What is claimed is:

1. A method for manufacturing a glass substrate for magnetic disk, the method comprising:

a forming process of forming a disk-shaped glass blank by direct-pressing a molten glass by a pair of dies; and

a shape processing process of forming a circular cutting line on the principal face of the disk-shaped glass blank, followed by growing the cutting line by partially heating the disk-shaped glass blank so that an inside portion of the circular cutting line and an outside portion of the circular cutting line are cut by a difference in thermal expansion of the disk-shaped sheet glass blank,

wherein, in the forming process, press forming is performed while the temperature of the pair of dies, over a period of time until a molten glass is separated from the die after coming into contact with the die, is set at a temperature lower than a glass transition point (Tg) and a mold release material is not attached to the surfaces of the pair of dies.

2. The method for manufacturing a glass substrate for magnetic disk according to claim 1, wherein the arithmetic mean roughness (Ra) of the contact surface that is in contact with the molten glass in the pair of dies is 0.5 μm or less.

3. The method for manufacturing a glass substrate for magnetic disk according to claim 2, wherein the arithmetic mean roughness (Ra) of the contact surface is 0.1 μm or less.

4. The method for manufacturing a glass substrate for magnetic disk according to any one of claims 1 to 3, wherein in the forming process, the falling lump of molten glass is press-formed in a direction orthogonal to the falling direction using a pair of dies.

5. The method for manufacturing a glass substrate for magnetic disk according to any one of claims 1 to 4, wherein, in the forming process, press forming is performed so that the temperature of portions of the pair of dies, each contacts the molten glass, is substantially identical.

6. The method for manufacturing a glass substrate for magnetic disk according to any one of claims 1 to 5, wherein the shape processing process includes scribing an outside concentric circle

and an inside concentric circle on the principal face of the disk-shaped glass blank to form two-concentric-circle shape cutting lines, and growing the cutting lines by partially heating the disk-shaped glass blank so that a portion outside the outside concentric circle and a portion inside the inside concentric circle are removed by a difference in thermal expansion of the disk-shaped sheet glass blank to form a ring-shaped glass substrate.

7. The method for manufacturing a glass substrate for magnetic disk according to claim 6, wherein in the shape processing process, the outside concentric circle and the inside concentric circle are scribed at the same time.

8. The method for manufacturing a glass substrate for magnetic disk according to claim 6 or 7, wherein in the shape processing process, a pressing force applied to a cutting line for the outside concentric circle is higher than a pressing force applied to a cutting line for the inside concentric circle.

What is claimed is:

1. A method for manufacturing a glass substrate for magnetic disk, the method comprising:

a forming process of forming a disk-shaped glass blank by direct-pressing a molten glass by a pair of dies; and

a shape processing process including:

scribing an outside concentric circle and an inside concentric circle on the principal face of the disk-shaped glass blank to form two-concentric-circle shape cutting lines , and

growing the cutting lines by partially heating the disk-shaped glass blank so that a portion outside the outside concentric circle and a portion inside the inside concentric circle are removed by a difference in thermal expansion of the disk-shaped sheet glass blank to form a ring-shaped glass substrate,

wherein, in the forming process, press forming is performed while the temperature of the pair of dies, over a period of time until a molten glass is separated from the die after coming into contact with the die, is set at a temperature lower than a glass transition point (Tg) and a mold release material is not attached to the surfaces of the pair of dies, and

in the shape processing process, a pressing force applied to a cutting line for the outside concentric circle is higher than a pressing force applied to a cutting line for the inside concentric circle.

2. The method for manufacturing a glass substrate for magnetic disk according to claim 1, wherein the arithmetic mean roughness (Ra) of the contact surface that is in contact with the molten glass in the pair of dies is 0.5 μm or less.

3. The method for manufacturing a glass substrate for magnetic disk according to claim 2, wherein the arithmetic mean roughness (Ra) of the contact surface is 0.1 μm or less.

4. The method for manufacturing a glass substrate for magnetic disk according to any one of claims 1 to 3, wherein in the forming process, the falling lump of molten glass is press-formed in a direction orthogonal to the falling direction using a pair of dies.

5. The method for manufacturing a glass substrate for magnetic disk according to any one of claims 1 to 4, wherein, in the forming process, press forming is performed so that the temperature of portions of the pair of dies, each contacts the molten glass, is substantially identical.

6. The method for manufacturing a glass substrate for magnetic disk according to any one of claims 1 to 5, wherein in the shape processing process, the outside concentric circle and the inside concentric circle are scribed at the same time.