

How to Process Laminated Glass with EVA Film Interlayer

By Peter Lin



How Do You Process Laminated Glass with EVA Film?

1) Processing the Laminated Glass with EVA Film is different from the laminating with PVB Film.

Different in Oven: Laminating with PVB Film you need autoclave; laminating with EVA Film you need a simple oven: one-step laminating oven which is simpler and easier to process, and less cost to install.

2) Install the ONE-Step of vacuum laminating Oven

Make sure the silicone vacuuming bag is great, and the heating is even inside the oven.

3) Combine the pre-laminated glass

Normal the combination is :GLASS+EVA FILM+GLASS

Cut the extra EVA Film gently.

Solid the pre-laminated glass with high-temperature green ribbon tape

4) Put the pre-laminated glass inside silicone vacuum bag

Seal the silicone vacuum bag.

Start vacuum pump, double check the vacuuming is working well, and the value of vacuum pump reaches the requirement.

5) Heating in two temperature stages

Normally, the heating will be set in two stage:

Low temperature stage: 60 degrees C for 15 minutes

High temperature stage: 130 degrees C for 40 minutes

6) Do NOT stop vacuuming after the laminated glass is cool as room temperature

Don't stop vacuuming until the laminated glass is cool to the room temperature, Or the bubbles will come out inside the laminated glass.

Preparation for Glass Lamination with EVA Film

Preparation for Lamination:

1) Cut the glass as the size you want, and use Glass Edging Machines to shape the edges of the glasses, which will avoid the glasses hurt the silicone vacuum bag.

2) Use the purified water, deionized water, industrial alcohol or Ethanol to clean the glasses, then use the clean hot wind to dry the glasses. Make sure no black spot, water mark, finger print etc on the glasses.

Pre-Laminating:

1) Put the EVA FILM on the bottom glass, make sure the EVA Film is plain, then put the other glass on the EVA Film, then use the high-temperature-resistance green ribbon tape to solid the pre-laminated glass.

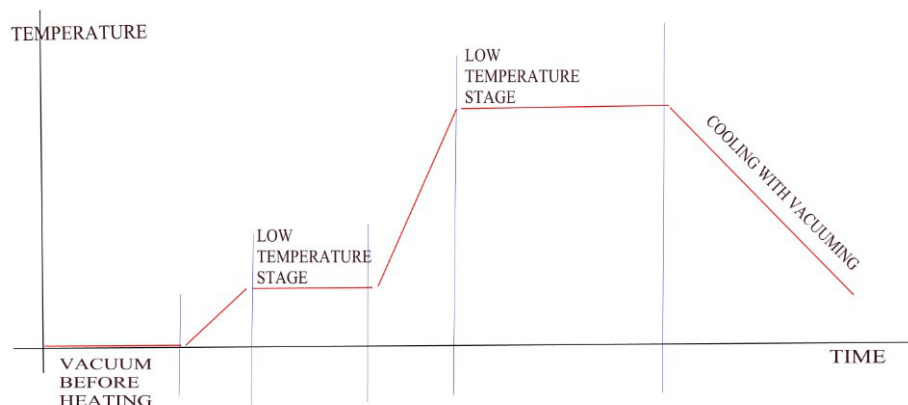
2) Cut the extra EVA FILM that outside the pre-laminated glass. Don't pull the EVA Film hard to avoid the remove of the EVA Film. Cutting out the extra EVA Film can void the extra EVA Film melting and sealing the edges of the laminating glass and hold back vacuuming.

3) When you put the pre-laminated glass in the silicone bag, make sure that each pre-laminated glass is 3-5cm away from each other to help vacuuming.

4) To help vacuuming, you can also put the wooden bar around the silicone bag to help vacuuming.

Notes: if you seal the pre-laminated glass totally with tape, you need to make some small holes on the tapes to help vacuuming.

Heating Procedures of Laminating Glass with EVA Film



1) Before the silicone bag shelf being pushed into the oven, start the vacuum pump to vacuuming for 3-5 minutes. Check whether the silicone bag is leaking or not. And the vacuum value should at least be 0.095Mpa.

2) Push the silicone bag shelf into the oven, then set the parameters of temperature and time. Following two STAGE heating temperature and time. The low temperature stage is 60degree C and 15mins. And the high temperature stage is 130 degree C and 40 mins (notes: following the instructions that the EVA FILM MANUFACTURERS give to you, the parameters maybe different

for different manufacturers). Because it takes time for the heat transfer through the silicone bag, so the temperature the detector gets may be different from the real temperature of the laminated glass.

3) Stop heating. Wait till the temperature is lower than 75 degrees, then open the oven door and pull out the silicone shelf to help cooling. But don't open the silicone bag or let cold water touch the laminated glass.

4) After the temperature is lower than 45 degree, now you can open the silicone bag and check the laminated glass.

Processing Temperature and Time for Laminating Glass with EVA FILM

First I would to say that no fixed standard value for the processing parameters, because different EVA film manufacturer have different formula for the EVA FILM, and different glass laminating machine manufacturer have different property for the machine. What's more, the weather and moisture is different in different regions, which also would affect the processing parameters. So there is no fixed standard value for the processing temperature and time for laminating glass with EVA FILM.

But I can tell you some general rules of the processing parameters for laminating glass with EVA FILM.

1) Indoor EVA FILM (like 110 degrees C) need lower temperature for laminating than outdoor EVA FILM (130 degrees C).

2) If you laminating thicker glass with more layers of EVA FILM, then the keeping time should be longer, for example if 5mm glass+0.38mm EVA FILM +5mm glass is 130 degree and 40 min, then 10mm glass+2layer EVA FILM +10mm glass should be 130 degree and 55mins.

Because more time is needed for the heat pass through the thicker glass and more layer of EVA FILM.

3) The tempered glass laminating with EVA FILM needs longer keeping time than the flat glass laminating with EVA FILM.

4) If the weather is colder in your region, then the keeping time should be longer.

And it's also different for different glass laminating machine, because the heating part is different. So :

1) If you change the EVA FILM supplier, maybe you have to adjusting the processing parameters for laminating glass with EVA FILM.

2) If you buy a new EVA glass laminating machine, and the processing parameters maybe different from your older one.

3) If the weather changes from different seasons, maybe you also need to adjust the processing parameters for laminating glass with EVA FILM.

4) Yes, every EVA FILM Manufacturers would offer you the processing instructions or parameters for laminating glass with EVA FILM, but you don't have to follow them exactly. You should change some according to your real situation.

Why Two Periods of Temperature for Laminating Glass with EVA FILM?

1)Low temperature period can help vacuuming, at this temperature the EVA Film is still not melted, but the temperature is higher than room temperature, the numerators of air would move faster, which is helpful for the vacuuming. If vacuuming is not good, the bubbles would come out the laminated glass.

2)If the moisture in your place is high, and maybe the EVA FILM has already absorbed some moisture, the low temperature period would help dry the EVA FILM before the EVA FILM start to melt, which can avoid bubbles and be good for the adhesion of the EVA FILM.

3)If you wash the glass, and maybe the glasses are not dry enough, the low temperature period can help dry the glasses.

For laminating with papers, if you print ink in the papers are not dry enough, the low temperature period can help dry the print ink.

4)And also, after the low temperature period, the machine is stay hot too, so temperature detector can measure a more correct temperature closer to real temperature of the laminated glass.

Notes of Making Laminated Glass with EVA Interlayer Film

1).Glass is not a good conductor of heat, so please don't laminate different thickness of glasses at the same silicone bag. It's more easily for the thin laminated glass with EVA Interlayer Film to transfer heat, so the keeping heating time at high temperature can be shorter. And if the laminated glass is thicker, the keeping heating time for the high temperature should be longer.

2).For the different thickness of the fabric or papers, the thickness of EVA interlayer film should be different. For the thin and small silk, the 0.25 thickness EVA interlayer film would be OK. For the thicker and bigger silk or fabric, the thickness of EVA Interlayer Film should be 0.38mm or more.

3).Normally, the EVA Interlayer Film is soften at 75 degree C and start to react at about 100

degree C. And the EVA Interlayer Film would be totally melted at about 115 degree C. Generally speaking, when the detector gets the temperature of 120 degree C, the real temperature of EVA Interlayer Film gets 115 degree C.

4). The mobility of different thickness of EVA Interlayer Films is different when being heated. The mobility of thicker EVA Interlayer Film is more than the thinner EVA Interlayer Film. So please adjust the time of high-temperature-period of different thickness EVA Interlayer Film. If the high-temperature-period is too long, the melted EVA Film Interlayer would leak from the laminated glass, which will cause bubbles in the edges of laminated glass.

5). The quality of laminated glass is partly decided by the plainness of the glasses. So please try to select the good plainness of flat glass. If you are laminating with tempered glass, please use the thicker EVA Film Interlayer. For the poor plainness glass, the laminated glass may be broken when vacuuming or cause bubbles of laminated glass.

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Product 1] CNC-Force EVA INTERLAYER FOR ARCHITECTURAL LAMINATED GLASS

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Product 2] CNC-SmartSMART FILM FOR PRIVACY SWITCHABLE GLASS

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Product 3] CNC-Shield PVB INTERLAYER FOR AUTOMOTIVE WINDSHIELD GLASS

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