Claims

1. A vacuum suction heater, comprising:

a heating plate (10), wherein the heating plate (10) comprises a generally disc-shaped main body (1), and a supporting shaft (2) situated below the main body (1), wherein the supporting shaft (2) is a hollow structure and integrated with the main body (1);

a plurality of sequentially stacked quartz blocks (20) and/or polyether ether ketone blocks (30) situated inside the supporting shaft (2); and

a heating element situated inside the main body (1) and a heating rod (40) electrically connected to the heating element, wherein the heating rod (40) is situated inside the supporting shaft (2), goes through the quartz blocks (20) and/or the polyether ether ketone blocks (30), and can be electrically connected to an external power source.

2. The vacuum suction heater according to claim 1, wherein: the main body (1) has an upper surface (11) for bearing a wafer, and further comprises:

a plurality of grooves (12) extending downwards from the upper surface (11), wherein at least a portion of the plurality of grooves (12) are fluid connected to each other;

one or more passing holes (13), which are fluid connected to at least one of the plurality of grooves (12); and

a plurality of protrusions (14) situated on the upper surface (11), which are used to support the wafer.

3. The vacuum suction heater according to claim 2, further comprising a through hole (131), which goes through the quartz blocks (20) and/or the polyether ether ketone blocks (30), fluid connects the passing hole (13), and can be fluid coupled to a vacuum pump during operation.

4. The vacuum suction heater according to claim 3, wherein a diameter of the through hole (131) is 2-3mm; a depth of the through hole (131) in each of the quartz blocks (20) or the polyether ether ketone blocks (30) is 20-25mm.

5. The vacuum suction heater according to claim 2, wherein each of the protrusions (14) is generally circular, a diameter thereof is 1.0-3.0mm, and a height is less than or equal to 0.2mm; a distance between two adjacent protrusions (14) is 3-20mm.

6. The vacuum suction heater according to claim 5, wherein: the plurality of grooves (12) comprise a plurality of annular grooves (121) arranged in concentric circumferences and a radial groove (122) that fluid connect the annular grooves (121), widths of the annular groove (121) and the radial groove (122) are both 0.5-1.5mm and depths are less than or equal to 1.0mm; a distance between two adjacent annular grooves (121) is 10-50mm.

7. The vacuum suction heater according to claim 6, wherein:

the diameter of each of the protrusions (14) is 1.5-2.5mm, and the height is less than or equal to 0.1mm; the distance between two adjacent protrusions (14) is 5-15mm;

the widths of the annular groove (121) and the radial groove (122) are both 0.5-1.0mm, and the depths are less than or equal to 0.5mm; the distance between two adjacent annular grooves (121) is 15-50mm.

8. The vacuum suction heater according to claim 7, wherein:

the widths of the annular groove (121) and the radial groove (122) are both 1.0mm, the depths are 0.5mm; and the distance between two adjacent annular grooves (121) is 21.5mm.

9. The vacuum suction heater according to claim 8, wherein:

the diameter of each of the protrusions (14) is 2.0mm and the height is 0.1mm;

and

the plurality of protrusions (14) are distributed along a circumference, thereby forming a plurality of concentric circumferences, and the distances between two adjacent protrusions (14) situated on the same circumference and between two adjacent circumferences are 7mm.

10. The vacuum suction heater according to claim 8, wherein:

the diameter of each of the protrusions (14) is 2.0mm and the height is 0.1mm; and

the plurality of protrusions (14) are distributed in a triangular shape, and the distance between two adjacent protrusions (14) is 10mm or 5mm.

11. The vacuum suction heater according to claim 7, wherein:

the widths of the annular groove (121) and the radial groove (122) are both 1.0mm, the depths are 0.5mm; and the distance between two adjacent annular grooves (121) is 43mm.

12. The vacuum suction heater according to claim 11, wherein:

the diameter of each of the protrusions (14) is 2.0mm and the height is 0.1mm; and

the plurality of protrusions (14) are distributed along a circumference, thereby forming a plurality of concentric circumferences, and the distances between two adjacent protrusions (14) situated on the same circumference and between two adjacent circumferences are 7mm or 15mm.

13. The vacuum suction heater according to claim 11, wherein:

the diameter of each of the protrusion (14) is 2.0mm and the height is 0.1mm; and

the plurality of protrusions (14) are distributed in a triangular shape, and the distance between two adjacent protrusions (14) is 10mm or 5mm.

14. The vacuum suction heater according to claim 2, wherein: the plurality of grooves (12) and/or the plurality of protrusions (14) are generally uniformly distributed on the upper surface (11).

15. The vacuum suction heater according to claim 2, wherein the main body (1) comprises only one passing hole (13), the passing hole (13) is situated in one of the grooves (12), and a diameter thereof is greater than the width of the groove (12).

16. The vacuum suction heater according to claim 15, wherein the diameter of the passing hole (13) is 0.8-1.8mm.

17. The vacuum suction heater according to claim 1, wherein a diameter of the through hole (131) is 2-3mm; a depth of the through hole (131) in each of the quartz blocks (20) or the polyether ether ketone blocks (30) is 20-25mm.

18. The vacuum suction heater according to claim 17, further comprising a fixing block (60) situated outside the cooling block (50) and clamping the cooling block (50), for fixing the vacuum suction heater on a machine.

19. The vacuum suction heater according to claim 1, further comprising a sealing ring (15) situated between the heating rod (40) and the quartz blocks (20) and/or the polyether ether ketone blocks (30).

20. The vacuum suction heater according to claim 3, further comprising a sealing ring (16) situated on the quartz blocks (20) and/or the polyether ether ketone blocks and around the through hole (131).