

Centralized Lubrication for Construction and Mining Equipment

Experience Productivity



Productivity is key in today's global economy. Proper lubrication increases uptime and makes maintenance routines simple.

Application-oriented Lubrication Systems

Always the Right Answer

Construction Machines and Vehicles

Quicklub Progressive Systems
and BDS (Bearing Dosage System)

- 203 or QLS pumps
- SSV divider valves



Mining Equipment

CentroMatic Single-line Systems

- PowerMaster or FlowMaster pumps
- SL injectors

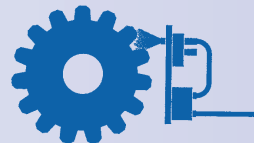
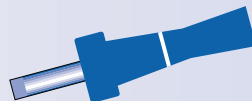
Helios Two-line Systems

- PowerMaster or FlowMaster pumps
- VSG metering devices



Special Applications

- Lincoln hydraulic hammer lubrication systems are characterized by their unique, durable construction with special pump elements for chisel pastes.
- Lincoln lubrication systems for open gears – also as airless system!
- Lincoln chain lubrication systems are available for all applications



Lincoln's Complete Service

Lincoln provides individual service offers geared to all needs of the construction & mining industry. As your successful and competent provider of centralized lubrication systems, we are represented for you and your customers in more than 90 countries worldwide.

Lincoln's Complete Service Modules

- Engineering and consulting
- Telephone support
- pre-assembled kits
- Installation and commissioning
- Training
- Maintenance programs

Contact Lincoln for your lubrication requirements. Top in know-how, technology and service.

BDS – Bearing Dosage System

Efficient and Convenient

Trouble-free

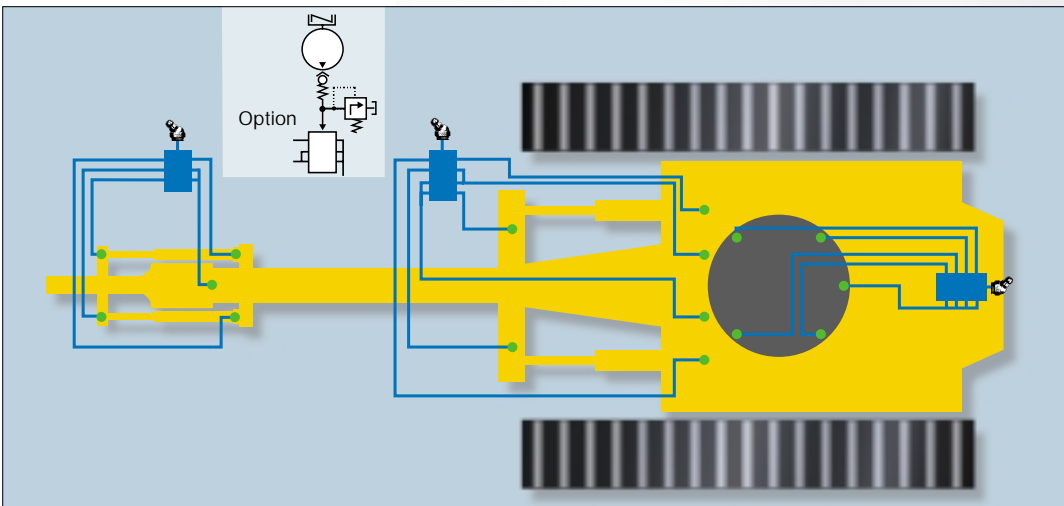
All lubrication points are connected to one or more lubricant metering devices that can be centrally and easily supplied with grease. Lube points which are normally difficult to access can now be serviced quickly and efficiently – guaranteeing the right quantity of lubrication for every point.

Flexible

Depending on the environmental conditions, you can choose the proper lubrication interval without a tedious procedure. Frequent lubrication builds-up a grease collar protection that inhibits water and dirt from penetrating the bearing, preventing premature wear.

Retrofit

Peak performance resulting from professional lubrication is now available at an affordable price. BDS is easy to retrofit. High-pressure Quicklinc plug-in fittings assure an easy and quick installation. Due to its modular design, the BDS can be expanded or retrofitted with an automatic lubrication pump at any time.



Schematic view of a typical BDS application

Quicklub Progressive System

Economical & Reliable

Quicklub systems have been designed to meet the toughest lubrication requirements of construction machines and equipment. Their operation is based on the reliable progressive principle in which the lubricant is dispensed by a piston pump via progressive plunger metering devices to the lubrication point. The lubrication occurs in metered, timed intervals at a maximum pressure of 350 bar. Thus the lubrication of bearings with high back-pressures is also viable. The pump can serve up to

- The pump motor is protected against damage and moisture.
- 2, 4, and 8-liter reservoir (optional with filling from the top and a lockable lid)
- 5 different pump elements with fixed or variable output
- Over-pressure valve - also equipped with an indicator and reservoir return



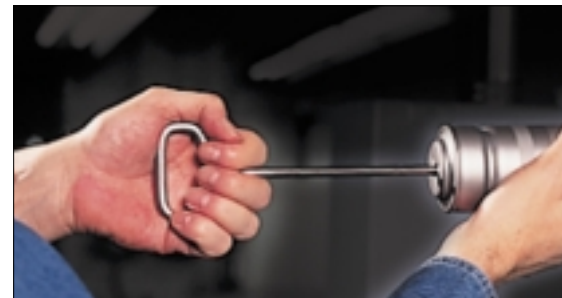
three independent circuits, each with its own pump element, consisting of numerous lubrication points with lubricant.

The system is easy to monitor and ensures that the right quantity of grease is supplied to the lubrication points.

Quicklub System Benefits

- No corrosion of the light-weight pump housing which is made of heavy-duty, fiber-reinforced resin.

- Fully-automatic option via integrated circuit board
- 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.
- Installation can be performed with threaded or 350 bar rated Quicklinc plug-in type fittings.
- The high-precision progressive metering device in block-form allows pressure differences of 100 bar and eliminates leaks.



Filling of Quicklub Pumps: Fast & Easy



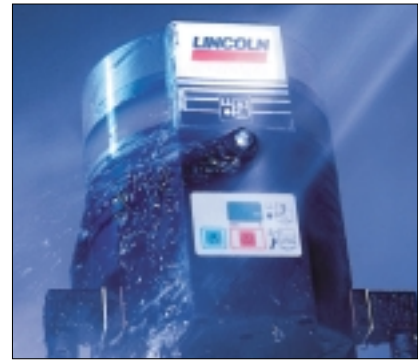
Reduce installation expenses with Lincoln's value-added, pre-assembled kits – a considerable advantage for OEMs!

- Multiple outlets of the progressive metering device can easily be internally combined without the need of external connectors.

QLS 301 Power Package

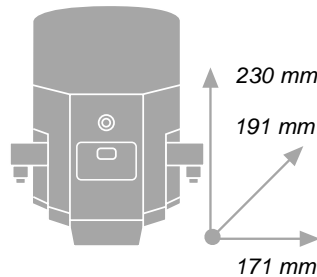
The Solution for the Supply of few Points

The QLS 301 is a complete system. It comes pre-assembled with everything a system needs: all kit components and a built-in over-pressure valve. No system assembly is necessary as is usually required with common lubrication systems. Lubrication points can be supplied with NLGI 2 grease (QLS 301) or oil (QLS 311) directly from the pump at an affordable price. The long list of standard features is a remarkable characteristic of the QLS pump.



Ideal for

- Compact equipment with few lubrication points
- Loading cranes
- Chain lubrication



It's compact

The QLS is not only a pump. It contains all the components and all the functions needed to lubricate at a professional level. The compact design makes it easy to find an installation location even in the most unthinkable places.

It's sturdy

The QLS may be small, but its performance is powerful. It can handle temperatures ranging from -25°C to +70°C, variable mounting positions and high pressure wash-downs (IP6K9K, NEMA 4 protection).

It's multi-tasking

The QLS features multi-tasking. An integrated circuit board optimally controls pause and operating times, monitors the function to ensure lubricant is fed, and allows additional lubrication cycles to be initiated. Settings are always at

your fingertips – all settings are performed with ease via keypad. Settings and messages are shown on the built-in display window.

Standard Features

- Complete, compact system ready to use "out of the box"
- Variable mounting position
- Integrated circuit board with system function monitoring
- Integrated display and keypad
- Standard low-level control
- Built-in over-pressure valve
- Internal lubricant return possibility
- Available with or without attached divider block (up to 18 outlets)
- Optional external fault contact



Dependable Centralized Lubrication System

The Answer for Large Machinery

Lincoln lubrication systems are designed to keep your machinery running, and to match your needs. Our systems help reduce your maintenance work. Depending on the application, systems such as two-line or single-line systems are all part of the Lincoln range.



Container Supply System

Experience Productivity

- Decades of experience in serving our customers
- Ensures process safety
- Quick payback
- Electric, pneumatic, hydraulic or hand operated pumps
- Choice of reservoir, drum or container type pumps
- Controllers and monitoring capabilities that meet your needs.

FlowMaster Hydraulic Pump

Powerful and Versatile



The unique, rotary-activated reciprocating FlowMaster hydraulic pump offers users almost unlimited opportunities. Its control manifold adjusts the amount of lubricant and the pressure required for each application. The more hydraulic input available, the more output the pump can generate. The pump's controls match a machine's hydraulic output to the requirements of its lubrication system. Extreme temperatures won't stop the FlowMaster. It has passed rigorous

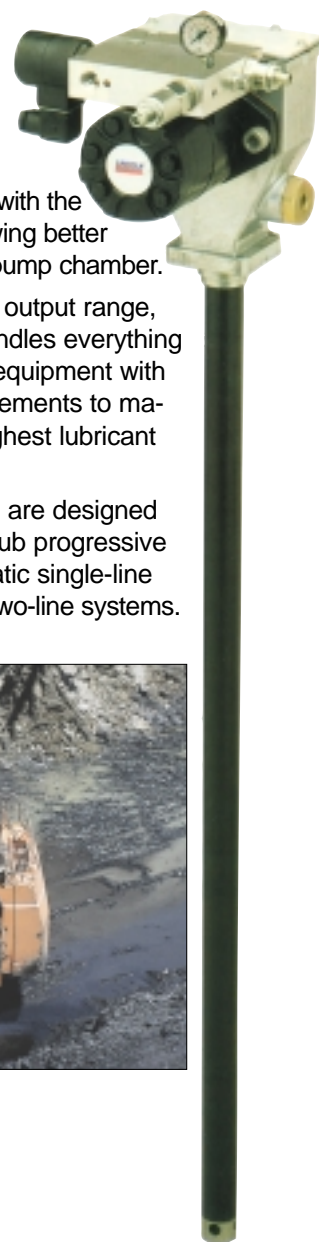
check reciprocates with the pump cylinder allowing better grease flow to the pump chamber.

With its impressive output range, the FlowMaster handles everything from small mobile equipment with low lubricant requirements to machinery with the highest lubricant demands.

FlowMaster pumps are designed to work with Quicklub progressive systems, CentroMatic single-line systems or Helios two-line systems.



tests in both arctic and desert type conditions. The pump works well with high-viscosity grease (NLGI 2 and higher) at low temperatures because it's pump tube has a special pre-charge chamber and a reciprocating cylinder designed to allow better priming. An inlet ball



FlowMaster with Hose Reel

The Flexible CentroMatic Single-Line System

CentroMatic single-line systems are used when the quantity of lubricant per point largely differs. The flexible, and direct operating CentroMatic injector has a metal-

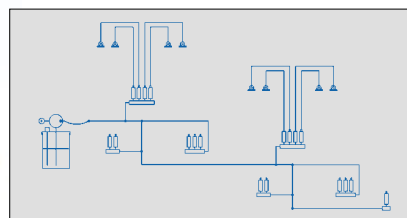
to-metal fit and spring-loaded metering pistons that can supply lubricant at high pressures (up to 240 bar for grease and 68 bar for oil). Thus, oil and grease up to NLGI class 2 may be used.

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



Features

- Individual metering per lubrication point
- Visual monitoring
- Lubricant supply at high pressure
- Simplicity – easy to understand and install
- Extra lubrication points may easily be added
- Injectors also available in stainless steel



The Classic Helios Two-line System



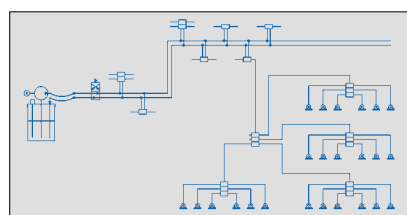
Even in severe conditions such as cold or hot temperatures, dirty and wet environments, Helios Two-line systems provide a reliable means of supplying lubricant to lubrication points. One centrally located pump is capable of consistently supplying a large number of points with lubricant. A higher flexibility in the

metering of lubricant is achieved in combination with Quicklub progressive divider valves. Also the cost effectiveness speaks for a combined system. Helios two-line systems may be extended at any time.



Features

- Perfect for widely dispersed lubrication points
- A maximum system pressure of 400 bar enables the usage of smaller tube diameter.
- Visual or electrical monitoring of each outlet pair
- If one bearing should block-up, all other outlet pairs continue to supply lubricant.
- Simple and individual metering of the lubricant – each outlet pair can be adjusted separately.



Automated Lubrication

The Path to Cost Reduction

A lack of lubrication can bring your machines to a screeching halt. The increased cost of lubricants and maintenance duties, coupled with a higher machine value, drives the need for automatic, centralized lubrication systems.

Harsh conditions such as dirt, contamination, water, and mechanical loads cumulatively result in a high wear rate of bearings and friction points.

Lubrication is therefore absolutely necessary in order to provide the right protection. Lincoln lubrication systems are a reliable means of regular lubrication.

While the machine is in operation, the lubricant is automatically delivered in time-controlled and metered quantities to all connected points in the system. Lubrication "in motion" ensures that the lubricant is optimally and evenly distributed within the bearing, thus reducing friction and premature wear.

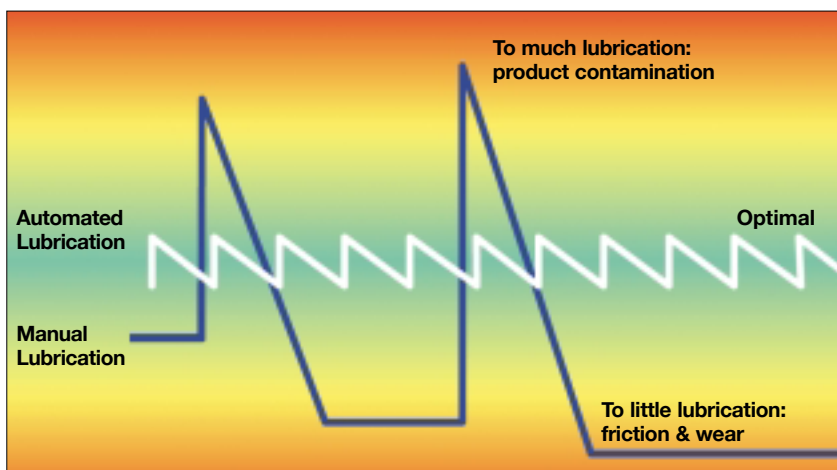


This is the ultimate form of lubrication applied in a systematic manner. Increased safety is another important factor. Dangerously located or hard to reach lubrication points no longer need to be accessed by hand. What's more, is a reduction in maintenance costs by the elimination of time consuming, tedious tasks and a reduction in lubricant consumption.

Large Savings = Fast Payback

The installation of a centralized lubrication system drastically reduces repair and maintenance costs. In addition lubricant consumption is cut and the life span of wear components is increased. This automatically reduces downtime and operation costs.

Automated vs. Manual Lubrication



Advantages of Automated Lubrication

- Increased profits and productivity
- Lower costs for repairs, spare parts and lubricant
- Improved operating times; less costly downtime
- Longer maintenance intervals
- Dramatic reduction in lubrication-related bearing failures
- Significant contributions to safety and the environment