

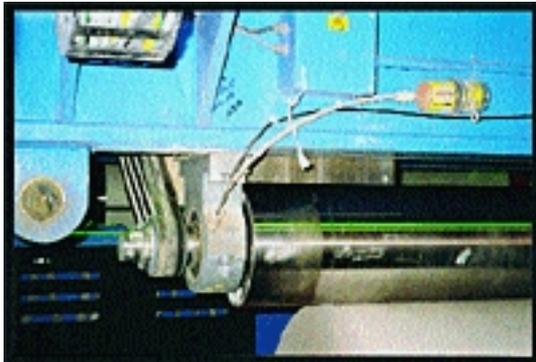
## Automatic Lubricators Solve Bearing Overheating Problem

Written by MT Staff  
Friday, 01 January 1999 18:18

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One facet of a strong preventive maintenance program is proper lubrication. In order to prolong machine life, there are three approaches to lubricating:

1. Manual lubrication with a grease gun is the simplest alternative if the bearings are easy to reach.
2. Single point automatic lubrication is the answer for hard-to-reach points, inaccessible due to running equipment, machine guards, or remote locations.
3. Centralized lube systems typically require a substantial capital investment, but are justified if there are many lube points grouped tightly together. These systems are, however, one more piece of equipment to maintain.



Automatic lubrication systems can offer a minimal, constant flow of lubrication. The ideal lubricant film thickness on a typical ball bearing is 0.002 in., enough to provide a barrier between metal-to-metal surfaces, but not so much as to cause bearing heat buildup due to friction drag.

One northwestern United States paper mill went from manual greasing to using single point automatic lubricators on fan bearings, pumps, motors, conveyor bearings, and agitator screw bearings. After success in these areas, the mill asked the supplier, PERMA USA, to study one of its problem spots: the paper rider roll.

The tail end of a paper machine has a large winding roll that the paper sheet is rolled on to. A tensioner roll rides on the paper roll, and keeps the paper web/sheet in line. If a bearing fails on this tensioner/rider roll, the entire paper machine goes down. This mill runs three shifts, 24-hours-a-day, and could not afford extensive downtime. Although this paper machine received regular manual lubrication monthly, this was not servicing the four bearings on the rider roll well; they were overheating and dying. They were 315/16 in. shaft size, 3200 rpm.

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A common misconception of greasing a bearing is that high-speed bearings break down the grease faster. Actually, the opposite is true. High-speed applications feature a shaft that is centrifugally centered, therefore seeing little contact with the bearing. The low-speed shaft sees more contact with the roller bearings, and therefore “crunches” down the grease faster.

The lubrication solution offered by PERMA provided single point automatic lubricators on a 6-month setting, giving the bearings ½ shot of grease per day. One shot equals a typical shot of grease from a grease gun, about 1 gram of lubricant.

The lubricators are settable with dip switches and instructions on the labels. They also offer outputs of 4 shots per day, 1 shot per day, or ¼ shot per day.

Since the installation of the PERMA Stars, the rider roll has not had any bearing failures in one year of operation. The paper machine has had no unscheduled downtime as a result of the rider roll bearings failing since the installation.

Single point lubrication is a simple solution for hard-to-reach bearings, but also offers solutions to critical need areas as well. The simplicity of a single point lubrication system gives companies the flexibility to approach many special situations with constant lubrication, in small quantities, keeping bearings lubricated but not choked with over-greasing. **MT**

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