What Is Claimed Is

[Claim 1] A coupling system, comprising: a transfer box having a transfer box body and a transfer box door; and an apparatus having an apparatus body and an apparatus door;

said coupling system having structures wherein:

the transfer box has a first sealing structure hermetically sealable by means of tight coupling of the transfer box body and transfer box door;

the apparatus has a second sealing structure hermetically sealable by means of tight coupling of the apparatus body and apparatus door;

the transfer box and apparatus have a third sealing structure hermetically sealable by means of tight coupling of both; and

only when the transfer box and apparatus are tightly coupled, one undivided coupling chamber is formed hermetically by the third sealing structure, where a means for cleaning the coupling chamber is provided, and the transfer box door is separated from the transfer box and taken into the apparatus.

[Claim 2] A coupling system according to Claim 1, structured in such a way that the coupling chamber has a cleaning gas intake hole and exhaust hole and a valve that controls pressure in the coupling chamber is directly connected to one or more of these holes and coupling chamber.

[Claim 3] A coupling system according to Claim 2, having an exhaust hole connected to an exhaust apparatus or vacuum generator so that pressure in the coupling chamber can be made negative to the outside when the transfer box and apparatus are coupled.

[Claim 4] A coupling system according to any one of Claims 1 to 3, adopting:

the transfer box that has V-shaped grooves extending in three different directions on an exterior surface of the transfer box door, positioning pins on the transfer box body around the transfer box door when the transfer box door is closed on the transfer box body, and a slanted surface around the transfer box door; and

the apparatus door and apparatus body having structures to engage with the V-shaped grooves, positioning pins and slanted surface, respectively.

[Claim 5] A transfer box having a sealing structure hermetically sealable by means of tight coupling of a transfer box body and a transfer box door;

said transfer box provided with V-shaped grooves extending in three different directions on an exterior surface of the transfer box door; positioning pins on the transfer box body around the transfer box door when the transfer box door is closed

on the transfer box body; and a slanted surface around the transfer box door in a manner facing a slanted surface provided in the transfer box body.

CLAIMS

1. A coupling system comprising: a transfer box having a transfer box body and a transfer box door; and an apparatus having an apparatus body and an apparatus door, wherein the transfer box door is made to support a wafer thereon and carry the wafer within an interior of the apparatus body;

said coupling system having structures wherein:

the transfer box has a first sealing structure hermetically sealable by means of tight coupling of the transfer box body and transfer box door;

the apparatus has a second sealing structure hermetically sealable by means of tight coupling of the apparatus body and apparatus door;

the transfer box and apparatus have a third sealing structure hermetically sealable by means of tight coupling of both, as formed between the transfer box body and apparatus body; and

only when the transfer box and apparatus are tightly coupled, one undivided coupling chamber is formed hermetically by the third sealing structure, where a means for cleaning the coupling chamber is provided, and the transfer box door is separated from the transfer box body and taken into the interior of the apparatus body together with the apparatus door while supporting the wafer on the transfer box door.

2. A coupling system according to claim 1, structured in such a way that the coupling chamber has a cleaning gas intake hole and exhaust hole and a valve that controls pressure in the coupling chamber is directly connected to one or more of these holes and coupling chamber.

3. A coupling system according to claim 2, having an exhaust hole connected to an exhaust apparatus or vacuum generator so that pressure in the coupling chamber can be made negative to the outside when the transfer box and apparatus are coupled.

4. A coupling system according to claim 3, adopting:

the transfer box that has V-shaped grooves extending in three different directions on an exterior surface of the transfer box door, positioning pins on the transfer box body around the transfer box door when the transfer box door is closed on the transfer box body, and a slanted surface around the transfer box door; and

the apparatus door and apparatus body having structures to engage with the V-shaped grooves, positioning pins and slanted surface, respectively.

5. A coupling system according to claim 2, adopting:

the transfer box that has V-shaped grooves extending in three different directions on an exterior surface of the transfer box door, positioning pins on the transfer box body around the transfer box door when the transfer box door is closed on the transfer box body, and a slanted surface around the transfer box door; and

the apparatus door and apparatus body having structures to engage with the V-shaped grooves, positioning pins and slanted surface, respectively.

6. A coupling system according to claim 1, adopting:

the transfer box that has V-shaped grooves extending in three different directions on an exterior surface of the transfer box door, positioning pins on the transfer box body around the transfer box door when the transfer box door is closed on the transfer box body, and a slanted surface around the transfer box door; and

the apparatus door and apparatus body having structures to engage with the V-shaped grooves, positioning pins and slanted surface, respectively.

7. A transfer box having a sealing structure hermetically sealable by means of tight coupling of a transfer box body and a transfer box door which is fitted in an opening of the transfer box body;

said transfer box provided with V-shaped grooves extending in three different directions on an exterior surface of the transfer box door; a seal area with an apparatus body provided around the transfer box body as well as

positioning pins on the transfer box body around the transfer box door when the transfer box door is closed on the transfer box body; a slanted surface formed in the transfer box door around an outer periphery thereof door to engage with a slanted surface formed in the transfer box body around the opening; and a slanted surface formed in the transfer box body on the door side around an outer periphery of the transfer box body to engage with a slanted surface formed at a port of the apparatus body.