CLAIMS

1. A polishing head, comprising:

a main body (1); and

an elastic membrane assembly on the main body (1), wherein the elastic membrane assembly comprises an inner membrane (2) and an outer membrane (3) that are nested; the inner membrane (2) is fixed to a bottom wall of the main body (1); the inner membrane (2) is formed with a plurality of mutually independent pressure chambers for acting on a central area of a wafer; the outer membrane (3) is fitted around outer peripheral side of the main body (1); the outer membrane (3) covers the inner membrane (2), and a buffer gap is provided between the outer membrane (3) and the inner membrane (2); wherein during a grinding process, the inner membrane (2) exerts force on the wafer through the outer membrane (3);

wherein an edge chamber for acting on an edge area of the wafer is formed between outer peripheral wall of the inner membrane (2) and inner peripheral wall of the outer membrane (3);

the outer membrane (3) comprises a first bottom plate (31), a peripheral side wall extending upward from outer periphery of the first bottom plate (31) in the vertical direction, and a first horizontal extension rib (32) extending inwardly from top edge of the peripheral side wall; the edge chamber is formed and enclosed by the first horizontal extension rib (32), inner side of the peripheral side wall, the first bottom plate (31), the outer peripheral wall of the inner membrane (2), and outer wall of the main body (1);

a second horizontal extension rib (33) is fixed to the inner side of the peripheral side wall of the outer membrane (3); the second horizontal extension rib (33) is located between the first horizontal extension rib (32) and the first bottom plate (31); and the second horizontal extension rib (33) divides the edge chamber into a first chamber (4) and a second chamber (5);

the inner membrane (2) includes a second bottom plate (21), and a plurality of annular pressure chambers formed on the second bottom plate (21) at intervals from inside to outside;

the second bottom plate (21) is opposite to bottom wall of the outer membrane (3), with a reserved preset buffer gap therebetween; wherein each pressure chamber is formed and enclosed by two opposite annular retaining ribs (22) and the second bottom plate (21);

wherein the polishing head further comprises:

an outer ring (6), being annular shaped and located in the second chamber (5); wherein top wall of the outer ring (6) is in contact with the second horizontal extension rib (33), and bottom wall is in contact with inner wall of the first bottom plate (31), for transmitting force from the first chamber (4) to the first bottom plate (31), and transmitting the force to the edge area of the wafer through the first bottom plate (31); wherein outer side wall of the outer ring (6) is in contact with inner side wall of the outer membrane (3), for limiting radial deformation of the outer membrane (3); the outer ring (6) has a first supporting wall against the inner peripheral wall of the outer membrane (3), and a second supporting wall that extends inward from upper periphery of the first supporting wall; the second supporting wall abuts the second horizontal extension rib (33) from below; and

an inner ring (7), being annular shaped and on outer side wall of the inner membrane (2); wherein the inner ring (7) wraps around outer periphery of the inner membrane (2), for limiting radial deformation of the inner membrane (2);

wherein outer periphery of the main body (1) is provided with a clamping protrusion for connecting with the outer membrane (3), and the main body (1) comprises a bearing disk, and the clamping protrusion is formed by an outward projection from an upper part of peripheral wall of the bearing disk; and an anti-detachment hook is provided at a bottom corner of the clamping protrusion; an annular limiting step is formed by top wall of the anti-detachment hook and outer peripheral wall of the clamping protrusion; an inner edge of the first horizontal extension rib (32) is clamped and confined to the limiting step; an annular limiting groove is formed by inner peripheral wall of the anti-detachment hook, bottom wall of the clamping protrusion, and outer peripheral wall of the bearing disk; and an inner edge of the second horizontal extension rib (33) is hooked by and confined to the limiting groove;

the inner ring (7) has a deformation limiting part around the outer periphery of the inner membrane (2) and a snap-in positioning part extending upward from edge of the deformation limiting part; the snap-in positioning part is snapped in and squeezed within a matching gap between the inner edge of the second horizontal extension rib (33) and the limiting groove.

2. The polishing head according to claim 1, wherein the edge chamber comprises the first chamber (4) and the second chamber (5) from top to bottom and independent of each other; wherein,

the first chamber (4) exerts force on the second chamber (5) when internal gas pressure increases, and the force is transmitted to the edge area of the wafer through deformation of the second chamber (5).

3. The polishing head according to claim 1, wherein;

the second horizontal extension rib (33) and the first horizontal extension rib (32) are each annular; an inner circumferential edge of the second horizontal extension rib (33) and an inner circumferential edge of the first horizontal extension rib (32) form an annular clamping interface for clamping on the clamping protrusion.

4. The polishing head according to claim 1, wherein an annular opening for connection with the main body (1) is formed between upper edges of the two annular retaining ribs (22);

the inner membrane (2) is detachably connected to bottom of the main body (1) through a pressing ring (8); the pressing ring (8) has an annular pressing portion and a connecting protrusion fixed to top of the annular pressing portion; the annular pressing portion presses against inner side of top walls of the two annular retaining ribs (22); and the connecting protrusion protrudes from the annular opening to connect with the main body (1);

a sealing lip (23) is provided along edge of the annular retaining rib (22) of the inner membrane (2); and the pressing ring (8) presses the sealing lip (23) against bottom wall of the main body (1).

5. A wafer polishing device, comprising the polishing head according to any one of claims 1 to 4.