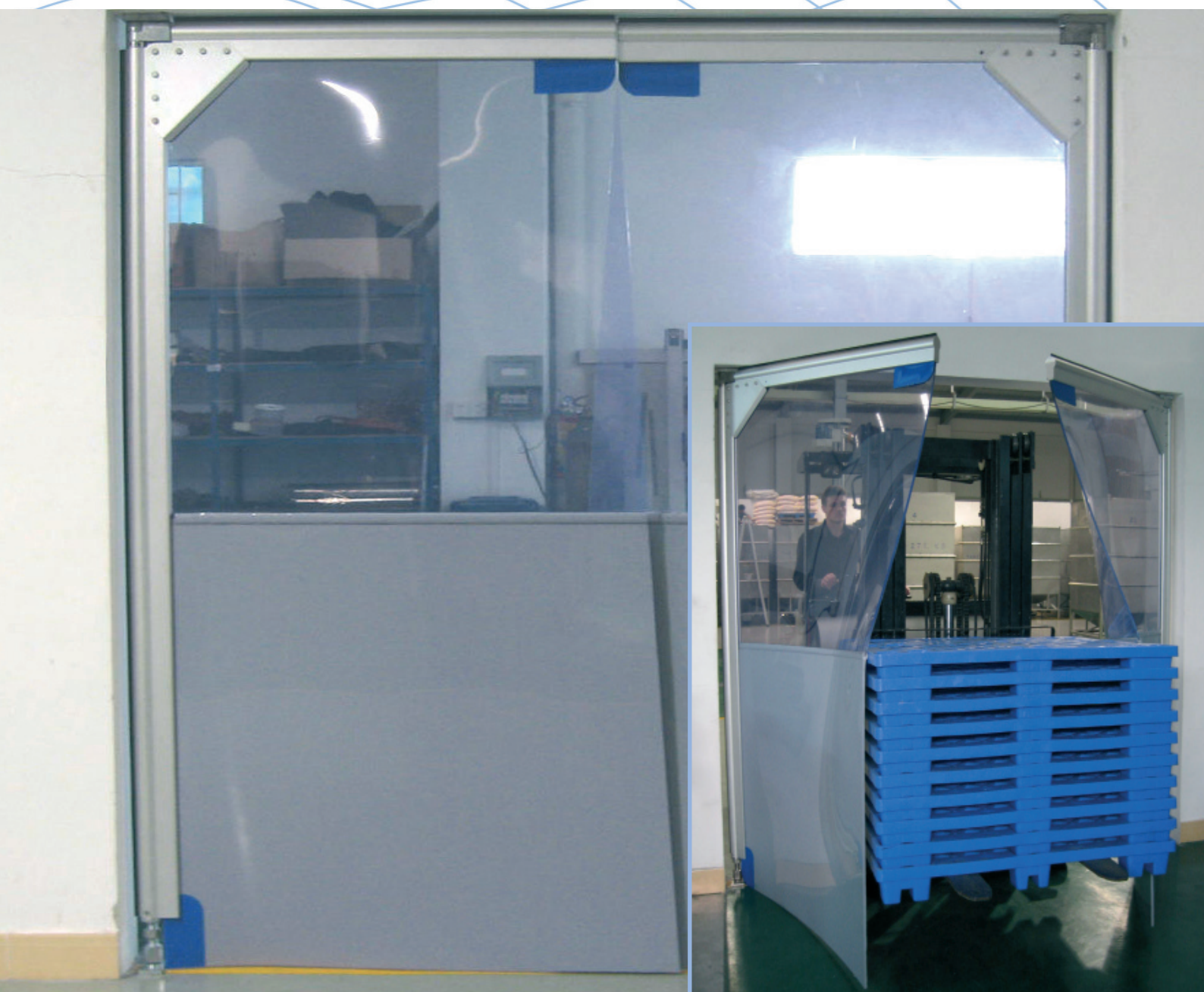


SWING DOORS

PRODUCTION PROCESS & INSTALLATION MANUAL



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1 EQUIPMENT REQUIRED FOR PRODUCTION

1.1 Tools for Aluminum profiles preparation

- Aluminum cutting machine. (Opening 150 mm – Disc 300 mm)
- Portable polisher.
- Boring template.
- Column drill. (Opening 50mm)
- Circular saw for aluminum. (Disc Ø 9')
- Cutting template.
- Tools for measuring.

1.2 Tools and equipment for PVC sheet preparation

- Cutting table with wood (or similar) surface, measuring at least 1600 x 3600 mm.
- Heating table or oven for sheet normalization (1600 x 3600 mm).
- Hot air gun (wide slot nozzle 30 mm) with pressure rolls for welding.
- Large squaring tool.
- Tools for cutting and measuring.

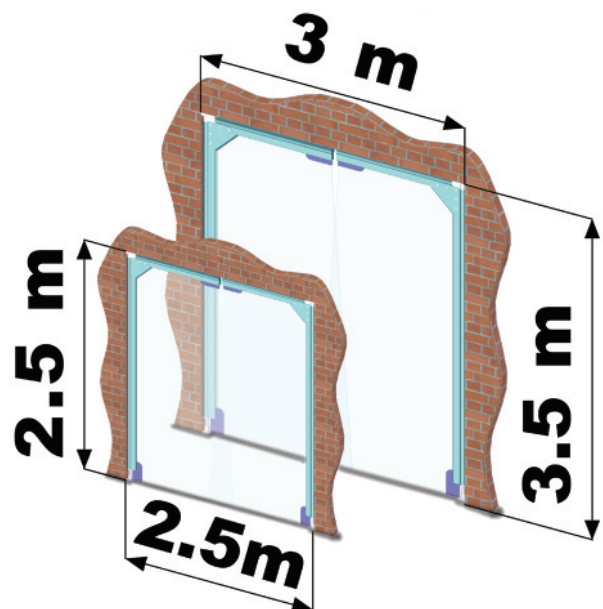
1.3 Tools for assembling

- Wrenches and screwdrivers.

1.4 Tools for installation

- Portable power drill.
- Hammer.
- Wrenches, screwdriver and adjustment bar.
- Tools for measuring, plumb line and spirit level.

For opening under 2,5 m x 2,5 m (double leaf door) use small model hardware for opening between 2,5 m x 2,5 m and 3,5 m x 3 m (double leaf door) use large model hardware.



- Doors models -

2 PROFILES PREPARATION

2.1 Profiles cutting

- The measurements of the opening must be accurate within 5 mm tolerance so that the construction of the door fits the opening.
- On installation, there is no room for adjustment.
- Aluminum profiles must be cut according to the size of the door.

- Use the following table to cut the aluminum profiles to the right length according to their future position on the door:

PROFILE				
TYPE	SMALL		LARGE	
POSITION	VERTICAL	HORIZONTAL	VERTICAL	HORIZONTAL
LENGTH	H-185 mm	W-125 mm	H-225 mm	W-150 mm

(Data for one leaf door)

- Make sure that the profile is cut perpendicularly.
- Make round the edges of the vertical profile bottom's end in contact with the PVC sheet.
- Then remove sharp edges and polish the surface.

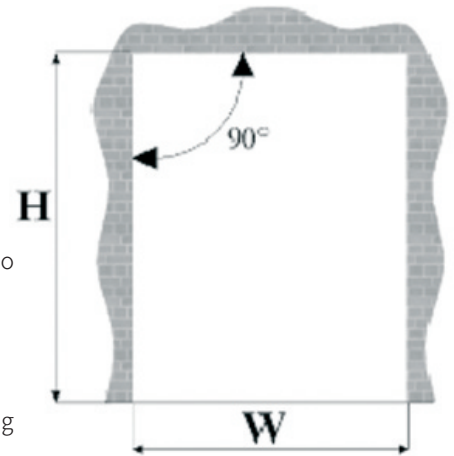
2.2 Profile's drilling

The junction tube is fixed into the profile by screws and nuts.

- Use the appropriate boring template (supplied with 1st order) to drill the holes in the right place.
- The profile must be placed inside the boring template.
- The ends of the profile and the boring template need to match and be in the same line before tightening the fixing screws.
- The template has provision for vertical and horizontal profile.
- Note that the horizontal profile has one bore less than the vertical one.
- Then proceed to the drilling (\varnothing 9 mm).

The bottom adjustment nut must be fixed to the vertical profile with a screw to block its rotation.

- For this purpose make a hole (\varnothing 9 mm) on the round part of the profile at 12mm distance from its bottom end.



- Opening size -



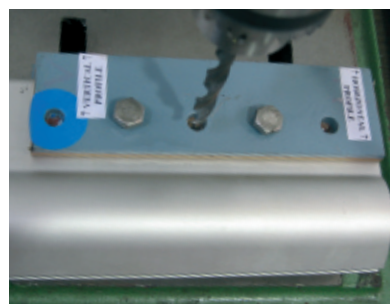
- Profile cutting -



- Vertical profile bottom's end -



- Remove sharp edges -



- Profile's drilling -



- Position in the boring template -

2.3 internal cutting

In order to place the junction tubes and to fit the triangular plate into the profile, the profiles have to be cut inside on the rounded part.

- The first step is to make a hole (Ø 20 mm) inside the profile in order to limit the cutting distance from the profile's end.
- The distance between the hole and the end of the profiles (junction sides) need to match the table below:

PROFILE				
Type	Small		Large	
Position	Vertical	Horizontal	Vertical	Horizontal
Distance	195 mm	145 mm	240 mm	185 mm



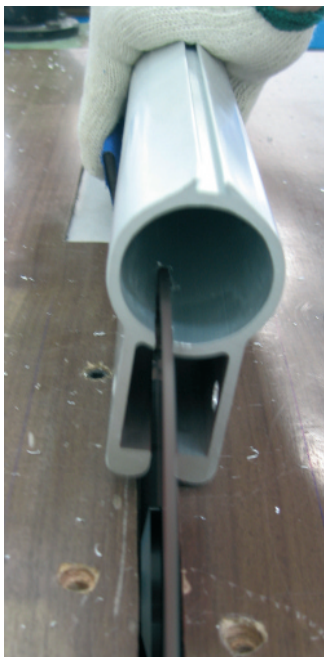
- Hole's distance for the internal cutting -



- Internal hole drilling -

- Then cut with a slight angle the rounded part inside the profile over the distance between the end of the profile and the previous bored hole. See picture above.

- Maintain the profile in contact with the first wing of the appropriate jig (supplied with the 1st order) to slide the profile to the saw. Stop the cutting once you reach the hole.
- Do the same operation on the other side.



- First cut -



- Second cut -



- Finish -

- Internal cutting -

3 PVC SHEETS PREPARATION

Use PVC sheet from 4 to 7 mm thick for small swing doors and from 7 to 10 mm thick for large doors. Use polar quality PVC sheet for cold rooms down to -25°C.

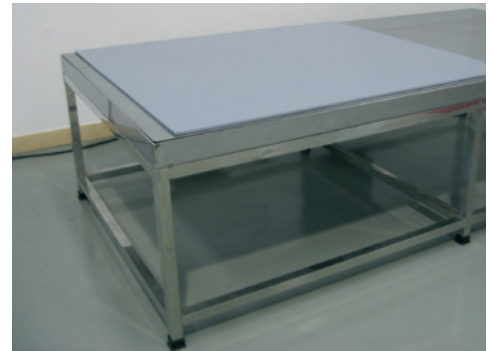
3.1 First cut

- Cut the required sheet of PVC from the roll. The sheet has to be cut initially 10 mm over. When unrolling the PVC material, due to the production rolling tension and the natural elasticity of flexible PVC, it will retract lengthwise and widen slightly.

3.2 Normalization

The extent of this phenomenon varies according to the quality and thickness because the thicker the product the more stable it is. Residual curving may be observed; it results from the conditioning of the product in rolls after manufacturing.

- To obtain a perfect flat door leaf, it is advisable to precut it and heat it on a flat surface (heating table) at 60°C for 3 hours.
- The PVC panel will then be stabilized and ready to use; from then on, never roll it until final installation. Refer to packaging instruction page 7.



- Heating table -

3.3 Final cut

- Manually
 - Cutter or « Quarter moon » blade: use a tool with a fixed blade (not retracting or breakable) because the cutting force is relatively high.
 - Use a working surface that does not stick to the PVC (cardboard, carpet). Clean and dust free.
 - Use sufficiently precise tools so that basic geometrical rules can be complied in terms of perpendicularity and parallelism.
 - For thick panels (in excess of 5 mm), when cutting it is advisable to make several incisions without pressing on the tool too hard.
 - Make sure that the cut is perpendicular with the PVC sheet surface.
- Automatic equipment (recommended):
 - Sheet metal shears can be arranged for cutting repetitive series.
 - A circular saw can also be used but, in this case, the blades must be provided with tungsten carbide tips and should be wide enough to prevent the PVC from overheating.

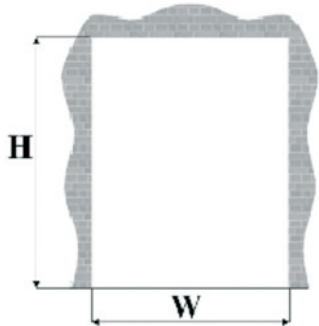


- Final cut -

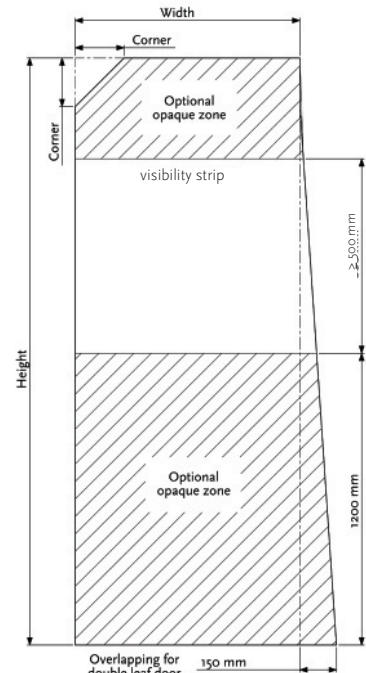
- Cut the PVC sheet with the exact dimension as follows

PVC SHEET				
TYPE	SMALL		LARGE	
POSITION	HEIGHT	WIDTH	HEIGHT	WIDTH
SIZE	H-80 mm	W-75 mm	H-95 mm	W-90 mm
CORNER	200 x 200 mm		250 x 250 mm	

(Data for one leaf door)



- Opening size -



PVC sheet dimensions

- For an optional opaque zone, the usual height of the opaque bottom zone is 1200 mm and 500 mm minimum for the visibility strip.
- For double leaf doors, an additional overlap is required to ensure a good sealing between panels.

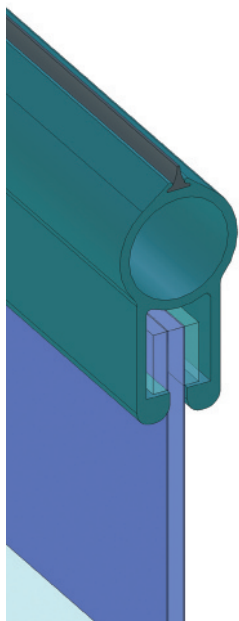
3.4 PVC welding

The PVC sheet will be secured inside the vertical and horizontal aluminum profiles with 10 mm thick x 30 mm wide PVC strips welded on each side of the sheet along its edges.

- Cut a 10 mm thick PVC strip with a constant width of 30 mm.
- Weld the strip on both sides of the sheet with the hot air gun and the adapted pressure roll. The weld has to be perfectly parallel with the edge of the sheet.
- The strips' length for the horizontal profile has to match exactly the width of the panel.
- The strips' length for the vertical profile can be in 300mm long pieces with a 100mm space between them.

- The corners of the PVC sheet are the most vulnerable zones. It is advisable to reinforce the top end corner and the bottom corner just above the bottom fixture.

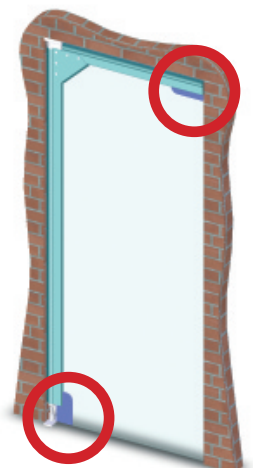
- Use PVC coated polyester reinforcement welded on both sides of the panel with tetrahydrofuran or cyclohexanon using the adequate precautions.



- Strips in the profile -



- Reinforcement -



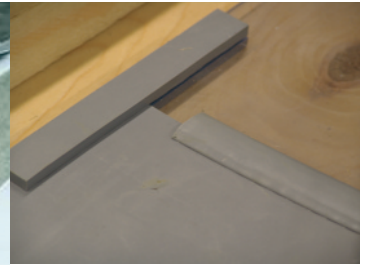
- Reinforcement position -

To joint opaque and clear sheets :

- Position sheets on a flat surface edge together with the rigid bar between (perfectly parallel).
- Weld the two parts together using the hot air gun and the adapted pressure roll. Use a rule to guide the junction seal.
- The junction seal has to be shorter than the total width otherwise it will not fit inside the profile.
(Cut it 45 mm away from the edge of the panel)
- Close gapes on both edges of the rigid bar by sliding and welding a small PVC part inside.



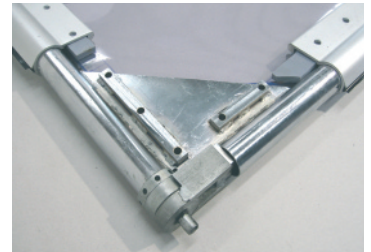
- Junction seals weld -



- Junction seals & strips welded -

4 ASSEMBLING

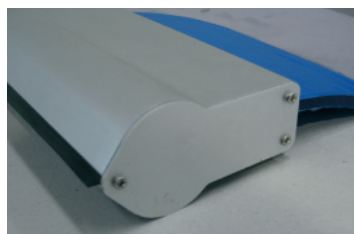
- Slide the vertical profile along the strip of the PVC sheet.
- Do the same with the horizontal profile.
- Slide the junction tubes inside the vertical and horizontal profiles.
- Grease the spring mechanism and slide it in the junction tube.
- Put the junction tubes and the two corner plates in position and bolt them together with the profiles.
- Slide the bottom nut inside the bottom of the vertical profile and screw it through the previously bored hole. Grease the ball.
- Slide the peripheral PVC seals into the external grooves of the profiles and trim to size.
- Put the horizontal profile end cover in position and fix it with screws.



- Junction tubes -



- Bottom nut -



- Seal & Cover -



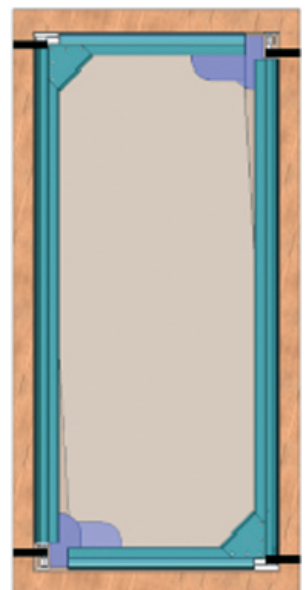
- Return spring system -



- Corner plates -

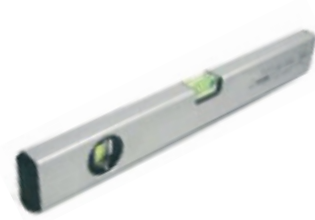
5 HOW TO PACK THE DOORS LEAVES

- Packing must ensure that the leaf is supported and cannot move to prevent any damage. Secure the leaves safely in the package.
- Protect the sheet from direct contact with any other parts in the package: wood, carton, metal.
- Use wood for the packaging frame and paperboard triple grooves for each side.
- If the sheet is damaged, it can be brought back into its original state by heating it uniformly for one hour at 60°C.
- Transport doors flat.



- Door leaves packaging -

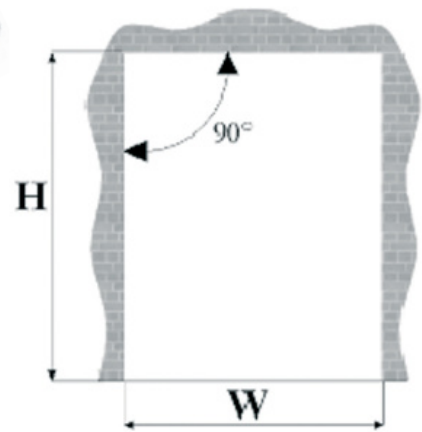
6 HOW TO INSTALL



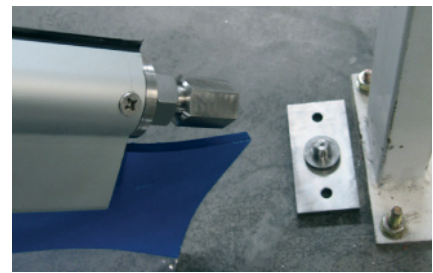
Use a spirit level to ensure correct fitting (Horizontal & Vertical)
If levels are not acceptable, add a frame on the opening to correct it.

6.1 Install the door

- Fasten the top fixture plate under the lintel of the doorway, placing the chamfer against the corner. (Figure 1)
- Screw the lower adjustment screw all the way inside the bottom bolt. (Figure 2)
- Rest the base plate with the barrel hinge in the approximate rotation position of the door. (Figure 2)



- Figure 1 -



- Figure 2 -



- Figure 3 -

- Raise the leaf so that the ball support fits in the hole of the adjustment screw.
- Gradually unscrew the bottom adjustment screw so that the pin in the spring mechanism enters the hole in the top fixture. (Let a gap of 1 mm) (Figure 3)
- Check that the frame is vertical in both planes, using a spirit level. (Figure 4)
- Ensure and that the top horizontal seal is perfectly tight and parallel with the lintel.
- Then fix the bottom fixture to the floor.



- Figure 4 -

6.2 Adjustment and finishing touches

- Calibration of the closing spring

The spring mechanism can be adjusted to increase (or reduce) its closing force. To add force on the springs proceed as follows:

- Open the leaf to a 90° angle and insert the adjustment bar (supplied with the fist order) in the 2nd hole after the one in which the stop plug (supplied) is inserted. (Figure 5)



- Figure 5 -



- Figure 6 -

- Close the leaf until the adjustment bar rests against the wall.
- Take the stop plug out of the hole using a screwdriver or pliers. (Figure 6)
- Move the outer arm of the mechanical unit and, let the door close, align the reference hole with the 1st hole adjacent to the adjustment bar. Insert the stop plug. (Figure 7)



- Figure 7 -

- To release the adjustment bar just open the door and take it out.
- This operation should be repeated until the required closing force is obtained.
- Proceed in reverse to unload the springs.

- Adjustment of door alignment

During and after fitting, it may be necessary to realign the door leaves. On the top fixture, there is an adjustment screw for this purpose. To align the door leaves:

- Decide which way to tilt the leaf.
 - Open the door to allow access to the adjustment screw.
 - Tighten or loosen the screw to obtain perfect alignment.
 - Tighten the counter nut.
- (Figure 8)

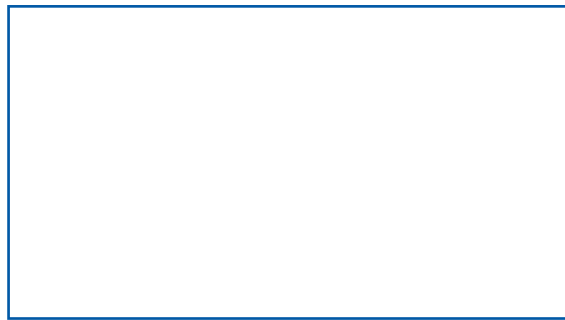


- Figure 8 -

7 CLEANING AND MAINTENANCE

- Wash with soapy water or alcohol solution.
- Avoid any contact with solvents.
- No particular maintenance is required except for periodic checking (twice annually) to ensure the attachment systems are secure, to grease and check return spring systems and lower pivots and to replace any worn PVC panels that no longer offer the necessary transparency.

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