ALUTECH
ALUMINIUM PROFILE SYSTEMS

Bi-folding door system

Installation instructions

2024

www.alutech-group.com

Contents

GENERAL INFORMATION

1. INSTALLATION INSTRUCTIONS

Read the installation manual before the start of any installation work.

Install as recommended otherwise the door system may not function properly and any warranty, written or implied, will be void.

2. WORKFORCE QUALIFICATION

The Installation Manual is only for the attention of qualified installers who are trained and qualified in window and door installation techniques, and are aware of the manufacturer's recommendations for the system used.

3. TRANSPORTATION AND STORAGE

All packaging opened to allow the goods to be inspected must be closed and properly sealed for further transportation. Any goods that will be further transported must be loaded safely and securely.

4. MATERIAL ACCEPTANCE

All goods received must be inspected for any damage during transportation prior to being unloaded from the vehicle. Any wet packaging may cause damage to the goods, and therefore must be removed immediately.

General information

5. SITE SURVEY

It is important to check the conditions and availability of all accessories before assembly.

- Check for any apparent defects around the aperture. If any defects are found, the customer must be notified and the agreement regarding who is responsible for repairing of these defects should be reached prior to the new door installation.
- Check the aperture: walls, load capacity, surface roughness, building moisture, aperture tolerances in width and height.
- Check supplied profiles and other components required for installation, customer's requirements for installation, insulation, air tightness and water permeability.

Fixing materials are not part of the supply kit. The installer should decide himself which fixing materials should be used after assessment of the aperture. It is installer's responsibility to find the suitable fasteners for the provided aperture for correct door installation into it.

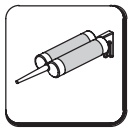
Installation tools

- Fasteners suitable for the aperture
- Frame packers kit
- Glazing packers kit
- Rubber or plastic mallet
- Set of HSS drill bits
- Drill / SDS hammer drill
- Concrete drill rods
- Saw for aluminium profile cutting
- Long spirit level
- Laser spirit level
- String line
- Tape measure
- Screwdrivers
- 2.5 mm; 3 mm; 4 mm allen keys
- Gloves
- Vacuum cups
- Gun for silicone sealant
- Silicone sealant
- Paper towels
- Utility knife
- Set square
- G-clamps

Symbols and pictograms


Attention!


Silicone sealant

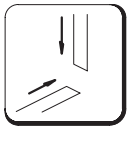

2-component PUR adhesive

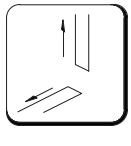

Drill


Tighten


Untighten


Adjust


Connect


Set apart

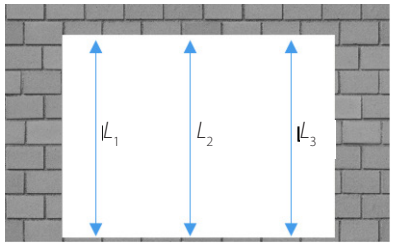
APERTURE REQUIREMENTS

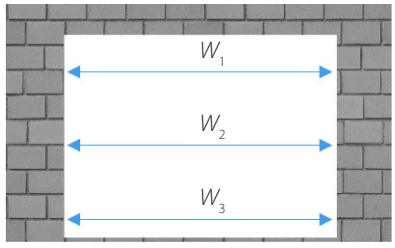
Aperture inspection

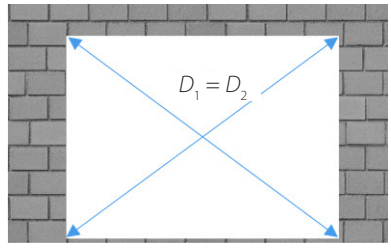
The aperture for the new doors must be flat, level, straight, plumb and square at every single side.

The aperture load bearings must not be transferred to any part of the frame when fitted.

1. Clean the aperture from dirt and debris.
2. The aperture dimensions shall provide enough space for new door installation and its correct operation.
3. Check the aperture height, width and diagonals to ensure that it is equal at each side and square. Generally, three measures should be taken.
4. Use tape measure to verify the aperture overall height and width. At least three measurements must be taken. The smallest height and width measurement will determine the overall frame manufacturing size. By measuring the diagonals verify that the aperture is square.







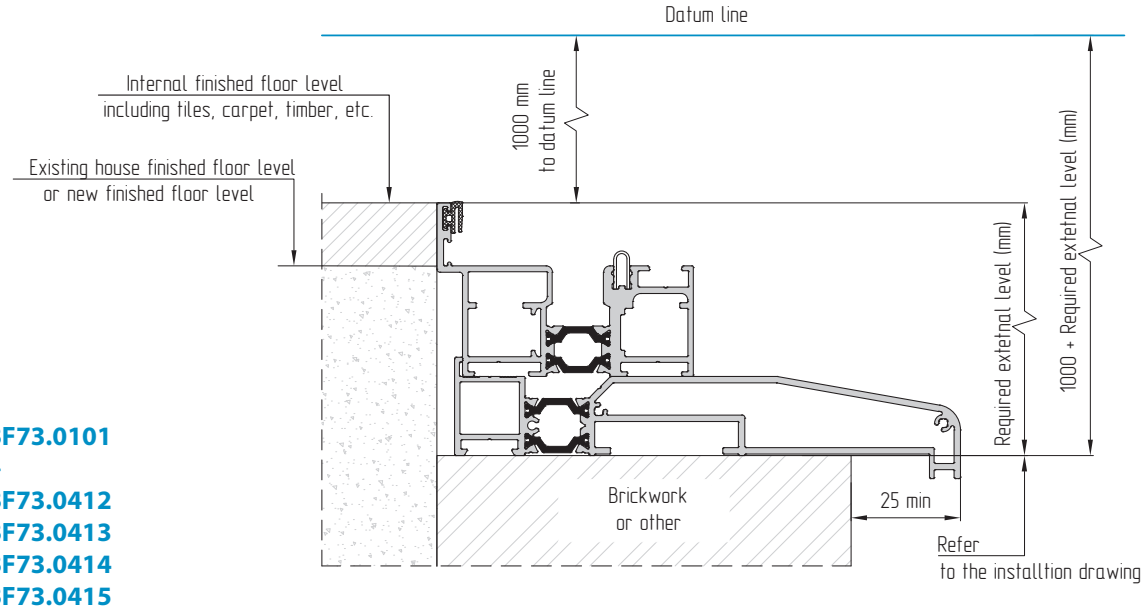
Note: The smallest measurements of width and height are used to determine manufacturing sizes.

See also section "Aperture height using laser level".

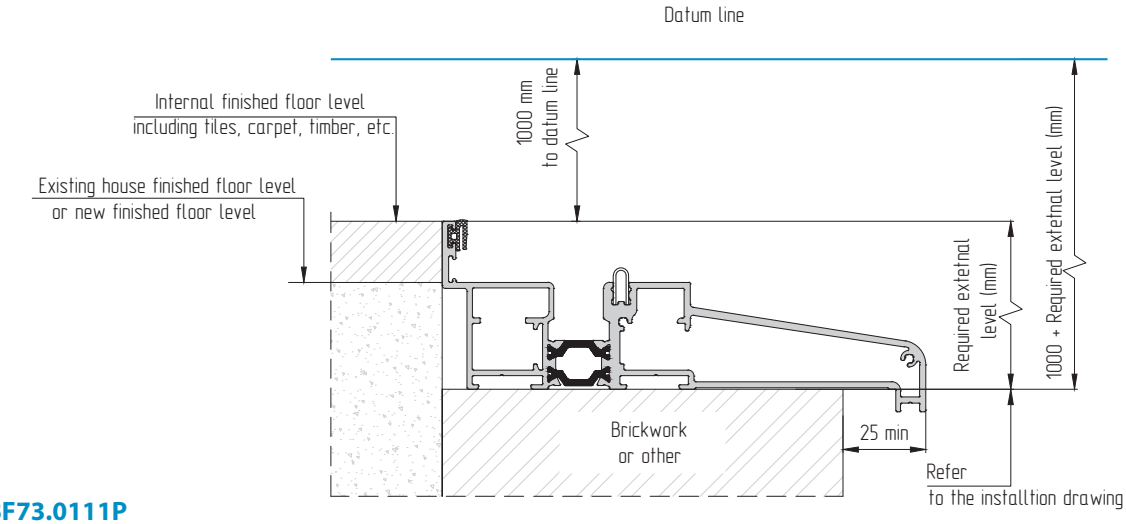
Aperture requirements

Finished floor level

1. Select a point within the existing floor level from where the builder can further determine the internal finished floor level i.e. tiles, carpet, timber.
2. Using the laser level set a datum line at 1000 mm from the existing floor level.
3. Take into account the agreed internal floor finish i.e. tiles, carpet, timber.
4. Mark the datum line on each side of the aperture.
5. Refer to the installation drawing and specify which threshold profile or drainage sub sill is required.
6. Adjust the frame position in relation to the finished floor level (frame ledge should sit flush with the finished floor level).



BF73.0101
+
BF73.0412
BF73.0413
BF73.0414
BF73.0415

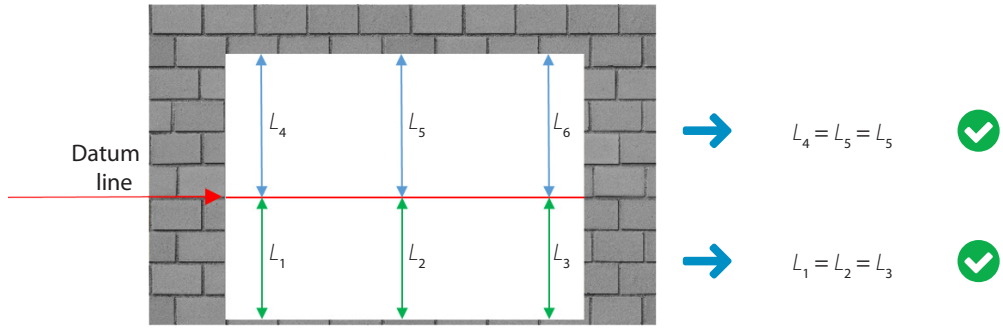


BF73.0111P

Aperture requirements

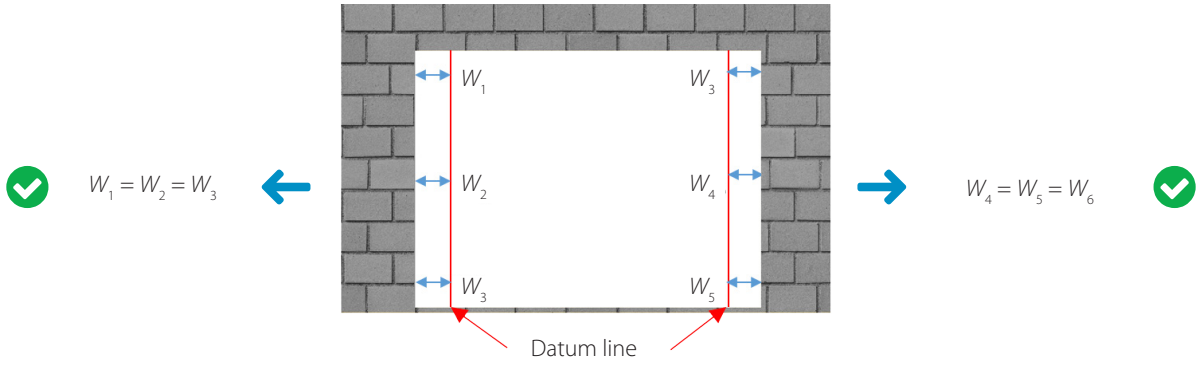
Aperture inspection in horizontal plane

1. From the laser level horizontal datum line set at 1 m from the floor level, measure the distance to the bottom of the aperture in the left, central and right position. All the bottom measurements should be equal. If not, then the aperture is not leveled at the bottom and it should be realigned.
2. From the laser level horizontal datum line measure the distance to the top underside of the aperture in left, central and right position. Each of the top measurements should be equal. If not, then the aperture is not leveled on top and it should be realigned.



Aperture inspection in vertical plane

1. Set a vertical laser datum line at 250 mm from the vertical side of the aperture.
2. Take measurements from the laser datum line to the top, centre and bottom of the aperture.
3. Each of the horizontal measurements should be equal. If not, then the aperture is not leveled vertically and it should be realigned.
4. Repeat the measurements on the opposite side.



Door dimensions

The aperture is allowed to be 10–15 mm wider and 10–15 mm higher than the overall frame size of the ordered door. It is important that the opening size is suitable for new door frame.

Note: Overall height of new door is measured from the bottom of the aperture and not from the finished floor level.

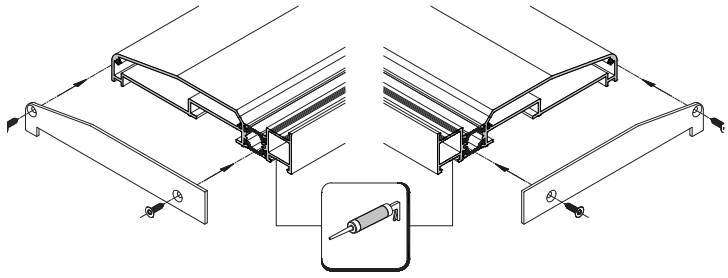
SUB SILL INSTALLATION

The need for any drainage sub sill should be determined at the beginning of the project. The sub sill should stand out for at least 25 mm from the facade.

The installer should determine how the sub sill should be fitted, taking into account the building features.

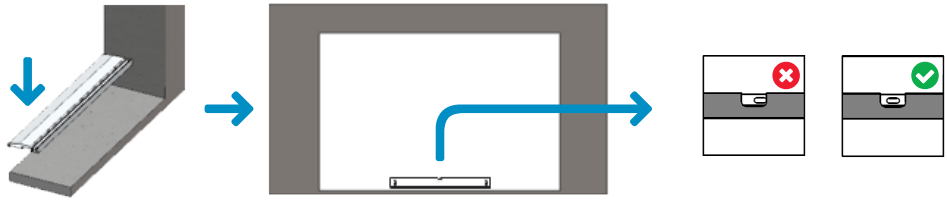
Note: Check the sub sill for drainage slots. Make sure they are clean and not blocked by any debris; clean if necessary.

1. Use sealant to fix sub sill end caps.
2. Install the end caps as shown below.

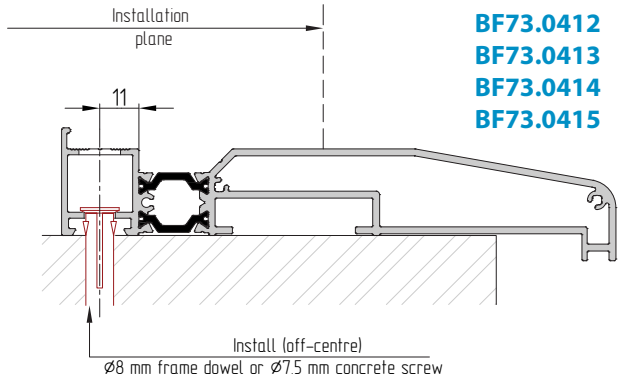


COSMO HD-100.411
or COSMO HD-100.412 sealant

3. Install the drainage sub sill into the aperture.
4. Use a spirit/laser level or a string line to determine the level of the sub sill.
5. Temporarily place the required packers under the sub sill, check the level and adjust if necessary.



6. Fix the sub sill at 150 mm from each end with spacing every 500 mm.



BF73.0412
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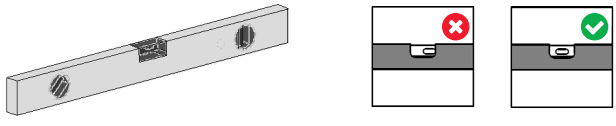
BF73.0415

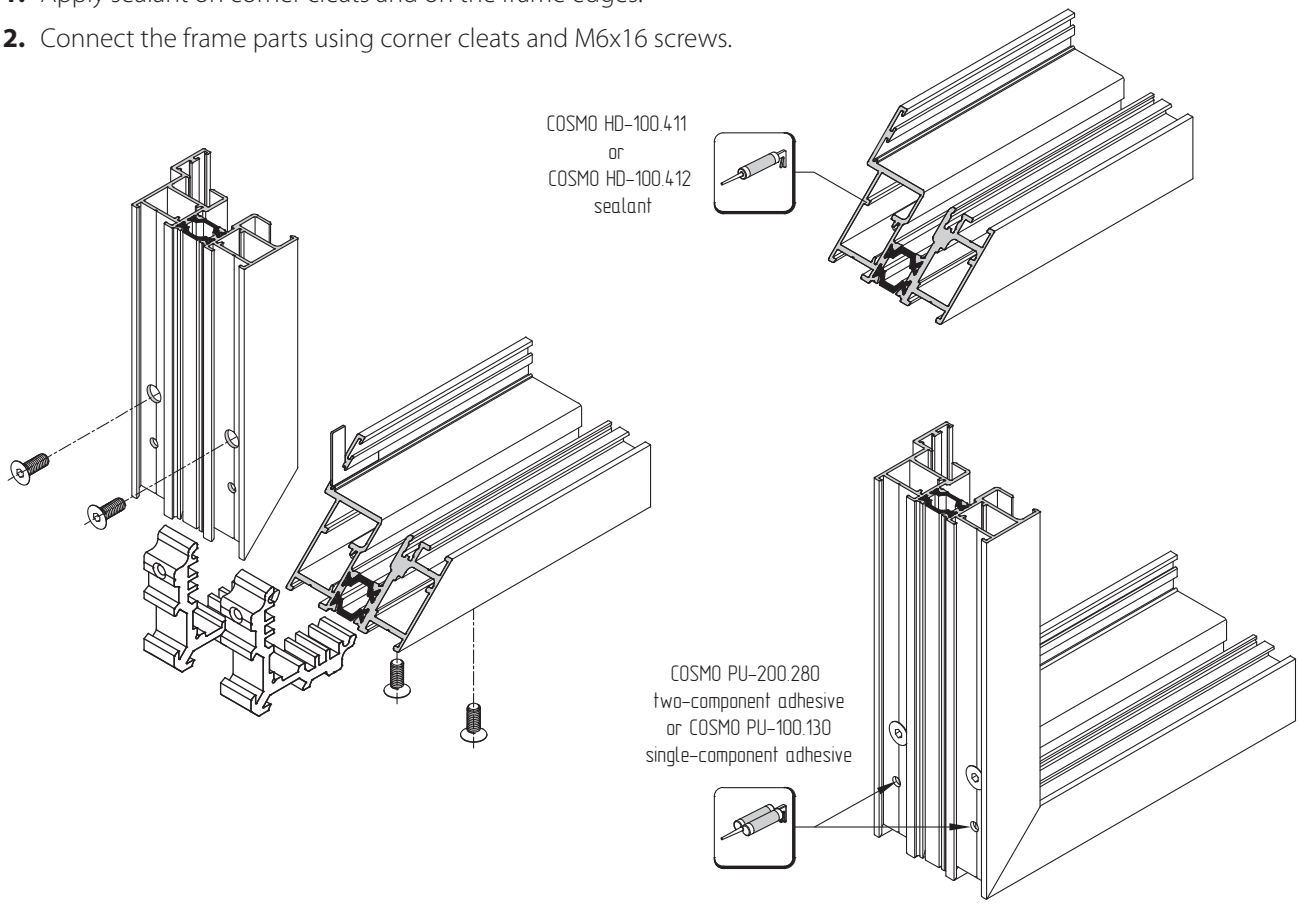
7. Fill each fixing hole with sealant before inserting the fasteners.
8. Double check the level and adjust if necessary.



FRAME ASSEMBLY AND INSTALLATION

Frame assembly

1. Apply sealant on corner cleats and on the frame edges.
2. Connect the frame parts using corner cleats and M6x16 screws.



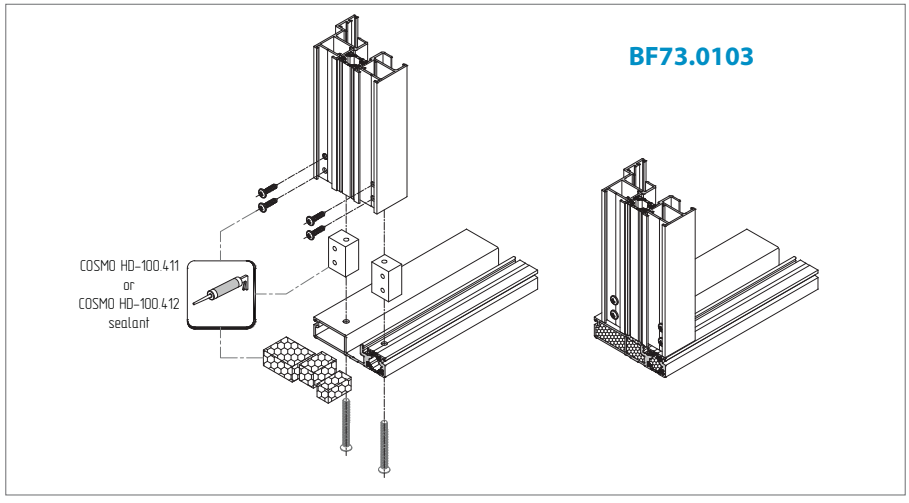
Tool requirement: 4 mm allen key.

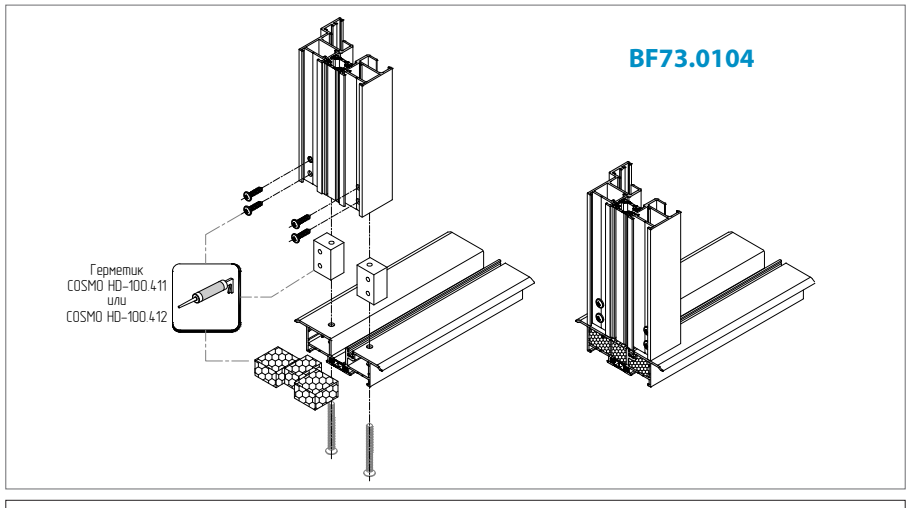
3. Align the frame by adjusting the screws, if necessary.
4. Remove any sealant excess.
5. Repeat all operations for all other outer frame corners.

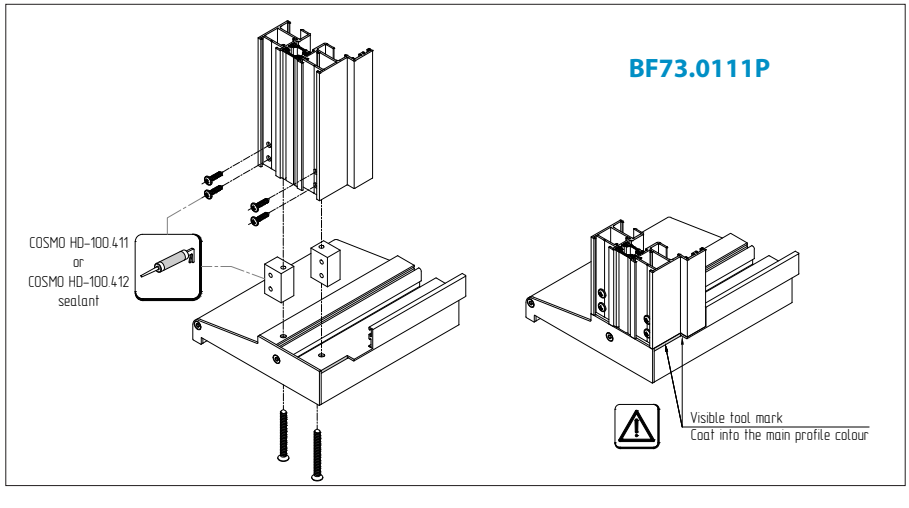
Frame assembly and installation

Assembly of BF73.0103, BF73.0104 thresholds or BF73.0111P frame

1. Apply sealant to frame connection elements and on the edges of the adjoining profiles.
2. Use DBA1-105/KIT low threshold kit to join the corner as shown below.
3. Align the frame by adjusting the screws, if necessary.
4. Remove any sealant excess.
5. Make sure that no water leaks through profile corner connections.





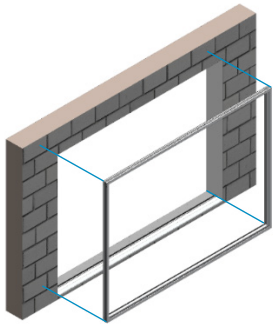


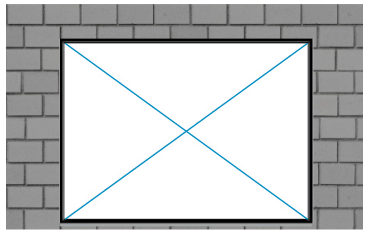
Frame assembly and installation

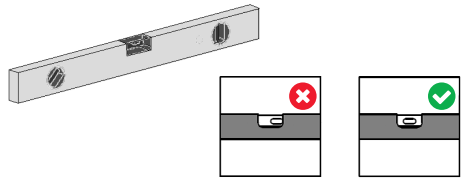
Door frame installation

1. Install the fixed frame into the prepared aperture.

Note: If the sub sill is installed, apply silicone sealant along the junction of the sub sill with the door frame to ensure weather tight joint.

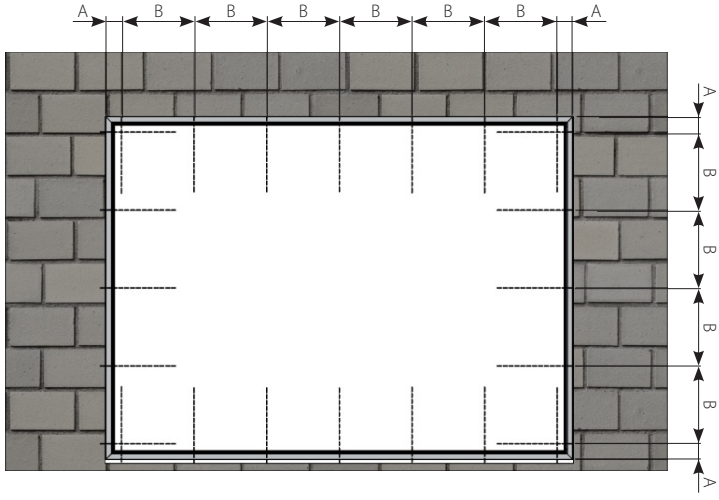






2. Fill all the fixing holes with sealant.

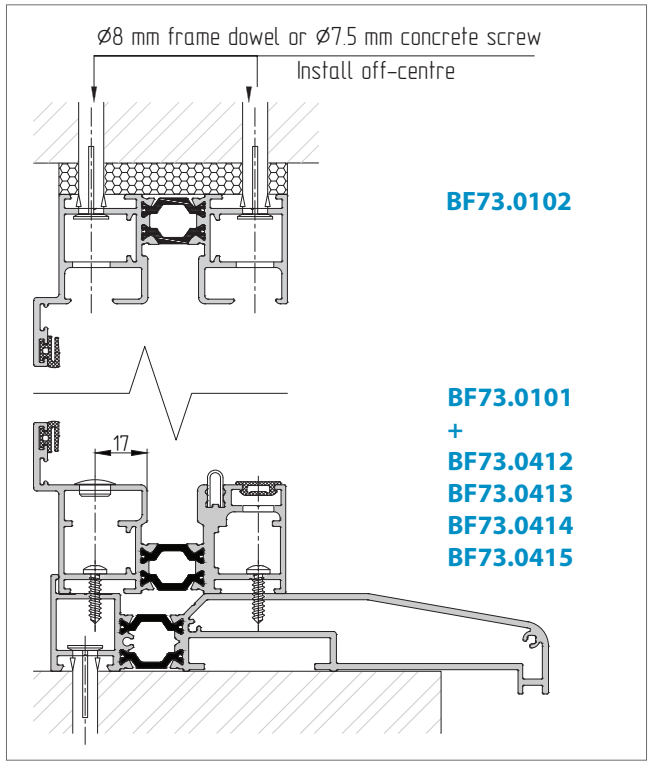
3. Secure the frame with appropriate fasteners and plugs. It is recommended to fix profile chambers in staggered order.

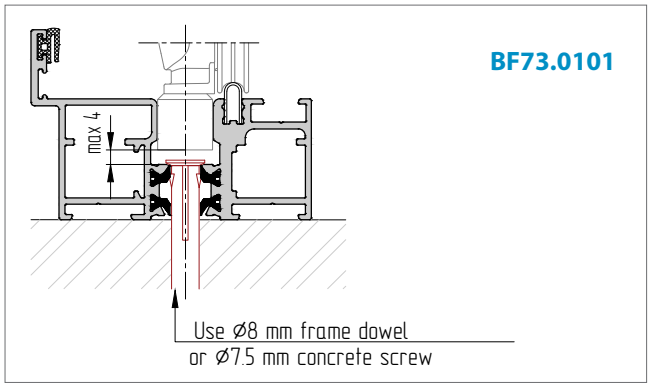


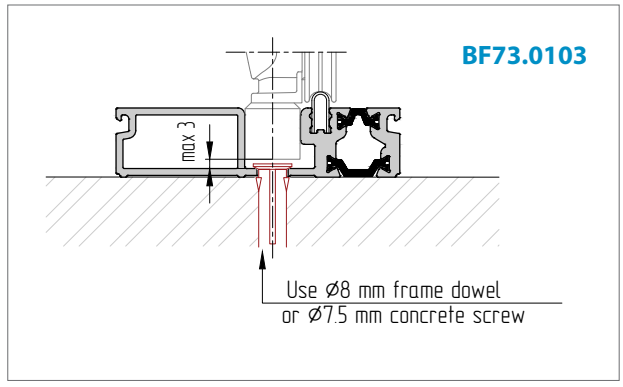
A = distance from the frame corner to the fastener is 150 mm

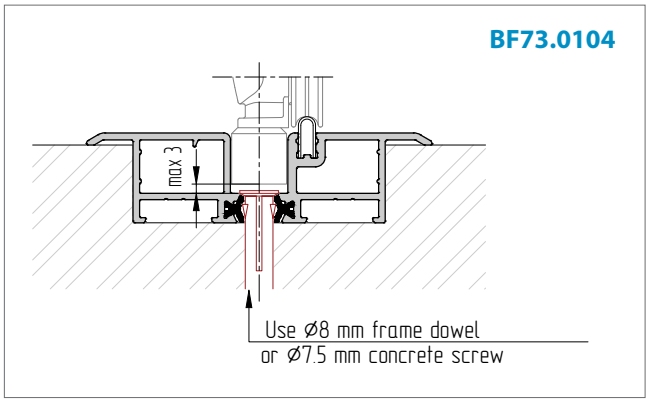
B = fasteners spacing is max 500 mm

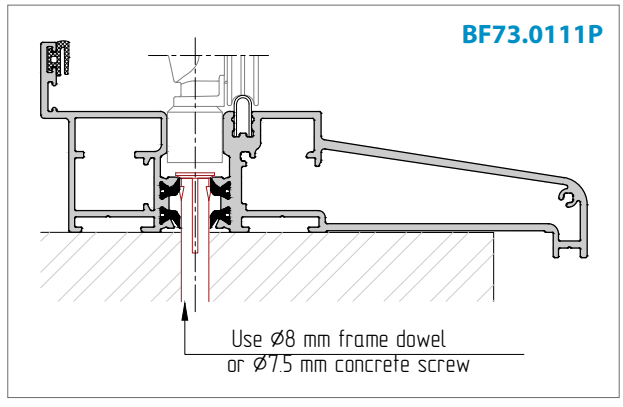
Frame assembly and installation











4. Make sure that the top and bottom frames remain plumb and square along the full length.

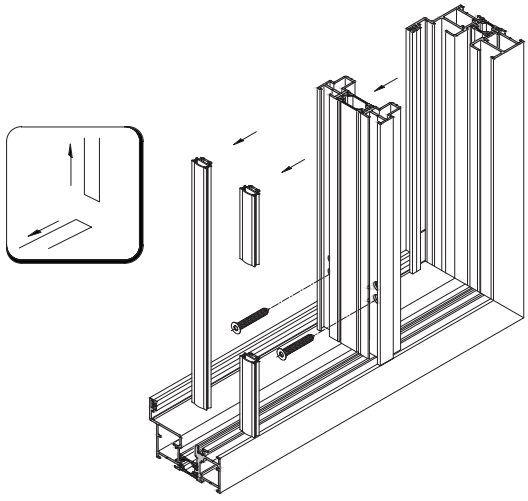
5. Check the vertical frame profiles and make sure they are set plumb and square.

6. Silicone sealant provides insulation along the door perimeter from both inside and outside of the aperture.

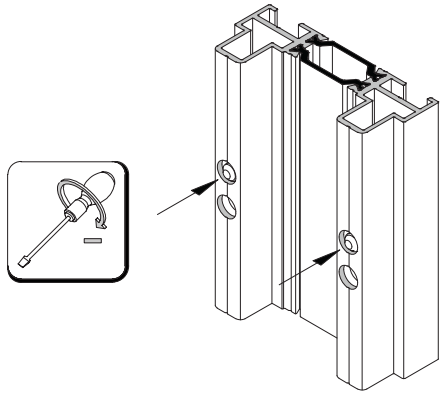
7. Clean away all debris from the bottom rail, especially from guide channel.

ADJUSTABLE JAMB INSTALLATION

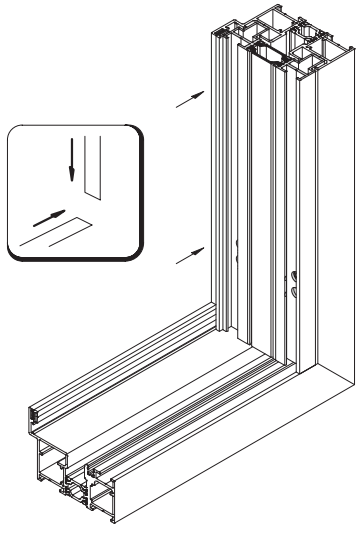
1. Remove all gaskets, weatherpiles and other components installed on adjustable jamb



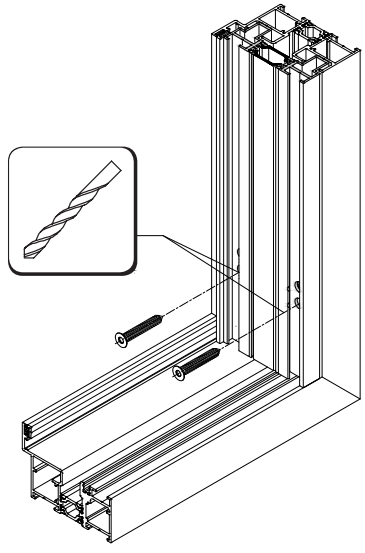
2. Install all fixing screws flush to the back side of the adjustable jamb.



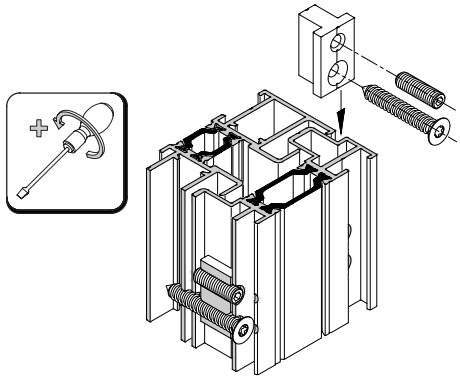
3. Install tightly the adjustable jamb profile into the frame



4. Using predrilled holes in adjustable jamb profile drill ø4.2 mm holes in the outer frame for self-tapping fixing screws installation.



5. Fix the adjustable jamb to the frame using ø4.8×38 mm self-tapping screws.



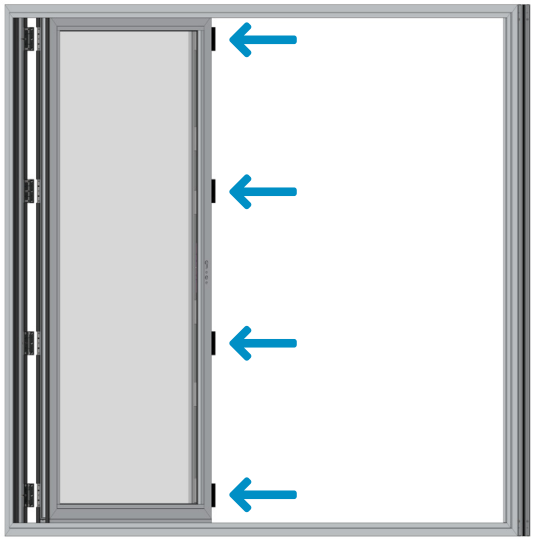
DOOR LEAF INSTALLATION

General installation recommendations

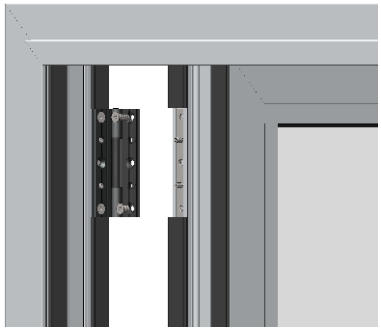
- Before any door sash installation check all the components. Make sure there is no missing components or parts.
- Internal side of the sash is estimated based on the glass bead profile. Glass bead profile is installed from the inside of the premises.
- Drainage holes are placed on the external side of the sash.
- All sashes should be numbered and installed according to the factory installation drawing.

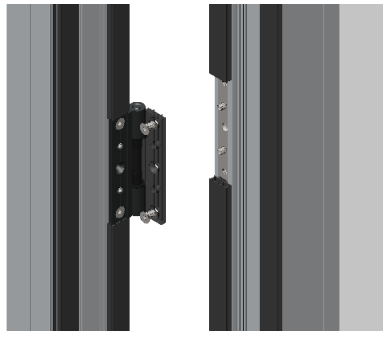
Panel No. 1 Installation

1. Align the side of Panel No. 1 that has clamping plates on it with the frame adjustable jamb with installed hinges.



2. Place the hinge over the clamping plate and secure with M5×10 mm countersunk screws using top and bottom hinge holes.





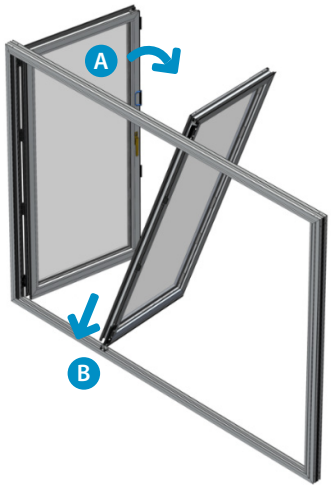
Tool requirement: 3 mm allen key.

Note: Do not use 4.2×25 mm self-tapping screws at this stage.

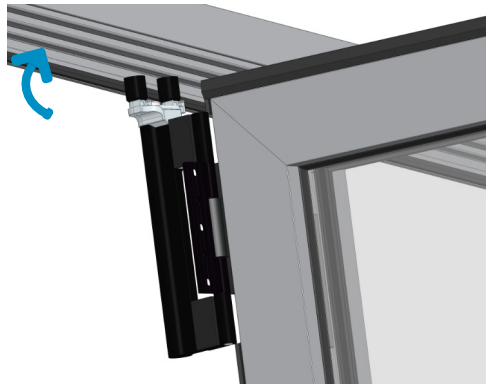
Door leaf installation

Panel No. 2 Installation

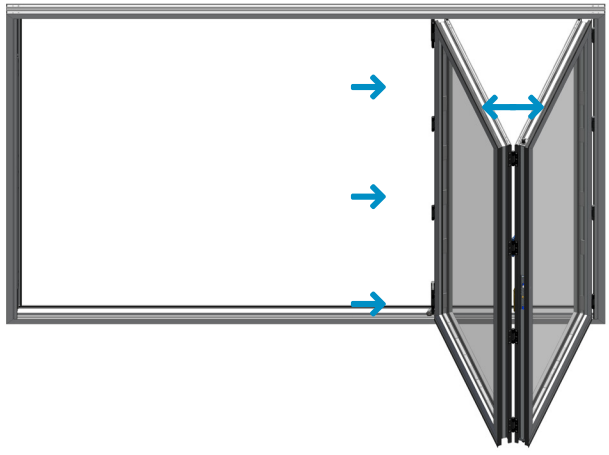
1. Slightly lean Panel No. 2 and fit the bottom hinge rollers into the guide channel of the bottom frame track.



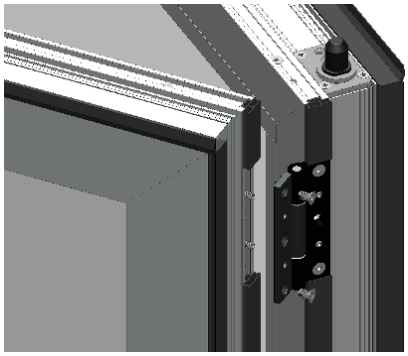
2. Align Panel No. 2 and fit the top hinge rollers into the guide channel of the top frame track.

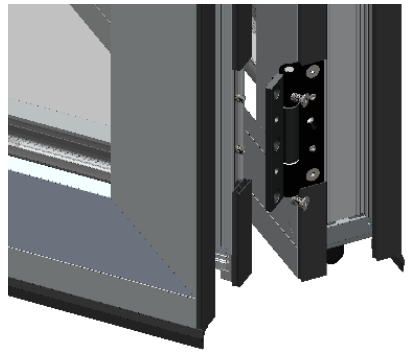


3. Fold Panel No. 2 to align clamping plates with hinges attached to Panel No. 1.



4. Keep both door sashes at a certain angle for better access to hinges.
5. Place the hinge over the clamping plate and secure with M5×10 mm countersunk screws into top and bottom holes.





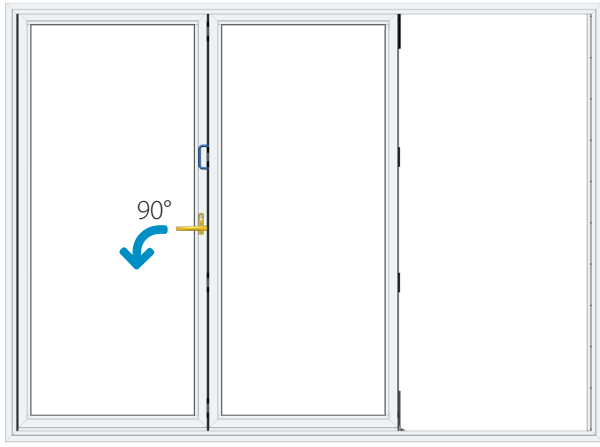
Tool requirement: 3 mm allen key.

Note: Do not use 4.2×25 mm self-tapping screws at this stage.

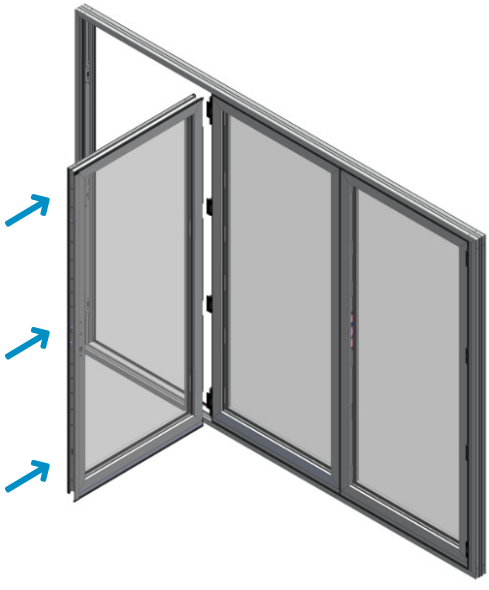
Door leaf installation

Panel No. 3 Installation

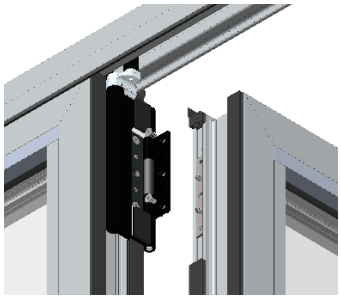
1. Fix previously installed sashes before the installation of Panel No.3.

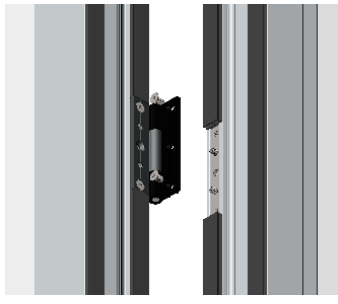


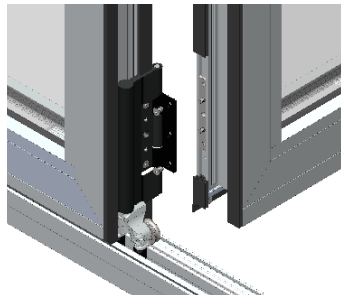
2. Align Panel No. 3 clamping plates with hinges attached to Panel No. 2.



3. Place the hinge over the clamping plate and secure with M5×10 mm countersunk screws into top and bottom holes.







Tool requirement: 3 mm allen key.

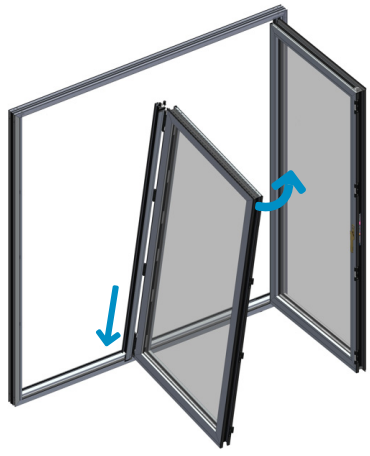
Note: Do not use 4.2×25 mm self-tapping screws at this stage.

Door leaf installation

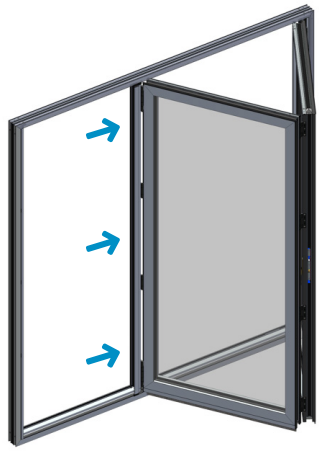
Sliding post installation

1. Open the sliding post attached to the door panel as shown below.

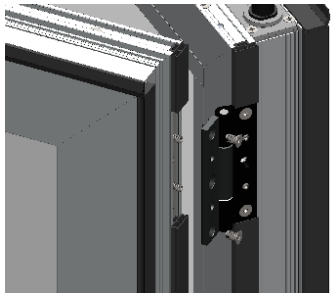
2. Slightly lean the door panel with sliding post and fit the bottom hinge rollers into the guide channel of the bottom frame track.

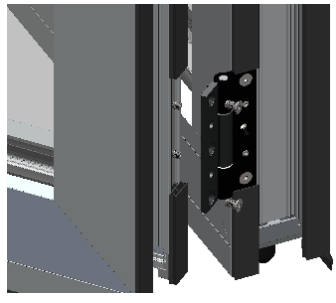


3. Align the panel and fit the top hinge rollers into the guide channel of the top frame track.
4. Fold the panel to align clamping plates with hinges attached to the adjoining door panel.
5. Keep both door sashes at a certain angle for better access to hinges.
6. Place the hinge over the clamping plate and secure with M5×10 mm countersunk screws into top and bottom holes.



Tool requirement: 3 mm allen key.



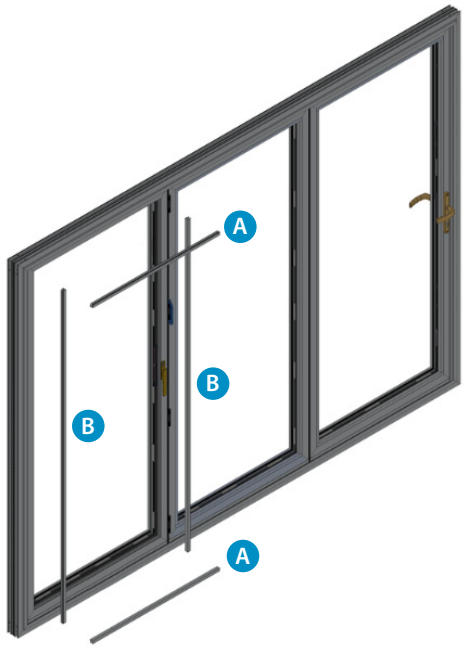


Note: Do not use 4.2×25 mm self-tapping screws at this stage.

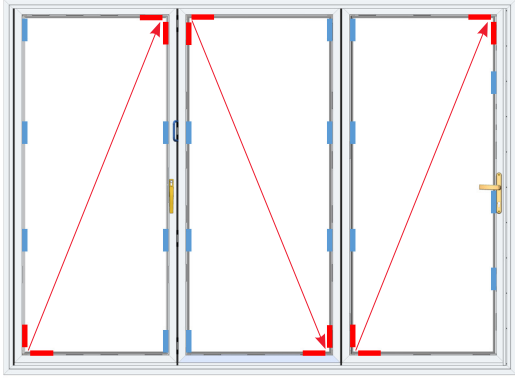
GLAZING

Note: All glazing units should comply with the requirements of current standard. Moreover, any instructions given by glass manufacturers should be followed.

1. Before glazing, lock all door sashes and fully block the locks.
2. Mark all glass beads and then remove them.



3. Install the glass unit into the frame using bearing supports. Make sure that the glass unit fully lean on the supports.
4. 'Toe and heel' the panel maintaining equal horizontal gaps between outer frame and door panel and equal vertical gaps between the adjoining door panels.
5. Add silicone sealant between each vertical set of packers to keep them in place. Make sure that all packers do not obstruct any of the drainage or vent holes.
6. Install the glass beads, starting with the shortest pieces first and tapping them into place with a plastic or rubber mallet.



Glazing packers used for diagonal 'toe and heeling'.

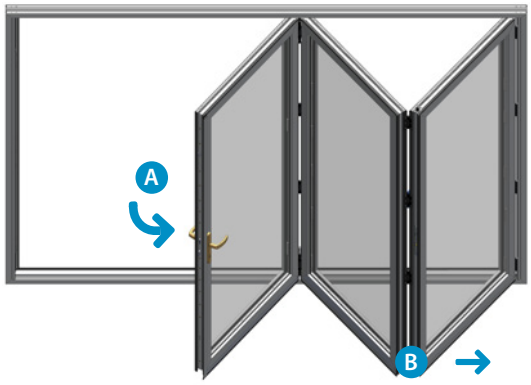
Glazing packers used to prevent movement of the glass unit and provide rigidity to the door sash.

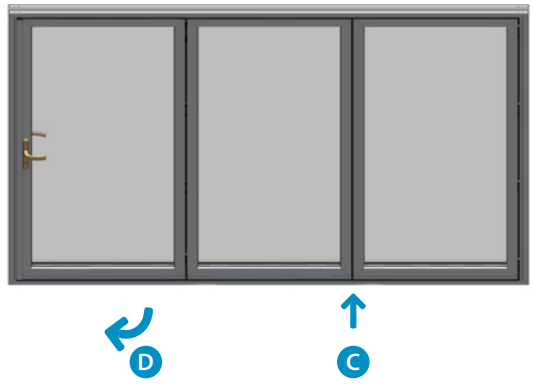
7. Fit the wedge gaskets under the glass beads.
8. 'Toe and heel' other door panels maintaining equal horizontal gaps between outer frame and door panel and equal vertical gaps between the adjoining door panels.
9. Check all sashes operation and adjust if necessary.

OPERATION CHECK AND ADJUSTMENT

Door leaves operation inspection

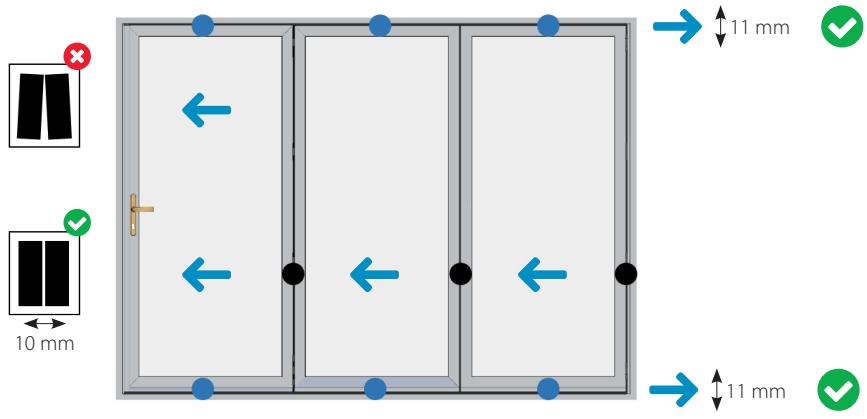
Check the door movement: open the door leaves one by one and then close them to make sure the mechanisms are working properly.





Overall gap size inspection

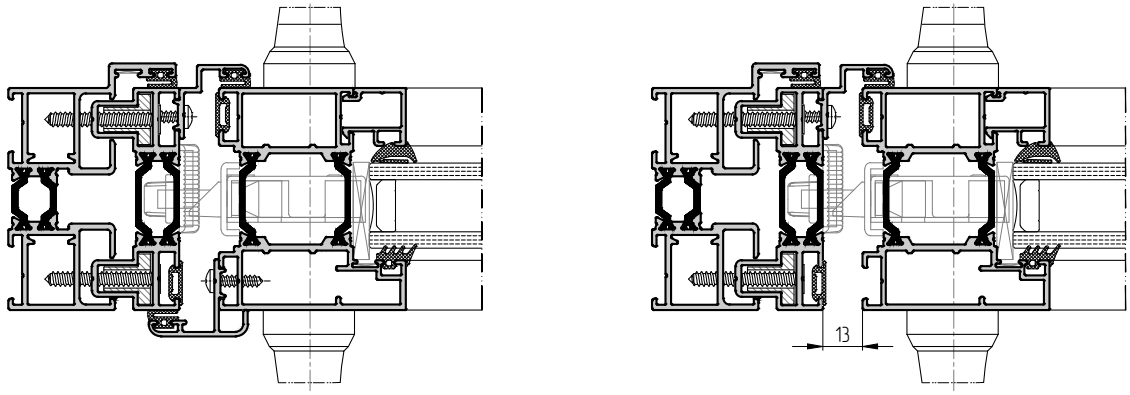
1. Assess the horizontal gaps between the outer frame and door panels on top and bottom to ensure they are even and equal to 11 mm.
2. Assess the vertical gaps between the sashes to ensure they are even and equal to 10 mm.



Operation check and adjustment

Active (swing) door leaf adjustment

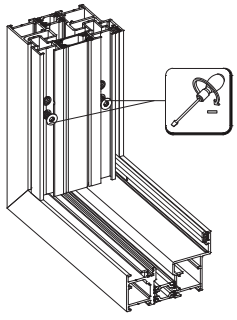
1. Remove the rebate profile attached to the active door sash to measure the gap between the sash and adjustable jamb to ensure correct operation of the multipoint lock.
2. Measure the gap; it should be 13 mm.

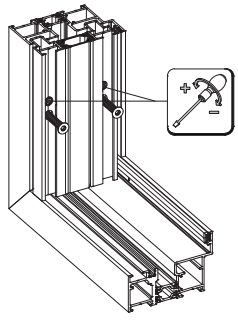


3. If the locking shootbolt and strike plate are not engaged, adjust the gap by moving the adjustable jamb as shown below.
4. Once the correct gap is achieved and the lock is fixed perfectly, install and fix the rebate profile back to the active sash.
5. Double check if the lock is fixed properly.

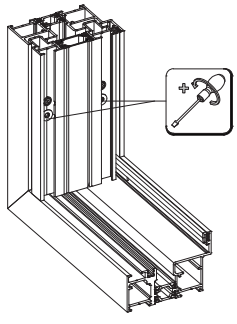
Gap adjustment using adjustable jamb

1. To adjust the gaps along the width release all bottom self-tapping screws that fix the adjustable jamb.
2. Use grub screws to change the position of the adjustable jamb.



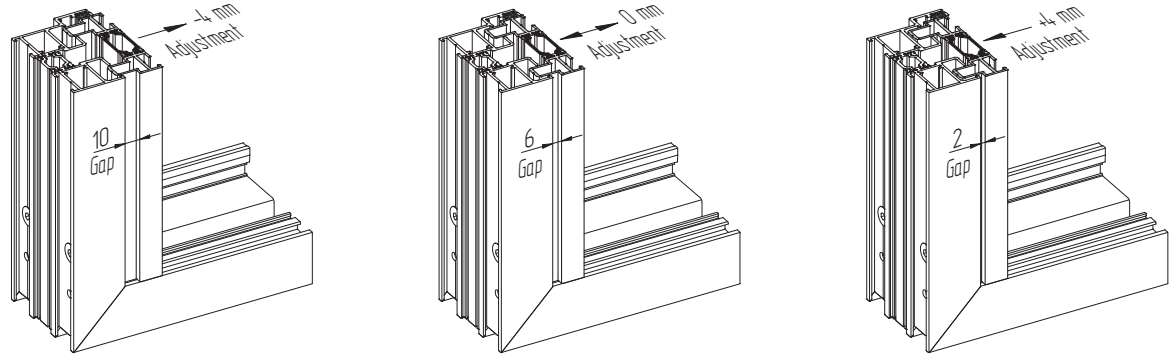


3. Check the gaps between the frame and adjustable jamb. It should be equal along the full length.
4. Fix the adjustable jamb in the required position with self-tapping screws.



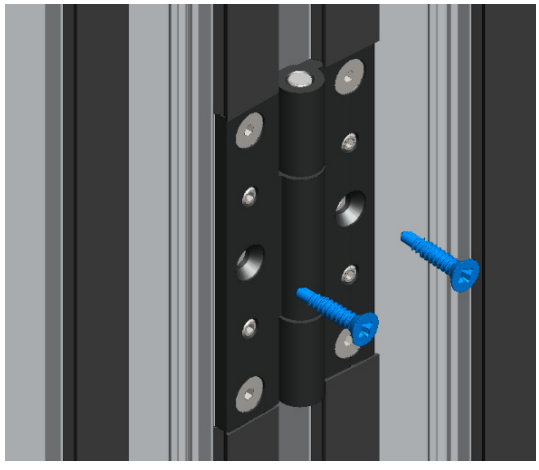
Operation check and adjustment

5. Adjustable jamb is designed to have both positive and negative adjustment as shown below.



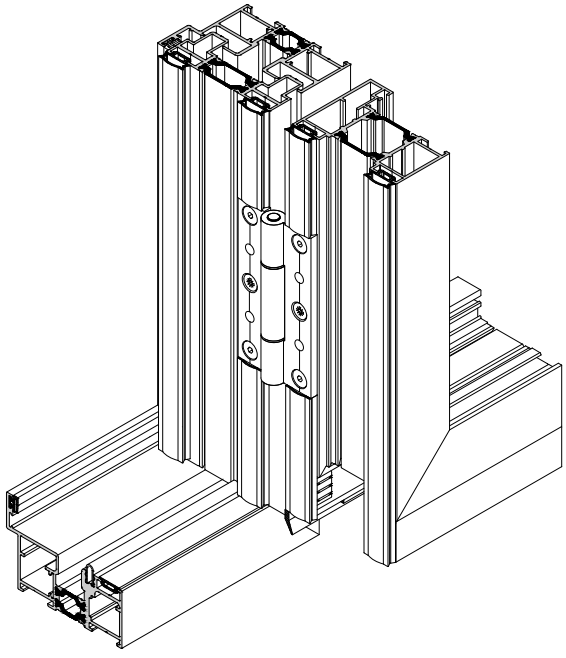
Hinge fixation

After all the installation and adjustment operations when the door is glazed and operates properly, secure all hinges in final positions with fixing screws as shown below.



Gasket installation

Install all missing or removed rubber gaskets in required places.

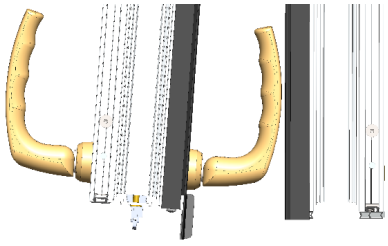


OTHER OPERATIONS

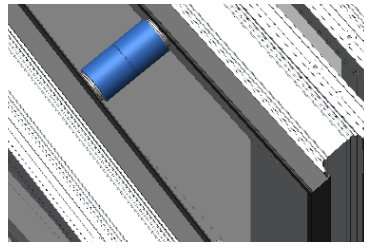
Magnetic panel catch installation

1. Open the swing door sash.

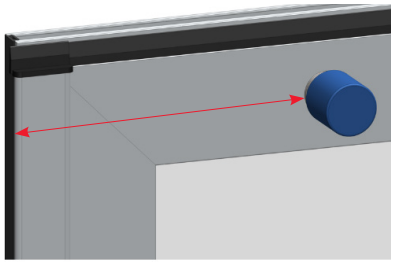
2. Ensure some clearance between the lever handle on the swing sash and nearby door panel.



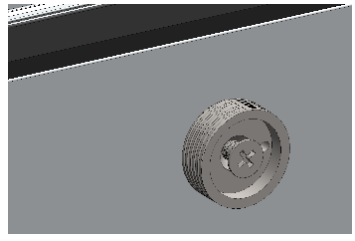
3. Use the assembled panel catch pair to find the position for fixator installation between the two door sashes.



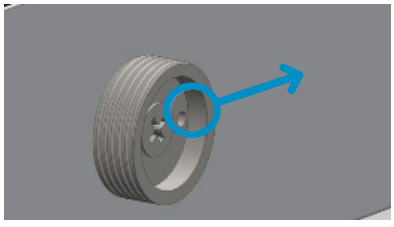
4. First of all, mark with pencil the position for panel catch on swing door.



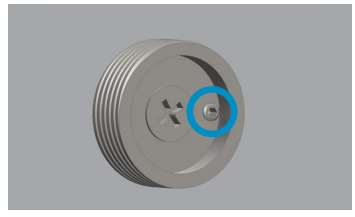
5. Remove magnetic insert from the catch, then fix the catch back plate with the fasteners from the delivery kit.



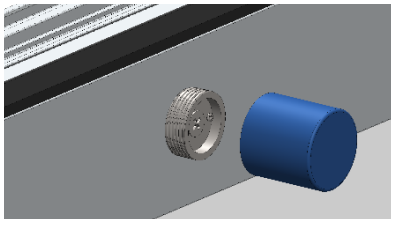
6. Make sure that the hole for anti-rotation screw is pointed towards the hinge side.



7. Install the anti-rotation screw.



8. Screw the magnetic part.



9. Mark the required position for panel catch on the nearby panel.

10. Make sure that the hole for anti-rotation screw is pointed towards the hinge side of the swing door sash.

11. Fix the second part of the panel catch, repeating steps 4-7.

FINAL INSPECTION

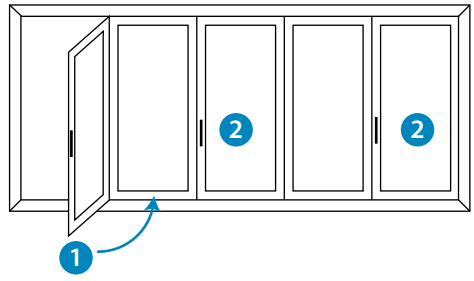
1. Check that the handles and locking mechanisms operate smoothly on each door sash.
2. Check that the sashes fold and slide smoothly without jamming.
3. Check that the locking mechanisms fully lock the door sashes.
4. Check that the panel magnetic catches securely hold the door sashes in the open position.
5. Check that there are no missing screws in the hinges.
6. Check that the gaskets seal the door sashes properly.
7. Check that the gaskets ensure proper sealing along the door perimeter.
8. Check that the bottom track is free of any debris.
9. Make sure that the customer knows exactly how to use and look after the bi-folding doors.

OPERATION AND MAINTENANCE

Opening and closing of bi-folding doors with swing door

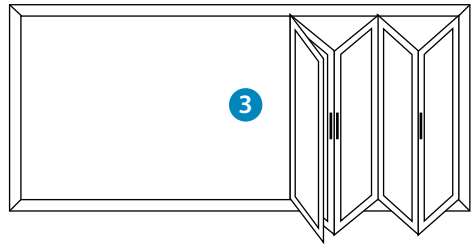
DOOR OPENING

- Open the swing door and join it with the magnet panel catch located on the nearby door panel.
- Release the shoot bolt cylinder using the key (if applicable).
- Turn the shoot bolt handle at 90° to disconnect shoot bolt and frame profile. Repeat for all door sashes.
- Fold the door panels starting from the pair nearest to the swing door.



DOOR CLOSING

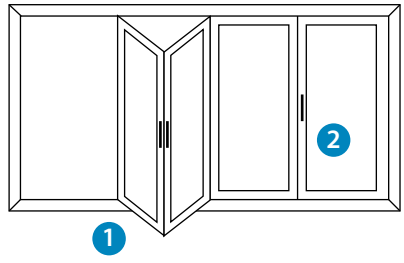
- Disengage the swing door from magnetic panel catch located on the adjoining door panel.
- Release the shoot bolt cylinder using the key (if applicable).
- Turn the shoot bolt handle at 90° to disconnect shoot bolt and frame profile. Repeat for all door leaves.
- Fold the door panels starting from the pair nearest to the swing door.



Opening and closing of bi-folding doors without swing door

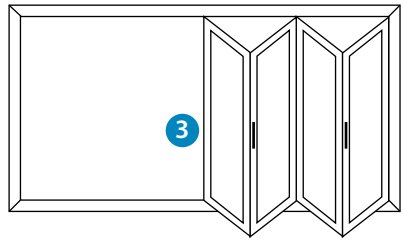
DOOR OPENING

- Release the shoot bolt cylinder using the key (if applicable).
- Turn the shoot bolt handle at 90° to disconnect shoot bolt and frame profile. Repeat for all door sashes.
- Fold each pair of door panels to one side.



DOOR CLOSING

- Slide each pair of door panels back to align with the frame.
- Lock the folding door panels by shoot bolt lock.
- Lock the shoot bolt cylinder using the key (if applicable).



NOTE: Use the D-handle located above the intermediate shoot bolt handle to assist pulling doors tight when operating shoot bolt lock. Do not leave the key in the lock cylinder on intermediate door sashes during door opening/closing, this can cause key breakage or damage to the sash profiles.

MAINTENANCE

- Keep top and bottom guide rails clean and free of any debris or other waste that can hamper operation of the bi-folding door system.
- Keep all door locking mechanisms clean and any moving parts regularly lubricated with machine oil at least once a year.

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ALUMINIUM PROFILE SYSTEMS

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06.2024