

CLAIMS

1. A method for manufacturing a substrate, comprising edge surface polishing processing for polishing an edge surface that includes a side wall surface of a disk-shaped substrate and a chamfered surface provided between the side wall surface and a main surface of the substrate simultaneously, using magnetic functional fluid containing polishing abrasive particles and magnetic particles, the substrate being a magnetic-disk glass,

wherein before the edge surface polishing processing, a relationship between a ratio of a particle size of polishing abrasive particles with respect to a particle size of magnetic particles, and a ratio of a polishing rate for a chamfered surface of a substrate with respect to a polishing rate for a side wall surface of the substrate when an edge surface of the substrate is polished using magnetic functional fluid containing the magnetic particles and the polishing abrasive particles that have the ratio of the particle sizes is acquired in advance, the ratio of the particle sizes is set based on a target ratio of a polishing rate for the side wall surface and a polishing rate for the chamfered surface of the substrate that is to be subjected to the edge surface polishing processing, and magnetic functional fluid containing magnetic particles and polishing abrasive particles that achieve the set ratio of the particle sizes is produced,

in the edge surface polishing processing,

a mass of the magnetic functional fluid is formed by a magnetism generation means, and

the edge surface of the substrate that is subjected to the edge surface polishing processing is polished by moving the edge surface of the substrate relative to the mass in a state in which the edge surface is in contact with the mass.

2. A method for manufacturing a substrate, comprising edge surface polishing processing for polishing an edge surface that includes a side wall

surface of a disk-shaped substrate made of glass and a chamfered surface provided between the side wall surface and a main surface of the substrate simultaneously, using magnetic functional fluid containing polishing abrasive particles and magnetic particles,

5 wherein before the edge surface polishing processing, a relationship between a ratio of a particle size of polishing abrasive particles with respect to a particle size of magnetic particles, and a ratio of a polishing rate for a chamfered surface of a substrate with respect to a polishing rate for a side wall surface of the substrate when an edge surface of the substrate is polished using
10 magnetic functional fluid containing the magnetic particles and the polishing abrasive particles that have the ratio of the particle sizes is acquired in advance, the ratio of the particle sizes is set based on a target ratio of a polishing rate for the side wall surface and a polishing rate for the chamfered surface of the substrate that is to be subjected to the edge surface polishing processing, and
15 magnetic functional fluid containing magnetic particles and polishing abrasive particles that achieve the set ratio of the particle sizes is produced,

 in the edge surface polishing processing,

 a mass of the magnetic functional fluid is formed by a magnetism generation means, and

20 the edge surface of the substrate that is subjected to the edge surface polishing processing is polished by moving the edge surface of the substrate relative to the mass in a state in which the edge surface is in contact with the mass.

25 3. The method for manufacturing a substrate according to claim 1 or 2, wherein

 the ratio of the particle sizes in the magnetic functional fluid used in the edge surface polishing processing is 0.6 or less.

4. The method for manufacturing a substrate according to any one of claims 1 to 3, wherein

the ratio of the particle sizes in the magnetic functional fluid used in the edge surface polishing processing is 0.1 or more.

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5. The method for manufacturing a substrate according to any one of claims 1 to 4, wherein

an average particle size d50 of the polishing abrasive particles is in a range of 0.1 to 10 μm .

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6. The method for manufacturing a substrate according to any one of claims 1 to 5, wherein

an average particle size d50 of the magnetic particles is in a range of 0.5 to 20 μm .

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7. The method for manufacturing a substrate according to any one of claims 1 to 6, wherein

a relative speed of a circumferential speed of the substrate relative to the magnetic slurry at a position where the substrate is in contact with the magnetic functional fluid is 50 to 500 m/minute.

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8. The method for manufacturing a substrate according to any one of claims 1 to 7, wherein

the substrate is a stacked substrate of a substrate stacked body obtained by stacking a plurality of substrates through attaching their main surfaces to each other, and in the edge surface polishing processing, edge surfaces of the stacked substrates of the substrate stacked body are polished simultaneously.

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