



Customized optimization for increased capacity

ALDOX™ HGB system at Dalian Daxue Brewery Co., China

Case story



After evaluating different solutions to increase capacity, Dalian Daxue Brewery decided to upgrade and optimize the Alfa Laval ALDOX™ High Gravity Beer (HGB) process module. Alfa Laval was able to offer expertise and service to provide a customized solution enabling the brewery to optimize their performance and ensure continued process operations.

Dalian Daxue Brewery Co. is a major Chinese brewing company with an annual brewing capacity of 280,000 hectolitres (Hl). Daxue Brewery was founded in 2001 and is located in the city of Dalian in the Liaoning province in northeast China. At start-up, Daxue Brewery turned to Alfa Laval for equipment such as

an ALDOX™ HGB system and beer sterile filtration.

The ALDOX™ HGB system is a process module for production of deaerated high-quality water used for controlled blending of HGB into a main product stream, with subsequent carbonation. With the HGB method, beer is brewed at a higher concentration and diluted later on in the process with the addition of deaerated water. This process has several advantages that lead to huge savings and more efficient operations. The brewery is able to generate more output from a smaller-sized brew house with fewer fermentation tanks.

After seven years of trouble-free operation, Daxue Brewery wanted to

increase their beer production. To meet the new volumes they needed to enlarge the capacity of the ALDOX™ HGB system and optimize the system to meet the capacity needed during peak production.

HGB optimization and upgrade

Being very cost-sensitive, Daxue Brewery decided at first to use another deaeration system from a local supplier to complement their existing Alfa Laval ALDOX™ HGB. However, the operation and production managers were not satisfied with the new equipment, as the requirements for peak operation could not be met. At this point, the management of Daxue Brewery wanted to replace the Alfa Laval ALDOX™ HGB with a locally produced larger capacity unit.

During a routine service visit, the Alfa Laval team were informed of the operational problems limiting the capacity of the brewery. Alfa Laval then promoted the possibility to upgrade and optimize the existing ALDOX™ System. Alfa Laval developed a customized solution to meet the new operational specifications required, and after some consideration Daxue Brewery chose to go with the Alfa Laval value added service solution.

Implementation secured increased capacity

With the help of Alfa Laval, Daxue Brewery was able to redesign and upgrade their ALDOX™ system, and ensure increased capacity and optimized performance. When the upgrading plan had been implemented, the renewed HGB system reached

Benefits of HGB optimization and upgrading:

- Higher capacity without new equipment
- Complete support with customized solutions
- Compatibility and safety
- Peace-of-mind in operation processes

the designed capacity (20m /hr., DO<20ppb) and easily met the requirements of the peak month.

Daxue Brewery was very satisfied with the expertise and support provided by Alfa Laval, giving results not equalled by competing solutions. Daxue Brewery found it more secure and cost-efficient in the long term to only use deaeration systems from Alfa Laval.

By listening and understanding the problem, Alfa Laval managed to find a solution, which enabled Daxue Brewery to develop their process and increase their capacity. Alfa Laval was proactive and created a custom solution to match the specific needs of Daxue Brewery.

ALDOX original design:

1. Pasteurization temperature 81-83°C.
2. System capacity 13m /hr.

Customer's new requirements:

1. Higher pasteurization temperature; 85-90°C.
2. Increased system capacity 20m /hr.
3. Increased blending system capacity to handle the higher deaerated water feed rate.

Upgrading plan:

1. Redesign to enable an increase of the water flow rate and pasteurization temperature by extending the plate heat exchanger (PHE) capacity, adding 34 channel plates and replacing the PHE gaskets.
2. Redesign to increase the blending water flow rate to 20m for the blending flow rate to reach 60m /hr. by replacing the old mixer HP MIXER-101 L (280-500HL/hr.) with HP MIXER-125 L (480-800HL/hr.).
3. Replace the damaged SPC-2 valve as identified in the audit phase.
4. Installation and start-up to secure that the customer's requirements are met.



About Dalian Daxue Brewery Co.

Dalian Daxue Brewery Co. is the third largest beer brewery in the Liaoning Province in northeast China. They have an annual brewing capacity of 280,000 HI. Daxue Brewery is highly reputed in the Liaoning Province, the fourth

largest beer market in China. The brewery produces and sells beers of the brands Daxue, Xiaobang and Dabang. The sales volume of Daxue Beer in 2010 was 198,000 HI, which amounts to 8% of the total sales in the province.

Dalian Daxue Brewery Co. operates as a fully owned subsidiary of Belgium-based brewer Anheuser-Busch InBev. Anheuser-Busch InBev is one of the world's largest brewer corporations.

How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com