

CASE STUDY

CROWN BEERS INDIA LTD - "HIGH-GRAVITY" INCREASES CAPACITY AND FLEXIBILITY WITH COMPARATIVELY LOW INVESTMENT COSTS

High original wort - membrane deaeration - blending - carbonating - function-tested "plug-and-play" module

In a Nutshell:

Crown Beers India Ltd. is a joint venture between Anheuser Busch International Inc. and Crown Beers India. For many years, the brewery concentrated on the state of Andhra Pradesh as its core market. When the opportunity presented itself to expand into the high-growth regions of Maharashtra, Karnataka and Goa, this opportunity should of course be used consistently. For this purpose, however, the brewing capacity had to be adjusted accordingly. The target was to increase the annual capacity from 200,000 hl to 500,000 hl. However, this capacity expansion should not take place with the help of cost-intensive and time-intensive new constructions and plant expansions. Rather, an alternative was sought which would allow an equivalent capacity expansion with comparatively low investment and time expenditure. Crown Beers India found what it was looking for in Pentair's "High Gravity Brewing" concept (HGB).

Stronger extracts mean more beer to sell and greater flexibility

With this high-gravity process, the capacity of a brewery can be significantly increased without having to invest in the brewhouse, tank or filter capacity. The idea behind this is to obtain an extract-rich wort, then ferment it and dilute it to the desired original wort before bottling. The central process steps are: Water deaeration, mixing the "mother beer" with deaerated water and finally carbonating the finished beer to the desired CO₂ content. In addition, further components such as hops or colours can be added during mixing. Thus, with the HGB line, almost all types of beer, from simple light beer to dark bock beer, can be produced fully automatically. This means a great plus in flexibility for the user.

Residual oxygen contents less than 10 ppb

A membrane water deaeration system type MDS was delivered and implemented to Crown Beers India. These plants are characterised by very low residual oxygen contents of less than 10 ppb and low operating costs. In addition, the water is sterilized fully automatically in this process step and cooled to the desired blending temperature. At the request of Crown Beers India, an inline oxygen measurement type OGM was installed to monitor the residual oxygen contents.

The actual mixing of the desired target product is carried out by a blending and carbonization unit type Carbo Blender CBR. Since the alcohol tax in the state of Andhra Pradesh depends on the alcohol content of the final product, mixing in this case is controlled by measuring the beer-to-water ratio.

After blending, a fully automatic Carbo Controller CCR adjusts the preset CO₂ content inline. The inline CO₂ measuring system type AGM integrated in the system determines the carbon dioxide content at the end of the solution line and controls the CO₂ injection into the liquid phase on the basis of the measurement results. The measured values are also transferred to the higher-level quality management system. The CO₂ is then distributed in fine bubbles with the help of static mixers and one hundred percent of it is dissolved. The installed number of static mixers was specially designed for the beer types to be produced and the process requirements for them.



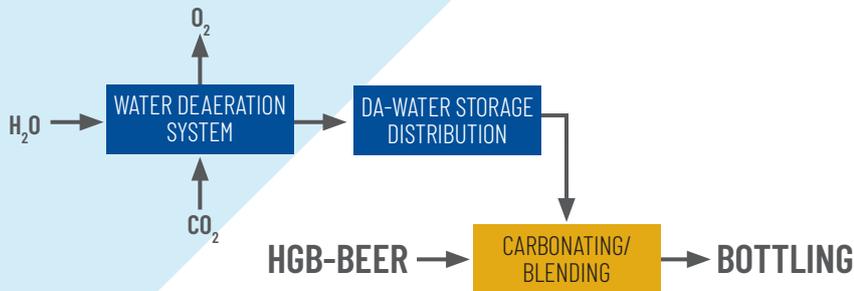
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All process steps combined as a "HGB unit"

All necessary process steps such as deaerating, mixing and carbonating, including the control unit, lines and cabling, were combined on a common frame to form a so-called "HGB unit". The advantages of this "plug and play" module are its smaller footprint and lower investment and operating costs. As a function-tested unit, the HGB unit was also very quickly integrated into the brewing process of Crown Beers India and put into operation.



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