Centralized Lubrication for Construction and Mining Equipment

Keep in motion!

2nd Edition 2007

Centralized Lubrication for all Applications

- Construction machines and trucks
- Mining & Material Handling Equipment
- Hydraulic Hammers, Grippers, Pliers and Breakers

Centralized Lubrication for all Applications

Keep in Motion!

Construction Machines and Vehicles

Mining & Material Handling Equipment

Hydraulically Operated Auxiliary Equipment

Lincoln chain lubrication can be used in all application areas.
Please ask your Lincoln representative for our chain brochure and for further information.

BDS – Bearing Dosage System

Efficient Lubrication – The First Step in Centralized Lubrication

Easy

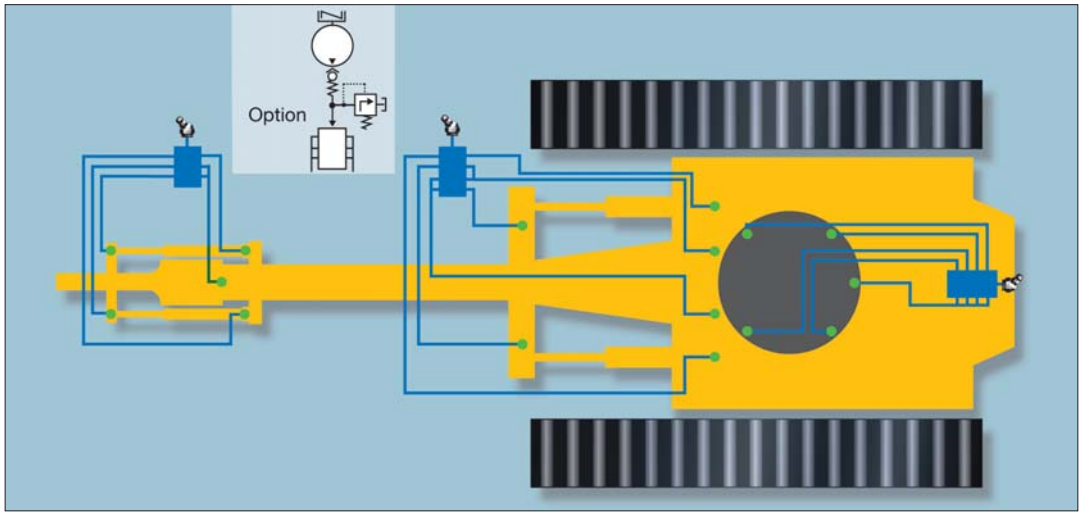
All lubrication points are supplied from a central point. Lube points which are normally difficult to access can now be serviced quickly and efficiently – with the right quantity of lubrication for every point.

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.

Retrofitable

Due to its modular design, the BDS can be expanded or retrofitted with an automated lubrication pump at any time. High-pressure Quicklinc plug-in fittings assure an easy and quick installation.
The advantages of easy maintenance procedures are affordable and can be achieved with little effort.



Schematic view of a Bearing Dosage System (BDS) application

Quicklub Progressive System

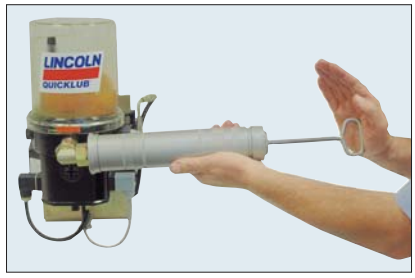
Economical & Reliable

Quicklub progressive systems have been designed to meet the toughest requirements of grease lubrication 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.

- 2, 4, 8 and 15-liter reservoir (Optional with filling from the top and a lockable lid).
- Various pump elements with fixed or variable output
- Over-pressure valve - also equipped with an indicator and reservoir return
- Fully-automated option via integrated PCB
- Optional integrated display, touch pad and **data logger** function for the storage of important information such as operating time, faults or blockages and low-level

The pump can serve up to 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.

- Installation can be performed with threaded or 350 bar rated Quicklinc plug-in type fittings.



Filling of Quicklub Pumps:
Fast & Easy

Lincoln offers the possibility to reduce installation cost with pre-assembled kits
A considerable advantage for OEMs!

System Benefits

- No corrosion of the light-weight pump housing which is made of heavy-duty, fiber-reinforced resin
- The pump motor is protected against damage and moisture (IP6K9K)

SSV Progressive Feeder

- The high-precision progressive metering device in block-form allows high pressure differentials.
- The block-form eliminates leaks
- Multiple outlets of the 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

Quicklub QLS 401

Compact Lubrication System for Grease up to NLGI Class 2

The QLS 401 is a complete lubrication system that includes all necessary monitoring and control functions. All components including an internal over-pressure valve are part of the complete package. The comprehensive list of standard features is a remarkable characteristic of the QLS 401. The integrated, all-in-one system concept reduces installation time and costs.

A newly enhanced stirring paddle in the reservoir prevents grease separation - even with long service intervals.

The QLS 401 is designed for all industrial and mobile applications. Up to 18 lubrication points can reliably be supplied directly from the pump and monitored at an affordable price.

Multifunctional
The QLS 401 is versatile. An integrated circuit board optimally controls the pause time and the pump cycles to ensure a regular supply of lubricant. All settings are performed with ease via the keypad. Settings and messages are shown on the built-in LED display. The QLS 401 is also available in a “key lock” version that locks the programming function. (Keylock) Available.

Sturdy
The QLS 401 is shock and vibration proof and operates reliably, even when exposed to severe operating conditions such as temperatures ranging from -25 °C to +70 °C or high pressure wash-downs (IP6K9K, NEMA 4 protection).

Compact
The QLS 401 is a high-pressure grease pump with a controller and monitoring, a function display and a divider block. All system components and all the functions that are needed to lubricate at a professional level are included.

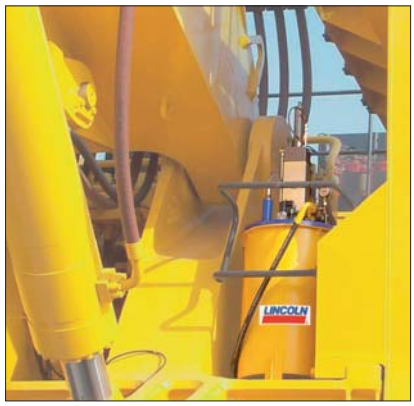
System Features

- 1 and 2 litre reservoir capacity
- Small compact, ready-to-install package
- Space requirements – 230 mm x 230 mm x 215 mm
- Integrated controller with monitoring – optional without controller
- Low-level control
- Integrated display and keypad
- Easy refilling – please inquire for further information
- Built-in over-pressure valve with return
- Available in 12 or 24 VDC as well as 120 VAC, 60 Hz and 230 VAC, 50/60 Hz
- Attached divider block – optional with external divider block
- Internal outlet lubricant return possibility
- Large spectrum of usable lubricants – for multipurpose grease up to NLGI # 2

Reputable Centralized Lubrication Systems

Powerful & Dependable – 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, single-line or hybrid systems are all part of the Lincoln range.



Container pump

Experience Productivity

- Contribute to process safety
- Quick payback
- Electric, pneumatic or hydraulic driven pumps
- Choice of reservoir, drum or container pumps
- Controllers and monitoring features that meet your needs

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.

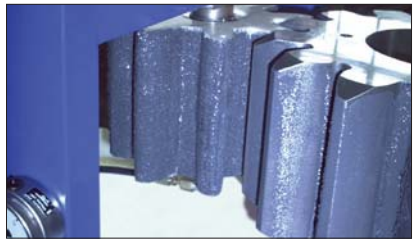
VSG/VSL metering devices are used to accurately meter the lubricant. A higher flexibility in the metering of lubricant may be achieved in combination with Quicklub progressive divider blocks. Also the cost effectiveness often speaks for such a hybrid system.

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
- Metering device pistons do not have seals or springs
- Easily extendable

Open Gear Lubrication – Mechanical Lubricant Application with a Felt Pinion

Lincoln has decades of experience in the field of open gear lubrication. A specially developed lubrication pinion applies an even lubrication film to the flank of the tooth. The reliable progressive system, which offers several control and monitoring possibilities, is used to supply the lubrication pinion. An important factor for effective lubrication is the selection of a suitable lubricant. Extensive tests have found adhesive lubricants that are suitable - even those that don't drip under high temperatures.



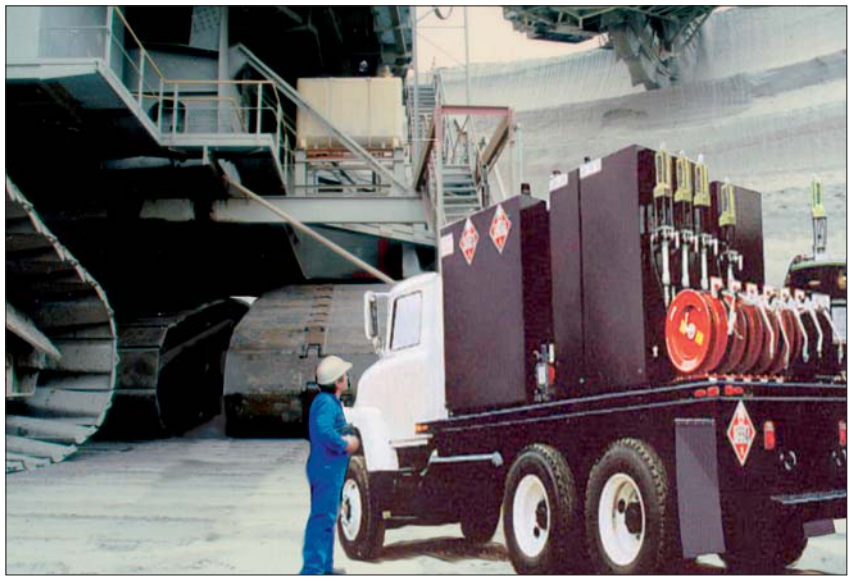
Lubrication Pinion

PowerMaster III Pumps

PowerMaster pumps are used as drum or container pumps for large lubrication systems, service bays and mobile service trucks.

The modular design of the PowerMaster III piston pumps provides flexibility to suit individual requirements.

PowerMaster III pumps are available in pneumatic or hydraulic versions. The double-acting pumps supply on both the up and down stroke. The long pump stroke and a precision fit piston plunger provide reliability for long duty cycles and demanding performance.



Lubrovan Service Truck with Hydraulic PowerMaster III Pumps

FlowMaster Container Pumps

The FlowMaster is a powerful lubrication pump for Mining & Construction machinery

These pumps are versatile – as a centralized lubrication pump for progressive, single-line or two-line systems; for lubrication of breaker hammers; or for manually activated lubrication of points that are not connected to an automated system.

The high performance of the pump enables lubricant to be pumped at low temperatures. The lubricant output is easily adjustable by varying the speed of the drive. FlowMaster pumps are rotary-activated piston pumps. They are available in hydraulic or 24 VDC versions. Custom-tailored pump stations are designed and manufactured to suit your needs.

FlowMaster Centralized Lubrication System

FlowMaster Pump Station

Hydraulic or 24 VDC electric FlowMaster Pumps

The CentroMatic Single-line System

For decades CentroMatic single-line systems have been used for the automated lubrication of large mining equipment. The CentroMatic system has proven its reliability in harsh conditions and in severe climates.

Injectors meter the lubricant and are individually adjustable to match the requirements of each lubrication point.

CentroMatic single-line systems operate at high pressures – up to 240 bar for grease systems; and the system may also use high-viscous lubricants.

Custom-designed, robust pump stations are available to meet your exact requirements.

CentroMatic SL11 Injectors

System Features

- Adjustable lubricant output per injector
- Visual monitoring of each injector (indicator pin)
- Lubricant supply at high pressure
- Easy to layout and install
- System can readily be extended
- Injectors also available in stainless steel

600 Liter Pump Station

CentroMatic Injectors

SL-1, SL-11, SL-V and SL-V XL injectors are designed for automated grease lubrication systems for machines and equipment that require large amounts of lubricant.

Each injector is equipped with an easily accessible external adjusting device that enables the lubricant quantity to be adjusted.

All injectors in a CentroMatic single-line system supply lubricant to the points during each lubrication cycle, and an indicator pin enables visual monitoring of each injector.

New Series SL-V

The high-performance SL-V injectors are designed to work at a maximum pressure of 413 bar. The patented two-chamber design and a pressure differential piston enable a much faster vent time. The benefits of this quick venting capability enable you to pump thicker greases and run longer supply lines with a smaller diameter which reduces material and installation costs.

SL-V injectors are maintenance-friendly. A visual bypass indicator eliminates the need to inspect injectors for internal bypass or defective seals.

SL-V and SL-V XL injectors use the same manifolds as the SL-1. The manifolds are available for 1 to 6 injectors. The SL-V injector, as the SL-1, has an adjustable quantity up to 1.31 cm^3 and the SL-V XL up to 5 cm^3. By connecting two SL-V XL injectors the output is 20% higher than one single SL-11.

SL-V and SL-V XL injectors are available with colour-coded spectrum adjusters that provide an easy way to adjust the output of the injector and that provide a clear indication of the output setting.

Lubrication Systems for Hydraulic Auxiliary Equipment

Hammers, Grippers and Breakers

HTL 101 – Hydraulic Driven Lubrication Pump

Enables a continuous lubrication supply during operation

The HTL 101 lubrication pump is especially designed to minimize friction and reduce wear on hard-working tools such as hydraulic hammers, grippers and other hydraulic driven devices that are subjected to heavy mechanical loads. The pump is suitable for all sizes of machines; even for mini excavators and small equipment. The HTL is mounted directly to the machine, and it lubricates continuously throughout the machine's operation.

Smooth Operation

A simple visual check is enough to tell if the HTL 101 is functioning correctly. When the cam shaft rotates and the red follower plate in the cartridge descends, the pump is running smoothly. Even when it's cold, an oil bypass system assists the operation at temperatures down to -25°C.

Exchangeable Cartridges Eliminate Filling

Exchangeable 400 g cartridges make refilling procedures quick and easy. Cartridges are available with chisel paste lubricant or with NLGI class 2 grease.

Simple Installation & Maintenance Friendly

The HTL 101 lubrication pump is driven by the machine's on-board hydraulic system. Extra drives, auxiliary power or control valves are all redundant. The HTL-101 mounts directly on the accessory, minimizing tubing and drastically reducing installation costs.

HTL 101 Pump

System Benefits

- Compact design – mounts directly on the hydraulic tool
- Adjustable small quantities (from 0.2 cm^3/min) – Thus optimizing lubricant consumption
- Exchangeable 400g cartridge with visual level control
- Oil inlet strainer reduces damage potential cased by contamination
- Highly reliable operation
- Suitable for hydraulic tools that operate under water
- Economical lubrication solution
- An integrated hydraulic throttle enables the lubricant quantity to be adjusted to suit the machine

HTL 429 - Single-shot Hydraulic Lubrication Pump

The pump is mounted directly to the hydraulic equipment – e.g. hammer.
A single-shot of lubricant is provided every time the equipment is activated

The Pump uses either standard cartridges or can be filled from a drum.

The pump supplies a predetermined quantity of lubricant every time the hydraulic equipment is activated. The quantity is adjustable via 4 different metering screws (0.1 cm^3, 0.2 cm^3, 0.3 cm^3, 0.5 cm^3). The pump is equipped with a visual level control that shows when it is empty.

HTL 429 Pump

Lubrication Systems for Hydraulic Auxiliary Equipment

HTL 201 – for a Continuous Lubrication of Small Hydraulic Equipment

The HTL 201 is a lubrication pump that continuously supplies lubricant to small series hammers from 300 kg onward. Small hammers often do not have much space for add-ons. The compact design of this pump (L 183 x W 70 x H 70 mm) and an overall low height including the cartridge of only 184 mm, makes the pump ideal for installations on small series hammers.

The cartridge volume measures 150g or 310g. 150g is sufficient for 4 to 5 days for an average operation of 4 hours/day.

Quicklub Pump 203 For Continuous Lubrication of Large Equipment or for High Duty Cycles

The electrically operated Quicklub pump model 203 offers high performance and durability. The pump is ideal for large equipment with high lubricant requirements, which are catered to by a 2, 4, 8 or 15 litre reservoir. The electric drive of the pump provides a continuous lubrication that is independent of the hydraulics of the machine. The pump is located on the carrier and is plumbed to the auxiliary equipment with a mainline.

The Quicklub Pump 203 is suitable for the supply of grease or chisel paste. A specially developed pump element for chisel paste ensures the supply of chisel paste even at temperatures of -25°C.

Manual Grease Gun MTL 01

The two-hand grease gun MTL 01 is for the manual lubrication of small to mid size hydraulic equipment that is not equipped with an automated lubrication system.

The MTL 01 utilizes the 400g Lincoln cartridges for chisel paste or grease. The maximum pressure is rated at 300 bar according to DIN 1283.

The Lincoln All-round Service

Safety and Optimum Productivity

Once the lubrication system is installed and commissioned, our job is only done when our customer is satisfied and remains so.

Lincoln provides a special performance and service offer geared to all needs of the construction and mining industry. We see ourselves as your competent partner for the engineering, the implementation, the assembly, the commissioning and finally, the maintenance of your individualized turnkey centralized lubrication system. Our customers can rely on maximum safety and service when operating their systems.

For our extensive service, our highly qualified personnel are at your disposal.

The Lincoln All-round Service Modules

- Engineering and consulting
- System house capability
- Installation
- Financing
- Commissioning
- Repairs
- Maintenance programs
- Training

Your Advantages

- Warranty for the complete system
- Possible warranty extension
- Installation according to legal regulations
- Safe operation of the lubrication system
- Efficient and smooth running system
- Increased economies of scale

Even the most advanced technical components only provide optimum performance if assembly and repair are carried out by qualified and specialized personnel. For this reason, Lincoln service provides improved safety, increased up-time and optimum productivity for lubrication systems.

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

With five technical support centers on three continents, and a network of over 100 system houses and distributors supported by regional sales and service offices, our customers can always count on our worldwide resources.

Centralized Lubrication

The Path to Cost Reduction

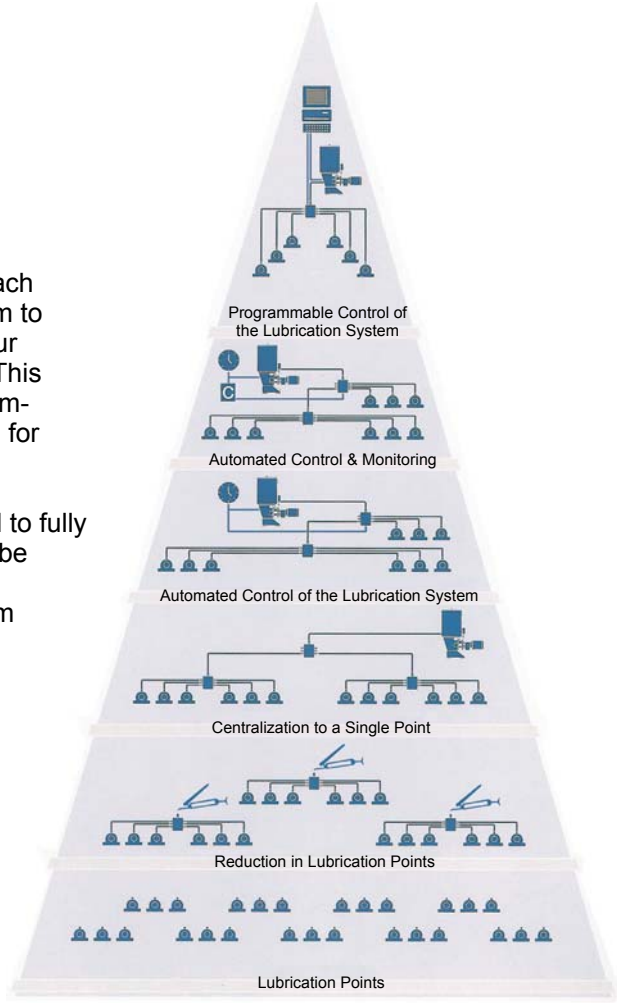
A lack of lubrication can bring your machines and equipment to a screeching halt. Manual lubrication is often awkward and expensive. Automated lubrication offers an efficient, rational and environmentally friendly solution.

From a few lubrication points to a few thousand - Lincoln offers the complete range of lubrication equipment and systems for professional lubrication of construction and mining equipment.

Lincoln lubrication systems are based on the principle of grouping lubrication points together that can be serviced from one supply point.

Our modules build upon each other – enabling the system to grow in accordance with our customer's requirements. This enables us to offer a custom-tailored lubrication solution for individual needs.

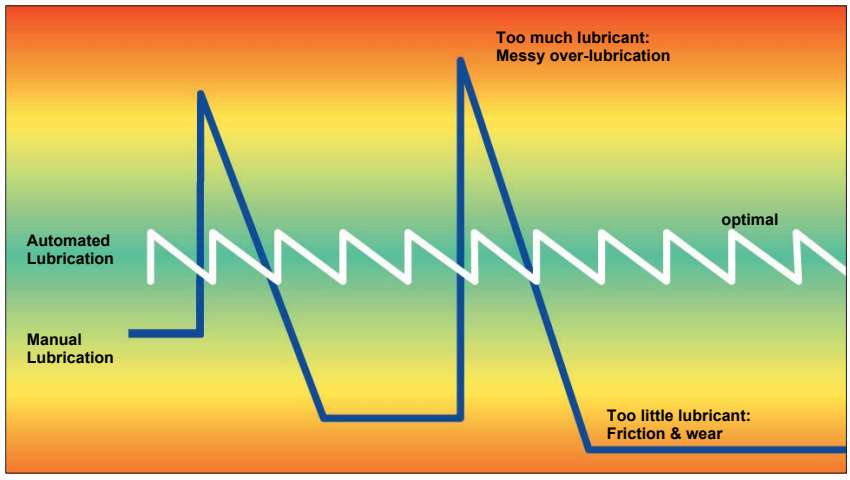
The transition from manual to fully automated lubrication can be performed in several steps because the Lincoln system modules enable a gradual building of the system.



Advantages of Automated Lubrication

Centralized or automated lubrication offers several advantages when compared to manual lubrication.

- Increased profits and productivity
- Improved operating times; less costly downtime resulting from improper lubrication
- Lower costs for repairs and spare parts
- Exactly matched metering reduces the cost of lubricant
- Precise metering reduces the environmental impact. No dripping of "too much" lubricant



- Improved safety by minimizing slipping
- Hard-to-reach points are easily accessible from a convenient point - which also improves safety
- Reliable supply of all connected lubrication points. No point is "overlooked"

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Lincoln GmbH
Heinrich-Hertz-Str. 2-8
D-69190 Walldorf · Germany

Tel. + 49.6227.33.0
Fax + 49.6227.33.259
www.lincolnindustrial.de

lincoln@lincolnindustrial.de

Printed in Germany