Condition Monitoring of Spur Gears in Bottling Machines: A Review

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Abstract:
The use of condition monitoring techniques in industrial machinery has gotten a lot of attention because it has the potential to improve equipment reliability, lower maintenance costs, and reduce unplanned downtime. Spur gears, among other machine components, play an important role in bottling machines, where they facilitate the efficient transfer of power and motion. As a result, monitoring the health and performance of spur gears is critical to ensuring the smooth operation of bottling machines. This paper provides an in-depth examination of condition monitoring methods used to assess the health of spur gears in bottling machines. The review covers both traditional and advanced methods for monitoring spur gears in bottling machines. Traditional methods include vibration analysis, acoustic emission, and thermography. Furthermore, the review emphasizes the significance of appropriate sensor selection, signal processing techniques, and data analysis methodologies for effective spur gear condition monitoring.

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I. INTRODUCTION

Condition monitoring (CM) is a preventative maintenance approach that uses state-of-the-art machine monitoring software in conjunction with machine sensor data to identify vibration and other causes (in real-time). [1]. This method allows plant maintenance staff to remotely assess each piece of equipment's condition while simultaneously providing a comprehensive, perspective of mechanical processes [2]. When a machine's health changes, noticed, software for condition monitoring generates a notification, enabling your

maintenance staff to promptly analyze the issue and determine if corrective action is required. [3].

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