

Chassis 2025 Composites Manufacturing Notes

EA 9340 Guidelines

For Adhering Skins to Core

- Roughly 250g glue (not hardener) per 24 sqft of area is the minimum
- More may be required if the skins have wrinkles in them
- Weight is applied via rigid panel and physical weights (i.e. thick plywood + buckets of water)

For Fillets

- Roughly 100g glue (not hardener) per 120 inches (one side) of fillet (0.35" radius)
- 5 shots of milled glass per 100g glue to thicken at minimum
- Sand fillet area and tape off outside fillet area before gluing. Apply a thin film of glue on normal surface, but most of the strength comes from the fillet (promotes shear loading)

Vacuum Bagging

Vacuum is measured in "inches of Mercury" [inHg] on our gauges typically. Full vacuum is ~29 inHg. Decent vacuum for our purposes is ~15 inHg. Anything less than that should be avoided. From our experience, venturi pumps can pull a maximum of about 25 inHg.

General Use

- All folds or creases create vacuum leaks, avoid at all costs
- When there are vacuum leaks (there are always leaks), pumps have a radius in which they are effective, position pumps effectively so that the area under pressure is maximized
- Put extra breather under frog puck, or else you will have a falsely high reading (it suctions itself down onto the surface, decreasing its effective radius)
- Try to vacuum bag on the mold surface at all times, especially for large layups
 - Examples of what not to do:
 - Car 4 chassis layup 1 - vacuum bagged on a glass sheet, which encompassed the entire foam mold. Could not pull vacuum because the volume was too large

- Car 4 flat panel layup 1 - placed polycarbonate sheet on top of cardboard and put duct tape on cardboard, then tried to vacuum bag cardboard/duct tape seam
- Examples of what to do:
 - Car 4 chassis layup 2 - vacuum bagged along the very edge of the molded surface, pulled ~10 and 20 inHg depending on which pump's gauge was checked

Testing the Bag

- If a bag test is performed (recommended for large layups), it will not indicate useful results unless breather in the bag area during the test
- Oversize the bag so that it can be cut inside the tacky tape line after testing and be reused for the actual layup

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