Diageo uses consistent ProLeiT technology to modernize its Great Northern Brewery

Guinness migrates its Dundalk brewery to brewmaxx

Great Northern Brewery, the most traditional Guinness brewery in the Irish town of Dundalk, is now operated by a brewmaxx process control system designed by ProLeiT. Diageo, the owner of the brewery, has clearly defined the goals:

- Ensuring the reliable, stable operation of the entire brewery from the brewhouse up to the Kegging plant,
- reducing production costs and
- Increasing the productivity.

The migration to brewmaxx was implemented in two project phases which clearly differentiate in regard to the approach and project management concept applied. The result has convinced Diageo. John Walsh, Project Manager in Dundalk, expressed his pleasure: „The brewmaxx system has proven to be the best solution for the Great Northern Brewery."

Diageo plc has built up an excellent reputation and managed to become the largest producer of spirituous beverages. The merger of Grand Metropolitan and Guinness resulted in the creation of an international beverage producing group with over 24,000 employees. Diageo produces at the Great Northern Brewery in Dundalk Ireland's second largest brewery, which is famous for the traditional Guinness specialties producing Lagers and Ales for both the international and local markets.

Diageo was aware that the reliability of the traditional brewery was put at risk by the old automation systems for which no spare parts were available. In many breweries, a failure of the legacy control technology can result in excessive input to reactive troubleshooting and a high risk of production shutdowns. These were major reasons for Diageo to modernize its obsolete automation system. At the same time, the company objective was to replace the isolated control solutions used in different areas of the brewery with a consistent process control system.

Diageo awarded ProLeiT a contract for the modernization of its Dundalk brewery with the future-oriented brewmaxx process control system. Based on this investment, the brewery is now well prepared to meet production requirements.

Project phase 1 still required extensive detailed specifications

The first phase of the modernization project included all brewery areas from the brewhouse onwards. During this phase, the company first converted to brewmaxx the fermenting and storage cellars, then the bulk tanker filling station and finally the filter cellar. The modernization also included a comprehensive tank farm with numerous pipes and valve nodes, the yeast filtration plant, two filtering lines, a program module for pasteurization control and the bulk tanker filling station.

Due to incomplete detailed descriptions of the already existing control technology, Diageo insisted on a complete inventory and precise detailed specifications. Each operating step had to be documented in detail in order to ensure that the plant operator recieves precisely the solution desired.

The first project phase therefore required high preparation and documentation expenditure. The profound knowledge of the brewing process provided by the ProLeiT automation specialists was a major prerequisite for the creation of such detailed specifications. Since many employees of the Herzogenaurach-based company have special training and degrees in the brewing sector and many of them are graduates from the renowned Weihenstephan Technical University, they not only have sophisticated expertise, but also broad experience in the challenges of brewery automation from the receiving of malt, the brewhouse up to the fermenting cellars and filling stations.

Under the concept of single sourcing, Diageo awarded ProLeiT a contract for the complete refurbishment of its automation system. Approximately 80 % of the process periphery could be retained. The five existing controllers were replaced by three state-of-the-art

INFO

DIAGEO

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Siemens S7 controllers. In addition, the existing fiber optic network required to be extended. ProLeiT was also responsible for the necessary electrical conversions in control cabinets and coordinated all aspects of occupational health and safety measures with the aid of local subcontractors.

In view of the extremely positive experience during Phase 1 of the project implementation, Diageo has again placed full trust in ProLeiT's long-term experience in the field of brewing process automation and agreed to quicker and more efficient project implementation during Phase 2.

Project phase 2 required a broad knowledge basis

Based on ProLeiT's broad expertise, comprehensive and time-consuming detailed specifications are usually not required. With Diageo's agreement, detailed specifications and documentation for the migration of the brewhouse process control system was reduced to a slimmed down and efficient minimum. Due to the positive experience in Project phase 2,

Diageo and ProLeiT product managers were able to coordinate numerous details in advance and focused on a working document which provided the basis for project planning.

All further steps were discussed immediately in the course of the project and customized accordingly. In order to involve the operator in the development of its new-generation process control system and allow Diageo to constantly monitor the project progress, the ProLeiT and Diageo specialists held several discussions to provide one another with the necessary engineering feedback. This approach to tackling such complex projects proved to be highly efficient.

During the installation and commissioning, the brewery‘s delivery capacity could be fully maintained according to plan. The Guinness MES system (Manufacturing Execution System) has also been directly connected to the brewmaxx process control system. For the post-commissioning period and for further process optimizations, Guinness will again rely on the 24-hour service offered by ProLeiT, because this concept provides maximum availability of the brewery.

The implementation of this multi-stage migration to brewmaxx has again proved that the close cooperation between the brewery and ProLeiT as an automation specialist is of primary importance. Smoothly coordinated project management ensures:

- secure brewery operation’s during the modernization process,
- reduced detailed specification and documentation expenditure,
- simplified engineering and commissioning and thus
- contributes to significant cost reduction.

John Walsh, Project Manager at Diageo Global Supply in Dundalk, commented: „ProLeiT was excellently managed. ProLeiT engineers were very cooperative and displayed excellent knowledge of the brewing process. The efficient exchange of ideas resulted in the best solutions possible. The brewmaxx system has proven to be the best solution for the Great Northern Brewery. Diageo Dundalk compliments the ProLeiT team on an excellent result.”

Migration or replacement?

The goal of each refurbishment should be to eliminate isolated solutions and implement a consistent, system-wide automation structure. To do this, however, the following principle questions must be answered: Is it possible to retain the hardware, and the process periphery in particular, and only migrate the software? Or is it necessary to replace the entire control technology?

brewmaxx provides ideal solutions for both scenarios. Existing, but obsolete control systems with a structured software concept can be conveniently migrated to brewmaxx using simple conversion tools. Provided that no technological modifications are required, most of the parameter settings can be transferred to the new solution.

ProLeiT looks back on many years of experience with numerous refurbishment projects. It can offer its customers either full migration or a step-by-step migration solution. The strategy pursued must be chosen in order to best maintain the brewery‘s production availability. In addition, it must be determined whether brewmaxx should be used to combine existing automation systems. Or is it necessary to modify or expand the controllers?

brewmaxx, the open, scaleable process control system for breweries, provides efficient and cost-effective solutions for both the migration and the replacement of existing systems with minimum plant shutdowns or production breaks.