CLAIMS

1. A substrate processing apparatus comprising:

a plurality of composite modules each including a transfer chamber having a transfer space for a substrate and at least two processing chambers provided integrally with the transfer chamber with the transfer chamber interposed therebetween, and

a device disposed on at least one side above or below the transfer chamber and used in common for substrate processing in the at least two processing chambers provided integrally with the transfer chamber with the transfer chamber interposed therebetween, wherein

the transfer chambers adjacent to each other are connected to each other, a plurality of the composite modules are connected, the transfer spaces of a plurality of the connected transfer chambers communicate with each other, and the transfer space is maintained in a vacuum atmosphere.

2. The substrate processing apparatus according to claim 1, wherein

the transfer chambers adjacent to each other are connected to each other directly.

3. The substrate processing apparatus according to claim 1, wherein

the composite module includes a pit-in chamber in which a maintenance unit is accommodated.

4. A substrate processing apparatus comprising:

a plurality of composite modules,

a device necessary for substrate processing,

a load-lock module configured to be switched between an air atmosphere and a vacuum atmosphere, and

a connection module connecting a transfer chamber and the load-lock module, wherein

the composite module includes

the one transfer chamber having a transfer space for a substrate, and

two or more processing chambers provided integrally with the transfer chamber with the transfer chamber interposed therebetween,

the device is provided to be shared by the two or more processing chambers, and is disposed on at least one side above or below the transfer chamber,

the transfer chambers adjacent to each other are connected to each other, and a plurality of the composite modules are connected to each other,

the transfer spaces of the connected transfer chambers communicate with each other,

the transfer space is maintained in a vacuum atmosphere, and

an exhaust port configured to vacuum the transfer space is formed in the connection module.

5. A substrate processing apparatus including a plurality of composite modules, the substrate processing apparatus comprising:

a load-lock module configured to be switched between an air atmosphere and a vacuum atmosphere, and

a connection module connecting a transfer chamber and the load-lock module, wherein

the composite module includes

the one transfer chamber having a transfer space for a substrate, and

two or more processing chambers provided integrally with the transfer chamber with the transfer chamber interposed therebetween,

the transfer chambers adjacent to each other are directly connected to each other, and a plurality of the composite modules are connected to each other,

the transfer spaces of a plurality of the connected transfer chambers communicate with each other,

the transfer space is maintained in a vacuum atmosphere, and

an exhaust port configured to vacuum the transfer space is formed in the connection module.

6. The substrate processing apparatus according to claim 5, wherein

the composite module includes a pit-in chamber in which a maintenance unit is accommodated.

7. The substrate processing apparatus according to claim 5, wherein

a device necessary for substrate processing is provided to be shared by the two or more processing chambers and is disposed on at least one side above or below the transfer chamber.

8. A substrate processing apparatus comprising:

a plurality of composite modules each including a transfer chamber having a transfer space for a substrate and at least two processing chambers provided integrally with the transfer chamber with the transfer chamber interposed therebetween, and

a pit-in chamber in which a maintenance unit connected to the composite module is accommodated, wherein

the transfer chambers adjacent to each other are connected to each other, a plurality of the composite modules are connected to each other, the transfer spaces of a plurality of the transfer chambers connected to each other communicate with each other, the transfer space is maintained in a vacuum atmosphere, a closable opening is formed in an end surface of the transfer chamber of a plurality of the connected composite modules, and the pit-in chamber is connectable to communicate with the opening, and

the maintenance unit includes a rescue unit configured to replace a transfer unit moving in the transfer space or a cleaning unit configured to clean the transfer space.

9. The substrate processing apparatus according to claim 8, wherein

the transfer chambers adjacent to each other are connected to each other directly.

10. The substrate processing apparatus according to claim 8, wherein

a device necessary for substrate processing is provided to be shared by the at least two processing chambers and is disposed on at least one side above or below the transfer chamber.

11. A substrate processing apparatus comprising:

a plurality of composite modules;

a pit-in chamber in which a maintenance unit connected to the composite module is accommodated;

a load-lock module configured to be switched between an air atmosphere and a vacuum atmosphere; and

a connection module connecting a transfer chamber and the load-lock module, wherein

the composite module includes

the one transfer chamber having a transfer space for a substrate, and

two or more processing chambers provided integrally with the transfer chamber with the transfer chamber interposed therebetween,

the transfer chambers adjacent to each other are connected to each other, and a plurality of the composite modules are connected to each other,

the transfer spaces of a plurality of the connected transfer chambers communicate with each other,

the transfer space is maintained in a vacuum atmosphere, and

an exhaust port configured to vacuum the transfer space is formed in the connection module.

12. The substrate processing apparatus according to claim 1, 4, 5, 8, or 11, wherein

a magnetically levitated transfer unit configured to move between a plurality of the composite modules is provided in the transfer space.

13. The substrate processing apparatus according to claim 1, 4, 5, 8, or 11, wherein

at least one of the transfer chambers is provided with a transfer unit fixed to the transfer chamber.

14. The substrate processing apparatus according to claim 1 or 8, further comprising:

a load-lock module configured to be switched between an air atmosphere and a vacuum atmosphere, and

a connection module connecting the transfer chamber and the load-lock module, wherein

an exhaust port configured to vacuum the transfer space is formed in the connection module.

15. The substrate processing apparatus according to claim 1 or 8, wherein

an exhaust port configured to vacuum the transfer space is formed in one of the transfer chambers.

16. The substrate processing apparatus according to claim 3, 6, or 11, wherein

a plurality of the composite modules are arranged in one direction, and

the pit-in chamber is connected to the transfer chamber at an end portion in the one direction among a plurality of the transfer chambers.

17. The substrate processing apparatus according to any one of claims 1 to 11, wherein

openings having a same shape are formed in both end surfaces of the transfer chamber.

18. The substrate processing apparatus according to any one of claims 1 to 11, wherein

the composite module has a configuration in which one chamber is partitioned into the one transfer chamber and the processing chamber.

19. The substrate processing apparatus according to any one of claims 1 to 11, wherein

the composite module includes two of the processing chambers.

20. The substrate processing apparatus according to claim 1, 4, 7, or 10, wherein

the device includes at least one of a gas box and a gas line.