CLAIMS

Claim 1. A substrate drying device comprising:

a dry tank in which a plurality of substrates are aligned at a predetermined pitch;

a treatment liquid supply part that supplies a treatment liquid to the dry tank;

an organic solvent supply part that supplies an organic solvent to the dry tank; and

an inert gas supply part that supplies an inert gas to the dry tank, wherein the dry tank is provided with a substrate support part that supports the plurality of substrates, and an interval securing member that is driven to come proximate to ends of the plurality of substrates supported by the substrate support part and secure an interval between the substrates.

Claim 2. The substrate drying device according to claim 1, wherein the interval securing member includes a first interval securing member that comes proximate to first ends of the plurality of substrates and a second interval securing member that comes proximate to second ends of the plurality of substrates.

Claim 3. The substrate drying device according to claim 2, wherein

the first ends are lower than the second ends, and wherein

the substrate drying device further comprises: a first driving part that drives the first interval securing member; and

a second driving part that drives the second interval securing member.

Claim 4. The substrate drying device according to claim 3, further comprising a controller,

wherein the controller operates the first driving part and the second driving part at different timings.

Claim 5. The substrate drying device according to claim 2, further comprising: a

controller,

wherein the controller controls the first interval securing member and the second interval securing member so as to:

bring the first interval securing member proximate to the first ends,

bring the second interval securing member proximate to the second ends in a state where the first interval securing member is in proximity to the first ends, and

retract the first interval securing member from the first ends in a state where the second interval securing member is in proximity to the second ends.

Claim 6. The substrate drying device according to claim 5, wherein

the first ends are lower than the second ends, and

in a process of discharging the treatment liquid supplied to the dry tank, the controller controls the first interval securing member and the second interval securing member so as to:

bring the first interval securing member proximate to the first ends in a state where both the first ends and the second ends are immersed in the treatment liquid, and

bring the second interval securing member proximate to the second ends, and then retract the first interval securing member from the first ends in a state where the first ends are immersed in the treatment liquid and the second ends are exposed from the treatment liquid.

Claim 7. The substrate drying device according to any one of claims 1 to 6, wherein the predetermined pitch is 5 mm or less.

Claim 8. The substrate drying device according to any one of claims 1 to 6, wherein the interval securing member includes a first part that extends in an alignment direction of the plurality of substrates and configured to come proximate to the ends of the plurality of substrates, and a plurality of second parts that protrude from the first part and are arranged in gaps between the plurality of substrates.

Claim 9. The substrate drying device according to any one of claims 1 to 6, wherein

the plurality of substrates are placed in the dry tank with being contained in a carrier, and

the substrate support part comes in contact with the plurality of substrates via a lower space of the carrier, and the interval securing member comes proximate to the plurality of substrates via an upper space of the carrier.

Claim 10. The substrate drying device according to any one of claims 1 to 6, wherein

the plurality of substrates are placed in the dry tank with being contained in a carrier, and

in a process of supplying the inert gas from the inert gas supply part after discharging the treatment liquid in the dry tank, a controller performs control to dry the plurality of substrates in a state where the plurality of substrates are supported by the substrate support part and the carrier is retracted, and then to dry the plurality of substrates in a state where the plurality of substrates are reheld from the substrate support part to the carrier.

Claim 11. The substrate drying device according to any one of claims 1 to 6, wherein the ends of the plurality of substrates to which the interval securing member comes proximate are above a center position of the plurality of substrates in a height direction.

Claim 12. The substrate drying device according to any one of claims 1 to 6, further comprising a vertical driving part that drives the plurality of substrates to move vertically in the dry tank,

wherein in a process of discharging the treatment liquid supplied to the dry tank, the controller controls the vertical driving part to raise the plurality of substrates supported

by the substrate support part to a position separated upward from the substrate support part.

Claim 13. The substrate drying device according to any one of claims 1 to 6, further comprising a vertical driving part that drives the plurality of substrates to move vertically in the dry tank,

wherein in a process of supplying the inert gas from the inert gas supply part after discharging the treatment liquid in the dry tank, the controller controls the vertical driving part to raise the plurality of substrates supported by the substrate support part to a position separated upward from the substrate support part.

Claim 14. A substrate processing device comprising:

the substrate drying device according to any one of claims 1 to 6; and

a substrate processing module coupled to the substrate drying device.

Claim 15. A substrate manufacturing method comprising:

supplying a treatment liquid to a dry tank;

placing a plurality of substrates in the dry tank at a predetermined pitch, and supporting the plurality of substrates by a substrate support part provided in the dry tank;

supplying an organic solvent to the dry tank;

securing an interval between the plurality of substrates by bringing an interval securing member provided in the dry tank proximate to ends of the plurality of substrates supported by the substrate support part;

discharging the treatment liquid supplied to the dry tank; and

supplying an inert gas to the dry tank.