DESCRIPTION

Title of Invention: SUBSTRATE DESCRIPTION APPARATUS

Technical Field

[0001]

The present disclosure relates to a substrate processing apparatus.

Background Art

[0002]

PTL 1 discloses a substrate processing apparatus in which processing modules are connected to a vacuum transfer module. An example of the substrate processing apparatus has a configuration in which a first vacuum transfer module and a second vacuum transfer module are coupled, and six processing modules are connected to each vacuum transfer module.

Citation List

Patent Literature

[0003]

PTL 1: JP2022-104056A

Summary of Invention

Technical Problem

[0004]

Embodiments of the present disclosure improve the production efficiency of a substrate processing apparatus.

Solution to Problem

[0005]

According to a first aspect of the present disclosure, there is provided a substrate processing apparatus including: 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.

[0005a]

According to a second aspect of the present disclosure, there is provided a substrate processing apparatus including: 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.

[0005b]

According to a third aspect of the present disclosure, there is provided a substrate processing apparatus including: 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.

Advantageous Effects of Invention

[0006]

According to embodiments of the present disclosure, it is possible to improve the production efficiency of the substrate processing apparatus.

Brief Description of Drawings

[0007]

[FIG. 1] FIG. 1 is a perspective view illustrating a schematic configuration of a wafer processing apparatus according to the present embodiment.

[FIG. 2] FIG. 2 is a plan view illustrating a schematic configuration of the wafer processing apparatus according to the present embodiment.

[FIG. 3] FIG. 3 is a view schematically illustrating a schematic configuration of a composite module.

[FIG. 4] FIG. 4 is a view schematically illustrating a schematic configuration of both end surfaces of a transfer chamber.

[FIG. 5] FIG. 5 is a plan view illustrating a schematic configuration of a transfer unit.

[FIG. 6] FIG. 6 is a side view illustrating a schematic configuration of the composite module.

[FIG. 7] FIG. 7 is a view illustrating a state of producing the wafer processing apparatus.

[FIG. 8] FIG. 8 is a plan view illustrating a schematic configuration of a wafer processing apparatus according to another embodiment.

[FIG. 9] FIG. 9 is a plan view illustrating a schematic configuration of a wafer processing apparatus according to another embodiment.

[FIG. 10] FIG. 10 is a plan view illustrating a schematic configuration of a wafer processing apparatus according to another embodiment.

[FIG. 11] FIG. 11 is a plan view illustrating a schematic configuration of a wafer processing apparatus according to another embodiment.

[FIG. 12] FIG. 12 is a plan view illustrating a schematic configuration of a wafer processing apparatus according to another embodiment.

[FIG. 13A] FIG. 13A is a plan view illustrating a schematic configuration of a wafer processing apparatus in the related art.

[FIG. 13] FIG. 13B is a plan view illustrating a schematic configuration of the wafer processing apparatus in the related art.

[FIG. 13] FIG. 13C is a plan view illustrating a schematic configuration of the wafer processing apparatus in the related art.

[FIG. 13] FIG. 13D is a plan view illustrating a schematic configuration of the wafer processing apparatus in the related art.