Automatic centralized lubrication for bottling lines in a brewery

More than 3,000 lubrication points across the entire filling system are reliably supplied with lubricant at Erdinger Weißbräu

The private brewery, founded in 1886, now produces around 1.81 million hectoliters of wheat beer annually. It is a leader on the world market with exports to more than 90 countries, and it is the largest family-owned wheat beer brewery in Germany. In order to meet growing demand, management decided to modernize production step-by step and to make processes more flexible. In re-designing the filling system, the managers opted for fully automatic lubrication for the machinery and conveyor systems.

Why fully automatic centralized lubrication?

A manual design was out of the question for Erdinger because of the significant disadvantages it entails: A high time commitment and the risk of over- or underlubrication due to imprecise metering. Inadequate lubrication is associated with increased levels of wear. There is also a risk of simply forgetting some lubricating points, especially those that are difficult to access or located in areas that cannot be entered during production.

Solution: Sectional system with drum pump and booster

Erdinger and the machinery supplier brought in SKF, which had already been a partner in the installation of a two-circuit system in the past, to implement their project. The zoned system now implemented by SKF is equipped with the new EDL1 (Electric Driven Lubricator) systems, which are electrically driven and easy-to-use pressure-booster pumps capable of generating high outlet pressure from low inlet pressure.

View into a section cabinet with EDL1, progressive feeder and stopcock to the main line

The EDL1 by SKF is an innovative metering and pressure-booster pump that increases an inlet pressure of at least 2 bar to an outlet pressure of up to 280 bar

The lubrication system is supplied by a large drum pump that feeds grease to the main line through to the decentralized EDL1 pump installations. These boost the pressure to up to 280 bar, ensuring that the many locations even in distant points are reliably supplied with lubricant.

The control unit built into the EDL1 triggers a lubricating cycle depending on its settings. Three modes are available to the user: In on/off mode, this cycle begins each time the power supply to the EDL1 is turned on. In machine contact mode, the pump independently executes pre-set operating and interval times. And in pulse mode, a sensor detects the number of parts or chain links that pass by. A lubricating cycle starts upon reaching the target value configured in the EDL1.

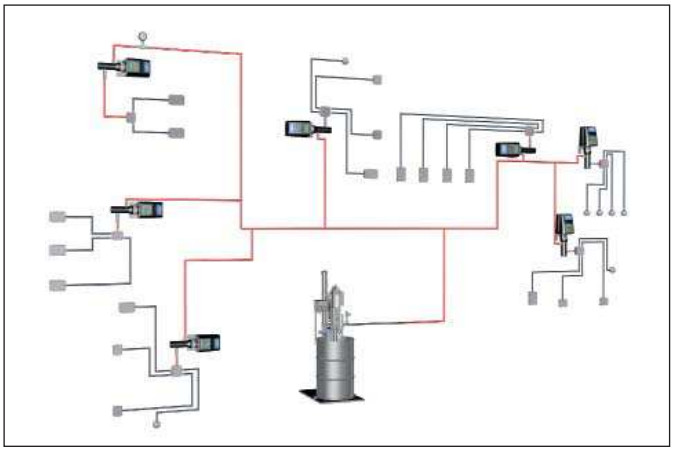
Many benefits

The system by SKF offers several benefits: The EDL1 is economical because existing lines, connecting materials, and supply pumps can be reused Compressed air is not required, and power consumption is low. Also, the EDL1 is practically maintenance-free. The pump has a user-friendly design and is easy to set up. Integrated status monitoring supplies important operational data, enables remote maintenance and reduces the probability of system failure. The system is also cost- and energy-efficient. Due to the low, two-bar inlet pressure, operators are able to use smaller main lines and supply pumps.

SKF equipped Erdinger's entire filling plant with the system to grease machinery and rolling bearings on conveyor belts. A total of more than 3,000 lubrication points in two halls and a connecting tunnel were connected to the zoned system. This system consists of 90 sections (=zones) and three drum pumps that supply the main lines.

The compact, expandable modular LMC 301 control and monitoring unit with LCD display and six function keys for programming, configuring parameters and signaling

The customer is more than satisfied with the performance, as SKF's solution offers access to every location in the filling systems and monitoring of their functionality. The centralized control provides benefits as well. It enables the fast and flexible adjustment of lubricant quantities and times and immediate localization of faults, leading to higher expected system availability together with significantly lower lubricant consumption.



Schematic of a sectional lubrication system with a centralized drum pump and seven EDL1 pressure-booster pumps to supply individual zones

Complete solution also suitable for smaller breweries

Complex control setups are often used in medium-sized to large systems. In order for smaller breweries to gain access to the complete solution as well, SKF developed its own solution: the LMC 301 control unit. This modular control unit can control and monitor up to six EDL1 zones, which can even be expanded to nine EDL1 zones using an add-on module.

The LMC 301 has various operating modes as well. It can count events after which a cycle is executed, or the user can configure a time-based rhythm. Interim lubrications can be entered on the system itself or remotely. SKF offers software for easy configuration of the LMC 301 on a PC. Program enhancements and new features are made available for download free of charge at *www.skf.com/lubrication*.

With the LMC 301, SKF has created a cost-effective solution whose modular nature avoids "over-sizing" of the control unit.

The complex filling system at Erdinger Weißbräu necessitated division of the lubricating system into individual zones

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PUB LS/S6 17526 EN · August 2017