

What is claimed is:

1. A door opener for opening or closing a sealing door of a wafer cassette, characterized in that the door opener comprises:

a housing part configured to be movably butted with a chamber wall of a transport chamber and located at a peripheral position of a transfer interface at which the chamber wall is butted with a wafer transfer port of the wafer cassette so that the transfer interface and the wafer transfer port of the wafer cassette is openable or closeable, wherein a first opening is provided on a side of the housing part facing the wafer cassette; and

a butting assembly provided at the first opening and configured to be butted with the sealing door and separate the sealing door from the wafer cassette when the housing part is in a position for closing the transfer interface and the wafer transfer port, wherein the sealing door or the butting assembly is in a seal fit with the first opening to form a sealed space within the housing part;

the butting assembly comprises:

a butting plate; and

a drive mechanism provided in the housing part, and configured to drive the butting plate to move to a first position where the butting plate is capable of butting with the sealing door, and drive the butting plate to move to a second position where the sealing door or the butting plate is in a seal fit with the first opening after the butting plate is butted with the sealing door.

2. The door opener according to claim 1, characterized in that a suction structure is provided on the butting plate and configured to fix the sealing door by suction when the butting plate is in the first position.

3. The door opener according to claim 1, characterized in that a first sealing member is provided at a position of the sealing door or the butting plate corresponding to a periphery of the first opening and/or at a position on the housing part at a periphery

of the first opening, and configured to seal the first opening when the butting plate is in the second position.

4. The door opener according to claim 3, characterized in that the housing part comprises an annulus and a cover, wherein,

an end face of an opening of the cover is butted with a first end face of the annulus, and a second sealing member is provided therebetween; and

a hole of the annulus is used as the first opening, a second end face of the annulus, which is away from the first end face, is configured to be butted with a surface of the sealing door or a surface of the butting plate away from the wafer cassette, and the first sealing member is provided therebetween.

5. The door opener according to any one of claims 1 to 4, characterized in that the door opener further comprises:

a housing drive mechanism connected to the housing part and configured to drive the housing part and the butting assembly therein to move as a whole.

6. The door opener according to any one of claims 1 to 4, characterized in that a third sealing member is provided at a position of the housing part corresponding to a periphery of the transfer interface and/or at a position on the chamber wall of the transport chamber at the periphery of the transfer interface, and configured to seal the transfer interface and the wafer transfer port when the housing part is in a position for closing the transfer interface and the wafer transfer port.

7. The door opener according to any one of claims 1 to 4, characterized in that the door opener further comprises:

a purging mechanism configured to introduce purging gas into the wafer cassette and discharge gas from the wafer cassette at the same time when the housing part is in a position for closing the wafer transfer port and the sealing door is separated from the wafer cassette.

8. The door opener according to claim 7, characterized in that the purging mechanism comprises:

a purging nozzle provided on a side of the housing part facing the wafer cassette and configured to blow the purging gas into the wafer cassette;

a gas inlet path respectively connected to the purging nozzle and a gas source and configured to convey the purging gas provided by the gas source to the purging nozzle; and

a gas outlet path configured to discharge the gas in the wafer cassette to an outside of the housing part.

9. The door opener according to claim 1, characterized in that the housing part is provided with a vent structure for venting gas in the housing part to an outside of the housing part.

10. A transport chamber, characterized in comprising:

a chamber body provided with a transfer interface for butting with a wafer transfer port of a wafer cassette;

the door opener according to any one of claims 1 to 9, by which the wafer transfer port and the transfer interface are opened or closed simultaneously so that an interior of the chamber body is in communication with or separated from an interior of the wafer cassette.

11. The transport chamber according to claim 10, characterized in comprising the door opener according to claim 9, wherein

the gas inlet path is a gas inlet channel provided in the chamber body, the gas inlet channel has an inlet opened outside of the chamber body and configured to be connected to the gas source, and has an outlet opened inside of the chamber body and configured to be butted and in communication with an inlet of the purging nozzle when the housing part is in a position for closing the wafer transfer port; and

the gas outlet path is a gas outlet channel opened inside a body of the wafer cassette,

the gas outlet channel has an inlet in communication with an interior of the wafer cassette, and has an outlet opened outside of the body of the wafer cassette.

12. The transport chamber according to claim 10, characterized in that a bracket is provided outside of a sidewall of the chamber body at the transfer interface, and configured to support the wafer cassette when the wafer transfer port of the wafer cassette is butted with the transfer interface.

13. A semiconductor processing device, characterized in comprising:
a reaction chamber;
the transport chamber according to any one of claims 10 to 12;
a wafer carrier configured to carry a wafer and being movable between the reaction chamber and the transport chamber; and
a manipulator provided in the transport chamber and configured to transfer the wafer between the wafer cassette and the wafer carrier when the housing part is in a position for opening the wafer transfer port and the wafer carrier is in the transport chamber.

14. The semiconductor processing device according to claim 13, characterized in that the semiconductor processing device is a vertical thermal process device.