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Predictive quality for hypoid gear in drive assembly

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Abstract

In rear axle drive assembly, drive bevel gear and crown gear are aligned within a narrow tolerance range and installed in the gearbox. Due to limited adaptability after installation, the ideal dimension is estimated a priori based on physical correlations and empirical correction terms. This paper follows a data-driven approach to predict the installation dimension with sufficient accuracy within a comprehensive optimization strategy in industrial application. An initial evaluation with production data logged in day-to-day operations suggests a significant improvement in accuracy compared to status quo and contributes to the dissemination of predictive analytics in industrial practice.

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