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### 制造误差对气体静压圆柱轴承静态特性的FEM分析

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### FEM ANALYSIS OF MANUFACTURING ERROR EFFECTS ON THE STATIC CHARACTERISTICS OF AEROSTATIC JOURNAL BEARING

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摘要

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摘要

在考虑轴承的制造误差情况下, 采用Galerkin有限元方法(FEM)对小孔节流型气体静压圆柱轴承的静态特性, 即承载能力和刚度, 进行了理论计算和分析。所考虑的制造误差为典型的几何形状误差和位置误差。计算结果表明, 几何形状误差和位置误差对该种轴承的静态特性有着不同程度的影响。

关键词: 制造误差 气体静压圆柱轴承 静态特性

Abstract:

Taking consideration of the existence of manufacturing errors of aerostatic journal bearing, the paper deals with the calculation and theoretical analysis of the static characteristics of aerostatic journal bearing with orifices by Galerkin Finite Element Method (FEM). As manufacturing errors, the geometric form error and the bearing alignment error are considered in the calculation and theoretical analysis. The calculation results show that the geometric form error and the bearing alignment error affect the static characteristics of the bearing in different degrees.

Keywords: manufacturing error aerostatic journal bearing static characteristics

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