CLAIMS

[Claim 1] A method for manufacturing a glass plate, comprising processing for chamfering an edge surface,

wherein the chamfering processing includes:

a step of forming a chamfered surface by irradiating, with a laser beam, the edge surface of a glass blank before being subjected to the chamfering processing; and

a step of heating the glass blank before irradiation with the laser beam,

wherein, when a temperature of the glass blank at which the glass blank is heated is Tp [°C], a glass transition point of the glass blank is Tg [°C], and an average coefficient of linear thermal expansion of the glass blank is α [1/°C], $(Tg - Tp) \leq -3.285.67 \times 10^7 \cdot \alpha + 428840$ is satisfied, and

the glass transition point of the glass blanks is 650°C or more.

[Claim 2] A method for manufacturing a glass plate, comprising processing for chamfering an edge surface,

wherein the chamfering processing includes:

a step of forming a chamfered surface by irradiating, with a laser beam, the edge surface of a glass blank before being subjected to the chamfering processing; and

a step of heating the glass blank before irradiation with the laser beam,

wherein, when a temperature of the glass blank at which the glass blank is heated is Tp [°C], a glass transition point of the glass blank is Tg [°C], and an average coefficient of linear thermal expansion of the glass blank is α [1/°C], $(Tg - Tp) \leq -5.67 \times 10^7 \cdot \alpha + 840$ is satisfied, and

wherein the glass blank has an annular shape having circular hole at the center portion, and has a pair of main surfaces, and an inner circumferential edge surface forming a contour of the circular hole, and an outer circumferential edge surface,

the step of forming a chamfered surface further comprising the step of irradiating a laser beam to the outer circumferential edge surface of the glass blank and the irradiating a laser beam to the inner circumferential edge surface in this order, and

the temperature of the glass blank Tp when irradiating the laser beam to the inner circumferential edge surface is lower than the temperature of the glass blank Tp when irradiating the laser beam to the outer circumferential edge surface.

[Claim 3~~2~~] The method for manufacturing a glass plate according to claim 2~~1~~,

wherein $(Tg - Tp) \leq -3.67 \times 10^{7} \cdot \alpha + 500$ is satisfied.

[Claim 4~~3~~] The method for manufacturing a glass plate according to claim ~~1 or~~ 2,

wherein $(Tg - Tp) \leq -3.28 \times 10^{7} \cdot \alpha + 428$ is satisfied.

[Claim 5~~4~~] The method for manufacturing a glass plate according to any one of claims 1 to 4~~3~~,

wherein $(Tg - Tp) \geq 50°C$ is satisfied.

[Claim 6~~5~~] The method for manufacturing a glass plate according to any one of claims 1 to 5~~4~~,

wherein the glass blank has an average coefficient of linear thermal expansion α of 20×10^{-7} [1/°C] to 60×10^{-7} [1/°C].

[Claim 7~~6~~] The method for manufacturing a glass plate according to any one of claims 1 to 6~~5~~,

wherein annealing processing is not performed on the glass blank obtained after being subjected to the chamfering processing.

[Claim 8~~7~~] A method for manufacturing a magnetic-disk glass substrate, using the method for manufacturing a glass plate according to any one of claims 1 to 7~~6~~,

wherein the glass blank has an annular shape, and

after the glass plate is manufactured using the method for manufacturing a glass plate, a magnetic-disk glass substrate is manufactured by grinding and/or polishing a main surface of the manufactured glass plate.

[Claim 9~~8~~] A method for manufacturing a magnetic disk,

wherein a magnetic film is formed on the main surface of the magnetic-disk glass substrate manufactured using the method for manufacturing a magnetic-disk glass substrate according to claim 8~~7~~.

[Claim 10~~9~~] An annular glass plate having a circular hole at a central portion of the glass plate, the annular glass plate comprising:

a main surface;

an inner circumferential edge surface forming a contour of the circular hole; and

an outer circumferential edge surface,

wherein the glass plate has chamfered surfaces on the inner circumferential edge surface and the outer circumferential edge surface, and

the maximum residual stress at an end portion of the main surface in a vicinity of the inner circumferential edge surface is larger than the maximum residual stress at an end portion of the main surface in a vicinity of the outer circumferential edge surface.

[Claim 1~~1~~0] The annular glass plate according to claim 10~~9~~,

wherein any portion of the main surface of the glass plate has a residual stress of 50 [nm] or less in terms of a retardation value.

[Claim 1~~2~~1] The annular glass plate according to claim 10~~9~~ or 1~~1~~0,

wherein the glass plate is a magnetic-disk glass substrate, and

the main surface has an arithmetic average roughness Ra of 0.2 nm or less.