CLAIMS

[CLAIM 1] A laminating apparatus for laminating resin to a base material to form a laminate, comprising:

a vacuum laminating device for pressing the base material and resin under reduced pressure to form a pre-laminate; and

a first flat press laminating device for pressing the pre-laminate to form a laminate,

wherein the vacuum laminating device includes a pair of plate blocks facing each other, and at least one of the plate blocks is set so as to be movable forwardly and backwardly relative to the other of the plate blocks, whereby the base material and resin are pressed between the pair of plate blocks,

wherein the forwardly and backwardly movable plate block includes an elastic pressing plate and a buffer material, and the buffer material has a multi-layer structure comprised of not less than three layers including a fiber layer and a rubber layer, and

wherein a pressing force against the base material and resin between the pair of plate blocks is set in the range of 2.5 to 3.97 MPa per 500 mm square area.

[CLAIM 2] A laminating apparatus for laminating resin to a base material to form a laminate, comprising:

a vacuum laminating device for pressing the base material and resin under reduced pressure to form a pre-laminate; and

a first flat press laminating device for pressing the pre-

laminate to form a laminate,

wherein the vacuum laminating device includes a pair of plate blocks facing each other, and at least one of the plate blocks is set so as to be movable forwardly and backwardly relative to the other of the plate blocks, whereby the base material and resin are pressed between the pair of plate blocks,

wherein the forwardly and backwardly movable plate block includes an elastic pressing plate and a buffer material, and the buffer material has a multi-layer structure comprised of not less than three layers including a fiber layer and a rubber layer,

wherein the first flat press laminating device includes a pair of plate blocks facing each other, and at least one of the plate blocks is set so as to be movable forwardly and backwardly relative to the other of the plate blocks, whereby the pre-laminate is pressed between the pair of plate blocks,

wherein the forwardly and backwardly movable plate block includes a flat pressing plate, and

wherein a pressing force against the pre-laminate between the pair of plate blocks is set in the range of 2.5 to 3.97 MPa per 500 mm square area.

[CLAIM 3] The laminating apparatus according to claim 1,

wherein a hydraulic cylinder is coupled to the movable plate block of the vacuum laminating device, and the movable plate block is movable forwardly and backwardly by the operation of the hydraulic

cylinder, and

wherein the hydraulic cylinder has a cylinder diameter of not less than 200 mm.

[CLAIM 4] The laminating apparatus according to claim 2,

wherein a hydraulic cylinder is coupled to the movable plate block of the first flat press laminating device, and the movable plate block is movable forwardly and backwardly by the operation of the hydraulic cylinder, and

wherein the hydraulic cylinder has a cylinder diameter of not less than 200 mm.

[CLAIM 5] The laminating apparatus according to any one of claims 1 to 4, further comprising

a second flat press laminating device,

wherein the second flat press laminating device includes a pair of plate blocks facing each other, and at least one of the plate blocks of the second flat press laminating device is set so as to be movable forwardly and backwardly relative to the other of the plate blocks of the second flat press laminating device, whereby a laminate obtained through the pressing by the first flat press laminating device is further pressed between the pair of plate blocks of the second flat press laminating device.

[CLAIM 6] The laminating apparatus according to any one of

claims 1 to 4,

wherein the elastic pressing plate in the vacuum laminating device comprises at least one selected from the group consisting of fluoro rubber, silicone rubber, ethylene-vinyl acetate copolymer, acrylic rubber, and epichlorohydrin rubber.

[CLAIM 7] A vacuum laminating device for use in a laminating apparatus as recited in claim 1 or 3.

[CLAIM 8] A vacuum laminating device for use in a laminating apparatus as recited in claim 5.