CLAIMS

WHAT IS CLAIMED IS:

[Claim 1] A wafer polishing device comprising:

a second pressure medium cavity used for detecting pressure change;

a porous disc with a plurality of through-holes, a lower surface of the porous disc is covered with a flexible single-cavity film for supporting a wafer;

a conduction valve unit disposed between the second pressure medium cavity and a third pressure medium cavity, the conduction valve unit is used for conduction or isolation between the second pressure medium cavity and the third pressure medium cavity, the conduction valve unit at least comprises a conduction valve seat, a conduction valve which can move relative to the conduction valve seat, and an elastic part which pushes against the conduction valve, a lower end of the conduction valve seat extends into one of the plurality of through-holes, a lower end of the conduction valve protrudes beyond a lower end surface of the conduction valve seat;

the conduction valve seat, the porous disc and the flexible single-cavity film combine to form the third pressure medium cavity;

a first pressure medium cavity used for controlling upward and downward movements of the porous disc, the second pressure medium cavity and the third pressure medium cavity;

when a negative pressure is formed in the third pressure medium cavity and the wafer is adsorbed onto the porous disc and the flexible single-cavity film, the conduction valve moves relative to the conduction valve seat against a force generated by the elastic part to connect the second pressure medium cavity and the third pressure medium cavity.

[Claim 2] The wafer polishing device according to claim 1, wherein when the third pressure medium cavity is under negative pressure state, the lower end surface of the conduction valve seat is even with the lower surface of the porous disc.

[Claim 3] The wafer polishing device according to claim 1, wherein an inner diameter of the through-hole is bigger than an outer diameter of the conduction valve seat, so that a gap for

deforming the flexible single-cavity film is formed between an outer wall of the conduction valve seat and an inner wall of the through-hole.

[Claim 4] The wafer polishing device according to claim 3, wherein a radial width of the gap is defined as S, a thickness of the flexible single-cavity film is defined as H, and $S \geq 2H$.

[Claim 5] The wafer polishing device according to claim 4, wherein a length of the conduction valve protruding beyond the lower end surface of the conduction valve seat is defined as D, and $D \geq 1/10H$.

[Claim 6] The wafer polishing device according to claim 5, wherein an outer diameter of the lower end surface of the conduction valve seat is defined as d1, an outer diameter of the conduction valve is defined as d2, and $d1 \geq d2+H$.

[Claim 7] The wafer polishing device according to claim 1, wherein a center of the conduction valve seat coincides with a center of the through-hole where the conduction valve seat is located.

[Claim 8] The wafer polishing device according to claim 1, wherein the through-holes are circular, oval, quadrilateral or special-shaped, or a combination of at least two of above shapes.