

DESCRIPTION

MANUFACTURING METHOD OF GLASS SUBSTRATE FOR MAGNETIC DISK AND MANUFACTURING METHOD OF MAGNETIC DISK

TECHNICAL FIELD

[0001] The present invention relates to a manufacturing method of glass substrate for magnetic disk used in a magnetic disk device such as hard disk device (HDD), and a manufacturing method of a magnetic disk using such glass substrate.

BACKGROUND ART

[0002] Recently, a glass substrate is used as one of the substrate for magnetic disk suited to high-density recording. The glass substrate is higher in rigidity as compared with a metal substrate, and is suited to application in high speed rotation of a magnetic disk device. Moreover, the glass substrate is capable of obtaining a smooth and flat surface, and is suited to application for higher S/N ratio and higher recording density, by lowering the floating amount of the magnetic head.

[0003] Generally, the glass substrate for magnetic disk is manufactured by executing sequentially a process of heating and melting a glass material to prepare molten glass, a process of forming this molten glass into a glass disk, and a process of processing and polishing the glass disk formed into a plate and manufacturing a glass substrate.

[0004] The process of forming the molten glass into a plate-shaped glass

Claims

[Claim 1]

A manufacturing method of a glass substrate for a magnetic disk, for use in vertical magnetic recording, from a plate glass material having a mirror-smooth principal surface, the manufacturing method comprising:

- a roughening process of roughening the mirror-smooth principal surface of the plate glass material using free abrasive grains with a surface polishing machine;

- an end face polishing process of polishing an end face of the glass substrate obtained by roughening the plate glass material, the end face polishing process being performed after the roughening process and before a surface grinding process using fixed abrasive grains; and

- the surface grinding process of using fixed abrasive grains to grind a principal surface of the glass substrate, after the end face polishing process, to a desired surface roughness and flatness.

[Claim 2]

The manufacturing method of a glass substrate for a magnetic disk according to claim 1, wherein in the end face polishing process, a plurality of the glass substrates are mounted on a polishing jig in an overlapping manner and are polished by brush polishing.

[Claim 3]

The manufacturing method of a glass substrate for a magnetic disk according to claim 1 or 2, further comprising:

- a principal surface polishing process of polishing the principal surface of the glass substrate after the surface grinding process,

- wherein a grain size of the abrasive grains used in the surface grinding process is larger than a grain size of abrasive grains used in the end face polishing process,

and the grain size of abrasive grains used in the end face polishing process is larger than a grain size of abrasive grains used in the principal surface polishing process.

[Claim 4]

A manufacturing method of a magnetic disk for forming at least a magnetic layer on a principal surface of a glass substrate for a magnetic disk, manufactured by the manufacturing method of a glass substrate for a magnetic disk of any one of claims 1 to 3.