



the list goes on and on. If there are grease zerks, a centralized system can be installed.

### Advantages abound

Centralized systems have certain advantages that cannot be overlooked when taking into account tight plant production schedules and OSHA safety regulations. These advantages include:

- Reduction of personnel injury incurred from maintaining operating machinery
- Increased production and profitability
- Positive lubrication to all points
- Reduction on lubricant consumption
- Promotion of good housekeeping
- Prevention of lubricant commination
- Reduction in machinery downtime and maintenance costs
- Prevention of over- and under-lubrication

All of these advantages have been verified, but the first 2 are enough to justify a centralized lubrication system. Believe it or not, I have heard maintenance supervisors say, "I would never have a centralized system in my plant." Their feelings probably were based on previous experience with systems that did not perform properly. Poor system performance comes from 1 or more of the following reasons: lack of system understanding, improper system installation and grease contamination.

**Lack of system understanding** is the most common and can easily be corrected with training. All too often a system is installed without proper training or with only supervisory maintenance personnel receiving the training. Then when a system malfunctions, a maintenance technician gets a 5-minute briefing on a system operation from the supervisor and is sent to make the repairs. It is easy for proper procedure to get lost in such a superficial transfer of information.

**Improper installation** can be caused by several factors. The design, layout and distribution system assembly are all part of the installation and they all reflect on system performance. Design and layout should be done by someone with system experience. Otherwise proper operation may be elusive.

Prime considerations are pipe/tubing diameters, distances and pressure drops. Installation of the system components are also very important in achieving proper system operation. A single 1/8-inch pipe plug improperly located in a large system can shut down the entire operation, so making on-site changes

is not recommended unless someone there knows that system operation.

**Grease contamination** may create a very brief problem or a long, almost never-ending situation. The most common contaminant is absorbent material on the floor. This always seems to be around the grease pumping station and a handful never fails to end up in the grease. Generally, a line strainer downstream of the pump will take out most contaminants if it is checked and cleaned on a regular basis. Other ways to prevent contamination are bulk handling systems, elevators for pneumatic pumping systems and a little care when working with the systems.

### Complex applications

Some industries, such as the steel industry, dictate the use of centralized systems due to their inherent requirements. The vast number of bearings used in equipment, the high-temperature environment and the water that many bearings encounter, all add up to a maintenance situation that would require dozens of men with grease guns full time. Even then, some points still could not be lubricated.

I am familiar with a wide flange steel mill that has 20 large centralized systems and 6 small specialized systems for specific mill stands. The operating frequencies of these systems vary from 10 to 60 minutes and the number of lubrication points varying from 10 to 400 per system. In total, this mill has between 5,000 and 10,000 lubrication points.

Other industries that almost always require centralized systems are the cement, pulp and paper and sugar; they all have applications such as mill stands or large gears that are exposed to extreme conditions continuously. Their entire plant operation depends on this machinery, which usually has large babbit or plain type bearings. The centralized lubrication systems must be reliable and they must work under extreme conditions during normal plant operation. Centralized systems can be adjusted to allow for fine tuning of individual points to prevent excess grease from dripping onto the product causing contamination, or onto the floor where it may create a safety hazard.

### No dripping grease

Our company maintains a large system in a butyl rubber finishing building for a large petrochemical complex. Much of this system is on overhead conveyors located throughout the building, and safety requires that any grease that drips on the floor must be cleaned up immedi-

ately. The timer on this system is set to operate once every 12 hours and the individual metering valves at each lube point have been adjusted for precise grease distribution. Product and floor contamination has been virtually eliminated.

### The old adage "If a little does a little good, a lot will do a lot of good" is the cause of many bearing failures.

A centralized system can do everything a grease gun does with more precision and on a programmed schedule. This allows maintenance to spend a minimum amount of time making lubrication rounds, while doing a better job of lubricating the machinery. This results in improved equipment reliability, company profitability and employee morale.

Comparing a grease gun to a centralized system is like comparing walking to riding in a car. The grease gun and walking work, but the other ways are faster and easier. The grease gun will be used to dispense grease for many years to come, because there will always be a few points that could never justify even a simple manifold. Still, the grease gun cannot compete on frequency of operation, volume of points to be lubricated or ensuring lubrication in adverse conditions; nor can it easily deal with precise specified lubricant amounts to each point.

A[n] important thing to remember about grease lubrication is "A little grease on a frequent interval does the best job. The old adage "If a little does a little good, a lot will do lot of good:" doesn't apply to lubrication and it the cause of many bearing failures. **PS**

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*More information on lubrication is available on request.*