Bearing lubrication in the construction industry.

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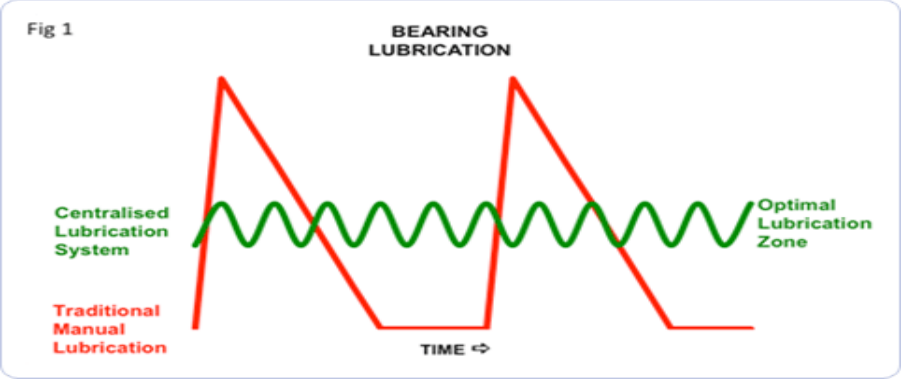
Companies require reliability and value from their equipment and, therefore, getting the most from their bearings is key, without incurring any unnecessary operating costs.

In a study conducted by a major component manufacture, it found that over 60% of bearing failures were the result of inadequate lubrication and bearing contamination. The ramifications are, unsurprisingly, costly and can cause massive disruption to production site.

Not only this, manual lubrication can be inconvenient; stopping a machine at regular intervals to lubricate bearings is expensive, increasing both downtime and reducing manpower. As a result, businesses will never be able to maximize the performance and value of their equipment.

Too much lubrication can potentially create a safety or environmental hazard, while too little lubrication causes bearing friction and wear. According to Lube-Spec, the use of centralised lubrication systems eliminates the ‘feast or famine’ conditions associated with manual lubrication.

A centralised lubrication system applies smaller amounts of lubricant frequently while the machine is in operation. This, effectively, keeps bearings in the Optimum Lubrication Zone (fig 1).



Applying lubrication to a bearing is far more efficient in smaller quantities at shorter time intervals with the bearing in motion. This formula is near impossible to maintain with manual greasing.

With a centralised lubrication system installed on a machine, all bearings are lubricated regardless of location. Lubrication only occurs when the

equipment is in operation, ensuring even distribution and maintaining a level of lubricant around the bearing contact surface areas.

This leads to a number of benefits, including: lower energy consumption due to less friction; reduced wear on the components resulting in extended bearing life; fewer breakdowns; lower replacement and maintenance costs; and increased productivity.

A centralised lubrication system also eliminates a number of safety hazards, such as climbing over equipment and/or entering confined spaces to access bearings requiring lubrication.

Lube-Spec has been assisting their customers for over 25 years in maintaining and protecting machinery through the use of centralised lubrication systems.

Company director Mark Cherry said:

"Maintaining properly lubricated machinery is an important part of any lubrication programme. Without administering lubricant at correct intervals with the proper amount, a machine can experience costly failures."

Centralised lubrication systems distribute a measured amount of lubricant to a specific location at specific times through the use of the programmable controllers, timers and lubrication pumps, distribution blocks, metering units or injectors.

Centralised lubrication systems were introduced in the mid-1930s and since then much research has focused on resolving the flow issues of various lubricants, e.g. delivering grease properly to its designated points. Advances in technology have created today's centralised lubrication systems featuring precise delivery methods for a wide range of applications.

Centralised lubrication systems are sometimes referred to as 'automatic lubrication systems' because they are mostly computerised in the process of dispensing lubricant. The systems eliminate the risk of human error and increase precision when an application requires the lubrication of different sized bearing components on numerous machines.

When delivering lubricants to bearings, the lubrication pump is activated by the controller. This creates pressure and distributes the grease/oil to the system distribution block or injector, which is pre-set to deliver a specific amount of lubricant at a specific time interval. Lubricant flows through the

grease lines and distribution block/injector, which, in turn, feeds grease/oil into the bearing.

A pressure switch can be incorporated in the system to deactivate the pump once the lubrication cycle is completed. In the last step of some types of centralised lubrication systems, a unit can detect any lubricant pressure remaining in the grease line, which is then delivered back into the reservoir.

The latest technological advancements have seen many products available for controlling and monitoring centralised lubrication systems. Distribution blocks/injectors, grease lines and lubricant reservoirs are now commonly monitored by visual and/or audio signals. For example, an alarm is sent when an undesirable flow pattern exists or when the lubricant reservoir is low.

Incorporating such alarms into a system is useful in preventive maintenance. If the machine has a prolonged maintenance intervals, high-capacity lubricant reservoirs can be provided in the system, typically holding double the volume of a common reservoir.

Mark Cherry said:

“A centralised lubrication system is key to achieving peak performance from any operating equipment whether it is a dump-truck, mobile crusher or static industrial machinery.”