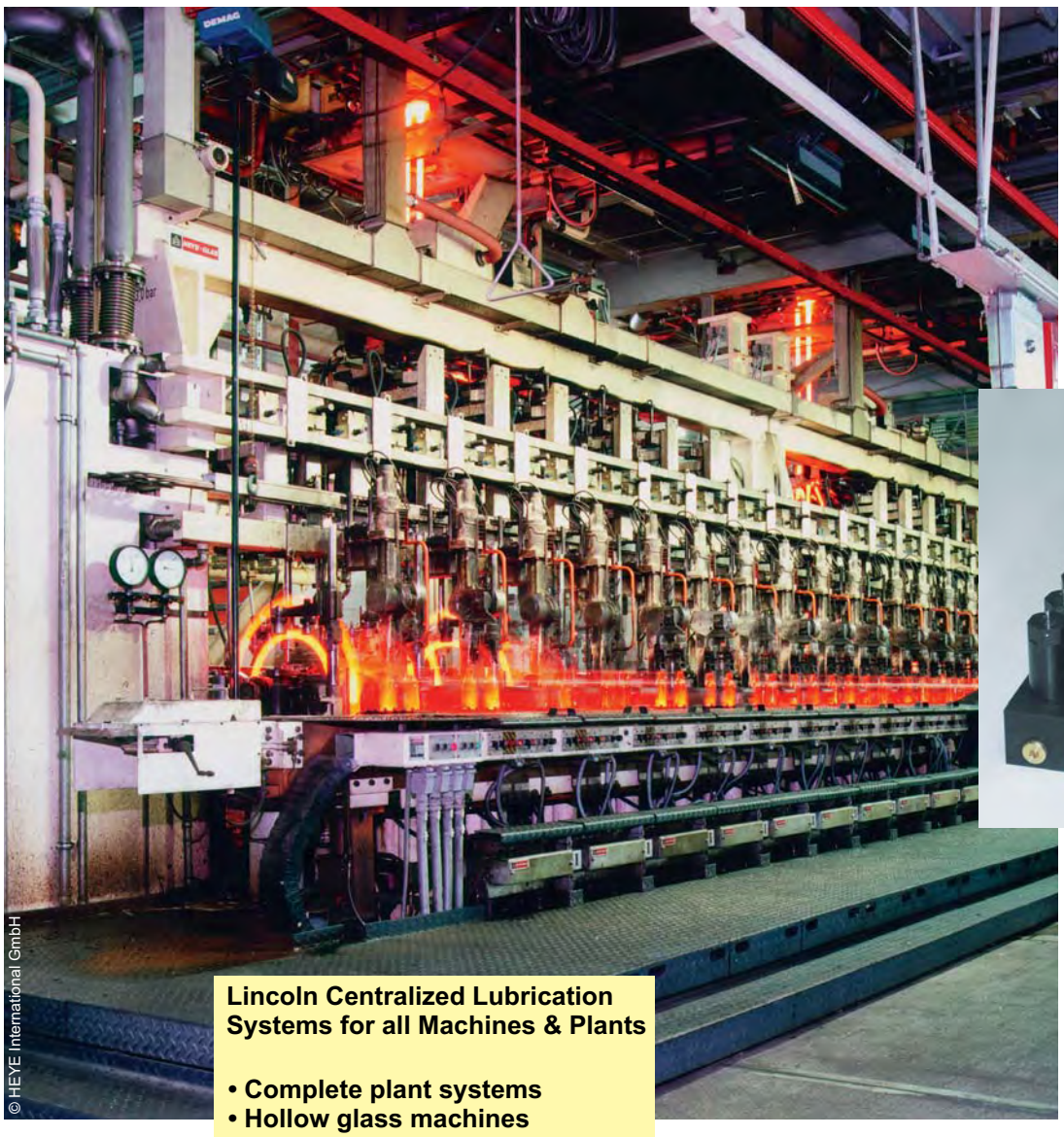
Centralized Lubrication for the Glass Industry

Simplifying Service! **Edition 2008**



Lincoln Centralized Lubrication Systems for all Machines & Plants

- **Complete plant systems**
- **Hollow glass machines**
- **Flat glass machines**
- **Crushers and conveyors**

Reliable Centralized Lubrication Systems for the Glass Industry

Simplified maintenance and increased up-time of your machines and systems

Lincoln believes in the principal of centralizing all areas of lubrication. By combining individual lubrication system components, service and maintenance tasks are drastically simplified.

- **Individual lubrication points are connected together via a metering device and centrally supplied.**
- **Metering devices are mounted on easily exchangeable base plates**
- **Individual lubrication pumps are connected to a pump station**

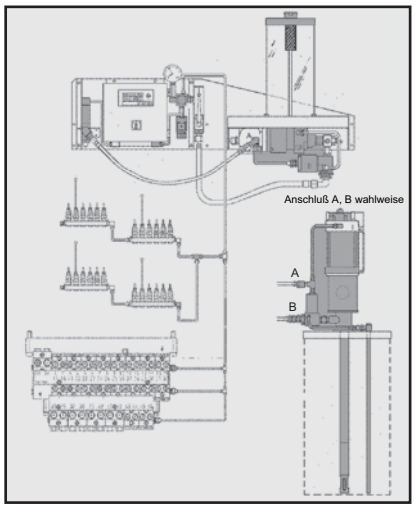
The Flexible Centro-Matic Single-line System

Centro-Matic single-line systems are used when the quantity of lubricant per point largely differs.

The flexible, and direct operating Centro-Matic injector has a metal-to-metal fit and spring-loaded metering pistons that can supply lubricant at high pressures (up to 240 bar for grease and 68 bar for oil). Thus, oil and grease up to NLGI class 2 may be used.

Each independently operated injector serves only one lubrication point and may be accurately adjusted to deliver the precise amount required. Provided the pump capacity is sufficient and the tube dimensions are appropriate, the system may be enlarged at any time.

Maintenance-friendly: Flanged mounting plates simplify servicing, as tube fittings no longer need to be loosened in order to service the injector.



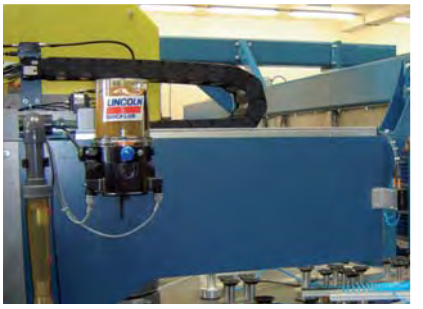
System Features

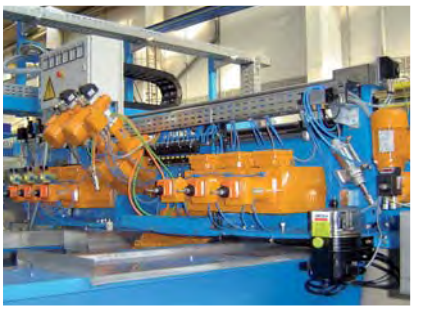
- Individual metering per lubrication point
- Lubricant supply at high pressure
- Simple layout
- Easy to expand
- Injectors also available in stainless steel
- Special high-temperature injectors available

Centro-Matic Lubricant Injectors

EVD-FL-Injectors

Based on the proven Centro-Matic injectors, a new generation of oil injectors made from aluminum in a maintenance-friendly flanged version was developed.





Oil Injectors

The positive know-how gained from the EVD injectors lead to a further generation of oil injectors that are available in flanged (OI-FL) and threaded (OI-SR) versions. The metering quantity ranges from 0.05 - 0.65 cm³. The function can be visually monitored and the maximum operating pressure is 50 bar.

Reputable Centralized Lubrication Systems: The Complete Plant Solution

A further step in simplifying service lies in the centralization of the oil supply. Several options are available – from individual pumps or 200 liter drums, to complete bulk tank supply.

Our Experience – Your Productivity

- Lincoln complete system guarantee
- Decades of experience in serving our customers
- Ensures process safety
- Quick Payback
- Self-manufactured pumps and metering units
- Choice of reservoir, drum or container type pumps
- PLC controllers with ASI Bus (Actuator Sensor Interface) system that minimizes wiring and maximizes efficiency

Multi-zone Lubrication System

For the demand based individual lubricant requirements of each zone on a glass machine

Lincoln Multi-zone systems offer an economical, resource conserving and environmental conscious solution.

Lincoln centralized lubrication systems supply all areas of machines and systems with an exactly matched quantity of lubricant. As a result, your valuable equipment is optimally protected with a minimal amount of lubricant – and all negative impacts associated with under lubrication are eliminated.

The demands of individual zones of machines in glass production and processing vary in the type of lubricant used and the amount required.

With conventional systems, these conditional requirements are only partially taken into consideration. A differentiating lubricant supply, dependent on the demand of each zone is not foreseen. The zones are, on the other hand, lubricated with adjustable injectors set at the required quantity. However, since all zones are connected to one mainline, all injectors, and the connected lubrication points, are supplied with lubricant with every pump cycle. And the result is an increased lubricant usage.

Conversely, the Lincoln Multi-zone system differentiates between the low and high demand zones of the glass machine and supplies the amount of lubricant accordingly. As a result, the lubricant quantities are matched to the requirements of each lubrication point, and the amount is kept to a minimum.

A further advantage is provided by the control logic that is based on the Lincoln Multi Controller model LMC-1 that is integrated in the multi-zone system. An integrated Field-bus module enables a connection to all common Bus type systems.

As a result, all prerequisites are met for the ideal lubricant supply to the lubrication points in accordance with the production process. A production change between two different glass containers that results in different lubrication requirements on the machine can now be automatically performed with ease.

The Lincoln Multi-zone system also offers the operator the possibility of running synthetic or mineral based oils in parallel. Consequently, the operator can use a high-grade synthetic oil for areas that are highly strained, and a less expensive, low-grade mineral oil for less strained zones.

Validated Environmental Information

Production run changes of glass machines can result in a large variation in the lubrication requirements.

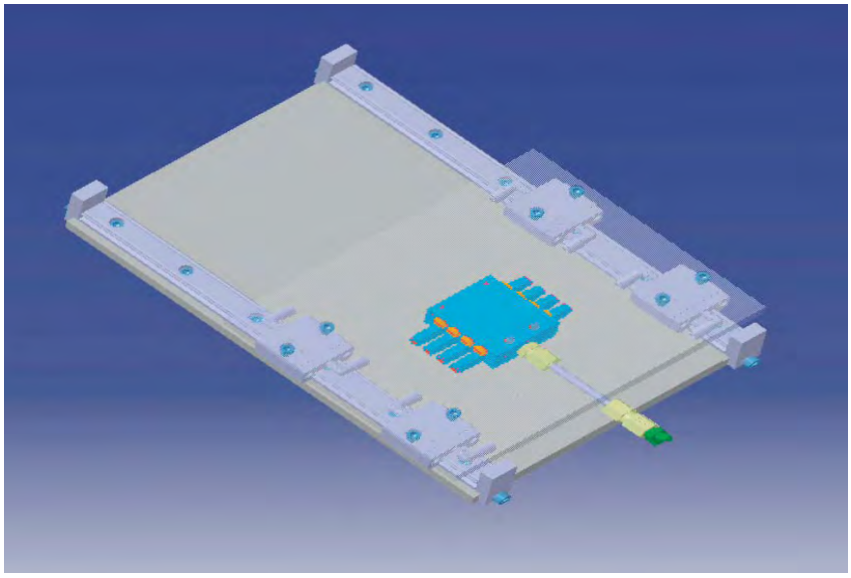
Conventional single-line systems do not allow for different lubricant supply to different zones of the machines. All connected lubrication points are inevitably supplied with lubricant with each pump cycle. The consequence is a higher lubricant usage.

The Lincoln Multi-zone system now enables a differentiation between low and high demand zones. The lubricant supply is therefore reduced to a minimum.

For "Lincoln Environmental Declaration" see www.lincolnindustrial.de/Environment

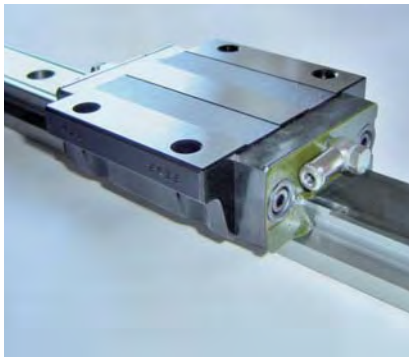
Centralized Lubrication for Linear Guides

A large portion of industrial movements are linear. This includes, for example, the transportation of components within an area, or the feeding of tools to the work-piece – or vice versa. Such guiding systems must be supplied regularly and evenly with an optimal amount of lubricant. Usually the manufacturers of linear guides will indicate in their data sheets at what interval lubricant should be supplied to the linear guide carrier.



Lincoln progressive systems, comprising SSVM, SSV and SSVD series lubricant metering devices and the appropriate pumping system, offer the ideal solution. Progressive lubrication systems offer the possibility to connect all lubrication points of a linear guide system – including the drive – to a single lubrication point. Thus, one centrally located lubrication point supplies the assembly with a synchronized and even amount of lubricant. The range of the usable lubricants spans from oil starting at 40Cst up to NLGI class 2 grease.

As the construction of guiding systems always involves a sandwich of two plates, the lubrication points of the guide carriage are often virtually inaccessible by hand. This is the special challenge for lubrication systems.



It may be conceivable to plumb the individual lubrication points to a strip with several lubrication nipples, but the danger exists that not all points will be supplied with the appropriate amount of lubricant. Lincoln centralized lubrication systems, on the other hand, offer an optimal lubrication of hard-to-reach points by connecting them together and supplying from a central point.

The first step in centralization may involve the central supply of lubricant via a Lincoln manual grease gun. Because Lincoln lubrication systems are modular, they can be readily extended by simply adding an automated lubrication pump. And, if several progressive metering devices are already in use, the possibility exists to connect them to a main metering device and either manually or automatically supply them with lubricant.

System Advantages

- Even and continuous supply with lubricant
- Connection of hard-to-reach lubrication points
- Modular design – an automated lubrication pump can be retrofitted at any time
- High system pressure over 200 bar possible (depending on the type of pumping system)

Quicklub Progressive System

Quicklub Systems have been designed to meet the toughest lubrication requirements of machines and machine groups with grease or oil lubricants. Their operation is based on the reliable progressive principle. The lubrication occurs in metered, timed intervals at a high pressure. Thus the lubrication of bearings under a wide range of temperatures is possible. The system is easy to monitor and ensures that the right quantity of grease is supplied to the lubrication points.

Features

Whether you choose a 203 Pump or a QLS, these pumps offer the following common features:

- Variable mounting positions
- Protected pump motor against damage and moisture (IP6K9K)
- Vibration tested up to ± 10 g
- Integrated circuit board with system function monitoring
- Optional external fault control

Pump 203

- No corrosion of the light-weight pump housing which is made of heavy-duty, fiber-reinforced resin.
- The pump can serve up to three indepen-dent circuits with lubri-cant, each with its own pump element, consisting of numerous lubrication points.
- 2-, 4- 8- and 15-liter reservoir with stirring paddle or spring-loaded follower plate. The follower plate ensures that the lubricant can be pumped even when the pump is upside-down.
- Optional integrated display with touch pad and data logger function for the storage of important information such as operating time, faults or blockages and low-level.

Pump QLS 401

- 1 or 2 liter reservoir
- Complete, compact system ready to use "out of the box"
- Integrated PCB with monitoring
- Integrated dis-play and key pad
- Built-in pressure-relief valve with integrated return to reservoir
- Easy dosing with internal lubricant return possibility
- Available with or without attached divider block (up to 18 outlets)
- Optional low-level control

SSV Metering Devices

- Installation can be performed with threaded or 350 bar rated Quicklink plug-in type fittings.
- The high-precision progressive metering device in block-form allows pressure differences of 100 bar and eliminates leaks.
- Multiple outlets of the progres-sive metering device can easily be internally combined without the need of external connectors.

SSV-D – The Adjustable Progressive Metering Device

- SSV-D metering devices are adjustable per outlet pair, thus enabling exact lubricant requirements to be met
- The metering occurs within the metering device via metering screws that are available in 10 different sizes.

Lincoln GmbH
Heinrich-Hertz-Str. 2-8
69190 Walldorf · Germany
Tel. + 49.6227.33.0
Fax + 49.6227.33.259

lincoln@lincolnindustrial.de
www.lincolnindustrial.de

Printed in Germany
Form W-172-En-1008

DIN EN ISO 9001
durch DQS
Reg.-Nr. 799

DIN EN ISO 14001
durch GUT

EMAS
VERIFIED ENVIRONMENTAL MANAGEMENT
D-153 00019