

Noncontact Guide for a Change Part in Traveling Direction of Traveling Elastic Steel Plate Using Electromagnetic Force (Basic Research on Acceleration and Deceleration)

by

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Abstract

Recently, along with high-end products, users have demanded high-quality and high-value-added steel plates manufactured by the continuous steel plate process. In factories, a continuous thin steel plate subjected to iron and steel processes is supported on a series of rollers during processes such as rolling; the thin steel plate moves on the rollers at a speed of 10 m/s or more. In the plating process, the steel plate is conveyed 20-50 m in the vertical direction for drying, during which steel plates are negligibly supported by rollers and other mechanisms. Therefore, plating nonuniformity due to vibration and other factors prevents the increase in productivity. To solve this problem, we developed a new noncontact guide system for parts of the steel plate at which its traveling direction changes by applying an electromagnetic force from the direction of the edge of the thin steel plate, and experimentally examined the effectiveness of the system.

Keywords: Steel Plate, Traveling, Noncontact Guide, Electromagnet, Edge Control, Elastic Vibration

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