Claims:

1. A processing chamber applicable for semiconductor manufacturing, comprising:

a chamber body comprising:

a processing volume,

a plurality of inject passages formed in the chamber body and arranged in a plurality of flow levels, and

one or more exhaust passages formed in the chamber body;

one or more heat sources configured to heat the processing volume; and

a gas circuit in fluid communication with the chamber body, the gas circuit comprising:

a first flow controller,

a first set of valves in fluid communication with the first flow controller, the first set of valves in fluid communication with a first set of inject passages,

a second flow controller,

a second set of valves in fluid communication with the second flow controller, the second set of valves in fluid communication with a second set of inject passages, the second set of inject passages and the first set of inject passages alternating with respect to each other along the plurality of flow levels.

2. The processing chamber of claim 1, wherein the gas circuit further comprises:

a first supply valve and a first supply line in fluid communication with the first flow controller.

3. The processing chamber of claim 2, wherein the gas circuit further comprises:

a second supply valve and a second supply line in fluid communication with the second flow controller.

4. The processing chamber of claim 3, wherein the gas circuit further comprises:

a connection valve in fluid communication between the first supply line and the second supply line at locations downstream of the first supply valve and the second supply valve.

5. The processing chamber of claim 4, wherein the gas circuit further comprises:

a third flow controller; and

a valve in fluid communication with a lower inject passage below the first set of inject passages and the second set of inject passages.

6. The processing chamber of claim 5, wherein the gas circuit further comprises:

a third supply valve and a third supply line in fluid communication with the third flow controller.

7. The processing chamber of claim 6, wherein the gas circuit further comprises:

a second connection valve in fluid communication between the third supply line and the first supply line at a location downstream of the first supply valve.

8. The processing chamber of claim 7, wherein the gas circuit further comprises:

a third connection valve in fluid communication between the third supply line and the second supply line at a location downstream of the second supply valve.

9. The processing chamber of claim 6, wherein the gas circuit further comprises:

a fourth supply valve and a fourth supply line in fluid communication with the second flow controller.

10. The processing chamber of claim 1, wherein the first flow controller and the second flow controller is each a flow ratio controller (FRC).

11. The processing chamber of claim 1, further comprising a cassette disposed in the processing volume, the cassette comprising a plurality of arcuate supports, and the plurality of inject passages in fluid communication with respective flow paths above the plurality of arcuate supports.

12. A gas circuit applicable for semiconductor manufacturing, comprising:

a first flow controller;

a first set of valves in fluid communication with the first flow controller;

a first supply valve and a first supply line in fluid communication with the first flow controller;

a second flow controller;

a second set of valves in fluid communication with the second flow controller, the second set of valves and the first set of valves alternating with respect to each other; and

a second supply valve and a second supply line in fluid communication with the second flow controller.

13. The gas circuit of claim 12, wherein the gas circuit further comprises:

a connection valve in fluid communication between the first supply line and the second supply line at locations downstream of the first supply valve and the second supply valve.

14. The gas circuit of claim 13, wherein the gas circuit further comprises:

a third flow controller; and

a valve in fluid communication with the third flow controller.

15. The gas circuit of claim 14, wherein the gas circuit further comprises:

a third supply valve and a third supply line in fluid communication with the third flow controller.

16. The gas circuit of claim 15, wherein the gas circuit further comprises:

a second connection valve in fluid communication between the third supply line and the first supply line at a location downstream of the first supply valve.

17. The gas circuit of claim 16, wherein the gas circuit further comprises:

a third connection valve in fluid communication between the third supply line and the second supply line at a location downstream of the second supply valve.

18. The gas circuit of claim 15, wherein the gas circuit further comprises:

a fourth supply valve and a fourth supply line in fluid communication with the second flow controller.

19. A processing chamber applicable for semiconductor manufacturing, comprising:

a chamber body comprising a plurality of inject passages arranged in a plurality of flow levels; and

a gas circuit in fluid communication with the chamber body, the gas circuit comprising:

a first flow controller,

a first set of valves in fluid communication with the first flow controller, the first set of valves in fluid communication with a first set of inject passages,

a second flow controller,

a second set of valves in fluid communication with the second flow controller, the second set of valves in fluid communication with a second set of inject passages, the second set of inject passages and the first set of inject passages alternating with respect to each other along a first zone of the plurality of flow levels

a third flow controller,

a third set of valves in fluid communication with the third flow controller, the third set of valves in fluid communication with a third set of inject passages,

a fourth flow controller,

a fourth set of valves in fluid communication with the fourth flow controller, the fourth set of valves in fluid communication with a fourth set of inject passages, the fourth set of inject passages and the third set of inject passages alternating with respect to each other along a second zone of the plurality of flow levels.

20. The processing chamber of claim 19, wherein the gas circuit further comprises:

a first supply valve and a first supply line in fluid communication with the first flow controller;

a second supply valve and a second supply line in fluid communication with the second flow controller;

a third supply valve and a third supply line in fluid communication with the third flow controller; and

a fourth supply valve and a fourth supply line in fluid communication with the fourth flow controller.