

Title: Degradation phenomenon of electrical contacts by 3-D oscillating mechanism □ 3-D oscillating mechanism for trial □

Abstract: We have developed the mechanism which gives real vibration to electrical contacts by hammering oscillation in the vertical direction and developed the sliding contact mechanism by a magnetostrictive actuator, and studied the influences of a micro-oscillating on contact resistance. We designed new what is called the 3-D oscillation mechanism with real vibrations that expanded 1-D (that is to say hammering oscillation mechanism and sliding contact mechanism) into 3-D. And we examined the fundamental characteristics of the mechanism, acceleration and displacement v.s. input current at various frequencies, output waves to sin and rectangular inputs, and mechanical interferences about the X, Y, and Z directions in the stage. It was suggested that the mechanism could detect the more real degradation phenomenon on contacts by the influences of micro-vibration.

Keyword: electrical contact, 3-D oscillating mechanism, magnetostrictive actuator, micro-vibration, contact resistance, hammering oscillation mechanism, sliding contact mechanism

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