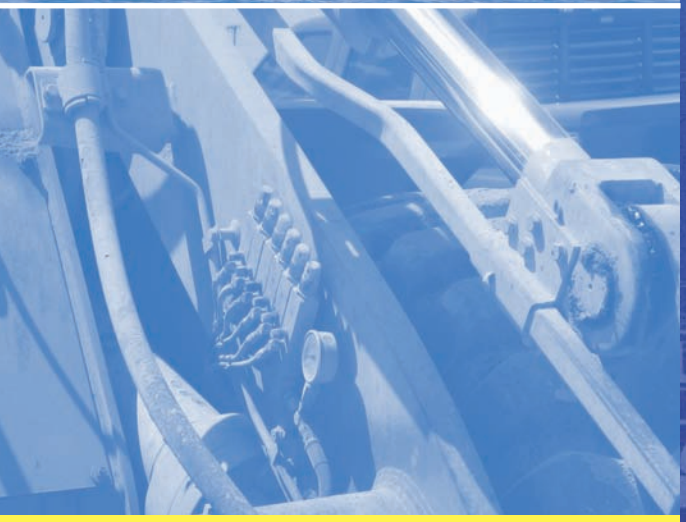
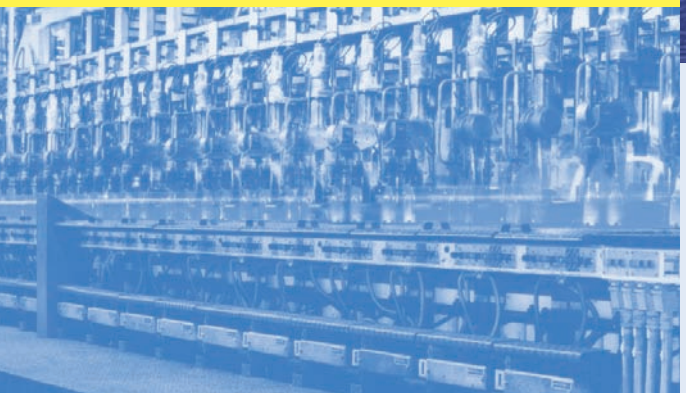
Single-line Lubrication System
Pumps 603S and 653S, QSL/SL Injectors



Reliable Operation in Harsh Environments

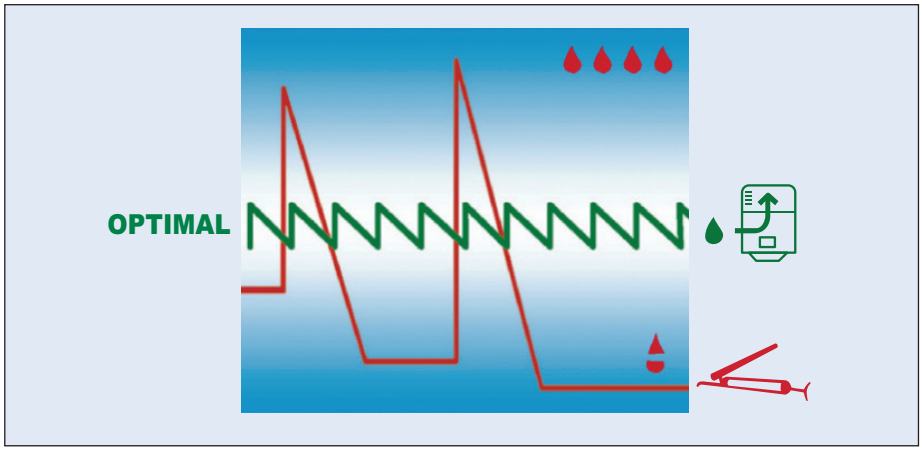
- Wind turbines – especially offshore
- Construction and mining
- Commercial vehicles
- Compact and medium-sized machines and industrial applications



- Robust and easy system layout
- Simple maintenance – easy to expand
- SE1 suction elements for used lubricant
- QSL / SL injectors suitable for high pressure
- Suitable for quick separating lubricants

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 points are “overlooked“

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.

Applications

Equipment that operates in harsh conditions requires regular lubrication to ensure performance. When a bearing or component fails as a result of insufficient lubrication the result is downtime and losses. The single-line 603S and 653S pumps/systems automatically supply the lubrication points with exact metered quantities in programmed interval while the equipment is in operation.

As a result, the robust system is ideally suited for wind turbines – even offshore applications – and for off-road mobile equipment such as construction and mining machines and heavy-duty commercial vehicles.

In the general industry the system is used to lubricate small to mid-sized stationary machines or machine groups.

Reliable Performance in Harsh Environments

QSL and SL injectors are designed for 300 bar pressure. As a result, NLGI 2 greases can be pumped at temperatures below zero without problems. All injectors operate independently of each other. This means that in the event of a blockage or fault of one injector, all other injectors will continue to supply lubricant.

The metal-to-metal fit of the injectors makes them suitable for high pressure. Each injector's output can be individually set. The injector function is generally visually monitored, but optional electrical monitoring or a GSM controlled system is available.

Simple System Design – Easy to Service and to Expand

Pump and Accessories – All-in-one

The pump with integrated controller is easy to install. The all-in-one design of the pump includes the programmable controller, a pressure switch/transducer and a vent valve.

Simple System Design – Easy to Expand

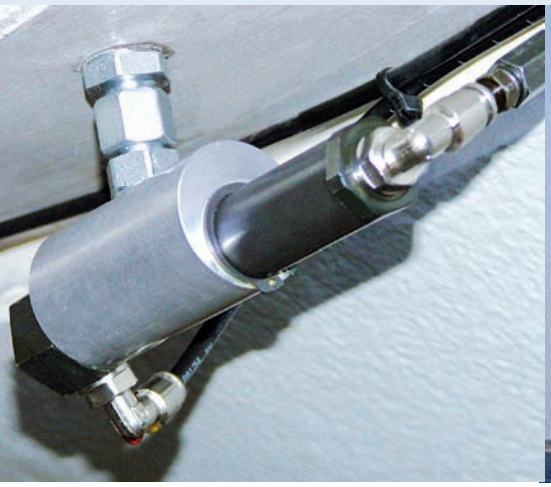
The single-line system's design and layout is uncomplicated, making it easy to install and operate. A single mainline reduces material and installation costs.

Easy to Service

It is quick and easy to exchange out an injector. The mainline or neighboring injectors do not have to be removed. The exchange can be performed between lubrication cycles so that there is no wastage of lubricant or excessive costly downtime.

603S Lubrication System including SE1 suction element and used lubricant container

QSL and SL Injectors



SE1 suction element

Visual Monitoring – To Ensure all is Well

Each injector has an indicator pin that moves with the pressure buildup and venting. This facilitates easy trouble-shooting when required by simply observing the indicator pins.

Additional Pressure Switch

An additional pressure switch at the end of larger systems can be used for added pressure control to ensure correct lubrication.

SE1 Suction Element For the Extraction of Used Lubricant from a Single-line System

The SE1 suction element was especially developed to extract the used lubricant from single-line systems used in wind turbines. The used lubricant is collected in a separate 10 liter container AFB 10 and can be recycled – or used for example for the lubrication of gear drives.

As a result, the problem of used lubricants in bearings is reduced. The lubricant no longer pushes through seals and doesn't spoil or pollute the bearing environment. Additionally, a re-usage of the lubricant conserves resources and preserves the environment.

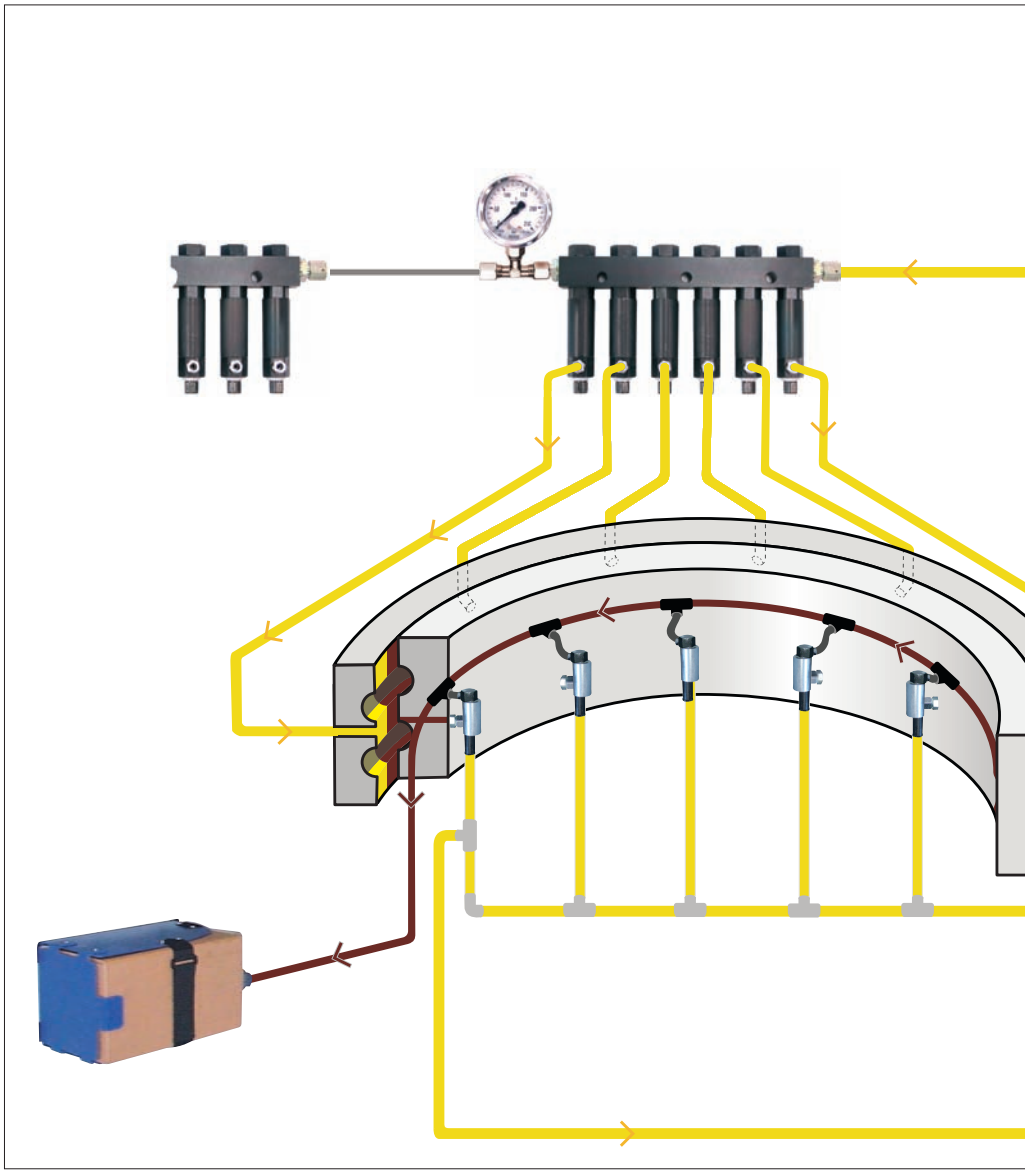
Special Features for Wind Turbine Applications – Also for Off-shore Systems

Lincoln single-line systems completely vent during the pause interval. As a result, they are suitable for fast separating lubricants.

For rotating operation in wind turbines the reservoir is equipped with a follower plate and stirring paddle – which also facilitates the usage of fast separating lubricants. For stationary operation a stirring and fixed paddle is sufficient.

The 603 and 653 Lubrication System Compatible with SE1 Suction Elements

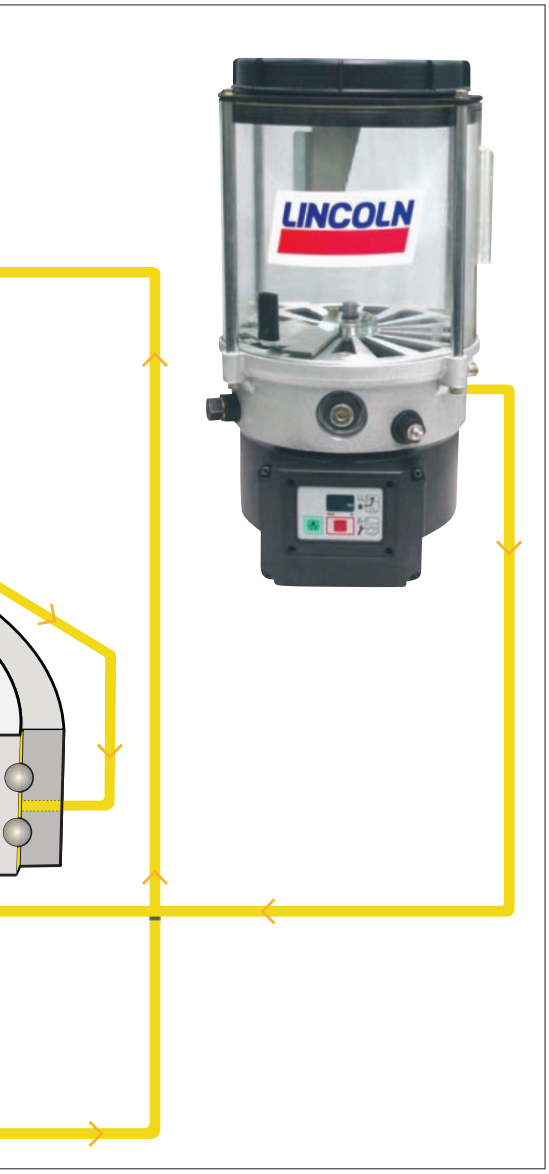
Lincoln single-line systems can be integrated with SE1 suction elements for the collection of used lubricant. The recovered lubricant can be used for the lubrication of open gears. As a result, this system offers a complete recycling circuit of the lubricant.



Functional Principle

The lubrication system consists of a pump 603S/653S and direct operating QSL / SL injectors. The injectors supply lubricant under full pump pressure (direct operating) to the individual lubrication points. The max working pressure is 300 bar. NLGI 2 lubricants can be pumped even at below zero temperatures without problems.

The pumps are designed to internally combine the lubricant of 3 pump elements. This provides sufficient output performance to supply connected injectors. The internal pressure sensor monitors the pressure buildup and venting of the system, and the integrated vent valve ensures that the mainline pressure is relieved after a lubrication impulse.



Shown in smaller scale

Pump	P603S	P653S
Injector metering	0.05 - 0.4 cm³/Stroke	0.25 - 5 cm³/Stroke
Pump output	12 cm³	26 cm³
Supply voltage	12 VDC, 24 VDC, 100-240 VAC	24 VDC, 100-240 VAC
Visual monitoring (indicator pin)	x	x
Programmable Controller	x	x
Additional remote signaling for OEM satellite communication systems	–	x
Reservoir capacity / liter	4, 8, 10, 15, 20	4, 8, 15, 20
Integrated pressure sensor and vent	x	x
Visual low-level	x	x
Compatible with SE1 suction elements	x	x

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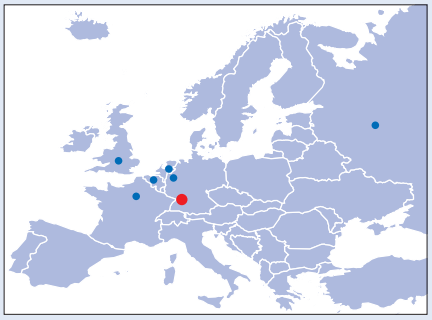

Whatever service is required – selecting a lubricating system, customised system installation or the supply of top-quality products – you will always be best advised by the staff of the Lincoln offices, representatives and contract dealers.

- *Lincoln main location*
- *Lincoln offices*

Representatives, contract dealers and system houses not indicated

Systems dealers

Our systems dealers have the most extensive specialised knowledge in our industry. They plan your installations to suit your specifications with exactly the combination of Lincoln components that you need. They then build the installations at your operation with experienced technicians or work closely with your personnel to ensure that everything goes smoothly.

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