

NEW FABRICATION METHOD SUGGESTION OF THE MOTOR CORE WITH DISSIMILAR METAL BONDING METHOD

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ABSTRACT

An iron loss increases by the fixation method of a stator core such as swaging, welding and the thermal insert, etc. They make a residual stress in the motor core. It leads to increase a building factor and an iron loss of the motor. Therefore, the residual stress must be removed or reduced to decrease the iron loss of the rotating machines. It needs to remove or reduce the fixation method of a stator core for the motor. In this paper, a possibility of the new Fe-Al bonding method using the barrel nitride method for motor core was investigated. AlN and Fe-Al intermetallic compounds were appeared between the pure Al and the silicon steel sheet. And the insulating layer was appeared between the pure Al and the silicon steel sheet. The Fe-Al bonding material is possible to be a motor core. But it needs thinner AlN and FeAl₃ layers. Moreover, a measurement method of the thin layer resistance should be established.

KEYWORDS: Motor Core, Fe-Al Bonding, Residual Stress, Dissimilar Metal Bonding, Iron Loss

Note: There should no nonstandard abbreviations, acknowledgments of support, references or footnotes in in the abstract.