Study on the Semi-solid Temperature of Ternary Hypoeutectic Filler Metal for Vacuum Brazing of Oxygen-free Copper

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ABSTRACT

Oxygen-free copper is one of the major structural materials of electric motors. With the bonding temperature of copper rotor being too high, the recrystallization of electric steels will lead to increased iron loss and reduced energy conversion efficiency. Therefore, in this study the low temperature semi-solid vacuum brazing technology has been adopted to accomplish a precise bonding between oxygen-free copper while maintaining high energy conversion efficiency. In this experiment the Cu-15Ag-5P is adopted as the filter metal, with the test conditions of liquid-solid phase coexistence temperature at 673 ° C ~ 793 ° C, liquid phase temperature at 823 ° C, and a vacuum of

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