

Indura GTfilm® Heat Vacuum Application With Heat Activated Adhesive

Application Guide

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Vacuum bagging is a technique primarily used to apply decorative laminates to contoured panels. Vacuum bagging allows decorative laminates to stretch biaxially. GTfilm™ will elongate 150% biaxially.

Equipment Description

The Heat Vacuum Applicator (HVA) consists of four parts:

1. A radiant heat source (provided by infrared bulbs).
2. A silicone rubber sheet mounted on a frame. (Optimal thickness approximately 60 mils or 1.5mm).
3. A vacuum source.
4. A support fixture—used to support the panel during the application of the decorative laminate.

Controls: Temperature
Vacuum

Panel Preparation

- Substrate should be wiped down with a tack rag or alcohol.
- The back side of the decorative should be wiped with a tack rag to remove any dirt, grease, oil or other contaminants.

Procedure

1. The support fixture should be centrally positioned on the vacuum plate.
2. The panel should be placed in the support fixture.
3. The decorative laminate is positioned over the panel, indexed and fastened to the support tool. The material should not be in contact with the panel so as to minimize the chance of wrinkling the material before it is hot enough to stretch. On some panels it is possible to pre-tack the decorative to the perimeter of the panel.
4. The silicone rubber sheet is brought into position and locked, sealing it around the perimeter of the vacuum plate

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Procedure (cont.)

5. The vacuum pump is started and adjusted to 1 inch of mercury drawing the rubber sheet along with the laminate into contact with the panel. If a wrinkle appears, the vacuum should be removed.
6. The radiant heat source is positioned to pass heat through the silicone rubber blanket.
7. As the temperature reaches 200° F (93°C), gradually apply vacuum until a maximum of 25 (0.8 bars) inches of mercury is reached. A typical cycle is as follows:
 * Depending on the contour and type of panel (composite or aluminum) a minimal vacuum will ensure contact of the decorative to the substrate that will yield an acceptable adhesion level without allowing the honeycomb core to telegraph.

<u>TEMPERATURE</u>	<u>VACUUM</u>
Ambient to 160°F (70°C)	0 - 10 inches Hg (0 - 0.03 bar)
160°F to 210°F (70°C – 100°C)	1 - 2 inches Hg (0.03 - 0.07 bar)
212°F (dwell 2 - 4 minutes) (100°C 2 - 4 minutes)	2 - 25 inches Hg (0.07 - 0.8 bar)
212°F to 100°F (100°C to 40°C)	10 - 25 inches Hg (0.3 - 0.8 bar)
< 100°F (< 40°C)	0 (0)

8. Dwell Temperature is maintained between 212° F (100°C) and 230° F (110°C) for four minutes. (Ideally, the lower the temperature the better the texture retention and lower gloss level.
9. The heat source is turned off, and the panel is allowed to cool down to 100° F (38°C).

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Procedure (cont.)

10. The vacuum is turned off, and the silicone rubber frame is unlocked to remove the panel with the decorative laminate.
11. The edges of the laminate are folded around the edge of the panel and stuck with a heat gun.

NOTE: Other sources of heat including a convection oven, quartz bulbs and cal rod heating elements have been successfully used in the application of GTfilm™. A key feature on alternative equipment is temperature monitoring equipment.