

What is claimed is:

1. A carrying device comprising:

a heating plate, and

a cooling plate,

wherein the heating plate and the cooling plate are spaced apart, and a thermal insulation region is formed between the heating plate and the cooling plate;

the carrying device further comprises an insulation structure disposed between the heating plate and the cooling plate, to divide the thermal insulation region into at least one thermal insulation zone and at least one heat transfer zone;

the heat transfer zone is connected to an atmospheric environment; the thermal insulation zone is connected to a non-atmospheric environment;

a heat transfer rate of the thermal insulation zone and a heat transfer rate of the heat transfer zone can be controlled by controlling a gas pressure within the thermal insulation zone and a gas pressure within the heat transfer zone; and

the gas pressure in the thermal insulation zone is lower than the gas pressure in the heat transfer zone.

2. The carrying device according to claim 1, wherein a ratio of an orthographic projection area of the heat transfer zone on the heating plate to an orthographic projection area of the thermal insulation zone on the heating plate ranges from 0.01 to 10.

3. The carrying device according to claim 1, wherein the insulation structure comprises a ring, and a space inside the ring serves as the heat transfer zone connected to the atmospheric environment; a space outside the ring serves as the thermal insulation zone connected to the non-atmospheric environment; or, the insulation structure includes a plurality of rings having different inner diameters and being mutually concentric, the plurality of the rings divide the thermal insulation region into multiple subspaces, any one of the subspaces serves as the thermal insulation zone or the heat transfer zone.

4. The carrying device according to claim 1, wherein the insulation structure is made from a thermal insulating material, and the thermal conductivity of the insulation structure is less than  $16 \text{ W/m}\cdot\text{K}$ .

5. The carrying device according to claim 4, wherein the contact area between the heating plate and the insulation structure does not exceed 5% of the orthographic projection area of the heating plate on the cooling plate.

6. The carrying device according to claim 1, wherein a first protrusion is disposed on a surface of the cooling plate opposite to the thermal insulation zone; and/or a second protrusion is disposed on a surface of the heating plate opposite to the thermal insulation zone.

7. The carrying device according to claim 1, wherein an atmospheric passage is disposed in the cooling plate, the heat transfer zone being connected to the atmospheric environment through the atmospheric passage.

8. The carrying device according to claim 1, wherein the thermal insulation region has a longitudinal height of less than or equal to 1 mm.

9. The carrying device according to claim 1, wherein a heat sink is further disposed in the cooling plate.

10. A semiconductor processing apparatus, comprising:  
a chamber, and  
the carrying device of any one of claims 1 to 9, the carrying device being installed within the chamber.