Installation Recommendations

1-Pre-Installation

1.1.-Packaging and Distribution

Standard Panels are supplied on pallets and covered securely with heavy-duty polythene film. In standard packaging there are: 100 panels for **Modulit 520 HC,** 75 panels for **Modulit 338 LP,** 50 panels for **Modulit 500 LP y 500 LL**.

1.2.-Transportation

The transportation of panels must be carried out on suitable vehicles so that panels and pallets can be placed completely flat, with straps and blocks being used to prevent movement and possibility of damage.

1.3.-Handling and Storage

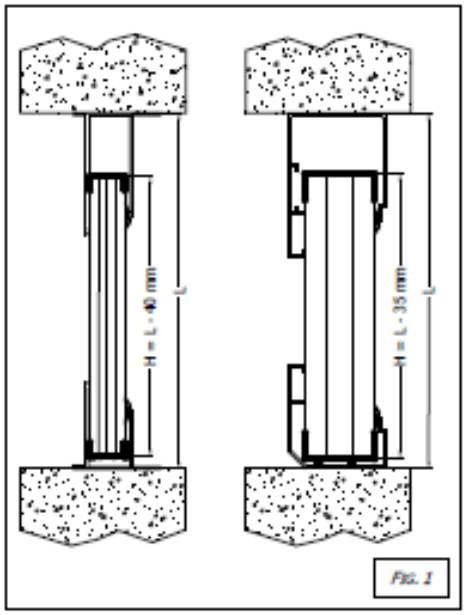
The handling and storage of panels is a delicate procedure in which damage can occur. It is therefore essential that the following instructions are carefully followed:

- Extreme care must be taken when using fork lift trucks. Under no circumstances must the forks lift the panels directly. Wooden pallets or others supports must be placed in between.
- The distance of the forks must be such as to correctly distribute the loads.
- No more than three pallets should be stacked on top of each other. Always place spacers or wooden strips between them to avoid possibility of damage to the contact surface.
- Store panel at a slight angle to allow eventual condensation and water to escape.
- Store packs inside. Where this is not possible, protect with tarpaulin which ensures correct ventilation and protection from sun.
- WHEN EXPOSED TO HIGH TEMPERATURES (PALLETS LEFT IN HOT SUN) THE PROTECTIVE FILM ON THE SURFACE OF THE PANEL TENDS TO BECOME STICKY AND DIFFICULT TO REMOVE.

1.4.-Cutting and Manipulation

Referred to the total height (L), the height of Modulit panels (H) must be:

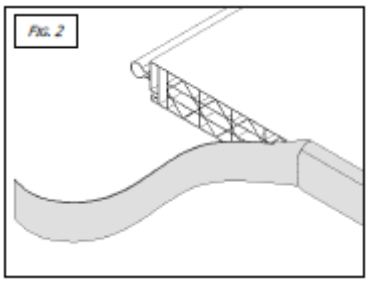
H = L – 35 mm (for **Modulit 338LP, 500LP, 500LL**)
H = L – 40 mm (for **Modulit 520HC**)



This allows installation and leave space for thermal expansion.

The panels can be cut with standard cutting equipment such as vertical and horizontal reciprocating-type saws.
The cutting swarf can easily be removed with compressed air.

The transparent tape on standard sheets serves to keep the internal flutes clean form the dust normally present in warehouses and factories. This should be removed when cutting the panel and replaced if material is returned to stock.



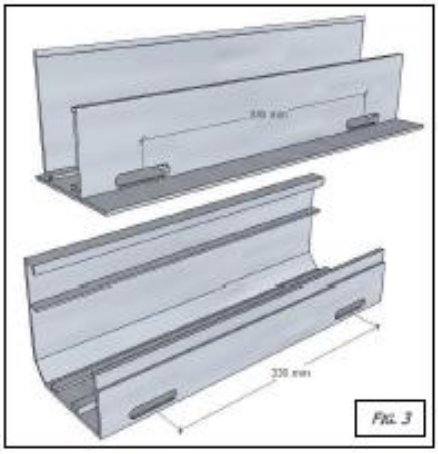
Before installing the panels, the ends should be closed with adhesive aluminium tape (full, breather or micro porous) to keep the flutes clean. The panel is subsequently closure to prevent the tape form being washed away by the elements.

2- Installation Instructions

2.1.-Prelimary Checks

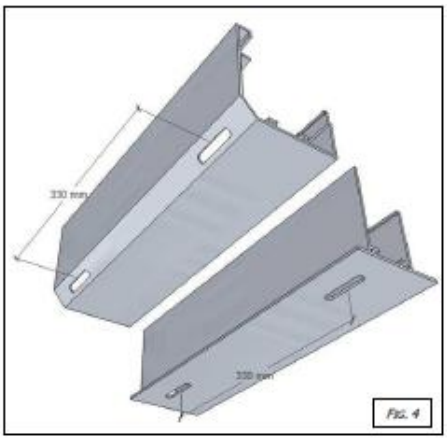
- Check that the panels are stored correctly, in accordance with the instructions.
- Check that the product has no obvious defects.
- Ensure that the sub structure and kerbs which will support the aluminium profiles is level and that relevant distances are correct. Clean levels and surfaces is necessary. This ensures the correct installation of the glazing panels.

2.2.-Fixing of Aluminium Profiles



a) <u>**The lower aluminium profiles**</u>, with and without a sill, must be drilled with holes at the bottom to facilitate the drainage of condensation or water which could penetrate.

The distance between the centres should be about 330 mm. Elongated holes are better than circular ones, which tend to form a bubble.



In case of inclined solution (with screws fixed in horizontal position), proceed in this way:

- For **M989 profile (Modulit 338LP-500LP-500LL)**, the hole must be drilled on the lower face, it means on the inclined base.
- For **M9V2 profile (Modulit 520HC)**, suitable holes must be drilled on the lower part of profile and flashing necessary to support the profile itself.

N.B: The aluminium profile serves solely to secure the panels and has no structural function.
<u>The fixings must not be more than 500 mm apart</u>.

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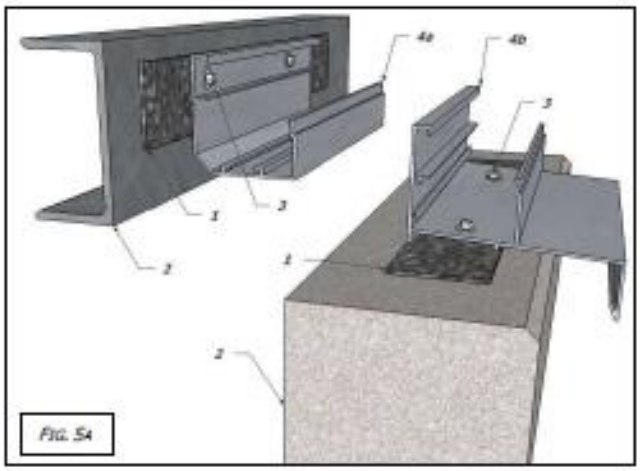


Fig 5A:
1-Insultaing Gasket
2-Fixing Support
3-Fixing Screw
(maximum 500 mm)
4A-Profile M989
4B-Profile M988

b) <u>Perimeter profiles</u> (code **M987, M988, M989** for **Modulit 338LP-500LP-500LL**) are designed to be fixed with horizontal than vertical screws.

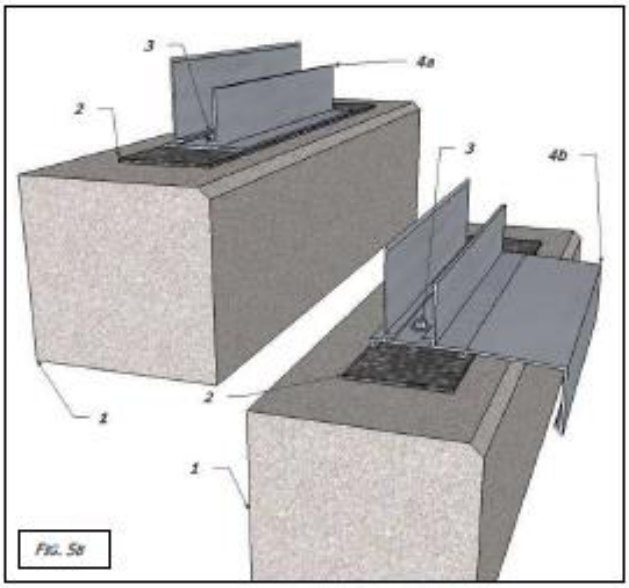


Fig 5B:
1-Fixing Support
2-Insultaing Gasket
3-Fixing Screw
(maximum 500 mm)
4A-Profile **M9V2**
4B-Profile **M9V3**

<u>Perimeter profiles</u> (code **M9V1, M9V2, M9V3** for **Modulit 520HC)** can be fixed only with vertical screws.

The fixing method must be appropriate for the type of supporting structure and compatible with the aluminium of the containing profile.

- **Self-drilling screws** for steel (check the thickness of the support and the maximum depth that can be drilled).
- **Wood screws** for timber. In this case the aluminium profile must be pre-drilled.
- **Rawl-type plugs** for concrete (ensure that fixings do not impede on any reinforcement bars in concrete).

2.3.-Sealing and Joining the Aluminium Profiles

To improve air and water tightness and to compensate for small irregularities in the surface, insulating gaskets can be placed between the profile and the sub structure.

Additionally, the inside of the lower and inside of the lower and side profiles should be silicone at the bottom, and the outside of the upper profile, between the profile and sub structure.

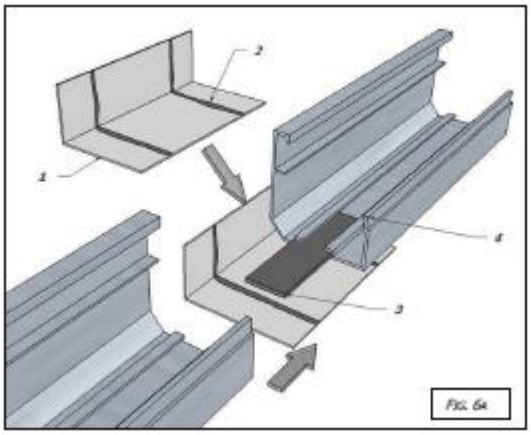


Fig 6A:
1-Flashing Profile
2-Silicone
3-Plate 20x2 mm
4-Profile **M989**
(Modulit 338-500)

The profiles are joined by inserting a rectangular-shaped aluminium connector plate (20 mm x 2 mm x 200 mm not provided) between the two profile ends to maintain alignment. Another aluminium connector plate is placed over the bottom of the joint and sealed with Silicone.

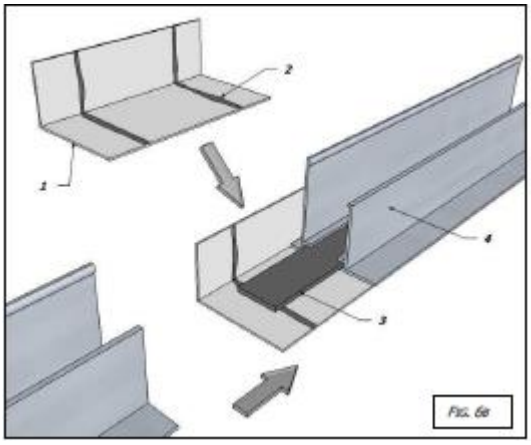


Fig 6B:
1-Flashing Profile
2-Silicone
3-Plate 20x2 mm
4-Profile **M9V2**
(Modulit 520HC)

If the aluminium profiles are in contact with other metals, ensure that there are no formations which could contaminate them and cause them to corrode. If there are, take care to isolate the two metals adequately.

2.4 Construction of Corners

The corners are constructed by cutting the lips of the side profile so that they intersect the lower profile (with or without sill) and the upper profile.

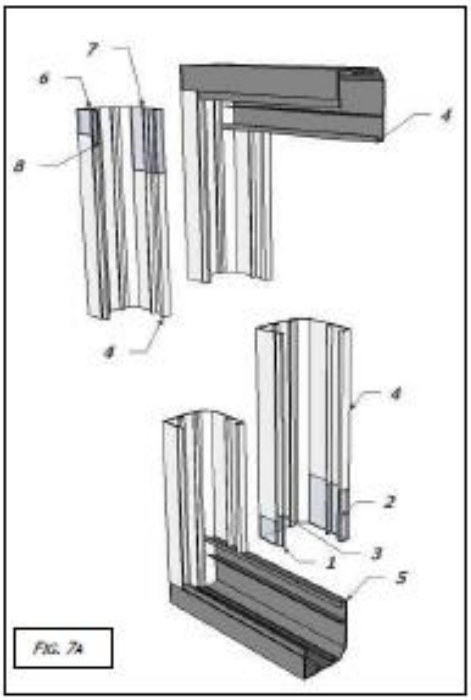


Fig 7A:
1-To be Cutted 23x63 mm
2-To be Cutted 60x83 mm
3-To be Cutted 7x7 mm
4-Profile **M987**
5-Profile **M989**
6-To be Cutted 53x63 mm
7-To be Cutted 83x83 mm
8-To be Cutted 8x8 mm
(Modulit 338LP-500LP-500L)

The inside of the corner joints must be sealed carefully with a bead of silicone to prevent infiltration of water.

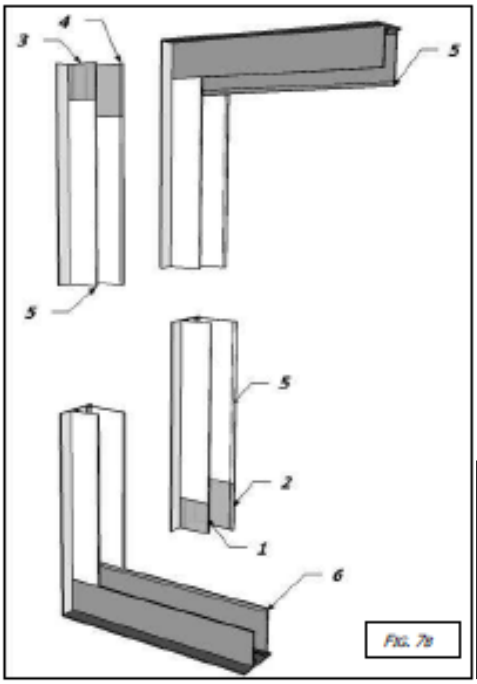


Fig 7B:
1-To be Cutted 58x33 mm
2-To be Cutted 68x48 mm
3-To be Cutted 58x58 mm
4-To be Cutted 68x68 mm
5-Profile **M9V1**
6-Profile **M9V2**
(Modulit 520HC)

2.5.-Panels Longer than 7 meters

In order to install panels longer than 7000 mm, the standard upper profile (code **M987**) will be replaced by the special high upper profile (code **M9S4+M9S6**) that assure the right restraint of panels also with high thermal expansion.

In this case the space required for thermal expansion of panels will be calculated related to their right length.

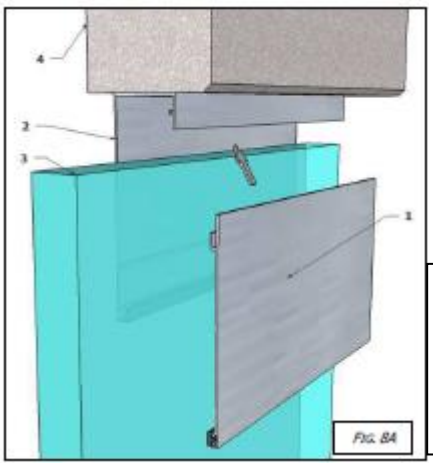


Fig8A:
1-Profile **M9S6**
2-Profile **M9S4**
3-Panel **Modulit 338LP-500LP-500LL**
4-Bearing Structure

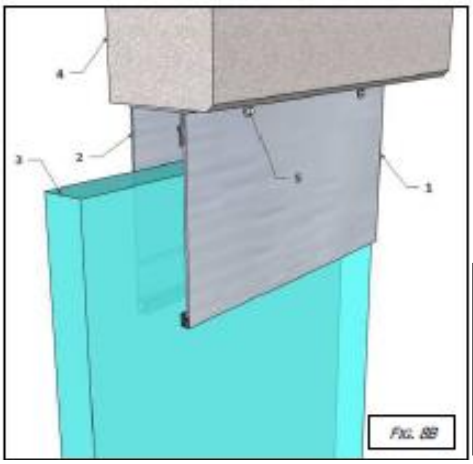
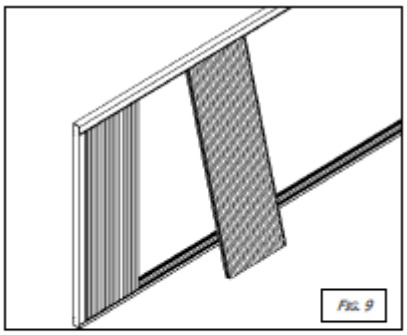
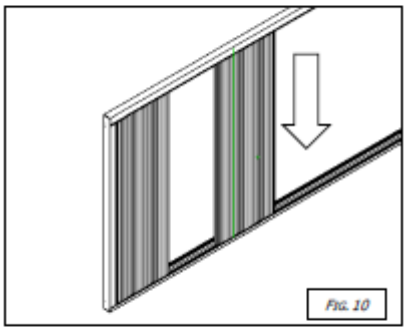
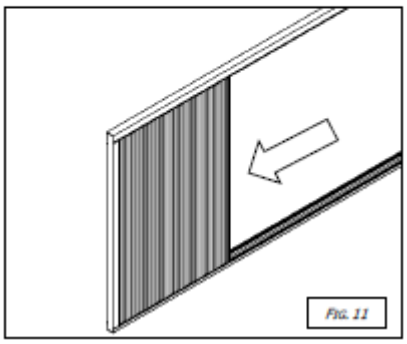


Fig8B:
1-Profile **M9S6**
2-Profile **M9S4**
3-Panel **Modulit 338LP-500LP-500LL**
4-Bearing Structure
5-Fixing screws

2.6.-Installation of Panels







During installation of the panels, ensure that the UV protected side is placed to the outside. It is identifiable by a coloured film bearing the product specification and an identification code hot stamped on the edge of the sheet (also by the absence of grooves for fixing hooks for **Modulit 338LP, 500LP, 500LL**).

Insert the taped panel into the upper profile, alongside the previously installed panel, so that it touches the internal base of the upper profile.

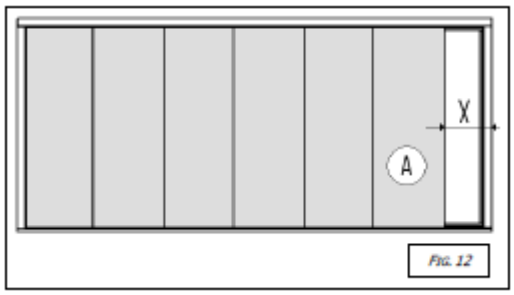
Lower the panel to vertical position and slot into base.

Lock the two panels together, starting from the top and working down the length of the panel.

Best results can be achieved by inserting the male side into the aluminium profile so that eventually a rubber hammer can be used to help fit them together; do not hit directly with the hammer but place a buffer in between to distribute the blow.

Do not use a lubricant unless it is guaranteed by the manufacturer to be polycarbonate compatible.

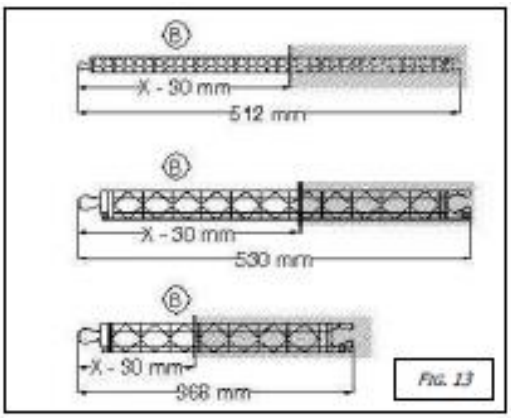
2.7. - Installation of the last panel



For the installation of the remaining panels, proceed as indicated before until the space left is less than:

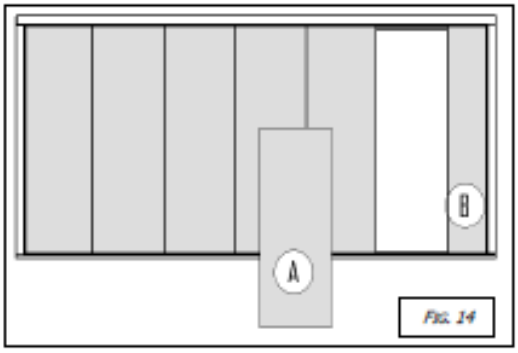
X < 500 mm (for **Modulit 520HC, 500LP/LL**)

X < 338 mm (for **Modulit 338LP**)



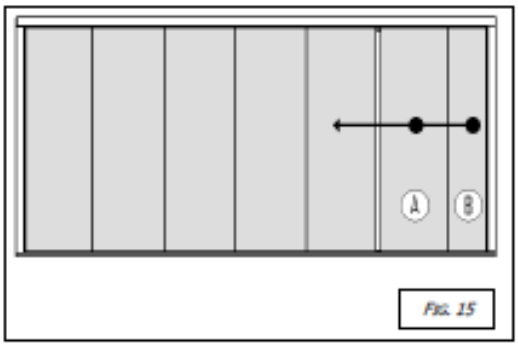
Cut the final panel to a **width 30 mm** less than the width indicated in the diagram:

X - 30 mm



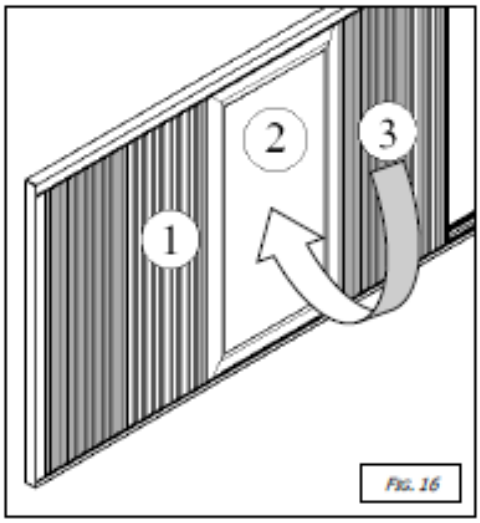
Lift the penultimate panel A out momentarily and insert the cut panel B, pushing it right into the end of the closure.

Re-insert panel A and lock the two panels together into their final position. For this operation, it is recommended to include in the last panel and the aluminium profile straps that pull, facilitating the joint between the last two panels.



2.8. - Installation of Opening Windows

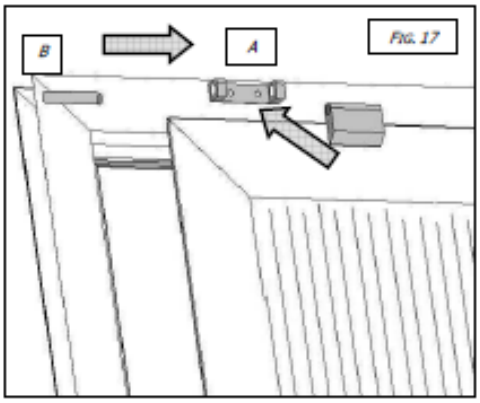
Should openings be required at intervals between the fixed glazings, they should be inserted in the following manner.



In the desired position (1) (check that the opening of the vent and the opening mechanism do not interfere with the existing components) insert the fixed frame as you would install a Modulit panel (2), checking the level and alignment and adjusting as necessary.

Fix the window securely to the aluminium profiles or supporting structures; under no circumstances must the window be fixed to the polycarbonate panels alone.

Continue to install other fixed Modulit panels (3) until reaching the next opening or until completion of glazing.

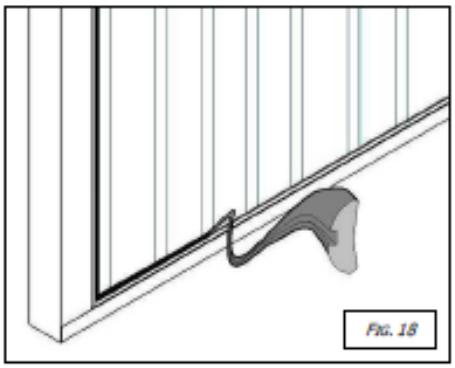


Place the opening vent next to the fixed frame, fix the hinge housings (A) and insert the pivot (B) as shown.

Follow the manufacturer's instructions to position and fix the opening mechanisms.

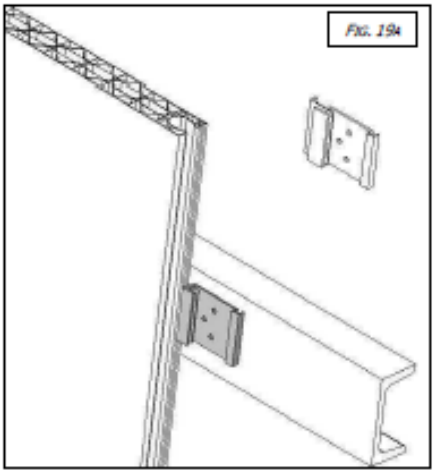
If this operation is not being carried out immediately, secure the vent with a temporary fixing which can be removed later on.

2.9. - Rubber gasket



To ensure water tightness a rubber gasket (code **M998**) must be placed on the external surface in the appropriate housing.

2.10. - Installation of Fixing Hooks



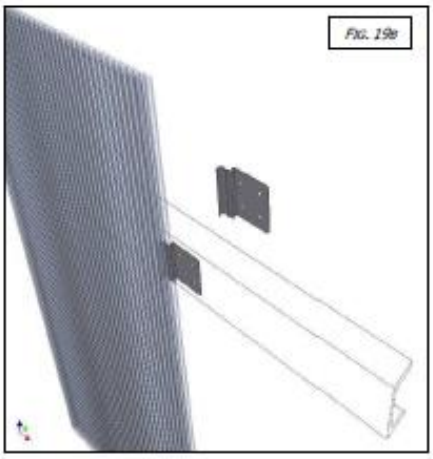
If necessary, whether due to the Height or the windloads, install additional supports where fixing the panels, they must be secured with specific aluminium or steel fixing hooks.

Once the panel has been correctly installed, position the fixing hook at the edge of the panel in its own housing.

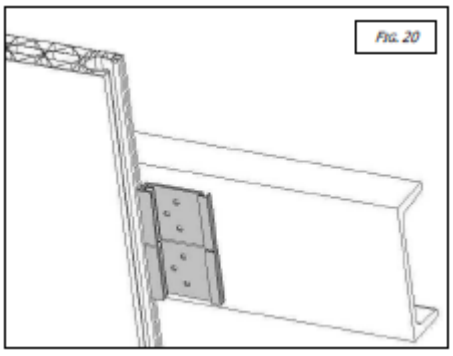
Fix the hook using screws appropriate for the type of substructure. Use the correct number of screws required for each fixing hook.

ATTENTION: using a lower number of screws, the load resistance of the system could be compromised.

Fixing hooks must be placed on each panel, corresponding with all the purlins/side rails.



The distance between the purlins/side rails must be checked in relation to the expected load – both in pression and suction. The distance should be the minimum expected in the two situations.



Only for **Modulit 338LP** and **Modulit 500LP** systems When required, two fixing hooks can be used in order to increase suction load resistance of the system.

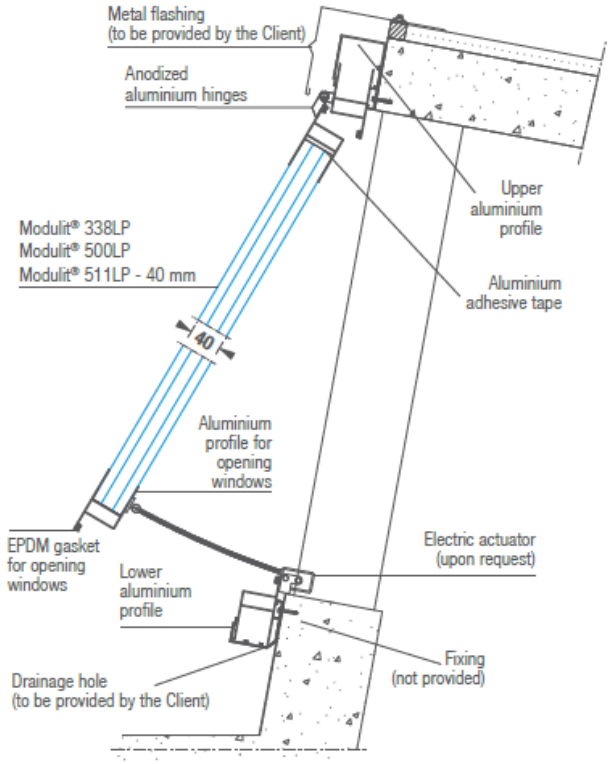
2.11. - Accessories

Dependent upon the specific situation, check if upper or lower connecting flashings are required under the glazing.

To seal correctly and ensure water-tightness between the aluminium profiles and existing structures, it is advised that a row of silicone be used.

3 - Assembling of Opening Windows

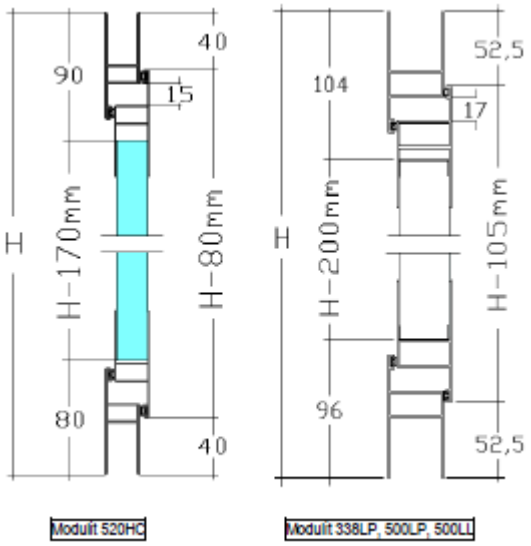
3.1. - Window dimensions



Vertical section - sloped shed - with simple profiles, 40 mm thickness

Opening vents, which integrate perfectly with the existing fixture, can be constructed for ventilation; they have a double gasket and a vent which opens outwards (hinged at the top).

The windows should not have more than 2-3 sqm of opening surface. For larger windows please contact our Technical Department.



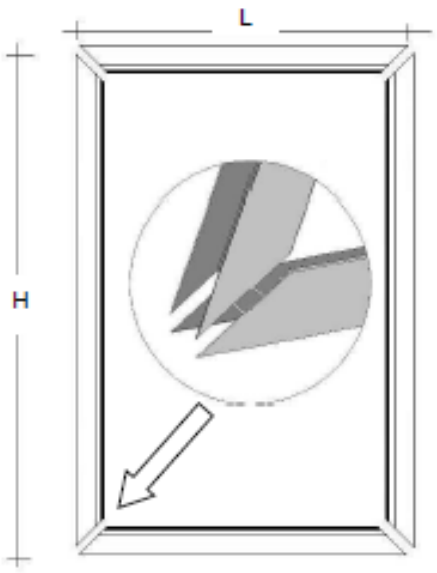
Additional items required for the assembly of the windows.

As well as the aluminium profile and the panels, which should always be taped at the ends, for each opening element the following items are necessary:

- 8 corner joining plates (code **M974** (for **Modulit 338LP-500LP-500LL)** or code **M97A** (for **Modulit 520HC**))
- 2 or more aluminium hinges (code **M912**) depending from opening vent's width.
- opening gasket to fit opening profiles (code **M913**).

3.2. - Assembly of fixed frame

To make the fixed frame two pairs of opening profiles (code **M986** or code **M9V4**) must be cut at 45° so that the slot containing the gasket is on the inside.



Size of cut on outside of fixed frame:

- Height of fixed frame (H):

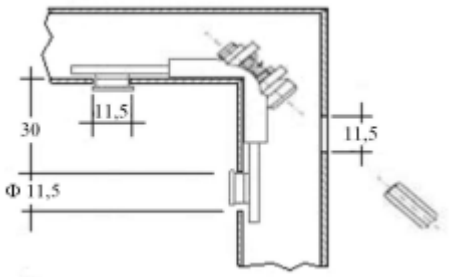
  H = V – 35 mm (for **Modulit 338LP, 500LP, 500LL**)

  H = V – 50 mm (for **Modulit 520HC**)

  where: V = free space

- Width of frame (L):

Product	Width of frame (L) (mm)				
	1 Panel	2 Panels	3 Panels	4 Panels	5 Panels
Modulit 520HC	680	1180	1670	2170	2670
Modulit 338 LP	570	910	1245	1585	1920
Modulit 500LP/LL	730	1230	1730	2230	2730



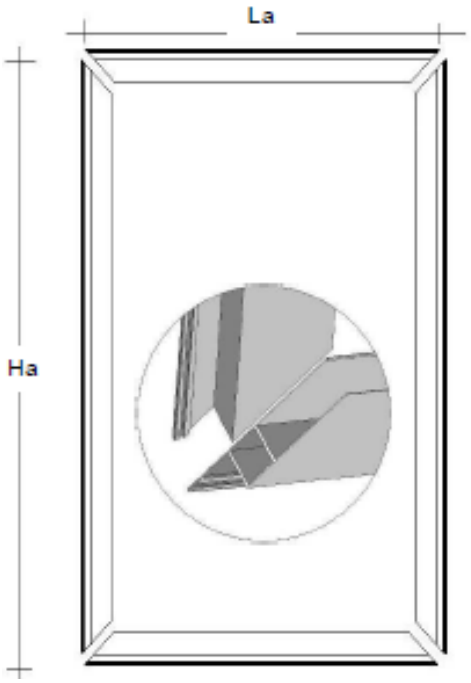
Insert the gasket (code **M913**) into all the profiles.

Prepare the holes for fixing the corner-joint following the method shown in the following diagram (drawing referred to corner-joint cod. **M974**).

Construct the frame by inserting the corner-joint into the profile channel.

3.3. - Assembly of opening frame

To construct the opening vent, cut two pairs of opening profiles (code **M986** or code **M9V4**) at a 45° angle so that the slot, containing the gasket, is on the outside.



Size of external cut on opening vent:

- **Height (HA) / Width (La) opening vent:**
  Ha = H – 105 mm
  La = L – 105 mm
  (for **Modulit 338LP, 500LP, 500LL**)

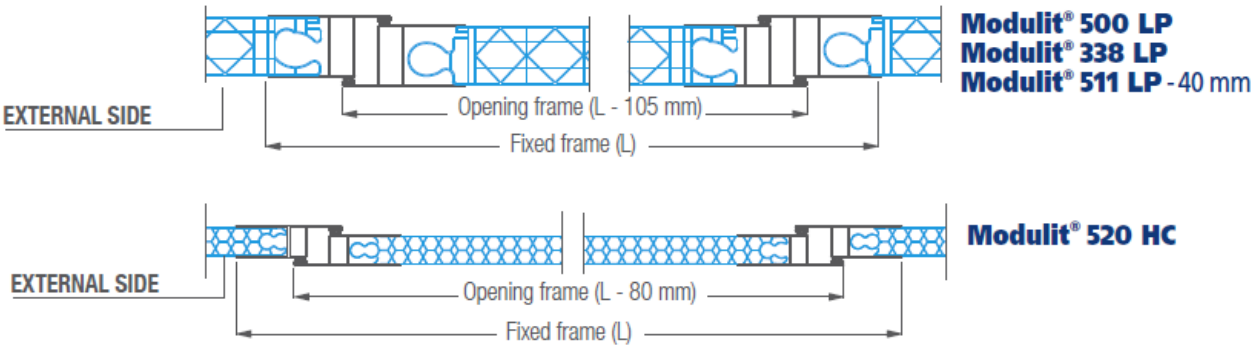
  Ha = H – 80 mm
  La = L – 80 mm
  (for **Modulit 520HC**)

  where:
  H = height of fixed frame
  L = width of fixed frame

- **Height of panels (Hp) for opening frame:**

  Hp = H – 200 mm (for **Modulit 338LP,500LP, 500LL**)
  Hp = H – 170 mm (for **Modulit 520HC**)

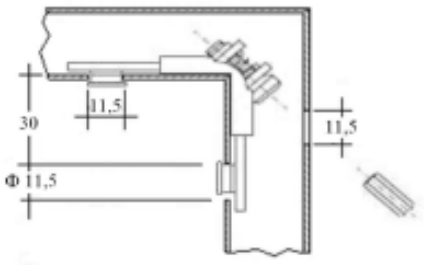
  where:
  H = height of fixed frame.



Insert the gasket (cod. **M913**) into all the profiles.

Prepare the holes for fixing the corner-joint as shown in the following diagram. (drawing referred to corner-joint cod. **M974**).

Construct the vent by inserting the polycarbonate panels and fixing the corner-joint into the profile channel.



Fix the two hinges to the upper part of the assembled vent, taking care to position them at the same distance from the edges so that the opening is straight.

If the vent is wider than 2 metres it is advisable to fix a third hinge in the middle.

The vent should be attached to the fixed frame in the workshop, once the fixed frame has been assembled, using the pin and the instructions provided with the hinge.