

Case Study 6

Cold Mill Bearing Lube Oil Filtration Optimization

Background

After an initial visit to a steel mill, early indications were that they were happy with their current filter supplier but had some operational issues. Follow-up visits uncovered a need for chronic bearing rebuilding in their cold mill due to contamination buildup in the bearing rollers. They also disclosed short filter life and high OPEX despite their low filter element price. Operations invited Northeast Filter to tour the facility and witness a filter change with the current filter cartridges in use. What we found was eye-opening! We identified numerous issues to include; a) poor filter seal integrity (severe bypass), b) no means of monitoring filter ΔP , c) no means of fluid sampling for analysis, d) no means of venting air from the filters during filling. As a result of our findings, we were asked to perform a complete system analysis and present a corrective actions proposal with an indication they would consider using the filters we recommend in return so long as it was justified.

Solution

The first issue we addressed was installing sampling ports for fluid analysis sample draws. Then we modified the filter vessel internals to secure seal integrity and provided more efficient filter elements. Next, we installed automatic air vents for air/liquid displacement during fill. Finally, we built a custom DP panel to monitor differential pressure on each filter with local annunciation lights and pressure transmitters to send signals to the control room. When we began, the fluid quality was ISO 27/24/19 (highly contaminated). Six months later they were maintaining a fluid quality of 20/17/10 (better than new). Our VAS services assisted operations in establishing a fluid maintenance program which included proper filter monitoring and data logging. Routine bearing rebuilding was eliminated and OPEX was substantially improved and as a result, the system upgrade paid for itself within the first year.

Before



After



DP Panel



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