

Vacuuming And Heating Instruction of Polyvinyl Butyral PVB Interlayer Film

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Preheating and Exhaust of PVB Film:

After the glass and Polyvinyl Butyral PVB interlayer film is combined, there are some air between the PVB interlayer film and the glasses. PVB Interlayer Film can dissolve some of air by itself, but not very much of it. To extrude the air out, here are the methods:

+Hot roller extrude exhausting air

Hot roller exhausting air has many ways: single thermostat chamber with double rollers or double thermostat chambers with double rollers.

Single thermostat chamber with double rollers: usually for laminating flat glass with Polyvinyl Butyral PVB interlayer film. When pre-laminated glass goes through the first roller, most of air will be squeezed out. Then the pre-laminated glass goes into the thermostat chamber to heat, then, go through second roller to extrude exhaust after heating. At this most, air isolation and edge seal is finished at the same time, the pre-laminated glass looks prey translucent while the narrow area around edge shows transparent.

The temperature control is very important, in order to expulsion of air and seal sides of pre-laminated glass successfully, temperature should be kept about 70-80 degree after going through the second roller.

If you doesn't find the prey translucent area after the second rolling, which means the glass temperature is too low. On the contrary, if the temperature is too high, edges of the

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pre-laminated glass will be sealed too early, which will stop squeeze air out, then bubbles will appear in the laminated glass.

Vacuumping exhausting air

This method is specially for laminating uneven glass with PVB interlayer film, such as automobile windshield glass, bending glass.

Put the pre-laminated glass into a vacuum bag or put vacuum rubber ring to seal the glass, then start the vacuum pump.

The procedure is divided into two steps: cold vacuuming period and hot vacuuming period. In the cold vacuuming period, the temperature is about 25 degrees and holding time about 15 minutes, and the negative pressure should be at least 0.8 bar. In the hot vacuuming period, temperature is about 80-110degrees, and holding time about 30 minutes.

And the most suitable temperature and time of hot vacuuming exhausting air depends on the machine and producing speed. The transparency of the laminated glass is better if it's made of the hot vacuuming exhausting air method.

High-pressure Molding of PVB Interlayer Film

The Pre-laminated glass have went through the Preheating and Exhausting Air procedure, but the whole pre-laminated glass still have air inside the laminated glass. In order to finally melt the PVB Interlayer film and exhausting all the air out, the pre-laminated glass should be put into the higher pressure laminating autoclave.

There are three steps:

+Heating

Put the pre-laminated glass vertically on the bracket, make sure the space between the two pre-laminated glass is equal, so each pre-laminated glass will get the same pressure. Make sure the pre-laminated glass not touch the metal part of the machine, to prevent the part of pre-laminated glass get too high temperature and break out. Close the autoclave and start heating. After the temperature rise up to 50 degree. Increase the pressure inside the autoclave. It's suggested that the speed of increasing pressure and temperature is :0.06MPA/MIN and 5 degree/min. If the temperature and pressure is not synchronous, please adjust the machine. If temperature is too fast, then stop increasing the temperature until the pressure catch up, vice versa .

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+Maintaining Pressure Stage:

The temperature and pressure are very important parameters for making laminated glass successfully. When the temperature and pressure reach to the setted point (like 120-140 degrees), pay attention to these two parameters carefully. If the temperature is lower than 130 degree, the pressure time should be longer. But if the temperature is lower than 120 degree, it's not helpful to keep the pressure time longer. And the laminated glass may be not adhesive or not very strong. If the pressure is less than 1.2-1.4MPA, the time for pressure should be longer, but at the same time, the temperature should be 120-140 degrees. If the temperature is higher than 160 degree, the PVB interlayer film will turn yellow. And the laminated glass is failure.

+ Cooling with pressure stage

After the maintaining pressure stage, it's time to cooling the laminated glass. Still maintain the pressure and open the cooling water to reduce the temperature. When the temperature reaches 45 degree, start to reduce the pressure. When open the autoclave door, check the temperature of the laminated glass up and down, make sure the temperature of the laminated glass is even. Don't reduce the pressure too early, otherwise the bubbles would appear on the edges of the laminated glass.

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