



# ACRYLIC AND POLYCARBONATE WINDOW GUIDE

## PREPARATION OF ACRYLIC OR PERSPEX WINDOW PANEL

Some Acrylic and Polycarbonate Window Panels are supplied wrapped in paper wrap that has had a surface treatment to ensure the paper wrap protects the panel during transport. At the early stages of preparation only locally remove protection paper from the internal face bonding area, once this wrap is removed from the proposed bonding area, Wipe bonding area with 100% Industrial Alcohol Cleaner or Methylated Spirits, (check small sample before application).

1. Mask the tape around the preparation area on the Acrylic and Polycarbonate window panel, even over the paper protection film.
2. Sand using extra fine grit paper >180 grit, including the edge until the acrylic and polycarbonate window is white, remove the residue gently,
3. Clean the Acrylic and Polycarbonate window panel with Industrial Alcohol Cleaner (Not paint preparation) ensuring to rotate the cloth regularly, as it picks up any oils and debris, wait until the product has flashed off approximately 5 minutes.

**Note:** due to the wide variety of synthetic window panels, it is advisable to perform preliminary adhesion testing, before proceeding with the project.

## PREPARATION OF GELCOAT or 2-PACK PAINT SUBSTRATE

1. Abrade the proposed bonding area with 120 grit sandpaper to take off the gloss from the Gel coat and imperfections that may be present, and eliminate dust with a brush or vacuum cleaner.
2. Carefully mask the perimeter area to be prepared on the vessel.
3. Wipe bonding area with 100% Industrial Alcohol Cleaner or Methylated Spirits, (check small sample before application).

## PREPARATION OF TIMBER SUBSTRATE

1. Abrade the proposed bonding area with 120 grit sandpaper and eliminate dust with brush and vacuum cleaner.
2. Carefully mask the area to be prepared on the vessel.
3. Wipe or brush timber bonding area with Fixseal Epoxy wait until dry.

## PREPARATION OF ALUMINIUM

1. Abrade the proposed bonding area with 100 grit sandpaper and eliminate dust or debris with a clean brush.
2. Carefully mask the perimeter area to be prepared on the vessel.
3. Wipe bonding area with 100% Industrial Alcohol Cleaner or Methylated Spirits, using a lint free cloth. (check small sample before application).

## PACKERS AND POSITIONING

1. Position spacers made from plastics such as PE or PP are recommended. (They can be found in tile shops). These packers are required to ensure the window is offset from the boat substrate a set distance related to the length of the window.
2. Window locator marks to ensure when the window is rotated in position. Very little if any adjustment is required (the choice is a function of dimension and type of panel to apply). PLANNING IS BEST FOR A NEAT JOB.
3. Fix200 is used as the blackout layer from the inside face of the window panel. There are no primers or activators required.

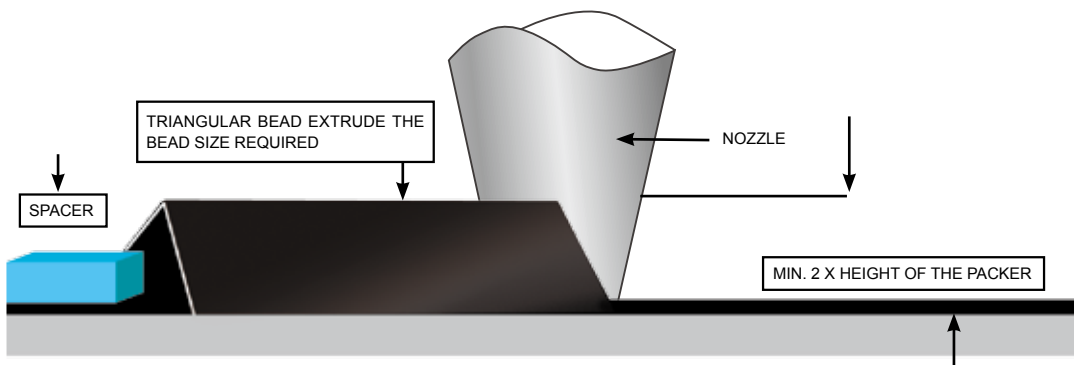
Follow the above instructions for preparing Windows and boat substrate.





#### APPLICATION OF ADHESIVE/SEALANT

4. Open the Fix200 cartridge by piercing the nozzle, screw on the applicator nozzle.
5. Apply the Fix200 to the panel and spread with a plastic spatula so as not to scratch the window panel, wipe up to the masking tape. Ensure complete blackout film approximately 1mm thick minimum is obtained, for the best finish.
6. Apply the amount required by the size of window and offset distance between window and boat substrate. See end of this sheet for advise based on length of window. Also check with your manufacturer of the acrylic or polycarbonate to obtain their expansion and contraction rate per Deg.C<sup>o</sup>
7. Apply Fix200 liberally parallel to the tape some (3mm ) minimum away from the masking tape.
8. Usual more than one bead is required and it does not matter regarding air holes as the blackout has already been formed in prior action. You may also infill with a ziz-zag format internally if you have both an internal bead and external bead within the bonding area.



9. Within 20 minutes the acrylic or polycarbonate window panel must be positioned and pressed on to the structure to the spacer distance. The structure must be temporarily mechanically fixed for at least 14 days dependant on the surrounding atmospheric influence that effect cure rates such as;

- a. humidity (Higher humidity faster, dryer slower) and
- b. temperature (Hotter faster, colder slower) so not only of the surrounding air influence but also of the
- c. substrates temperature respectively, (Hotter faster, colder slower).

10. Windows must be protected by cover from direct sunlight exposure for this time. Remember the cure rate is 1mm/24hrs at 23degC<sup>o</sup>, therefore take care before releasing the temporary fixing, to ensure the Fix200 is cured.

#### FINISHING THE ACRYLIC OR POLYCARBONATE WINDOW

##### FINISHING PREPARATION

After the temporary mechanical fixings have been removed from the Acrylic or Polycarbonate windows they can be sealed.

1. Remove mechanical fixings.
2. Wipe clean the fibreglass and the end of the Glass panel with Industrial Alcohol based cleaner as previously specified
3. Tape the outside face perimeter of the Acrylic or polycarbonate window and the vessel structure to form the position of the finishing sealant.

##### FINISHING APPLICATION

Equipment required: smooth trowel or coving tool, soapy water (dishwashing liquid diluted in a spray bottle, if you have to)

1. Cut the top seal off the cartridge of Fix200, and screw on nozzle, cut tip to required diameter.
2. Apply the Fix200 into the space.
3. With the clean finishing tool or coving tool, tool off the area as quickly as possible squeezing the sealant to the glass panel edge and vessel structure mask





taped edge. Use the coving tool to shape the sealant to the required form and do not use any soapy water until all the cove faces are pressed home and sealed.

4. Once sealed then with some diluted soapy water you may create a smoother finish using clean tools and a spray bottle of diluted soapy water solution. Spray sealant face and tools liberally before using the tool.

5. Immediately peel away the mask tape from the glass and vessel structure back on itself and away from the sealant, this will reduce any sealant string effect.

6. It is best to leave the sealant alone at this stage and ensure no airborne dust is present until the sealant has cured.

7. If the sealant needs further smoothing out, apply lots of soapy water on this area before touching it for localised smoothing, if you have too.

8. Do not touch the sealant for at least 1 day; try to keep the area free from dust and debris, the longer you leave the window panel and sealant out of direct sunlight the less movement in the panels whilst the sealant is curing.

We therefore recommend protecting the new window systems for up to a minimum of 5 - 7 days where possible or longer temperature regulated to assist the finishing wipes gain strength.

### Acrylic and Polycarbonate Window Design Guide.

The following is an example and must be verified by your yacht designer.

Carefully note: Please confirm before using and seek professional advice prior to application.

The expansion and contraction of Acrylic and Polycarbonate windows should be considered very carefully before application or window dimensions are considered.

Example Plexiglas by GE.

Has a coefficient of expansion and contraction is 0.07mm/m °C, That is it can expand 0.07mm per m length of window for each deg °C change in temperature from the temperature of the acrylic during installation.

REFER TO YOUR ACRYLIC OR POLYCARBONATE WINDOW MANUFACTURER FOR THE COEFFICIENT OF EXPANSION.

For 2100mm length (this dimension is largest dimension so it is diagonal across the window) will expand or contract for a change in Temperature difference of 50 °C

“A” = 0.07mm/m/C° x 2.1m x 50 °C = 7.4mm therefore if free to move both sides (Floated window panel) then movement is 3.7mm each. FS200 has 50% movement capacity therefore require Dimension “A” to be minimum = 3.7mm/0.5 = 7.4mm therefore minimum dimension “A” = 8mm.

Typical rules : ( Rough guide )

Window length < 500mm “A” dimension = 3mm (Absolutely minimum thickness)

Window length > 501mm to <1000 min “A” dimension = 5mm

Window length > 1001mm to < 2000 min “A” dimension = 8mm

Window length > 2001mm to < 2500 min “A” dimension = 10mm

Window length > 2501mm to < 3000 min “A” dimension = 12mm

### ACRYLIC OR POLYCARBONATE REBATE WINDOW CROSS SECTION

