CLAIMS

Claim 1. A member used in a semiconductor manufacturing apparatus, the member comprising:

a first member;

a second member; and

a sealing layer disposed between the first member and the second member, wherein

the first member has a plurality of first openings,

the second member has a plurality of second openings respectively corresponding to the plurality of first openings,

the sealing layer has a plurality of through holes respectively corresponding to at least two of the plurality of first openings, and

the at least two first openings respectively communicate with at least two corresponding second openings via the plurality of through holes.

Claim 2. The member according to claim 1, wherein

a screw for fastening the first member and the second member is disposed at a peripheral edge of a surface of the first member on a second member side, and

the sealing layer is disposed on the surface of the first member on the second member side except for a region where the screw is disposed.

Claim 3. The member according to claim 1 or 2, wherein an opening size of the through hole is larger than sizes of the corresponding first opening and second opening in a direction along the surface of the first member on the second member side.

Claim 4. The member according to claim 1, wherein among the plurality of first openings, a first opening that does not communicate with the through hole communicates with a corresponding second opening via an annular seal.

Claim 5. The member according to claim 1, wherein the sealing layer is formed in a sheet shape.

Claim 6. The member according to claim 1, wherein at least one of the first member and the second member is controlled to a temperature of lower than 0°C, and

the sealing layer is modified silicone rubber.

Claim 7. The member according to claim 1, wherein at least one of the first member and the second member is controlled to a temperature of 0°C or higher, and

the sealing layer is fluororubber.

Claim 8. The member according to claim 1, wherein

a compressive force is applied to the sealing layer in a direction from the first member toward the second member, and

an amount of change in thickness of the sealing layer in a case where the compressive force decreases is larger at a portion closer to a center of the surface of the first member on the second member side.

Claim 9. A placing pedestal comprising:

the member according to claim 1, wherein

the second member is disposed on the first member,

the placing pedestal further comprises an electrostatic chuck disposed on the second member and configured such that a substrate is placed on an upper

surface of the electrostatic chuck,

the first member is a radio frequency (RF) plate configured to be supplied with RF power,

a refrigerant flows through the through hole, and

the second member is a cooling plate configured to cool the substrate via the electrostatic chuck by the refrigerant flowing through the through hole.

Claim 10. A placing pedestal comprising:

the member according to claim 1, wherein

the first member is a support base configured to support the second member, and

the second member is an RF plate configured to be supplied with RF power.

Claim 11. A semiconductor manufacturing apparatus comprising:

the placing pedestal according to claim 9.

Claim 12. An upper unit comprising:

the member according to claim 1, wherein

the first member is an electrode plate, and

the second member is a heating layer.

Claim 13. A semiconductor manufacturing apparatus comprising:

the upper unit according to claim 12.

Claim 14. A member manufacturing method comprising:

a step a) of disposing a sealing layer on a surface of a first member or a surface of a second member; and

a step b) of fastening the first member and the second member with the sealing layer interposed therebetween,

wherein

the first member has a plurality of first openings,

the second member has a plurality of second openings respectively corresponding to the plurality of first openings, and

in the step a), the sealing layer is disposed in a region that surrounds at least two first openings among the plurality of first openings and excludes the at least two first openings.

Claim 15. The member manufacturing method according to claim 14, wherein

a screw for fastening the first member and the second member is disposed at a peripheral edge of a surface of the first member on a second member side, and

the sealing layer is disposed on the surface of the first member on the second member side except for a region where the screw is disposed.

Claim 16. The member manufacturing method according to claim 14 or 15, wherein a size of an opening of the sealing layer is larger than sizes of the corresponding first opening and second opening in a direction along the surface of the first member on the second member side.

Claim 17. The member manufacturing method according to claim 14, wherein among the plurality of first openings, a first opening that does not communicate with the opening of the sealing layer communicates with a corresponding second opening via an annular seal.

Claim 18. The member manufacturing method according to claim 14, wherein in the step a), a liquid material for

forming the sealing layer is applied to an entire region that is a region that excludes the first opening and the second opening and surrounds at least two of the openings on the surface of the first member or the surface of the second member to dispose the sealing layer on the surface of the first member or the surface of the second member.

Claim 19. The member manufacturing method according to claim 18, wherein the liquid material for forming the sealing layer contains a colorant.

Claim 20. The member manufacturing method according to claim 14, wherein in the step a), the sheet-like sealing layer in which through holes are formed in regions corresponding to the first opening and the second opening is disposed on the surface of the first member or the surface of the second member.

Claim 21. The member manufacturing method according to claim 14, wherein

in the step b), the second member is fastened to the first member, and

a shape of the sealing layer disposed in the step a) is a shape in which a thickness of the sealing layer in a region far from a fastening position is larger than a thickness of the sealing layer in a region close to the fastening position.

Claim 22. The member manufacturing method according to claim 14, wherein

at least one of the first member and the second member is controlled to a temperature of lower than 0°C, and

the sealing layer is modified silicone rubber.

Claim 23. The member manufacturing method according to claim 14, wherein

at least one of the first member and the second member is controlled to a temperature of 0°C or higher, and

the sealing layer is fluororubber.