

Industrial Research Project Title	Optimization of coil bonding process for Actuator arm Coil Assembly of hard disk
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Abstract

This research aims at optimizing the coil bonding process for Actuator arm Coil Assembly in which the proportion of void defective is minimized. All relevant process parameters and constraints affecting the void formation were firstly taken into consideration with the aids of fishbone diagram and coil bonding experts' suggestion. The FMEA was later used to determine the root cause of the process, which were found to be the injection pressure and temperature of glue. A set of experiments associated with the general full factorial design was carried out. The injection pressure of 370, 395 and 420 psi and the temperature of 35 °C and 37 °C were tested. The result showed that these parameters and their interaction affected the amount of void defective significantly. According to the analysis of variance, the optimum coil bonding condition was 395 psi injection pressure and 37 °C glue temperature, and it was able to decrease the proportion of void defective by 30.89 % (from 0.1295 to 0.0895). In addition, the time required to adjust the coil bonding machine and need for touching up process can be reduced accordingly.

Keywords: Optimization / FMEA / void defective/ bonding process/ hard disk