large load fluctuations.



High data transparency is the precondition for constantly low energy consumption.

Press contact:

Annemarie Wittmann

Tel. +49 9831 56 218

annemarie.wittmann@de.bosch.com

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