

Cost-effective Bearing Repair for Paper Mills

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Repairing paper mill bearings is not a new concept. It's a precise science refined over many decades to provide superior results. As expertise and new technology continue to increase the reliability and performance of bearings, repair has proven to be a cost-effective alternative for mills.

Benefits of bearing repair

Paper machine manufacturers typically design bearing applications that establish an appropriate prediction for service life. Bearings often deviate from these expectations due to contamination, inadequate lubrication or misalignment.

Often, paper mill bearings that don't reach their intended service life can be repaired to original specifications. A quality repair program produces 50 - 90 % savings compared to discarding and replacing bearings. Another value-added benefit of paper mill bearing repair is the use of damage analysis to identify corrections that may prevent future problems.

When to repair your bearings

Typically, any paper mill bearing can be repaired unless the bearing has experienced heavy thermal tempering or spalling damage. Bearings that have minor wear and debris denting are excellent candidates for repair. Bearing manufacturer sales and service engineers are good resources to help determine the viability of repair for paper mill bearings.

A regular visual inspection is the first step in deciding if a bearing needs repair. Early detection of a problem through routine checks can spare you unnecessary downtime and expense. Carefully review the following criteria to determine the need for repair:

- Is the bearing near, or has it exceeded its suggested life expectancy?
- Has the bearing's operating temperature exceeded 200 °F (90 °C)?
- Has the bearing been exposed to excessive vibration?
- Has the bearing experienced sudden changes in lubrication or in lube temperature?

Understanding the repair process

At Timken, a damaged bearing is reviewed to determine a plan of action to return the bearing back to manufacturer's specifications. This process allows mills that participate in the assessment to make a sound financial decision about bearing repair or purchase options.

The first step is for the paper mill bearing to undergo a thorough cleaning and inspection. Once the bearings are determined repairable, a repair type is selected.

Type I paper mill bearing repair

This repair is primarily used to certify a bearing that's been in storage for a period of time. It involves disassembly, a full inspection and repackaging of the bearing.

Type II paper mill bearing repair

All necessary components are completely polished, such as the bore and outside diameter. Generally, this would be performed where some minor corrosion is found.

Type III paper mill bearing repair

Standard for bearings that have been in service long enough to have visible evidence of wear and stress - the process includes regrinding of the raceways; polishing of the outer diameter, inner diameter and width of the bearing; and replacing the rollers. Type III repair is necessary to remove wear or debris indentation.

These classifications of paper mill bearing repair have traditionally been cost effective for bearings with a bore size of 300mm and greater. However, with larger quantities, some smaller sizes also may be appropriate for repair. Turnaround time on paper mill repairs can be as short as two to four weeks, depending on the repair type. Short lead times are critical when considering production demands or the availability of new bearings.

Today's increase in cost-effectiveness along with the availability of refined repair expertise have fostered a greater understanding of the benefits and value of paper mill bearing repair. Mills that have their bearings repaired learn that repaired bearings provide significant cost savings - regardless of the original bearing manufacturer, bearing type or application.



Duke Brown performs a final build up of a tapered bearing. This involves measuring the bearing in order to set the lateral clearance.

For additional information on bearing repair services, visit www.timken.com/industrialservices, or register for Bearing Training at www.timken.com/training.

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