GRACO

Discover how automatic lubrication leads to

Less downtime & higher productivity

The shortcomings of manual lubrication

When it comes to maximizing profitability of capital equipment, uptime and efficiency are the keys to success. However, manual lubrication remains ubiquitous in a wide range of markets, including off-road, mining, and construction equipment. Manual lubrication requires a technician with a grease gun to pump grease or oil directly into the gears, bearings, and pivots of the machine. Not only do you have to pay the technician, but lubricating all those parts is a **very time-consuming** process. In addition, equipment must be **out of action** during the lubrication process to protect the technician.

Unfortunately, even technicians occasionally forget. With multiple machines, possibly in multiple locations, it's **difficult to accurately monitor lubrication** on them all. Technicians will often lubricate when there's a problem — obviously, that's too late. Moreover, there is no surefire way of determining the proper amount of lubricant. **Too little lubricant** results in friction and heat, creating drag on the bearing and damaging the bearing's seals. That means technicians often pump grease until it visibly oozes out of the bearing. Too much grease can be costly, too. **Excess grease** can cost a company thousands of dollars a year for every piece of equipment.

In short, productivity takes a significant hit, as does the budget.

> ***For safety purposes, manual lubrication occurs when the machine is not in use. As a result, your entire production or construction schedule grinds to a halt.***

The issues with manual lubrication at a glance

- Machine downtime
- Time-consuming
- Risk of human error
- No regular lubrication intervals
- Over- and under-lubrication
- Grease waste

Find out how automatic lubrication overcomes these problems ›

MANUAL LUBRICATION

A lot of downtime, due to maintenance & repairs

Owners and operators of heavy equipment will agree that **replacing a damaged pin/bushing is relatively time-consuming,** as the equipment may need to be transported to an off-site workshop. A 'simple' removal and replacement of worn parts costs between $ 300 and $ 1,500 and takes between five and eight hours.

When a worn pin has damaged the structural steel of the equipment, operators are faced with **extra downtime and repair costs for line boring, welding, and refitting.** Line boring costs an average of $ 1,250 per pin/bushing and repair works can take up to two days. Also bear in mind that pins and bushing replacements are rarely covered under warranty, as it's related to lack of preventive maintenance.

Worn bushing

Job
Replacing the pin and bushing

Downtime
8 hours

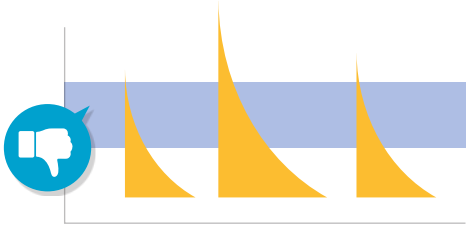
Affected frame

Job
Line boring, welding and refitting

Downtime
minimum 2 days

Manual & automatic lubrication compared

MANUAL LUBRICATION



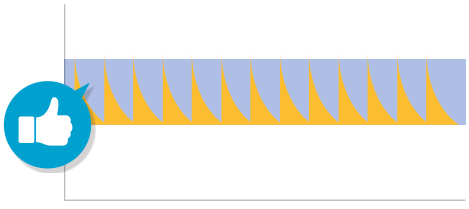
Over-lubrication causes:

- Excess heat build-up
- Product spoilage
- Bearing seal damage
- Clean-up issues
- Increased downtime

Under-lubrication causes:

- Increased component wear
- Bearing damage
- Premature failure
- Higher energy usage
- Increased operating & maintenance costs

AUTOMATIC LUBRICATION



Avoiding under- and over-lubrication:

- Accurate lubricant dosing
- At regular intervals
- In the right place

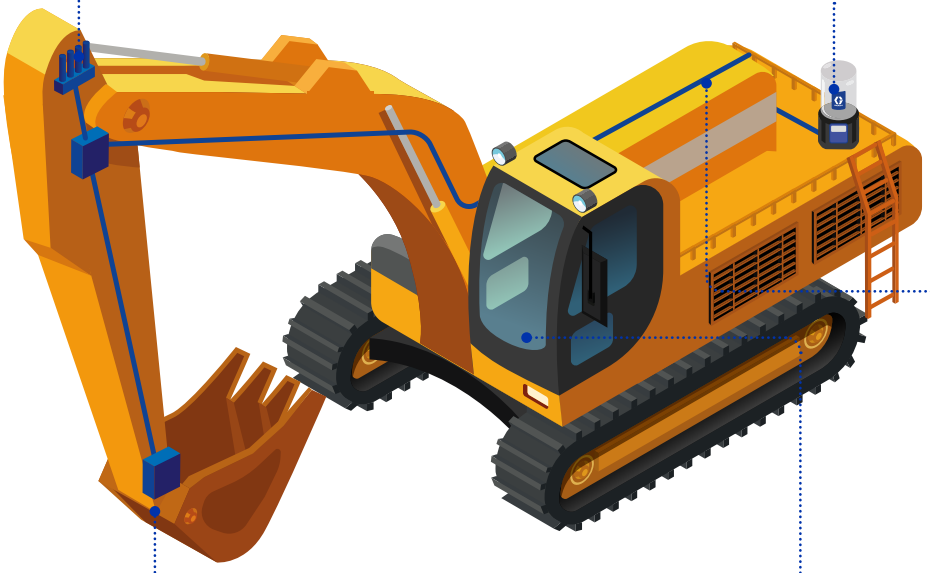
AUTOMATIC LUBRICATION

No downtime means higher productivity

An automatic lubrication system automatically provides your equipment with the right amount of lubricant at the right time and in the right place — while the machine is in operation. It replaces a conventional lubrication system such as a grease gun. An automatic lubrication system reduces both maintenance and costs and eliminates downtime. This is how it works.

Metering devices

Metering devices such as injectors or series progressive divider valves accurately dispense the right amount of lubricant to the lubrication points.

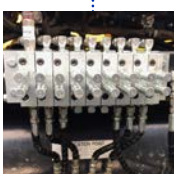


Pump and reservoir

The pump and reservoir store and provide a steady flow of lubricant.

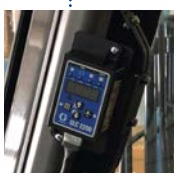
Hose and fittings

The hose transports the lubricant from the reservoir to the metering device, from the metering device to the bearings and other vital parts of the machine.



Divider valves

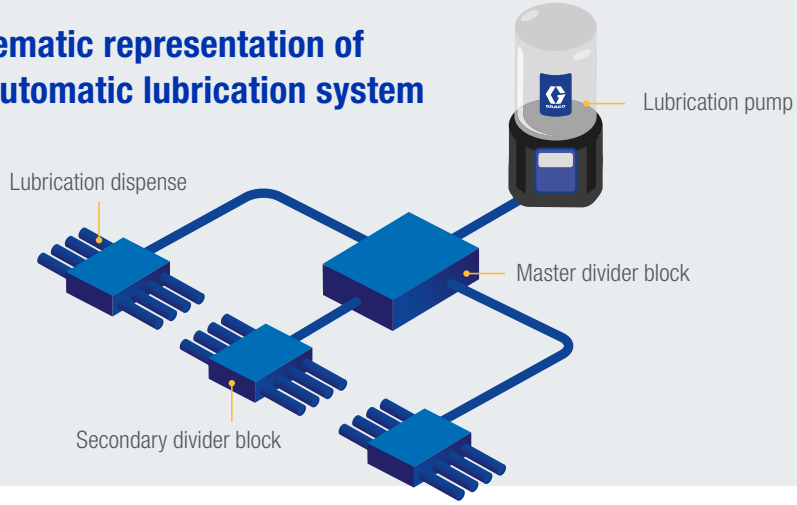
Divider valves accurately dispense lubricant from each block outlet to lubrication points throughout the machine.



Controller

The time- or cycle-based controller activates and monitors the system.

Schematic representation of an automatic lubrication system



Optional accessories

Optional accessories to **further enhance performance** include monitoring and detection accessories such as proximity or low-level switches, performance indicators, pressure and relief valves to protect the system and for high-pressure detection, for example due to line blockages.

CONCLUSION

Automatic lubrication leads to higher productivity

Heavy machinery such as construction and mining equipment requires frequent lubrication intervals. Without proper lubrication, the equipment may experience premature wear and eventually component failure. Automatic lubrication is a reliable way to increase your utilization and performance metrics.

Automatic lubrication systems are built specifically to **run optimally for years** with only minimal maintenance, such as refills.

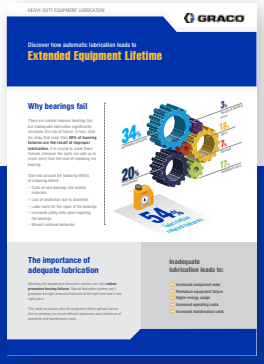
They never forget to lubricate: automatic lubrication systems deliver a consistent and reliable lubricant supply, continuously keeping machine linkages freshly lubricated, but not over-lubricated.

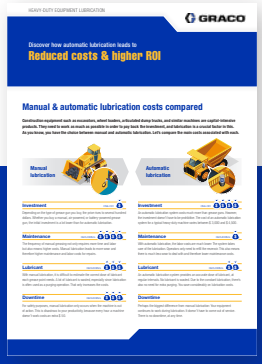
Auto lube's persistent supply of grease keeps **debris out of the linkage**, eliminating the need to purge.

Furthermore, the machine **doesn't have to come out of service for lubrication** — further enhancing productivity.

Discover our other journals on automatic lubrication

1. Extended equipment lifetime
2. Better & safer working conditions
3. Reduced costs & higher ROI





ALWAYS ON.
ALWAYS INNOVATING.

Graco manufactures automatic lubrication systems specifically designed for yellow iron construction and mining equipment. Our systems provide certainty for today's modern equipment manufacturers, managers, and operators seeking continuous uptime and optimal productivity from the machines they rely on daily.

For more information on automatic lubrication for heavy equipment, go to
www.graco.com/heavyequipment

Select the right automatic lubrication solution for your heavy equipment at
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