CLAIMS

1. A double-disc grinding apparatus comprising:

a rotatable ring holder configured to support a sheet workpiece along a circumferential direction from an outer circumference side of the workpiece;

a pair of grinding wheels for simultaneously grinding both surfaces of the workpiece supported by the ring holder; and

a hydrostatic bearing for supporting the ring holder without contact from both of a direction of a rotational axis of the ring holder and a direction perpendicular to the rotational axis by hydrostatic pressure of fluid supplied from both the directions, wherein

supply pressures at which the fluid is supplied from the direction of the rotational axis and from the direction perpendicular to the rotational axis can be independently controlled.

2. The double-disc grinding apparatus according to claim 1, wherein the supply pressures at which the fluid is supplied can be controlled such that a degree of rigidity A is 200gf/μm or less and a degree of rigidity B is 800gf/μm or more, where the rigidity A represents division of a load by a displacement when the load is applied to the ring holder from one direction of the rotational axis with the fluid supplied from the other direction, and the rigidity B represents division of a load by a displacement when the load is applied to the ring holder from the direction perpendicular to the rotational axis with the fluid supplied from the opposite direction.

3. A workpiece double-disc grinding method comprising:

supporting a sheet workpiece along a circumferential direction from an outer circumference side of the workpiece by a ring holder;

simultaneously grinding both surfaces of the workpiece supported by the ring holder with a pair of grinding wheels while rotating the ring holder, wherein

fluid is supplied from both of a direction of a rotational axis of the ring holder and a direction perpendicular to the rotational axis at independently controlled supply pressures, and both the surfaces of the workpiece are simultaneously ground while the ring holder is supported without contact from both the directions by hydrostatic pressure of the supplied fluid with a hydrostatic bearing.

4. The workpiece double-disc grinding method according to claim 3, wherein the supply pressures at which the fluid is supplied are controlled such that a degree of rigidity A is 200gf/μm or less and a degree of rigidity B is 800gf/μm or more, where the rigidity A represents division of a load by a displacement when the load is applied to the ring holder from one direction of the rotational axis with the fluid supplied from the other direction, and the rigidity B represents division of a load by a displacement when the load is applied to the ring holder from the direction perpendicular to the rotational axis with the fluid supplied from the opposite direction.

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1. A double-disc grinding apparatus comprising:

a rotatable ring holder configured to support a sheet workpiece along a circumferential direction from an outer circumference side of the workpiece;

a pair of grinding wheels for simultaneously grinding both surfaces of the workpiece supported by the ring holder; and

a hydrostatic bearing for supporting the ring holder without contact from both of a direction of a rotational axis of the ring holder and a direction perpendicular to the rotational axis by hydrostatic pressure of fluid supplied from both the directions, wherein

supply pressures at which the fluid is supplied from the direction of the rotational axis and from the direction perpendicular to the rotational axis can be independently controlled, and the supply pressures at which the fluid is supplied can be controlled such that a degree of rigidity A is 200gf/μm or less and a degree of rigidity B is 800gf/μm or more, where the rigidity A represents division of a load by a displacement when the load is applied to the ring holder from one direction of the rotational axis with the fluid supplied from the other direction, and the rigidity B represents division of a load by a displacement when the load is applied to the ring holder from the direction perpendicular to the rotational axis with the fluid supplied from the opposite direction.

2. A workpiece double-disc grinding method comprising;

supporting a sheet workpiece along a circumferential direction from an outer circumference side of the workpiece by a ring holder;

simultaneously grinding both surfaces of the workpiece supported by the ring holder with a pair of grinding wheels while rotating the ring holder, wherein

fluid is supplied from both of a direction of a rotational axis of the ring holder and a direction perpendicular to the rotational axis at independently controlled supply pressures, and both the surfaces of the workpiece are simultaneously ground while the ring holder is supported without contact from both the directions by hydrostatic pressure of the supplied fluid with a hydrostatic bearing, and the supply pressures at which the fluid is supplied are controlled such that a degree of rigidity A is 200gf/μm or less and a degree of rigidity B is 800gf/μm or more, where the rigidity A represents division of a load by a displacement when the load is applied to the ring holder from one direction of the rotational axis with the fluid supplied from the other direction, and the rigidity B represents division of a load by a displacement when the load is applied to the ring holder from the direction perpendicular to the rotational axis with the fluid supplied from the opposite direction.