The Performance Analysis and Experiment Studies of Precise Positioning System for PCB Drilling Machine

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ABSTRACT

The purpose of the thesis is researched the performance analysis and experiment studies of precise positioning system for PCB drilling machine. Then, the complete analysis technique will be established. First, To analyze the basic characteristics include stiffness and load capacity of aerostatics bearing. Second, The stiffness sees to linear of gad film at clearance inside. The eight-degree of free model (x、y、z、α、β、γ、px1、px2)of aerostatics guide with its equation of motion is formulated. The equations are decoupled to derive the dynamic characteristics of aerostatics guide. Then, the dynamic response performance is experiment measured. Make use of the ANSYS software progress and compare with the modal analysis and modal testing data. The results of the theory and experiment are all examined. Finally, Establish the certain the theory''s rationality and validity.

Keywords : Aerostatic Bearing ; Aerostatic Guide ; Stiffness ; Load Capacity ; Modal Analysis ; Modal Testing ; Performance Analysis ; PCB Drilling Machine

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