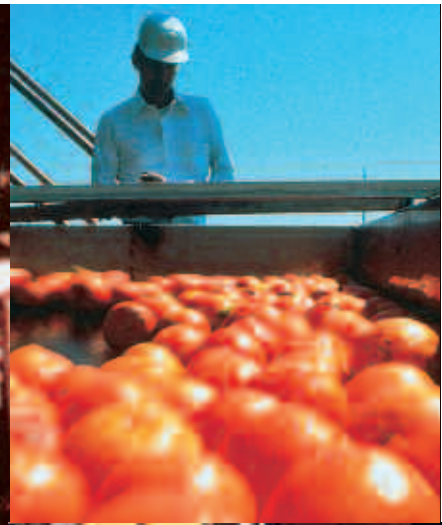


LINCOLN 100 YEARS
Celebrating Our First Century In Business®

Capabilities

INFORMATION FROM THE LEADER IN THE LUBRICATION INDUSTRY

Lubrication Solutions for Food & Beverage Applications



**Helping Maintain
and Sustain the
Food & Beverage Market**

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 your high-speed advanced-technology machinery is essential.

Food and beverage industries have some of the toughest environmental conditions for maintaining 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 industry, agriculture, construction, mining, and the automobile industry 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.

As the world leader in the lubrication industry, Lincoln designs and manufactures everything you need—from automated lubrication systems to a full line of manual lubrication tools and equipment.



It's Your Choice: 3 Lubrication Options



Automated Lubrication: Feeds All Points on a Machine while It's Operating

Automated 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 the surfaces that bear the load are continuously being exposed. In areas using heavy washdown 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 PLCs to schedule and monitor lubrication events.



Centralized Lubrication: Feeds a Number of Components from a Single Point

A more efficient method of lubricating than manual lubrication, 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.

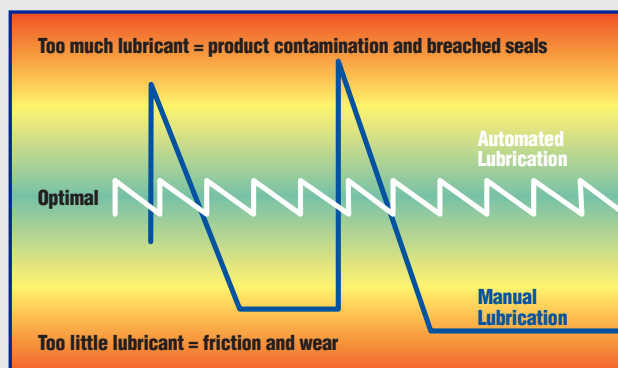


Manual Lubrication: Performed Point-by-Point

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.

What Automated Lubrication Can Do

Apply Small Amounts of Lubricant Frequently



Cut Operating Expenses

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

The Lincoln Advantage



We Stand Up to Washdowns

Because spoilage and contamination are ever-present problems, you use caustic washes and acid sprays to remove organic particles from machines, bottles and kegs. And you may also rely on a steam blast 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.

A History of Solving Lubrication Problems

Lincoln began developing lubrication equipment in response to problems experienced in the mining industry more than 80 years ago. We developed our products and abilities to become a dominant supplier of lubrication equipment in agriculture, construction, automotive, process industries, manufacturing and, of course, the food and beverage industries.

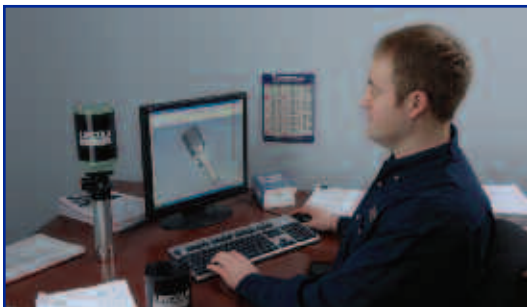
More Automatic Choices for Every Application

From the industry's most popular Centro-Matic system to the internationally known Quicklub system, automated 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'll realize that Lincoln offers more automated solutions than anyone.



Specified by Top OEMs

You will find Lincoln's centralized and automated systems installed on food and beverage machinery manufactured around the world. Design engineers for these 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 and Europe with Lincoln sales and support personnel in every region of the world. Our international network of systems house distributors in 74 countries is the best in the business, 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® System

Centro-Matic systems have become the standard in the food and beverage industry. Extremely reliable, some system installations have been in place for more than 20 years protecting critical processing and packaging equipment. Centro-Matic features adjustable injectors that meter a precise volume of lubricant to each bearing. Indicator pins confirm delivery to each lube 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: Automated Lubrication Success

Company: Pickle Producer in the Southeastern United States

Application: Palletizers

Installation: Centro-Matic

Return on Investment: Complete in Less Than Six Months

Previous Method: With annual sales of 60 million jars of pickles, relishes and peppers, the company commissioned its first palletizer on a line without an automated 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.

Automated: The company now has our system installed on its six palletizers. Because of the increased reliability of the palletizers, the company gains approximately 444 hours of uptime annually on each one. The stainless steel system components permit washdown after spills or breakage with no adverse effects. Based on current average line use and average production, the company realizes a gain in annual production capacity of about 799,200 cases. Despite a 200 percent increase in production over three years during peak season, the system helps keep the number of maintenance personnel the same.



Quicklub® & Modular® Lube

Quicklub and Modular Lube systems dispense grease or oil through a metering device called a divider valve. 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 with the pump.



Profile: Automated Lubrication Success

Company: Coca-Cola®, Bendorf, Germany

Application: Bottler

Lincoln Installation: Quicklub®

Return on Investment: Less than two years

Lincoln was involved from day one on 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 automated 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 will save \$250,000 per year in maintenance and production costs at Bendorf because of its automatic lubrication system.

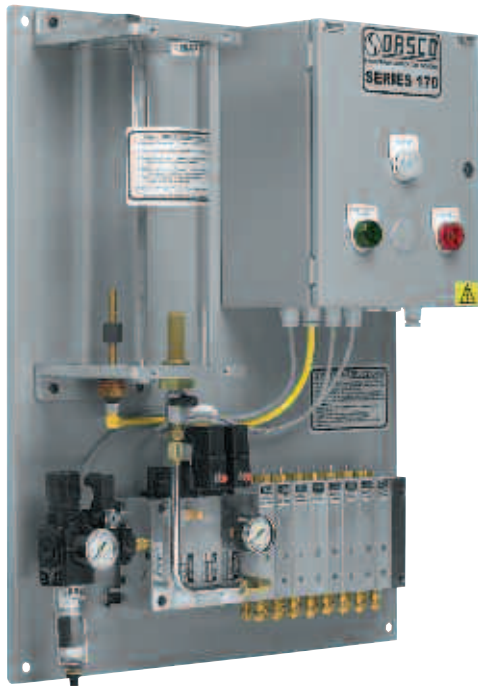
The system is a Quicklub progressive system using one pump that is hooked up to more than 3,000 lubrication points. The maximum distance from the location of the pump to the farthest lubrication point is approximately 560 feet.



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 liters) bulk container. This 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 is increased and product contamination can be prevented without wasting the lubricant. This combination produces maximum productivity and efficiencies for customers in the food and beverage industries.

Profile: Automated Lubrication Success

Company: Major Beverage Producer

Application: Lift-cylinders on beverage filling equipment

Lubricant: Conventional fluid (200-2000 SUS; 10-460 cSt)

Lincoln Installation: ORSCO Series 170 Continuous Spray System

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% 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.

Automated: 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% and the labor time to fill the reservoirs was reduced by 60%. In summary, the system ensures that a consistent film of lubricant is maintained on the lift cylinders, eliminating lift cylinder sticking, reducing lubricant consumption, maintenance labor, and improving overall productivity (pay back in six months).

- **Eliminated lost production cost from sticking lift cylinders**
- **Reduced oil consumption from over-lubrication**
- **Reduced maintenance labor**
- **Eliminated a safety hazard from excess oil on the floor**
- **Eliminated an environmental issue from excess oil in the waste water system**



Celebrating Our First Century In Business



Celebrating 100 Years of Innovative Solutions

Continually satisfying our customers with the world's best lubrication equipment and pumping systems has made Lincoln the largest and most successful company in our field.

Our commitment to innovation is illustrated by us having been awarded more U.S. patents for lubrication equipment than all other competitors combined.



Local Distribution is Here to Help!

Lincoln's network of full-service distributors is the best in the industry. From system design, and inventory, to installation, warranty and repair, their highly skilled sales and servicemen are trained to take care of all your needs in a timely manner.

Contact Your Local Distributor



Lincoln Industrial Corp.
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St. Louis, MO 63120-1578

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