

**LINCOLN**



# Lubrication systems for food and beverage applications

Helping lower maintenance costs and improve productivity



**SKF**

# The latest technology from a name you trust



Today's food and beverage manufacturers are constantly seeking new solutions and advanced technology to maintain freshness, reduce spoilage and maximize their productivity. The industry is moving toward science-based manufacturing requiring more automation. In this changing environment, proper lubrication of high-speed advanced-technology machinery is essential.

Food and beverage industries have some of the toughest environmental conditions in which to maintain machinery. Moisture, extreme heat, extreme cold, product spills and sanitary washdown procedures all adversely affect lubrication processes and can severely reduce bearing life. Bearing failure and the resulting downtime may cause serious problems including lost production, spoilage and increased operating costs.

## The Lincoln advantage

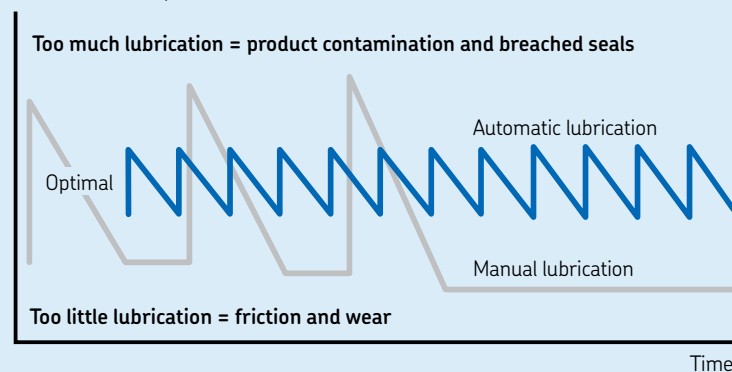
Lincoln has been inventing and improving lubrication practices for the food and beverage, agriculture, construction, mining and automobile industries since 1910. The company has been awarded more U.S. patents than all other lubrication system manufacturers combined.

With so many innovations in lubrication, and a worldwide network of knowledgeable distributors, food and beverage manufacturers trust Lincoln quality and service.

Lincoln designs and manufactures everything you need – from automatic lubrication systems to a full line of manual lubrication tools and equipment.

## Precisely apply small amounts of lubricant frequently

Lubricant volume per lubrication event



## Benefits of automatic lubrication

- Drastically reduce downtime costs for bearing-related failures.
- Reduce lost production and labor costs attributed to manual lubrication.
- Reduce product contamination often caused by over-lubrication.
- Prevent accidents that can occur when manually lubricating.
- Reduce lubricant, housekeeping and energy costs.
- An investment in automatic lubrication will quickly pay for itself.

# It is your choice: three lubrication options



## **Automatic lubrication – feeds all points on a machine while it is operating**

Automatic lubrication systems feature a pump – with controls – that feeds lubricant to the metering devices – which deliver grease or oil in small, precise amounts at regular intervals to vital components while the machine is operating. The optimal time to lubricate the machine is during operation, when all load-bearing surfaces are continuously exposed. In areas using heavy wash-down or chemical sanitation methods, the system controls may be programmed to provide a pre-lubrication function that replaces lost lubricant before startup. You can also choose to have our systems installed with dedicated controls or utilize machine-based programmable logic controllers (PLC) to schedule and monitor lubrication events.



## **Centralized lubrication – feeds a number of components from a single point**

The centralized system extends bearing life, improves safety and reduces maintenance cost. The machine operator uses a grease gun and applies lubricant to a conveniently placed central divider valve that feeds grease directly to every bearing – while the machine is running. It allows the operator to lubricate conveyor bearings in 10 percent of the time required in the point-to-point method. Centralized systems eliminate the need to remove guarding in order to access lubrication fittings and can be used in all areas of food-processing facilities.



## **Manual lubrication – performed point-by-point**

While less popular in the food and beverage industry today, point-by-point lubrication can be effective in applications that are difficult to centralize or automate but may include moving points or single fittings in remote locations. Typically, machinery being manually lubricated is shut down for safety reasons. The initial cost for the equipment can be lower, but it is the most labor-intensive approach. Grease guns are available in manual and air- and battery-operated versions.

### **CAUTION**

For all systems described in this brochure, see important product usage information on the back cover.

# The Lincoln advantage



## **We stand up to washdowns**

Because spoilage and contamination are ever-present problems, caustic washes and acid sprays are used to remove organic particles from machines, bottles and kegs. A steam blast may also be relied on to sterilize your equipment. To endure this necessary but abusive treatment, we build our lubricating system components to resist corrosion. We fabricate many of them from 304 or 316 stainless steel alloy and nickel-plated components.



## **More automatic choices for every application**

From the industry's popular Centro-Matic system to the internationally known Quickclub system, automatic lubrication is Lincoln's continuously evolving answer to production challenges such as escalating costs for maintenance, energy and materials that our customers face every day. Add our two-line systems, modular progressive systems and precise oil spray systems and you will realize that Lincoln offers more automatic solutions than anyone.



## **Specified by top OEMs**

Lincoln's centralized and automatic systems are installed on food and beverage machinery manufactured around the world. Design engineers for top equipment manufacturers know that Lincoln systems work and that our representatives will be there to assist customers with the proper use of the systems once they are delivered and ready to be put into operation.



## **Worldwide experience and support**

We have manufacturing facilities in the United States, China and Europe with Lincoln sales and support personnel in virtually every region of the world. Our international network of systems house distributors in 74 countries is capable of handling the toughest problems with skilled personnel and a commitment to service.

## **Technical know-how**

Lincoln products are designed to meet the stringent demands of the food and beverage industry. Our dedicated national account team works with food and beverage customers to implement customized solutions and coordinates engineering efforts with original equipment manufacturers and consulting engineers to provide systems and new equipment.

# Centro-Matic systems

Centro-Matic systems are extremely popular in the food and beverage industry. They are also extremely reliable as some system installations have been in place for more than 20 years protecting critical processing and packaging equipment. A Centro-Matic system features adjustable injectors that meter a precise volume of lubricant to each bearing. Indicator pins confirm delivery to each lubrication point, and systems can be expanded with additional injectors if you decide to service additional bearings at a later date or add another piece of machinery.

Most systems are pneumatically powered and monitor system pressure to confirm lubricant delivery. We also offer electric and hydraulic-powered systems.

Lincoln Centro-Matic systems dispense either oil or grease within a wide range of temperatures and viscosities.



## Profile: Automatic lubrication success

**Company:** Pickle producer in the southeastern United States

**Application:** Palletizers

**Installation:** Centro-Matic

**Return on investment:** Less than six months

**Previous Method:** With annual production of 60 million jars of pickles, relishes and peppers, the company commissioned its first palletizer on a line without an automatic lubrication system. Approximately 150 points and critical chains on the machine needed regular lubrication. About 30 points could only be lubricated when the palletizer was not operating. Despite a rigorous preventive maintenance schedule, bearings failed frequently. Two sets of drive chains failed, and over-lubricated bearings often dripped onto cases prior to shipment.

**Automatic:** The company now has our system installed on its six palletizers. Because of the increased reliability of the palletizers, the company has gained approximately 444 hours of uptime annually on each one. The stainless steel system components permit washdown after spills or breakage without adverse effects. Based on current average line use and average production, the company realized a gain in annual production capacity of about 800,000 cases. Despite a 200 percent increase in production over three years during peak season, the system has helped keep the number of maintenance personnel the same.





# Quicklub and Modular Lube

Quicklub and Modular Lube systems dispense grease or oil through a divider valve metering device. These systems also meter a precise volume of lubricant to each bearing, incorporating features that provide diagnostic feedback and warnings if a system fault occurs. Most are DC powered (AC also available) and can be controlled by the machine PLC or by a dedicated timer incorporated into the pump.



## Profile: Automatic lubrication success

**Company:** Coca-Cola, Bendorf, Germany

**Application:** Bottler

**Installation:** Quicklub

**Return on investment:** Less than two years

Lincoln was involved from the beginning of this project. As the new equipment arrived, systems were installed. Years of experience with Lincoln systems in other plants in Germany proved the benefits of automatic lubrication. Lincoln engineers designed and installed a unique automatic lubrication system that met the plant's high-tech requirements. According to Lincoln's calculations, Coca-Cola saves \$250,000 per year in maintenance and production costs at Bendorf because of its automatic lubrication system.

The system is a Quicklub progressive system using one pump that is hooked up to more than 3 000 lubrication points. The maximum distance from the location of the pump to the farthest lubrication point is approximately 560 ft. (171 m).

Despite widely dispersed lubrication points and long tube lengths, an exact measured quantity of grease can be delivered to each lubrication point.

The main and stand-by pumps are PowerMaster pneumatic pumps. They are connected to a one cubic meter (1 000 liter (264 gal.)) bulk container. This layout provides an environmentally friendly system which eliminates the cleaning and disposal of empty barrels because only one container needs refilling.



# Orsco systems



ORSCO systems dramatically increase the life expectancy of chains by providing a finely controlled, non-mist delivery of fluid-type lubricants. These systems can dispense a single drop of oil continuously for a period of time (measured in minutes) – without misting.

With such finite control, ORSCO oil spray systems have the capability to lubricate at the rate of consumption. As a result, chain and sprocket life are increased and product contamination can be minimized without wasting the lubricant. This combination produces maximum productivity and efficiency for customers in the food and beverage industry.

## Profile: Automatic lubrication success

**Company:** Major beverage producer

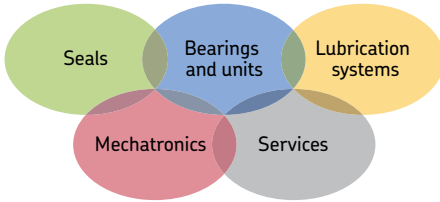
**Application:** Lift-cylinders on beverage filling equipment

**Installation:** ORSCO Series 170 continuous spray system

**Return on investment:** Approximately six months

**Previous lubrication system:** The lift cylinders were lubricated by an air pump delivering oil through a flow control nozzle. A heavy stream of oil was delivered intermittently during the run mode of the filler. This method resulted in considerable over-lubrication with as much as 80 percent of the oil on the floor. This contributed to lubricant waste and poor working conditions. Furthermore, it required 30 minutes of labor a day to fill the reservoirs.

**Automatic:** A Lincoln ORSCO, two-nozzle oil lubrication system was installed replacing the air pump and flow control nozzle. The advantage of the ORSCO system over the traditional air pump/flow-control nozzle arrangement is that it applies a continuous, controlled spray (non-misting) of lubricant to the lift cylinders. The customer benefitted by reducing oil consumption by 80 percent and the labor time to fill the reservoirs was reduced by 60 percent. In summary, the system delivers a consistent film of lubricant to the lift cylinders, eliminating lift cylinder sticking, reducing lubricant consumption, maintenance labor and improving overall productivity.



### The Power of Knowledge Engineering

Drawing on five areas of competence and application-specific expertise amassed over more than 100 years, SKF brings innovative solutions to OEMs and production facilities in every major industry worldwide. These five competence areas include bearings and units, seals, lubrication systems, mechatronics (combining mechanics and electronics into intelligent systems), and a wide range of services, from 3-D computer modelling to advanced condition monitoring and reliability and asset management systems. A global presence provides SKF customers uniform quality standards and worldwide product availability.

#### Important information on product usage

All products from SKF may be used only for their intended purpose as described in this brochure and in any instructions. If operating instructions are supplied with the products, they must be read and followed.

Not all lubricants are suitable for use in centralized lubrication systems. SKF does offer an inspection service to test customer supplied lubricant to determine if it can be used in a centralized system. SKF lubrication systems or their components are not approved for use with gases, liquefied gases, pressurized gases in solution and fluids with a vapor pressure exceeding normal atmospheric pressure (1 013 mbar) by more than 0,5 bar at their maximum permissible temperature.

Hazardous materials of any kind, especially the materials classified as hazardous by European Community Directive EC 67/548/EEC, Article 2, Par. 2, may only be used to fill SKF centralized lubrication systems and components and delivered and/or distributed with the same after consulting with and receiving written approval from SKF.

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