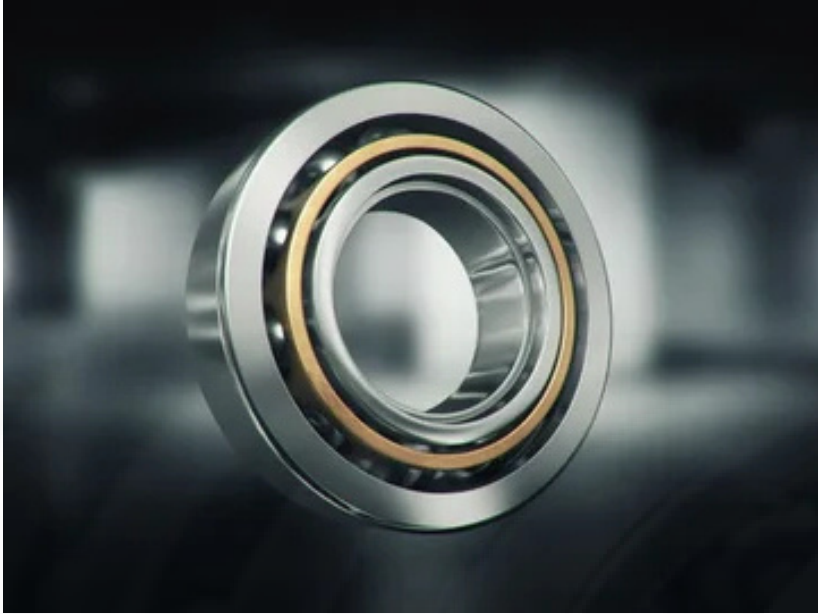


U CONNECT

Welcome Message

Dear Readers,
Welcome to the latest edition of the KEC Bearings newsletter! We're excited to share updates, innovations, and insights from the world of bearings and mechanical solutions. Thank you for being a part of our journey.

Best regards,
Mehul Viradia
Director - Operations
KEC Bearings Pvt Ltd



• Consistency in Action – Core value of the company

Empowerment and equality are at the heart of our company's culture, driving innovation, collaboration, and success. We believe that every individual deserves respect, opportunity, and a voice, regardless of their background, gender, or identity. By fostering an inclusive environment where diverse perspectives are valued and employees are encouraged to take initiative, we create a workplace that thrives on mutual support and growth. Our commitment to fairness and equity ensures that everyone has access to the tools, mentorship, and opportunities they need to succeed. Through these values, we not only strengthen our team but also contribute to a more just and progressive society.



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GSSE 
GLOBAL STAINLESS STEEL EXPO 2025
EXPO | CONFERENCE | WORKSHOPS | AWARDS

4 5 6 JUNE 2025

• Upcoming Events

Join us at Global Stainless Steel Expo 2025 on 4 to 6 JUNE 2025 at MUMBAI. We'll be showcasing our latest technologies and solutions. Don't miss the chance to connect with our team and explore new opportunities.

• Company Warehouse Expansion

We are thrilled to announce the expansion of our state-of-the-art warehouse facility, a significant step forward in our commitment to operational excellence, efficiency, and innovation. This expansion is designed to accommodate growing demand while integrating the latest advancements in logistics, automation, and sustainability. Featuring cutting-edge inventory management systems, AI-driven optimization, and energy-efficient infrastructure, our upgraded facility enhances storage capacity, streamlines workflows, and reduces turnaround times. By leveraging smart technology and real-time data analytics, we can improve order accuracy, accelerate fulfilment, and ensure a seamless supply chain experience for our customers. This investment not only strengthens our ability to scale but also reinforces our long-term vision of delivering superior service, reliability, and sustainability in an ever-evolving market.

With the expansion of the warehouse, we are also committed to expand our product range and services which we are providing to customers and end users.



• Latest Trends in Bearing Technology



Our new generation of lubricants for bearings is engineered to deliver superior performance, longevity, and efficiency in demanding applications. Formulated with advanced synthetic compounds and cutting-edge additives, these lubricants provide exceptional protection against friction, wear, and extreme temperatures. Designed to reduce energy consumption and maintenance costs, they enhance operational efficiency while extending the lifespan of bearings in high-speed and heavy-load environments. Additionally, our eco-friendly formulations ensure minimal environmental impact without compromising performance. Whether for industrial machinery, automotive applications, or precision equipment, our next-generation lubricants set a new standard for reliability, durability, and sustainability.

• Case Study: Enhancing the Life of Taper Roller Thrust Bearings in Rolling Mills Through Design Modification



Introduction

Rolling mills operate under extreme conditions, subjecting bearings to heavy loads, high speeds, and severe temperature variations. Taper roller thrust bearings play a crucial role in these applications, ensuring smooth operation and efficiency. However, frequent failures due to excessive wear and fatigue have been a persistent challenge, leading to high maintenance costs and operational downtime. This case study explores how a design modification significantly improved the life and performance of taper roller thrust bearings in a rolling mill application.

Problem Statement

A leading steel manufacturing company reported premature failures of taper roller thrust bearings in its rolling mills, with an average lifespan of only six months. The primary issues identified were:

- High contact stress causing surface fatigue and early spalling.
- Inadequate lubrication due to poor oil flow and retention.
- Excessive heat generation, leading to thermal expansion and performance degradation.
- Misalignment and uneven load distribution, causing localized wear and reduced bearing life.

Solution: Design Modification

To address these challenges, a comprehensive redesign of the bearing was undertaken with the following key improvements:



Optimized Bearing Geometry

- Increased roller diameter and length to enhance load-bearing capacity.
- Improved roller profile to achieve a more uniform stress distribution.
- Enhanced cage design to minimize friction and ensure better roller guidance.

Advanced Material Selection

- Utilized high-performance bearing steel with improved heat treatment to increase hardness and wear resistance.
- Applied a special surface coating to reduce friction and prevent early fatigue failure.

Enhanced Lubrication System

- Redesigned lubrication grooves and channels for optimal oil flow and retention.
- Implemented a specialized lubricant with high-temperature stability and superior anti-wear properties.

Improved Alignment and Load Distribution

- Modified bearing housing to provide better alignment with the shaft.
- Introduced preload adjustments to ensure even load distribution across rollers.

Implementation and Results

The modified bearing design was implemented in a pilot rolling mill and monitored over 12 months. The following improvements were observed:

- Bearing life extended from 6 months to over 24 months.
- 40% reduction in maintenance costs due to fewer replacements and repairs.
- Enhanced operational efficiency, leading to fewer unplanned downtimes.
- Improved energy efficiency, as reduced friction lowered power consumption.
- Consistent product quality, owing to better machine stability and performance.

Conclusion

The design modification of taper roller thrust bearings significantly improved their lifespan and performance in rolling mill operations. By optimizing bearing geometry, material selection, lubrication, and load distribution, the challenges of premature failures and high maintenance costs were effectively addressed. This case study demonstrates how engineering innovations can lead to substantial cost savings, increased productivity, and enhanced equipment reliability in demanding industrial applications.

Future Scope

Further research could explore the integration of smart sensors for real-time condition monitoring and predictive maintenance, further improving bearing performance and reducing unexpected failures.

• Technical Tips

• Brief Introduction about Shaft alignment

Bearing failures are a major cause of unexpected machinery downtime and costly repairs in industrial applications. Traditional methods of monitoring bearings, such as vibration analysis and thermal imaging, are effective but may not detect early-stage failures. Ultrasound testing (UT) has emerged as a powerful tool for early bearing fault detection, allowing maintenance teams to address issues before catastrophic failures occur.

How Ultrasound Testing Works for Bearings

Baseline Measurement: An initial ultrasound reading is taken from a healthy bearing to establish a reference point.

Periodic Monitoring: Regular ultrasound scans are conducted to monitor changes in ultrasonic signal amplitude and frequency.

Signal Analysis: A rising trend in ultrasound signals indicates increased friction, which may be due to lubrication issues, misalignment, or the onset of bearing defects.

Corrective Actions: Based on the data, maintenance teams can implement timely interventions such as lubrication adjustments or bearing replacements.

Advantages of Ultrasound Testing Over Other Methods

- **Early Detection:** Captures minute changes in bearing friction, often before damage is visible.
- **Cost-Effective:** Reduces unnecessary replacements and minimizes downtime.
- **Non-Intrusive:** Can be performed while machinery is in operation.
- **Versatile:** Effective in both low-speed and high-speed bearing applications.

Common Bearing Faults Detected by Ultrasound

- **Lubrication Deficiency:** Ultrasound levels increase when lubrication is insufficient, allowing for timely greasing.
- **Fatigue Failure:** Structural degradation of bearings results in increased ultrasonic noise.
- **Misalignment:** Improper alignment causes irregular friction patterns, detectable via ultrasonic inspection.
- **Contamination:** Presence of debris or moisture in the bearing generates distinct ultrasonic signatures.

• Community Engagement

• Empowering Customers

- Knowledge sharing with customers is a vital part of building trust, improving satisfaction, and providing value. Here are some key approaches to effectively share knowledge with your customers:

1. Create Educational Content:

- **Blogs and Articles:** Write informative posts on your website or other platforms that address common customer questions, industry trends, and best practices.
- **FAQs and Knowledge Base:** Develop a dedicated section with frequently asked questions and articles on how to use your product or service, troubleshoot issues, and get the most out of your offerings.
- **Webinars and Tutorials:** Host live or recorded webinars and video tutorials to demonstrate product features or provide solutions to common problems.

2. Personalized Knowledge Sharing:

- **Tailored Emails:** Send customers personalized tips, updates, and advice based on their usage patterns or product interests.
- **In-app Guides:** Offer contextual help within your product by providing tooltips, step-by-step instructions, or pop-up tutorials based on user behaviour.

3. Social Media and Forums:

- Share tips and best practices on social media platforms, allowing customers to engage with your content, ask questions, and interact with other customers.
- Monitor and engage in forums like Reddit or industry-specific communities to offer advice and establish yourself as an expert.



• Contact Us

- We'd love to hear from you! If you have any questions, feedback, or would like to learn more about our products and services, please contact us at:
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- Phone: +91 9330 96 9330
- Website: www.kecbearings.com

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