CLAIMS

WHAT IS CLAIMED IS:

1. A semiconductor processing chamber, comprising:

a chamber having an opening at a top of the chamber;

a housing disposed above the opening;

a dielectric window disposed inside the housing and above the opening;

a coil arranged circumferentially at an inner top wall of the housing; and

a hot air hood disposed inside the housing and fixedly attached to the dielectric window for heating the dielectric window, wherein the hot air hood and the inner top wall of the housing are separated by a clearance gap.

2. The semiconductor processing chamber according to claim 1, wherein:

the hot air hood includes a hood body and a connecting member disposed at an outer wall of the hood body, and the hood body is fixedly attached to the dielectric window through the connecting member.

3. The semiconductor processing chamber according to claim 2, wherein:

the hot air hood includes a heating compartment for heating the dielectric window and at least two air passage ports connected to the heating compartment; and

a hood opening is configured at a bottom of the hood body, an inner wall of the hood body and a top surface of the dielectric window are enclosed to form the heating compartment,

and a flanging is configured at a surrounding edge of the hood body located at the hood opening facing the outside of the heating compartment, and the flanging is the connecting member.

4. The semiconductor processing chamber according to claim 1, wherein:

the semiconductor processing chamber further includes an air distribution structure being fixedly attached to the housing and including a plurality of air passages, at least two air exchange ports located outside the housing for air intake and air discharge, and at least two transfer ports located inside the housing and respectively connected to the at least two air exchange ports, equal numbers of exchange ports and transfer ports being connected to each other in a one-to-one correspondence; and

the air distribution structure includes at least two plug-in connectors, each plug-in connector includes a transfer port, the plug-in connector is inserted into an air passage port to connect between the transfer port and the air passage port, and a sealing ring is configured between an outer wall of the plug-in connector and an inner wall of the air passage port to seal the air passage port.

5. The semiconductor processing chamber according to claim 4, wherein:

the outer wall of the plug-in connector is configured with an annular dovetail groove surrounding its circumference, the sealing ring is arranged partly in the annular dovetail groove, the sealing ring extends partly out of the annular dovetail groove and pushes against the inner wall of the air passage port.

6. The semiconductor processing chamber according to claim 3, wherein:

the heating compartment includes a plurality of heating sub-compartment separated from each other, each heating sub-compartment is connected to two air passage ports, the air passage ports connected to different heating sub-compartments are different, one of the two air passage ports connected to the same heating sub-compartment is an air inlet for air intake, and the other of the two air passage ports connected to the same heating sub-compartment is an air outlet for air discharge.

7. The semiconductor processing chamber according to claim 6, wherein:

the heating compartment includes a plurality of concentric ring-shaped compartments and a partition plate extending in a radial direction of the plurality of concentric ring-shaped compartments, the partition plate symmetrically divides each ring-shaped compartment into two half ring-shaped compartments, the half ring-shaped compartments are the heating sub-compartments, and the air inlet and the air outlet connected to the same heating sub-compartment are located at both ends of the same heating sub-compartment.

8. The semiconductor processing chamber according to claim 6, wherein:

a first pressure release hole is configured between two adjacent heating sub-compartments with different diameters to facilitate connection between two adjacent heating sub-compartments with different diameters, and the heating sub-compartment with the smallest diameter is configured with a second pressure release hole connected to the outside of the heating compartment.

9. The semiconductor processing chamber according to claim 7, wherein:

the number of air passages is four, two air passages are air intake passages, the other two air passages are air discharge passages, the two air intake passages are respectively arranged on both sides of the partition plate, the two air discharge passages are also respectively arranged on both sides of the partition plate, each air intake passage and each air discharge passage both have two transfer ports, and each air intake passage and each air discharge passage both have the air exchange port;

the two transfer ports of each air intake passage are respectively connected to inlets of two adjacent heating sub-compartments located on the same side of the partition plate; and

the two transfer ports of each air discharge passage are respectively connected to outlets of two adjacent heating sub-compartments located on the same side of the partition plate.

10. The semiconductor processing chamber according to claim 9, wherein:

the air exchange ports of the two air intake passages are used to connect to the air outlet of a first heater and the air outlet of a second heater, respectively; and

the air exchange ports of the two air discharge passages are used to connect to the air inlet of the first heater and the air inlet of the second heater, respectively.

11. The semiconductor processing chamber according to claim 3, wherein:

a boss is configured at a top surface of the hot air hood, the air passage port is connected to the heating compartment through a top surface of the boss, and the clearance gap is configured between the top surface of the boss and the inner top wall of the housing.

12. The semiconductor processing chamber according to claim 1, wherein:

the hot air hood includes a heating compartment for heating the dielectric window and at least two air passage ports connected to the heating compartment; and

the semiconductor processing chamber further includes an air distribution structure being fixedly attached to the housing and including a plurality of air passages, at least two air exchange ports located outside the housing for air intake and air discharge, and at least two transfer ports located inside the housing and respectively connected to the at least two air exchange ports, wherein equal numbers of exchange ports and transfer ports are connected to each other in a one-to-one correspondence.