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Improvement of Bar Bonding Method for Heat-Assisted Magnetic Recording Head

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An important step in fabrication of slider magnetic recording head is bonding of bars on a fixture using hot melt synthetic adhesive. For bar bonding of heat-assisted magnetic recording (HAMR) head, the fixture feature is different from a standard fixture yield to excessive bonding agent (EBA) on blade line. Therefore, the aim of this work is to reduce the quantity of EBA on blade line. The effects of fixture heating time (5, 10, 15 and 20 min) at 140 °C, curing time of bonding agent before bar bonding examined using Newton's cooling law, and time of bar press (0.5, 1, 2 and 3 min) on the quantity of EBA were determined. The results showed that the quantity of EBA reduced with decreasing fixture heating time or increasing bar press time. Furthermore, it can be concluded that an appropriate bar bonding method for HAMR head is heating fixture at 140 °C for 5 min, painting bond agent on fixture surface and leave for 30 s, placing bar on fixture, and pressing bar for 3 min. Using above conditions, the smallest amount of EBA with high adhesion efficiency was achieved.

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