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Virtually every continuous-improvement and change-management program is geared toward taking a current state and evolving it into an optimal state. This is also true of a lubrication-management improvement program.

In the case of a lubrication program, optimal state begins with adherence to the 4R principles: Deliver the RIGHT lubricant, in the RIGHT place, in the RIGHT amount, at the RIGHT time. Simple! If a bearing could talk, it would say its optimal state is best achieved by delivering a small amount of the correct lubricant on a continual basis so that it never runs dry and falls into a boundary/dry running state (dry friction), or that its cavity is never over-filled, forcing it into a fluid-friction (wet-friction) state. Both of these states are less than optimal—*and will result in premature bearing failure, as well as a marked increase in energy use to overcome the frictional retardation force.*

While vacationing in the Caribbean several years ago, I went for what was expected to be a relaxing barefoot stroll along the beach—*albeit on a very hot day*. Finding it difficult to negotiate the scorching sand without blistering my feet, I was forced to dash into about 18 inches of ocean water to cool off. Trying to continue my forward momentum there was not easy, as I needed to exert increasing amounts of energy to overcome the resistance of the water. Through a little trial and error, I eventually found my optimal state: walking in about a half-inch of water. There was almost no resistance and it was nice and cool and easy to move through with good traction. It didn't take long for me to realize that this is how a bearing must feel in its optimal and not-so-optimal states.

Running a successful lubrication program based on a manual-system approach requires a vigilant lubrication person who must always ensure that: (1) the right lubricant is in the grease gun; (2) the same grease gun is always used, in order to guarantee the same "shot size" delivery every time; and (3) he/she lubricates to a strict timetable and consistently/rigorously maintains absolute cleanliness of both gun and nipple. You probably know that this reality is difficult to achieve—*and that a most likely result is a non-optimal, feast-or-famine lubrication state.*

To combat a non-optimal state, we must convert to the use of centralized and automated lubrication systems that are set up to deliver a small amount of lubricant on an almost continual basis. Automated systems deliver generous benefits over manual lubrication techniques that include up to three times extended bearing life and elimination of all of the associated downtime costs, reduction in lubricant use and significant energy savings (with an associated carbon-footprint reduction)—*and all at little capital cost, which, in turn, generates fast and easy return on investment.*

To assist you in choosing the correct automated delivery systems for your particular application(s), Lubrication Management & Technology is launching a continuing series on "The Anatomy of a Centralized Lubrication System." Over the course of the year, we'll review the pros and cons of different system types and explain how they work. Please click here , where our first installment in this series focuses on "Series Progressive Delivery Systems."
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