

GREASE LIGHTNING

APART FROM MASSIVE TIME SAVINGS IN TERMS OF MAINTENANCE, AUTO-LUBE SYSTEMS INCREASE COMPONENT LIFE, PROVIDE EXTRA CONVENIENCE, ELIMINATE HUMAN ERROR AND REDUCE THE AMOUNT OF WASTED LUBRICANT

▷ Although the lubrication of machines and equipment is already becoming faster and easier, this process can be further improved with the efficiency and dependability of automatic-lubrication system technology. The concept of an auto-lube system is fairly simple: as the machine operates, a small, fresh shot of lubricant is sent to each lubrication point. Essentially all that needs to be done is to fill the reservoir and visually check to ensure that all lines are connected.

Productivity is key in today's global economy. Proper lubrication increases uptime and makes maintenance routines simple. When times are tough, the value of machinery increases and the need for protection in the form of lube systems becomes greater. The increased cost of lubricants and maintenance duties, coupled with a higher machine and equipment value, drives the need for automated centralised lubrication systems.

No equipment owner would dream of running the engine without oil, yet many bearings and pins are operated without sufficient lubrication. The theory that spending money on lube systems is simply another cost is a complete fallacy – if it were true, lubrication, like any other cost, should be minimised to help cut costs in today's global economic situation. It is therefore imperative to note that proper lubrication methods provide the owner or operator with vital cost savings.

Harsh conditions such as water, dirt, dust and mechanical loads cumulatively



Lincoln QLS grease pump

result in a high wear rate of parts such as bearings, pins and swivels. Lubrication is therefore absolutely necessary in order to provide the right protection.

Lincoln's centralised lubrication systems are a reliable means of regular lubrication. While the machine is in motion, 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, thereby reducing friction and premature wear.

Automated or manual?

Out in the field or on the road, the auto-lube system is set to lubricate according to the demand and operating conditions. Manually, on the other hand, someone might pump a grease gun until grease squeezes out and falls on the ground. Automatic systems are designed to provide just the right amount to each component according to the need. You don't waste grease. You don't pollute the job site, environment, or your maintenance shop. Lincoln's experience has shown over and over again that a proper lube system can save as much as 50% on lubricant costs.

Another weakness of manual lubrication of each and every lube point with a grease gun is that it is not only tedious and time consuming, but often involves the greasing of points that are difficult or even dangerous to access.

Auto-lube cost justification

- Increased machine component life;
- Manual labour is reduced to visual inspection of the machine;
- Increased operator convenience and comfort;
- Less grease in the environment;
- Easier maintenance of machine components;
- Lubrication schedules are followed more closely;
- Human error is eliminated;
- Improved safety.

Centralised lubrication improves safety. It also provides peace of mind that some lube points are not being overlooked.

In comparison with manual lubrication, automated systems eliminate a too-little or too-much lubricant application. The productivity of the equipment or machine increases, the cost of repairs resulting from insufficient lubrication are reduced and downtime losses are minimised. By optimally matching the lubricant needs, consumption is reduced – good for your pocket as well as the environment.

Does this mean a grease gun is obsolete? Not at all. Modern pneumatically or battery-operated grease guns provide an economical means for entry-level, centralised lubrication. In the first stage, lubrication points are grouped and supplied from a single point or only a few central points via a progressive metering device with lubricant. This type of bearing dosing system – BDS – reduces lubrication time, increases safety and helps ensure that connected points are supplied with an optimum metered dosage of lubricant.

The Lincoln BDS is based on a modular building block concept that can be extended at any time, or retrofitted with an automated centralised lubrication pump. This provides the owner with a flexible and economic solution.



BDS – from one central point, several lube points are easily treated, such as with this Lincoln PowerLuber battery-operated grease gun



CentroMatic single-line injector family



Factory-installed auto lube system using a hydraulically driven grease pump with a refillable sealed container

Selection of lubrication systems

To optimally lubricate, it is necessary to select the most suitable lubrication system. For this reason, Lincoln offers a wide range of systems that can be custom-tailored to meet exact requirements. The company's progressive two-line, single-line spray lubrication systems, and other speciality lubrication systems, are ideal for various applications in all industries.

Lincoln's comprehensive programme not only includes automated and centralised lubrication systems for grease and oil, but also encompasses general lubrication tools and equipment

as well as hose reels – covering all requirements for professional lubrication and fluid handling.

One of the most popular lubrication systems is the Quickclub progressive system, which is primarily used to supply lubrication points of individual, small to medium-sized machines with grease (NLGI 2 or less) or oil. The system's 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. The lubrication of bearings with high back-pressures is therefore also viable.

The pump, which is equipped with three pump elements, can supply lubricant to as many as three independent circuits consisting of numerous lubrication points. The system is easy to monitor and ensures that the right quantity of grease is supplied to the lubrication points.

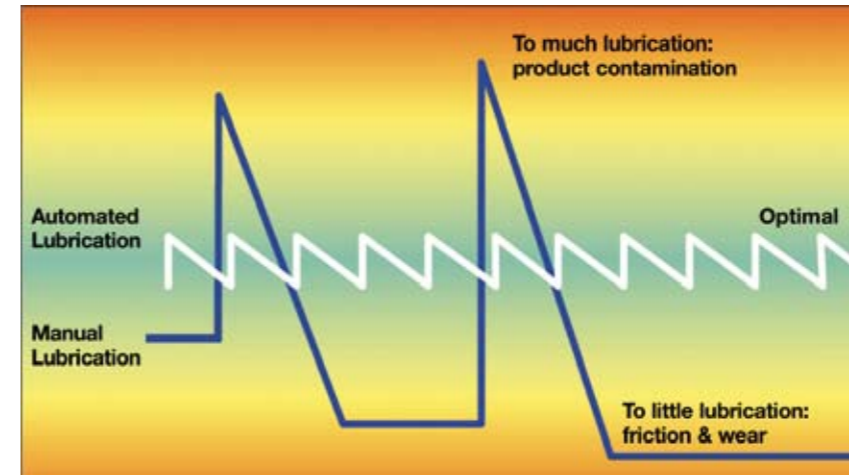
The SSV progressive metering devices are a solid-block type with a high-precision piston fit that eliminates the need for defect-prone rubber seals. They



Grease pump and refillable sealed container reduce contamination potential



Mobile service unit furnished with Lincoln pumps and equipment is used to fill all oils and lubes on the large reclaimer



Comparison: automated versus manual lubrication

can, therefore, be used without problems at high differential pressure (up to 100 bar), a maximum operating pressure of 350 bar and for a wide range of temperatures (-40 to +100°C). SSV progressive metering devices are also available in an innovative D version with adjustable metering. The Lincoln Quickclub progressive system shown (box, below left) comprises a model P203 pump and SSV metering devices.

The classic Helios two-line system supplies grease up to NLGI class 2 to lubrication points that are widely dispersed over great distances; for example a large stacker reclaimer. The supply and monitoring of a very large number of points can easily be performed with this system.

CentroMatic single-line systems are commonly used to supply the lubrication points of large excavators, draglines or other machines. With this system, the lubricant quantity for each point can be individually adjusted to match the requirements of each lubrication point.

Case study: hydraulic scrapers

DBH Baumaschinen Handel GmbH, a construction machine dealer in Leipzig Germany, found auto-lube the solution to an age-old problem. Reynolds Scrapers, which DBH distributes in Germany and other parts of Europe, are now fitted with a Lincoln HTL 101 lubrication system that reliably supplies the correct amount of lubricant while the scraper is in operation.

Scrapers, like all machines in heavy-duty applications, are subjected to extremely harsh operating conditions. In addition to bad weather conditions, changes in ground characteristics work negatively on the machines. Traditional lubrication by hand does not provide sufficient protection. Often the intervals between maintenance are too long, and hard-to-reach points are lubed with difficulty or even overlooked. In the case of insufficient lubrication, dirt and water quickly penetrate into the bearings and bushings. This leads to increased friction, premature wear and ultimately machine downtime.

As a result, DBH decided to use an automated centralised lubrication system that reliably supplies the lubrication points regularly with the correct quantity of lubricant. The hydraulically operated HTL 101 lubrication pump, in combination with the proven solid-block design SSV metering devices from Lincoln, provided the ideal solution.

By applying a metered quantity of lubricant, a grease collar develops that protects the bearing from penetrating water and dirt. In addition, optimised and economical handling of lubricants actively contributes to environmental protection by substantially reducing ground contamination with dripping or wasted lubricants.

A further advantage of centralised lubrication is the reduced expenditure for time-consuming maintenance work. DBH calculates a daily saving of half an hour for a 7.7 E tandem digging scraper. This equates to an additional 55m³ of excavation per day.

The HTL-101 is driven directly by the operating hydraulics of the machine, and lubricates continuously with a small, adjustable quantity of grease during the machine's operation. An additional drive, electrical connection or an additional control valve are therefore redundant. The lubrication pump offers a high insurance of operation at temperatures down to -25°C. The HTL-101 is very maintenance-friendly, and uses easy-to-replace 400g cartridges. **IVT**

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Pump solutions

Several factors play an important role when choosing the correct lubrication pump. As a result, they are offered in several sizes, with different outputs, various pressure ratings and a selection of drives: mechanical, electric, pneumatic or hydraulic. Depending on the lubrication system and the application, a further

choice of pre-filled cartridge, reservoir, drum, sealed container or bulk container-type pump is available.

In all cases it is imperative to make a choice that best suits the operating conditions, and special attention must be given to contamination avoidance.

