Claims

1. A processing chamber comprising:

a chamber body having a top, sidewall and bottom defining an upper interior region and a lower interior region;

a heater assembly on the bottom of the chamber body in the lower interior region, the heater assembly comprising a bottom, sidewall and a top defining a process region;

a wafer cassette assembly inside the heater assembly; and

a motor configured to move the wafer cassette assembly from the lower interior region inside the heater assembly to the upper interior region,

wherein the sidewall of the heater assembly has a double-walled labyrinthine exit flow path to provide fluid communication between the process region and the upper interior region of the chamber body.

2. The processing chamber of claim 1, further comprising a steam injection port in the bottom of the chamber body and the bottom of the heater assembly, the steam injection port providing a fluid path into the process region of the heater assembly.

3. The processing chamber of claim 1, wherein the heater assembly further comprises a heating element adjacent the bottom of the heater assembly.

4. The processing chamber of claim 3, wherein there is more than one heating element adjacent the bottom of the heater assembly.

5. The processing chamber of claim 1, wherein the heating assembly further comprises a heating element around the sidewall.

6. The processing chamber of claim 5, wherein the heating element is located within an interior of the heating assembly.

7. The processing chamber of claim 6, wherein there are at least two heating elements adjacent the sidewall of the heater assembly within the process region.

8. The processing chamber of claim 6, wherein the heating element is positioned on a ceramic wire guide adjacent the sidewall in the interior of the heating assembly.

9. The processing chamber of claim 1, wherein the top of the heating assembly comprises a quartz disc.

10. The processing chamber of claim 1, wherein the wafer cassette comprises a plurality of wafer supports positioned to support a wafer during processing, each of the wafer supports comprising a plurality of wafer support elements spaced along a height of the wafer support.

11. The processing chamber of claim 1, wherein the sidewall of the chamber body comprises a slit valve in the upper interior region to load and unload wafers from the wafer cassette.

12. The processing chamber of claim 1, further comprising at least one sensor within the upper interior region to measure one or more of temperature or pressure.

13. The processing chamber of claim 1, further comprising a controller connected to one or more of the heater assembly, the wafer cassette, the motor, an opening in the sidewall of the chamber in the upper interior region or one or more sensors within the upper interior region to measure one or more of temperature or pressure.

14. A method of annealing a plurality of wafers, the method comprising:

positioning the plurality of wafers in a heater assembly within a lower interior portion of a chamber body, the heater assembly comprising a sidewall

with a double-walled labyrinthine exit flow path to provide fluid communication between an interior of the heater assembly and an upper interior portion of the chamber body;

heating the plurality of wafers; and

pressurizing the chamber body to a predetermined pressure by flowing steam into the heater assembly, the steam exiting the heater assembly into the upper interior portion of the chamber body through the double-walled labyrinthine exit flow path in the heater assembly.