

THIN FILM MERGED MR HEAD WITH ALIGNED POLE TIPS

ABSTRACT OF THE DISCLOSURE

A merged MR head is provided which has vertically aligned sidewalls so as to minimize side-fringing and improve off-track performance. The bottom pole piece P1, which comprises the second shield layer S2 of the read head, has a pedestal pole tip with a short length dimension. A pedestal pole tip with a length as short as two times the length of the gap layer G optimally minimizes the sidewriting and improves off-track performance. The bottom pole tip structure of the write head is constructed by ion beam milling using the top pole tip structure as a mask. The ion beam milling is directed at an angle to the sidewalls of the top pole tip structure which causes the bottom pole tip structure to be milled with sidewalls which align with the top pole tip structure. The ion beam milling can comprise two angled beams, either sequentially or simultaneously, the first beam performing primarily a cutting operation and some clean up work while the second beam primarily conducts clean up work of the redeposition of the debris caused by the cutting. In another embodiment, a single angled ion beam can be employed, provided its angle is within a particular range.

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