METHODS AND SYSTEMS OF ADJUSTING TILT USING MAGNETIC ERASE WIDTH FEEDBACK

BACKGROUND

[0001] Magnetic storage devices such as hard disk drives use magnetic media to store data and a movable slider having magnetic transducers (e.g., read/write heads) positioned over the magnetic media to selectively read data from and write data to the magnetic media. Electronic lapping guides (ELGs) are used for precisely controlling a degree of lapping applied to an air bearing surface (ABS) of the sliders for achieving a particular stripe height, or distance from the ABS, for the magnetic transducers located on the sliders. U.S. Patent No. 8,165,709 to Rudy and U.S. Patent No. 8,151,441 to Rudy et al., which are incorporated herein by reference in their entirety, provide a comprehensive description of ELGs used in manufacturing sliders for hard disk drives.

[0002] As the design of magnetic transducers becomes more and more intricate, their fabrication processes become increasingly complex as well. Such complex fabrication processes inherently include some imperfections that ultimately manifest as undesirable variations in the final product. By observing certain performance parameters of the final product (e.g., sliders including one or more magnetic transducers), these undesirable variations can be measured and quantified. A system and method for reducing or eliminating these undesirable variations in the performance of magnetic transducers is therefore needed.

SUMMARY

[0002a] In one aspect, there is provided a method of manufacturing a magneto-resistive device, comprising: extracting at least one subset of bars from at least one bar section of a wafer; obtaining a magnetic performance of the at least one subset of the bars; determining an angle based on the magnetic performance; and processing remaining bars from the at least one bar section of the wafer based on the determined angle.

[0002b] In another aspect, there is provided a method of manufacturing a magnetic device, comprising: slicing and dividing a wafer into bar sections; grinding and slicing a subset of bars of a bar section; obtaining magnetic erase width (MEW) of the subset of bars, and

determining an air bearing surface (ABS) tilt angle based on the (MEW); and grinding and slicing remaining bars of the bar section based on the ABS tilt angle.

BRIEF DESCRIPTION OF THE DRAWINGS

[0003] The present invention is illustrated by way of example, and not limitation, in the figures of the accompanying drawings in which:

[0004] Figures 1A and 1B illustrate an example of a conventional magnetic disk drive in which a magnetic read element manufactured in accordance with various embodiments may be utilized;

[0005] Figure 1C illustrates an example of a conventional read/write head.

[0006] Figure 2 is an operational flow chart illustrating a conventional process for manufacturing a magnetic read element;