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ABSTRACT

**METHOD AND APPARATUS FOR MANUFACTURING MAGNETORESISTIVE
ELEMENT, SOFTWARE AND SYSTEM FOR CONTROLLING
MANUFACTURING OF MAGNETORESISTIVE ELEMENT, SOFTWARE
FOR ESTIMATING RESISTANCE VALUE OF MAGNETORESISTIVE
ELEMENT, AND COMPUTER SYSTEM**

Provided are a method and an apparatus for manufacturing a magnetoresistive element and a method and an apparatus for manufacturing a magnetic head which can reduce variation in properties of an magnetoresistive element and variation in the median of distribution.

Before starting polishing, wafer information containing various types of factors in a wafer stage which may have an influence on a resistance value of a final MR film is obtained, and an S value is calculated from the information by using a statistical scheme. During a polishing step, ongoing-work-information containing various types of factors in a polishing stage which may have an influence on the resistance value of the final MR film is obtained at regular intervals. A K value is calculated from the information by using the statistical scheme. Then, an MR resistance estimate during the polishing step is calculated from the S value and the K value. When the MR resistance estimate reaches a target resistance value, polishing is stopped.

FIG. 5