Circulating oil lubrication systems

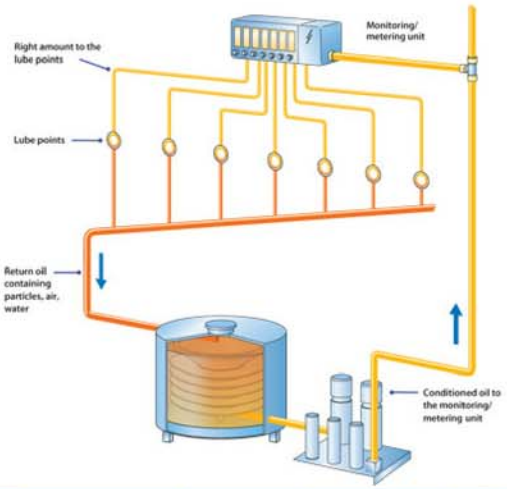
Benefit from a continuous supply of oil.

BY MIKE DECKERT AND GABRIEL LOPEZ

In a study conducted by a major component manufacturer improper lubrication accounts for 53 per cent of all bearing failures, a major cause of equipment downtime and significant maintenance costs. The majority of failures are caused by contamination of bushings by dust, dirt and moisture or inadequate amounts of lubricant applied to bearings.

Unfortunately, contamination is a fact of life in many setups, from a small gearbox to complex applications such as metal stamping presses, paper machines, steel and cement mills or printing presses. In some cases, you have the added problem of overheating of a few key bearings. Circulating Oil Lubrication Systems (CircOil) help address these problems and optimize the lubrication and maintenance of your critical equipment.

In a circulating oil lubrication process, lubricant is pumped through supply lines to the application (bearing) points. In contrast with total loss automatic lubrication systems (where lubricant is not collected after it is applied to the lube point), in a CircOil Lube System, after the oil passes through the lubrication point, it is collected, conditioned and reused. In addition to lubricating, CircOil systems perform a range of other functions, including maintaining the lubrication points at a proper temperature by removing the heat as the lubricant passes through, filtering out wear particles from friction points, preventing corrosion and removing any air, process water or condensation that may be captured within the lubricant.



CircOil lube systems perform many functions, including filtering out wear particles.

A CircOil system can include a wide range of options for generating flow rates from 0.1 to 3,000 l/min or even greater. Oil is stored in the oil supply unit (typically an oil tank and pump). It is continuously pumped out through the oil "supply lines" and separated by hydraulic resistors (orifice tubes, adjustable metering valve distributors or throttles), flow limiters or progressive feeders, or multi-circuit gear pumps or piston pumps. The correct amount of oil is distributed to the lubrication points through the oil "feed lines." The actual feed rates can be controlled visually or electronically (paddle/ball-type visual monitors, needle valve flow adjusters, in-line manual volume adjusted flow meters, etc.).

For a more predictive maintenance approach, integrated condition monitoring systems with individual warning levels can be used, monitoring either by bank or individual meters for low/high flow occurrences, low/high oil pressure or oil temperature. Once it's passed through the lubrication points, oil containing particles, air and water is fed back through a return line into the Oil Supply Unit where it is reconditioned (via filtration, coolers, heat exchangers, heaters, separators and kidney loops) and reused.

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