What Is Claimed

[Claim 1] A joint system joining substrates together, comprising:

a processing station performing predetermined processing on substrates and joining the substrates together; and

a transfer-in/out station capable of holding a plurality of substrates or a plurality of superposed substrates in which the substrates are joined together, and transferring-in/out the substrates or superposed substrates to/from said processing station,

wherein said processing station comprises:

a surface activation apparatus activating a front surface to be joined of the substrate;

a surface hydrophilizing apparatus hydrophilizing the front surface of the substrate activated in said surface activation apparatus;

a joint apparatus joining the substrates having the surfaces hydrophilized in said surface hydrophilizing apparatus together; and

a transfer region for transferring the substrate or superposed substrate to said surface activation apparatus, said surface hydrophilizing apparatus, and said joint apparatus,

~~wherein a pressure inside said transfer region is equal to or more than an atmospheric pressure,~~

wherein a pressure inside said joint apparatus is positive with respect to a pressure inside said transfer region, and

wherein the pressure inside said transfer region is positive with respect to a pressure inside said surface activation apparatus, a pressure inside said surface hydrophilizing apparatus, and a pressure inside said transfer-in/out station.

[Claim 2] The joint system as set forth in claim 1,

wherein said surface hydrophilizing apparatus supplies pure water to the front surface of the substrate to hydrophilize and clean the front surface.

[Claim 3] The joint system as set forth in claim 1 or 2,

wherein the pressure inside said transfer region is equal to or more than an atmospheric pressure.

[Claim 4] The joint system as set forth in any one of claims 1 to 3,

wherein said surface activation apparatus comprises a processing part performing processing for activating the front surface of the substrate, a transfer-in/out part for transferring-in/out the substrate to/from said transfer region, and a transfer part transferring the substrate between said processing part and said transfer-in/out part, and

wherein a pressure inside said processing part and a pressure inside said transfer-in/out part are positive with respect to a pressure inside said transfer part.

[Claim 54] The joint system as set forth in any one of claims 1 to 4, further comprising:

an inspection apparatus inspecting the superposed substrate joined in said joint apparatus.

[Claim 65] The joint system as set forth in any one of claims 1 to 5, further comprising:

a thermal processing apparatus performing thermal processing on the superposed substrate joined in said joint apparatus.

[Claim 76] A method of joining substrates together, comprising:

a surface activation step of activating a front surface to be joined of a substrate in a surface activation apparatus;

a surface hydrophilizing step of then transferring the substrate to a surface hydrophilizing apparatus via a transfer region, and hydrophilizing the front surface of the substrate in the surface hydrophilizing apparatus; and

a joint step of then transferring the substrate to a joint apparatus via the transfer region, and joining the substrates subjected to said surface activation step and said surface hydrophilizing step together by a Van der Waals force and hydrogen bonding in

the joint apparatus,

wherein said surface activation step, said surface hydrophilizing step, and said joint step are successively performed on a plurality of substrates,

~~wherein a pressure inside the transfer region is equal to or more than an atmospheric pressure,~~

wherein a pressure inside the joint apparatus is positive with respect to a pressure inside the transfer region, and

wherein the pressure inside the transfer region is positive with respect to a pressure inside the surface activation apparatus and a pressure inside the surface hydrophilizing apparatus.

[Claim 8~~7~~] The joint method as set forth in claim 7~~6~~,

wherein pure water is supplied to the front surface of the substrate to hydrophilize and clean the front surface in said surface hydrophilizing step.

[Claim 9~~8~~] The joint method as set forth in claim 7~~6~~ or 8,

wherein the pressure inside the transfer region is equal to or more than an atmospheric pressure.

[Claim 10] The joint method as set forth in any one of claims 7 to 9,

wherein the surface activation apparatus comprises a processing part performing processing for activating the front surface of the substrate, a transfer-in/out part for transferring-in/out the substrate to/from the transfer region, and a transfer part transferring the substrate between the processing part and the transfer-in/out part, and

wherein a pressure inside the processing part and a pressure inside the transfer-in/out part are positive with respect to a pressure inside the transfer part.

[Claim 11~~9~~] The joint method as set forth in any one of claims 7~~6~~ to 10, further comprising:

an inspection step of inspecting the superposed substrate after said joint step.

[Claim 12~~10~~] The joint method as set forth in any one of claims 7~~6~~ to 11, further

comprising:

a thermal processing step of performing thermal processing on the superposed substrate after said joint step.

[Claim 13~~11~~] A program running on a computer of a control unit controlling a joint system to cause the joint system to execute a joint method as set forth in any one of claims 7 to 12~~of joining substrates together,~~

~~said joint method comprising:~~

~~a surface activation step of activating a front surface to be joined of a substrate in a surface activation apparatus;~~

~~a surface hydrophilizing step of then transferring the substrate to a surface hydrophilizing apparatus via a transfer region, and hydrophilizing the front surface of the substrate in the surface hydrophilizing apparatus; and~~

~~a joint step of then transferring the substrate to a joint apparatus via the transfer region, and joining the substrates subjected to said surface activation step and said surface hydrophilizing step together by a Van der Waals force and hydrogen bonding in the joint apparatus,~~

~~wherein said surface activation step, said surface hydrophilizing step, and said joint step are successively performed on a plurality of substrates~~.

[Claim 14~~12~~] A readable computer storage medium storing the~~a~~ program as set forth in claim 13~~running on a computer of a control unit controlling a joint system to cause the joint system to execute a joint method of joining substrates together,~~

~~said joint method comprising:~~

~~a surface activation step of activating a front surface to be joined of a substrate in a surface activation apparatus;~~

~~a surface hydrophilizing step of then transferring the substrate to a surface hydrophilizing apparatus via a transfer region, and hydrophilizing the front surface of the substrate in the surface hydrophilizing apparatus; and~~

~~a joint step of then transferring the substrate to a joint apparatus via the transfer region, and joining the substrates subjected to said surface activation step and said surface hydrophilizing step together by a Van der Waals force and hydrogen bonding in the joint apparatus,~~

~~wherein said surface activation step, said surface hydrophilizing step, and said joint step are successively performed on a plurality of substrates,~~

~~wherein a pressure inside the transfer region is equal to or more than an atmospheric pressure,~~

~~wherein a pressure inside the joint apparatus is positive with respect to a pressure inside the transfer region, and~~

~~wherein the pressure inside the transfer region is positive with respect to a pressure inside the surface activation apparatus and a pressure inside the surface hydrophilizing apparatus~~.