

What is claimed is:

1. An elastic membrane to be used for a substrate holding device, the elastic membrane comprising:

    a contact portion configured to come into contact with a substrate;

    an annular side wall provided to stand on an outer peripheral end of the contact portion;

    a first partition wall linearly extending inward in a radial direction in sectional view from the side wall; and

    a second partition wall linearly extending inward and upward in the radial direction in sectional view from an outer peripheral end portion of the contact portion, wherein

    the first partition wall, the second partition wall, and the side wall constitute an edge pressure chamber for pressing an edge of the substrate, wherein

    the substrate holding device includes a head body to which the elastic membrane is attached,

    the first partition wall includes a first engaging portion on a distal end to be engaged with the head body,

    the second partition wall includes a second engaging portion on a distal end to be engaged with the head body,

    an interval between the first partition wall and the second partition wall gradually increases from the first engaging portion and the second engaging portion toward the side wall,

and

a triangle is formed by an extension of the first and second partition walls and side wall.

2. The elastic membrane according to claim 1, wherein an interval between the first partition wall and the second partition wall gradually increases from an inside in the radial direction of the contact portion to an outside in the radial direction.

3. The elastic membrane according to any one of claims 1 to 2, wherein the second partition wall linearly extends from a position on an inner side by 0.5 to 1.5 mm from an inner peripheral surface of the side wall.

4. The elastic membrane according to any one of claims 1 to 2, wherein a distance between an outer peripheral surface of the second partition wall and an inner peripheral surface of the side wall on an upper surface of the contact portion is 1.5 to 8 mm.

5. The elastic membrane according to claim 4, wherein a proximal end portion at which the second partition wall is connected to the upper surface of the contact portion is bent to form a proximal end connection portion, and a length of the proximal end connection portion is 0.5 to 3.5 mm.

6. The elastic membrane according to any one of claims 1 to 5, wherein an outer peripheral surface of the side wall constituting the edge pressure chamber is flat.

7. A substrate holding device that holds a substrate, the substrate holding device comprising:

an elastic membrane; and

a head body to which the elastic membrane is attached, wherein

the elastic membrane comprising:

a contact portion configured to come into contact with a substrate;

an annular side wall provided to stand on an outer peripheral end of the contact portion;

a first partition wall linearly extending inward in a radial direction in sectional view from the side wall; and

a second partition wall linearly extending inward and upward in the radial direction in sectional view from an outer peripheral end portion of the contact portion, wherein

the first partition wall, the second partition wall, and the side wall constitute an edge pressure chamber for pressing an edge of the substrate,

the first partition wall includes a first engaging portion on a distal end to be engaged with the head body,

the second partition wall includes a second engaging portion on a distal end to be engaged with the head body,

an interval between the first partition wall and the second partition wall gradually increases from the first engaging portion and the second engaging portion toward the side wall, and

a triangle is formed by an extension of the first and second partition walls and side wall.

8. The substrate holding device according to claim 7, wherein an interval between the first partition wall and the second partition wall gradually increases from an inside in the radial direction of the contact portion to an outside in the radial direction.

9. The substrate holding device according to any one of claims 7 to 8, wherein the second partition wall linearly extends from a position on an inner side by 0.5 to 1.5 mm from an inner peripheral surface of the side wall.

10. The substrate holding device according to any one of claims 7 to 9, wherein a distance between an outer peripheral surface of the second partition wall and an inner peripheral surface of the side wall on an upper surface of the contact portion is 1.5 to 8 mm.

11. The substrate holding device according to claim 10, wherein a proximal end portion at which the second partition wall is connected to the upper

surface of the contact portion is bent to form a proximal end connection portion, and a length of the proximal end connection portion is 0.5 to 3.5 mm.

12. The substrate holding device according to any one of claims 7 to 11, wherein an outer peripheral surface of the side wall constituting the edge pressure chamber is flat.

13. A polishing apparatus that polishes a substrate, the polishing apparatus comprising:

    a polishing table configured to support a polishing pad having a polishing surface; and

    the substrate holding device according to claim 7, wherein

    the polishing apparatus brings the substrate into sliding contact with the polishing surface to polish a surface of the substrate by pressing the substrate toward the polishing surface with a predetermined pressure force and causing the polishing table and the substrate holding device to perform a relative motion while holding the substrate by the substrate holding device.