

WHAT IS CLAIMED IS:

1. A substrate processing apparatus, comprising:

a first processing module including a first processing container in which a substrate is processed;

a second processing module including a second processing container, in which the substrate is processed, disposed adjacent to the first processing container;

a first utility system disposed adjacent to a back surface of the first processing module and including:

a first exhaust box for accommodating a first exhaust system configured to evacuate an inside of the first processing container; and

a first supply box for accommodating a first supply system configured to supply a processing gas into the first processing container; and

a second utility system disposed adjacent to a back surface of the second processing module and including:

a second exhaust box for accommodating a second exhaust system configured to evacuate an inside of the second processing container; and

a second supply box for accommodating a second supply system configured to supply a processing gas into the second processing container,

wherein the first exhaust box and the second exhaust box are disposed to face each other across a maintenance area, which is located behind a first part of the back surface of the first processing module that is close to the second processing module and behind a first part of the back surface of the second processing module that is close to the first processing module, and the first supply box and the second supply box are disposed to face each other across the maintenance area.

2. The apparatus of Claim 1, wherein the first utility system is disposed on an outer corner

positioned in a second part of the back surface of the first processing module opposite to the second processing module, and the second utility system is disposed on an outer corner positioned in a second part of the back surface of the second processing module opposite to the first processing module.

3. The apparatus of Claim 1, wherein the first processing module further includes a first transfer chamber disposed below the first processing container, the substrate being loaded into and unloaded from the first processing container,

the second processing module further includes a second transfer chamber disposed adjacent to the first transfer chamber, the substrate being loaded into and unloaded from the second processing container, and

a first maintenance door is installed on a back surface of the first transfer chamber, and a second maintenance door is installed on a back surface of the second transfer chamber.

4. The apparatus of Claim 1, wherein the first utility system is formed to have a narrower width in the vicinity of the back surface of the first processing module, and

the second utility system is formed to have a narrower width in the vicinity of the back surface of the second processing module.

5. The apparatus of Claim 1, wherein a first exhaust pipe connected to the first processing container extends along a direction of the first exhaust box, and

a second exhaust pipe connected to the second processing container extends along a direction of the second exhaust box.

6. The apparatus of Claim 1, wherein a maintenance port of the first exhaust box and a maintenance port of the second exhaust box are disposed close to the maintenance area so as to face each other, and

a maintenance port of the first supply box and a maintenance port of the second supply box are disposed close to the maintenance area so as to face each other.

7. The apparatus of Claim 2, wherein the first utility system further includes a first controller box disposed behind the first exhaust box and the first supply box and accommodating a first controller, and

the second utility system further includes a second controller box disposed behind the second exhaust box and the second supply box and accommodating a second controller.

8. The apparatus of Claim 3, wherein the first maintenance door is configured to be rotatable about a portion on the back surface of the first transfer chamber close to the second transfer chamber as a first base axis, and the second maintenance door is configured to be rotatable about a portion on the back surface of the second transfer chamber close to the first transfer chamber as a second base axis, and

the first maintenance door and the second maintenance door are rotatable in opposite rotation directions with each other when being opened.

9. The apparatus of Claim 1, further comprising:

a first final valve installed at a first pipe connecting the first processing container and the first supply box; and

a second final valve installed at a second pipe connecting the second processing container and the second supply box,

wherein a length of the first pipe from the first final valve to the first processing container is substantially the same as a length of the second pipe from the second final valve to the second processing container.

10. The apparatus of Claim 3, wherein a component in the first processing container and a component in the second processing container are plane-symmetrically disposed with respect to a surface adjacent to the first transfer chamber and the second transfer chamber, and

a component in the first transfer chamber and a component in the second transfer chamber are plane-symmetrically disposed with respect to the surface adjacent to the first transfer chamber and the second transfer chamber.

11. The apparatus of Claim 3, further comprising a transshipment chamber disposed adjacent to a front side of the first transfer chamber and a front side of the second transfer chamber, the substrate being transshipped to a first substrate holder in the first transfer chamber and a second substrate holder in the second transfer chamber from the transshipment chamber,

wherein the first maintenance door is configured to be opened when a pressure in the first transfer chamber is lower than a pressure in the transshipment chamber and an oxygen concentration in the first transfer chamber is equal to or higher than an oxygen concentration in the atmosphere.

12. The apparatus of Claim 1, wherein the first exhaust box is installed such that an outer side surface of the first processing module and an outer side surface of the first exhaust box are flush with each other, and

the second exhaust box is installed such that an outer side surface of the second processing module and an outer side surface of the second exhaust box are flush with each other.

13. The apparatus of Claim 1, wherein the first exhaust box is disposed below a first exhaust pipe extending from the first processing container, and

the second exhaust box is disposed below a second exhaust pipe extending from the second processing container.

14. The apparatus of Claim 1, wherein the first utility system is formed to have a narrower width than the first processing module in the vicinity of the back surface of the first processing module,
- the second utility system is formed to have a narrower width than the second processing module in the vicinity of the back surface of the second processing module, and
- the maintenance area has a broader width in the vicinity of the back surfaces of the first processing module and the second processing module.
15. The apparatus of Claim 10, wherein the substrate to be processed in the first processing container and the substrate to be processed in the second processing container are rotated in opposite directions.
16. The apparatus of Claim 8, wherein the first maintenance door and the second maintenance door are detachably pivoted by hinges, which are installed so as to be adjacent to each other in the vicinity of inner corners of the back surfaces of the first transfer chamber and the second transfer chamber.
17. The apparatus of Claim 11, wherein a clean unit for supplying a clean air to the transshipment chamber is provided on a ceiling of the transshipment chamber,
- a first gate valve and a second gate valve are installed on a boundary wall between the first transfer chamber and the transshipment chamber and on a boundary wall between the second transfer chamber and the transshipment chamber, respectively, and
- an inert gas is circulated in the transshipment chamber as the clean air.
18. The apparatus of Claim 3, wherein the first transfer chamber includes:
- a first clean unit installed on an outer side surface of the first transfer chamber and configured to supply a clean air or an inert gas; and

a first exhaust part installed on a side surface facing the first clean unit, and

wherein the second transfer chamber includes:

a second clean unit installed on an outer side surface of the second transfer chamber and configured to supply a clean air or an inert gas; and

a second exhaust part installed on a side surface facing the second clean unit,

the first transfer chamber is configured so that the clean air or the inert gas exhausted from the first transfer chamber by the first exhaust part is re-supplied from the first clean unit to the first transfer chamber, and

the second transfer chamber is configured so that the clean air or the inert gas exhausted from the second transfer chamber by the second exhaust part is re-supplied from the second clean unit to the second transfer chamber.

19. A method of manufacturing a semiconductor device, comprising:

processing a substrate in a first processing container of a first processing module by evacuating an inside of the first processing container by a first exhaust system accommodated in a first exhaust box of a first utility system, while supplying a first processing gas to the substrate in the first processing container from a first supply system provided in the first utility system disposed adjacent to a back surface of the first processing module and accommodated in a first supply box for supplying the first processing gas into the first processing container;

processing the substrate in a second processing container of a second processing module by evacuating an inside of the second processing container by a second exhaust system accommodated in a second exhaust box of a second utility system, while supplying a second processing gas to the substrate in the second processing container from a second supply system provided in the second utility system disposed adjacent to a back surface of the second processing module and accommodated in a second supply box for supplying the second processing gas into the second processing container; and

performing maintenance of at least one selected from a group consisting of the first

processing module, the second processing module, the first utility system, and the second utility system from a maintenance area, which is located behind the back side of the first processing module and the second processing module and interposed between the first utility system and the second utility system.

20. The method of Claim 19, wherein in the act of performing the maintenance, maintenance of a first transfer chamber disposed below the first processing container in the first processing module is performed, and

the act of performing the maintenance includes:

increasing an oxygen concentration in the first transfer chamber to an oxygen concentration in the atmosphere or more, while maintaining a pressure in the first transfer chamber lower than a pressure in a transshipment chamber; and

opening a maintenance door formed on a back surface of the first transfer chamber.