

Installation- **user** **instructions and Warranty**

Windows and Doors of
Timber and Timber/Alu



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You have chosen a quality product, that with normal maintenance will last for many years to come.

This manual shows how a unit is handled and installed correctly. It also provides information on correct use, adjustment and maintenance. We hope you continue to be satisfied with your windows and doors!

Handling and storage

Check on delivery that the units are as specified in the delivery contract. Contact the supplier immediately if there are any faults, missing parts or transport damage such as scratches, cracks, chips or broken glass.

If you do not contact the supplier within 5 days concerning any damage etc. as above, you will lose your right to claim. The same applies if the units are installed.

Handling and unloading must be done carefully, and the units must be stored on a flat surface, properly covered and protected against moisture, dirt and weather.

Note: Check that all doors are delivered with transport securing blocks, to ensure that the door does not open during transport. **These must be removed prior to installation!**

Delivery

Before handing over to the building owner, the person responsible for installation must ensure that:

- Sealing strips, fittings and rebates have been cleaned of mortar etc.
- Opening sashes have been adjusted to the correct setting.
- Hinges and strike plates are adjusted to the correct tension or ease of movement.
- All parts – apart from friction parts – are oiled with a suitable lubricant.
- Any damage to surface treatment has been repaired.
- Users must be instructed in the correct use of the units and/or given this product documentation.

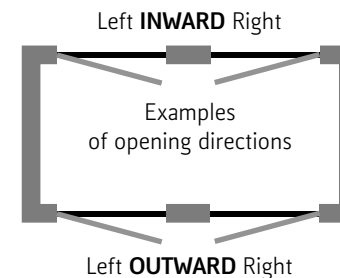
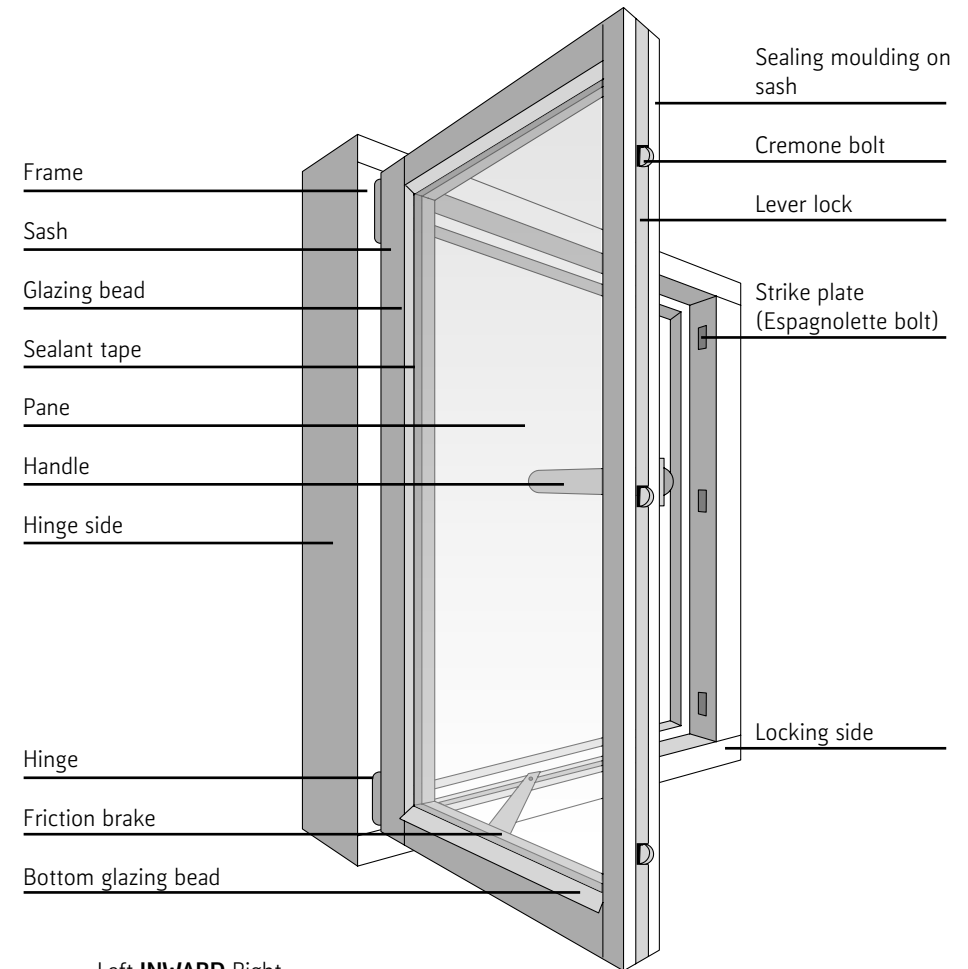
The industry's standard sales and delivery terms and conditions are available at:
www.vinduesindustrien.dk

When we prepare your delivery, we must register some personal information, including your address and name, telephone number and e-mail, if you passed on such information.

We have to register the information for correct delivery and for our statistics. We will keep the information for 10 years according to our warranty commitment, after which the information will be deleted. Your information will be treated confidentially and only employees in Outlines customer centre will have access to it.

You can always ask to have your information deleted or corrected by contacting our customer centre.

The different components of a window



Installation and attachment

Windows and doors

Correct installation is required for problem-free use. Therefore installation should only be carried out by professional tradesmen.

Note that the units are not load-bearing.

Frames and sashes can be separated during installation. The distance between the frame and wall cut-out should be uniform to Jambs and Head.

The frame should be placed in the wall to the DPC line, and be held in position with wedges, if required, and inserted from the inside. **IMPORTANT:** Ensure that all the frame sides are plumb and level and that the diagonal measurements are identical.

There must be a solid surface at all fixing points.

Frames must be secured to structure using Galvanized Straps, a minimum of 25 mm x 1.5 mm.

For Timber Framed Constructions, frames may be fitted using Fire stop battens on straps as above.

Alternatively direct fixing to structure must be by screws, the type will depend on the nature of the wall.

If securing a top-hinged Daylight window with screws, we recommend that the screw is located on the outside of the frame, as illustrated in the figure.

Firstly, attach the frame on the hinge side. It is important that the frame is vertical on both sides. Thereafter, insert the sash and adjust so that the sash closes precisely to the frame and that the clearance – the gap between the frame and sash – is the same at the top and side frame. As doors, during use, will hang a little, it is important that the door plate is adjusted on the closing side. Thereafter the frame is attached on the closing side; check that the window sash is located properly at the frame and that it can be opened and closed without problems. There must be no curvature in any part of the frame.

Any strike plates for cremone bolts and flush bolts must be checked and adjusted for correct tension.

Surfaces are extremely resistant to wind and weather; however, during installation care must be taken to avoid scratches and impact. Protection must be provided against mortar and cement, also against direct contact with glues, tape, aggressive cleaning agents, acids etc.

Please note for windows and doors

The distance between two attachment points must be a maximum of 900 mm. Double or multi-pane windows must have permanent supports under mullions. For unit heights of less than 1188 mm, the central attachment in the side frame can be omitted and for unit widths of less than 1000 mm, attachment on the top and bottom frame sill can be omitted. At the outer ends of the bottom frame sill, there must be a permanent support.

Please note for doors

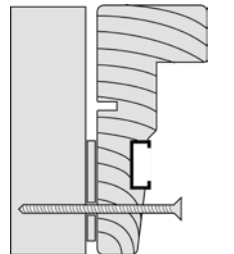
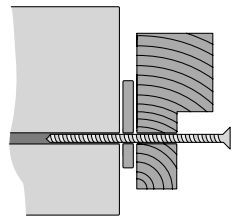
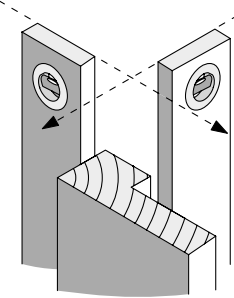
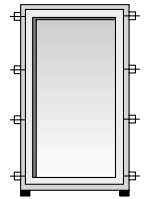
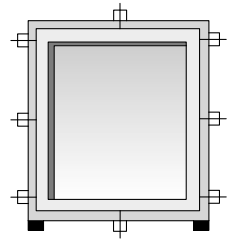
Attachment at the top and bottom of the side frame must be as close to the hinges as possible.

Double-winged doors – in addition to the attachments shown – must be attached at least one point in the top frame. At the outer ends of the bottom frame sill, there must be a permanent support.

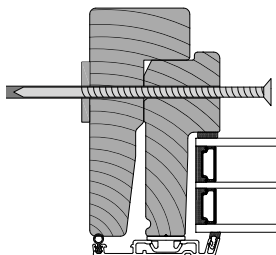
Support bottom frame/threshold

Use supporting blocks at 300 mm centres or a continuous packer under the bottom frame and under Alu and Fibreglass thresholds.

Hardwood threshold centres at 500 mm.



Mounting a top-hinged Daylight Window



Mounting a fixed sash Daylight window.

Sliding doors

Bi-parting double sliding doors: Bi-parting double sliding doors are always delivered in two parts over 2500 mm in height, the door is delivered partially assembled. Start at section A: partially assembled

Regular sliding door: When over 2500 mm in height, the door is partially assembled. Start at section A, but skip section B.

A: Partially assembled.

- Assemble the fixed sashes with the frame sides. Use the supplied sealant at the edge of the fals on the top frame.
- Next the side frame is mounted with the supplied screws, in the pre-drilled holes at on the back side of the Frame.

Attention!: Make sure that the side frame is levelled with the sash and that the seal is tight.

- Mount the sill on the frame. First, sealant must be applied at the egde of the frame as well as on the end of the upper part of the sill.

Use sealant at the holes for the dowels and make sure to use enough sealant for the joint to be tight.

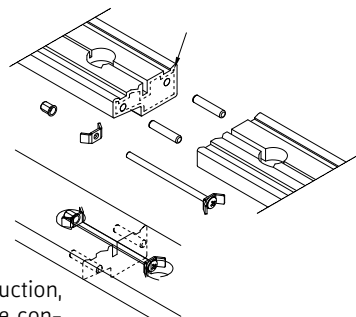
- Assemble the top frame with the sash, by using the supplied screws.
- Now it is time to add the door step. This is done in the same way as the top frame. Make sure to use enough glue in and around the dowel holes and on the end surfaces.

Remove excess glue.

Make sure that the frame and the sash are assembled so everything is levelled.

B: Assembly of the frame

- Start with supplying sealant in the dowel holes.
- Next sealant is added on the end profile.
- Put in the dowels and fit the frame together tightly.
- Mount the jointing fittings and the locking washer
- Make sure that the fixing is completely tight.
- The excess sealant is removed with a moist cold cloth.
- Some mismatch in the color of the door step may occur as it is produced from two pieces of wood.



Notice: When installing the top frame in the supporting construction, it is recommended that a jamb screw is used on each side of the connected frames.

C: Mounting the sliding door

Notice: Sliding doors are not constructed as self-bearing doors. So check that there is a load bearing beam above the wall cut-out.

It is important that the door step is level, for the door to function properly.

The frame is wedged (in the horizontal and level position - remember to take diagonal measures).

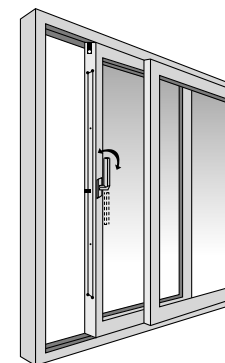
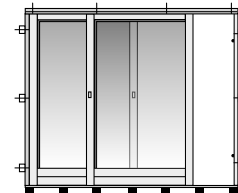
- Ensure that there is a minimum 10 mm width of sealant around the frame in the wall cut-out, for wedging, levelling and jointing. If the wall cut-out is very uneven, 10 mm may not be sufficient for levelling. No fixed surface must be used for attachment points in the top frame, nor must these be jointed with mortar. Correctly located, the frame must be attached in the rebate with jamb screws.
- Side, top, bottom and top rails are fastened each 900 mm.
- Side and bottom sills are wedged up behind the attachment points.
- In addition, in the bottom frame sill, a support must be fitted outermost (under each side frame) and under the running rail attachment points, such that the bottom frame sill is levelled horizontal and straight.
- The side sill is wedged up behind e.g. face plate as safety against breaking and entering.

Expanding foam must not be used when installing main sliding doors!

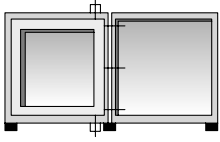
For main sliding doors of wood/aluminium, an R 20 drill bit is used for drilling through aluminium, which must be covered by the included plastic plugs afterwards. 6 pcs. are included.

Dismantling of door frame: The frame is lifted and tilted out at the bottom.

Removing the sliding door leaf: Lift the door leaf up and tilt out at the bottom. If you need to remove the door leaf, you need to loosen the locking ring at the cover plate with a straight-edged screwdriver. Do this in both front and back edge. See page 27.



Assembly of units



Timber: Units can be assembled side by side and attached with screws. Upper and lower edges must be supported during connection and be attached at the top and bottom. To equalise wind pressure and prevent leakage in the assembly, before attachment this should be sealed with, e.g. a glass seal/silicone.

We recommend to mount a drip sill between the units that are assembled on top of each other, to prevent intrusion of water in faulty joints.

(Danish Market Option)

Wood: There must be a minimum of 10 mm air between elements mounted next to each other, as supporting blocks e.g. behind hinges are required. This applies to all sides.

Wood / Alu: There must be a minimum of 10 mm air between elements mounted next to each other, as supporting blocks e.g. behind hinges are required. This applies to all sides.

There must be a minimum of 10 mm air between elements, mounted on top of each other. Items are not load-bearing. Remember to take drainage holes into account when assembling elements on top of each other.

We recommend drip cill between elements that are mounted on top of each other, to avoid the ingress of water or leaking at joints.

Separately supplied folding sections

On **wood elements**, the glazing beads are attached in the middle with a nail. The glazing beads can be carefully pulled off as follows:

- First remove the glazing beads on the sides.
- Then remove the top and bottom glazing beads.
- The bottom glazing beads are attached on the middle clip.
- Grab the glazing beads at one end and gently pull it out by moving down until the glazing bead comes out of the clip.
- The panel can now be removed.

On **wood/alu elements**, the glazing beads are attached on the middle clip.

- First remove the glazing beads on the sides.
- Then grab the glazing bead at one end and gently pull it out by moving down until the glazing bead comes out of the clip.
- The same procedure applies to the top and bottom glazing beads.
- When clips are unscrewed the panel can now be removed.

General for timber and aluminium:

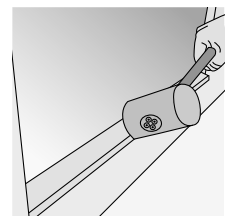
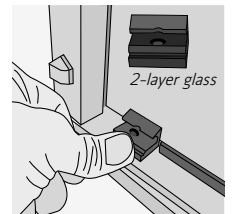
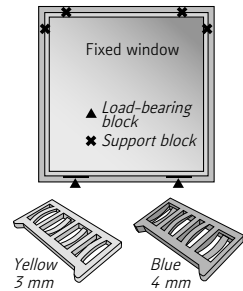
- The exterior folding section is loosely installed.
- Disassemble glass blocks and remove the section before installing the frame to the wall in the bracket groove.
- Reinsert the section again. Press in towards the sealing strip. Chock the section as shown (angled support blocks are installed from the factory).

Applies to timber units:

- Firstly, attach the bottom glazing bead with plastic blocks. The block must be fitted max. 50 mm from the corner with max. 300 mm between each block. Attached using 2.0 x 25 mm pins. Remember compression.
- Thereafter, attach side and top glazing beads. To be pinned with same distance as location of bottom blocks.

Applies to timber/alu:

- Loosely attached aluminum is delivered mounted on a raised plastic block. Unscrew the clips and the plastic block before mounting the aluminum back on.
- Attach bottom/side/top blocks max. 50 mm from the corner with max. 300 mm between each block. Attached using 2.0 x 25 mm pins. Remember compression.
- Attach the bottom and top glazing beads and then side glazing beads.
- The glazing beads can be tapped into place using a rubber hammer.



It is important to place the correct glass blocks on the top, bottom and side.

NOTICE!: With combo modules with sill-field below a framefield, aluminium glazing bead with drain holes must be mounted in the top of the framefield.

Assembly instructions for folding doors

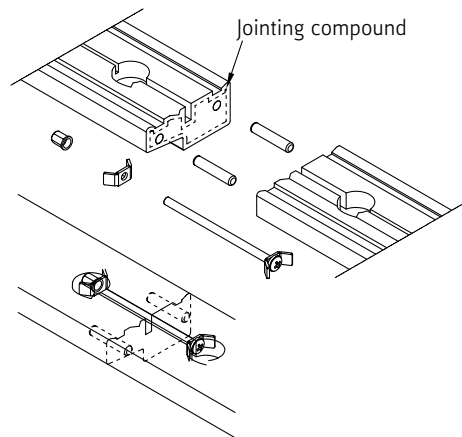
Folding doors up to 4200 mm frame width: Frame and tracks are supplied together. Sections A and B can be ignored. Go directly to Section C: Installation of folding doors. Gå direkte til afsnit C: Montering af foldedør.

Folding doors over 4200 mm frame width: Frame and tracks are supplied partially together. Begin with Section A: Assembling frame.

A: Assembling frame

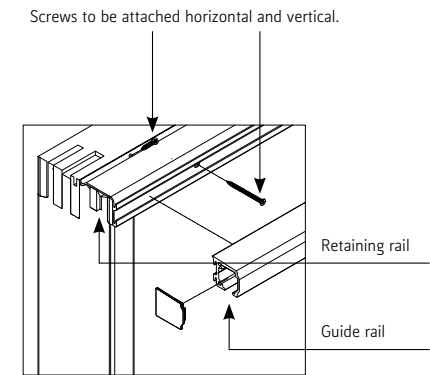
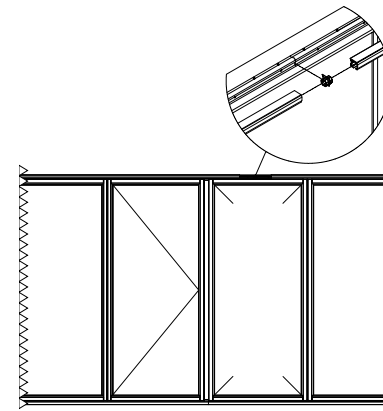
- Begin by adding jointing compound in the peg holes.
- Thereafter add jointing compound as a bead along the entire end profile.
- Assemble the pegs in the holes and press the frame firmly together.
- Install the fittings and tension nuts.
- Ensure that the assembled frame is fully joined. Add jointing compound if required.
- The excess jointing compound can be removed with a damp cloth.
- Color/structural difference can occur on the bottom frame, as this may be composed of two different pieces of hardwood.

Please note: When installing the top frame in a loadbearing construction, it is recommended that a jamb screw is used on each side of the connected frames.



B: Assembly of retaining and guide tracks

- It is important that the assembly of the rails is over the standing door casement.
- Begin by installing the retaining rail. The retaining rail is installed using 4 x 25 mm screws in all holes.
- After installing the retaining rail, the guide rail is installed.
- Then put the wheels in the guide track – and finally fit the end plug, which locks the carrier and guide track together.

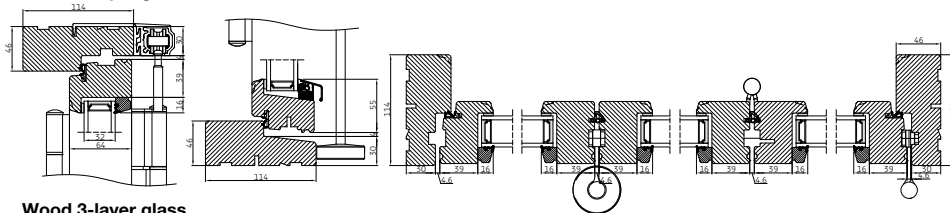


C: Installation of folding doors

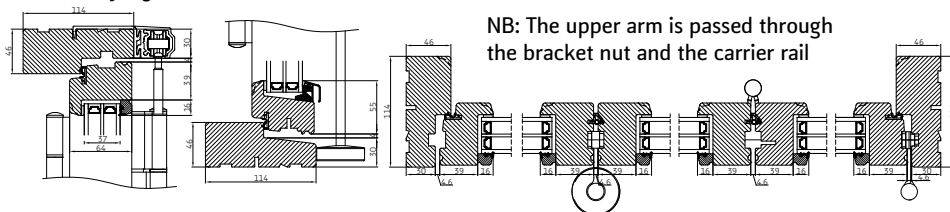
Please note: Folding doors are not constructed as self-bearing doors. Check therefore that there is a load bearing beam above the wall cut-out. It is extremely important that the top frame (and thereby the guide track) is installed 100% level – otherwise the wheels on the door will not function optimally. Wear rings are delivered in boxes with various screws, studs and wheels. To be mounted on outside wheels.

- The enclosed dabs are to prevent pinching of grips between frames and to prevent frames from scratching each other when fully opened.
- The frame is wedged (in the horizontal and level position – remember to take diagonal measures).
- Make sure there is a min. of 12 mm joint around the frame in the wall cut-out for wedging, levelling and jointing. If the wall cut-out is very uneven, 12 mm may not be sufficient for levelling. Correctly located, the frame must be attached in the rebate with jamb screws. The top frame sill must be supported every 500 mm.
- The bottom frame sill must be supported every 500 cm.
- Side frames are attached in the same way as doors.
- Remember to brace at attachment points.

Wood 2-layer glass

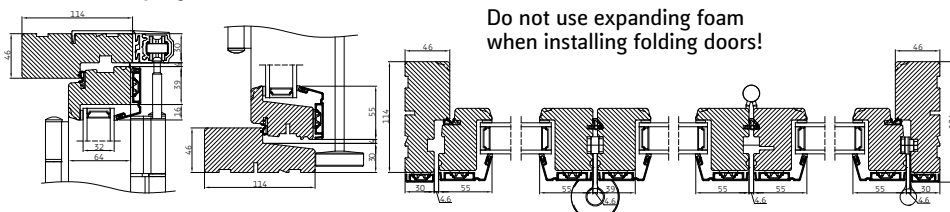


Wood 3-layer glass



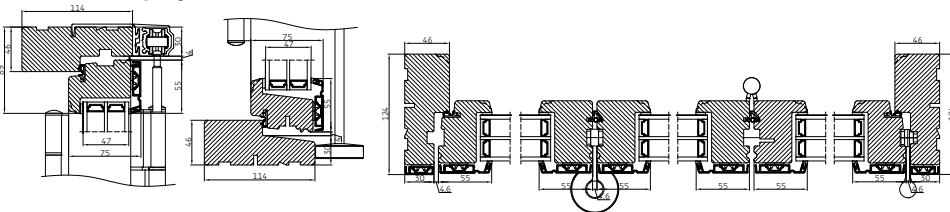
NB: The upper arm is passed through the bracket nut and the carrier rail

Wood/Alu 2-layer glass



Do not use expanding foam when installing folding doors!

Wood/Alu 3-layer glass



- When the frame has been correctly installed, begin installing the sashes. The casements are marked with a number in the bracket groove. Frames hinged from the left start with 1, where frames hinged from the right start with the highest number, corresponding to the total number of frames in the door.
- When installing the first frame, remove the top two hinges in the frame and reinstall the hinges when installing the frame.
- When fitting the next frame, remove the next top hinges before fitting the next frame.
- The next casement is hung and the stay is pushed upwards, so that it fits into the hole in the guide track. They are screwed together at the bottom of the hinge with an Allen key 4 mm. On the lower part of the hinge there is a screw which is screwed on so that the rod cannot come loose during use. A 3 mm Allen key is used here. If the door requires subsequent adjustment in height – remember to loosen the screw.
- Depending on the door model, the process is repeated either from the current frame or from the opposite frame.

Joints

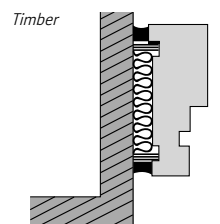
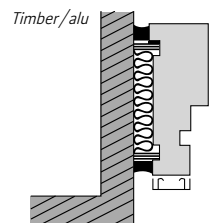
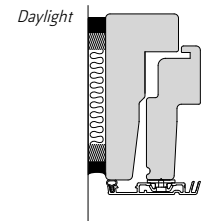
Joints must be done in accordance with the instructions drawn up by FSO (Joining Industry Cooperation and Information Board). More information is available at: www.fugebranchen.dk.

During works involving installation of insulating material (casting), care must be taken to ensure that the insulating material does not push the frame out of position. Always check any drain holes in the frame sill; these must always be open.

Timber: It is only apply joining compound to the edge of the timber.

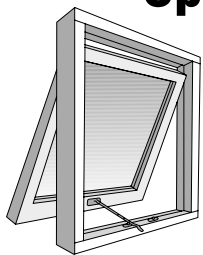
Timber/alu: It is allowed to use joining compound up until the front edge of the aluminium at the top and sides. At the bottom the compound, have to be applied to the edge of the timber, for ventilation.

Daylight: On daylight products, it is only allowed to apply joining compound to the edge of the timber, since the aluminum is a part of the opening frame.



Operations and functions – Windows

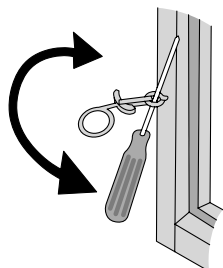
Top hinged windows



Operation: The window is hinged at the top front and has sash stays and opening stays that are used to open and close the window, or a handle and lever (see top guided window).

Separation of frame and sash: The sash must be turned to the horizontal position and can then be lifted free of the hinges. Smaller sashes can be lifted by 1 person.

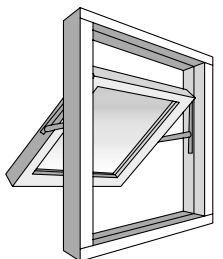
Adjustment: Sash stays can be tightened or slackened by turning the ring bolt.



Top guided windows

Operation: The window is opened and closed using the handle in the middle of the lower sash. On the underside of this there is a lever lock that holds the sash in the strike plate on the frame. If the strike plate has two grooves, the inner groove is to close the window and the outer one is to allow ventilation. When the window is in the ventilation position, the handle is at 60°. It is not advisable to leave your home with the windows in the ventilation position.

When the window is opened and pushed outwards, the window sash will slide out and forwards at the same time. This allows for good and effective ventilation.



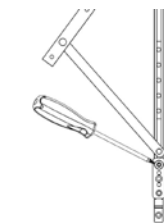
However, the window will not be retained in position if left in the variable open position during strong winds or draughts

Separation of frame and sash: The screws that hold the moving parts to the sash must be removed (from the side and top), thereafter the sash can be separated from the frame – this requires 2 persons. When the screws are removed the window must be opened approx. 30°.

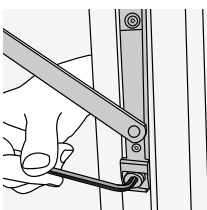
Adjustment: Friction is adjusted by turning the screw in the glide block on each side. The screws must be tightened equally on both sides, otherwise the sash may be out of alignment.

Cremone bolts can be adjusted for better friction, if necessary.

The sash on the top-hinged Daylight window can be height-adjusted, using a 4 mm Allen key, as illustrated in the figure.



Adjust top guided fitting up/down



Height-adjustment – top-hinged Daylight window

Top swing windows

Operation: The window is opened and closed using the handle in the middle of the lower sash. On the underside of this there is a lever lock that holds the sash in the strike plate on the frame. If the strike plate has two grooves, the inner groove is to close the window and the outer one is to allow ventilation. When the window is in the ventilation position, the handle is at 60°. It is not advisable to leave your home with the windows in the ventilation position.

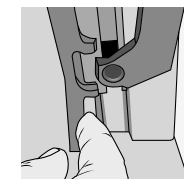
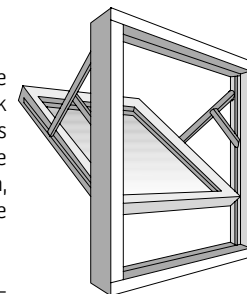
Ventilation position: The window sash is opened and will then automatically be in the ventilation position, via the security device on the left side. Further opening is done by activating the security lock. This is done by pulling the locking arm in the direction of the arrow, in towards the frame rebate and thereafter closing or opening the sash.

Cleaning position: The sash can thereafter be turned 180° relative to the outside facade, so that the outside can be cleaned from inside the room. When the sash is fully opened, it is automatically locked in the cleaning position on the left side. The window will not be retained in position if left in an unlocked, open position. To close the window again, pull the window sash inwards, approx. 2 cm. The locking arm is pulled in the direction of the arrow, inwards towards the rebate and the window sash is locked at the same time.

Separation of frame and sash: The screws that hold the moving parts to the sash must be removed (from the side and top), thereafter the sash can be separated from the frame – this requires 2 persons. When the screws are removed the window must be opened approx. 30°.

Adjustment: Top reversible sashes cannot be adjusted.

Tilt-turn windows cannot be fitted with a friction brake.



Ventilation position

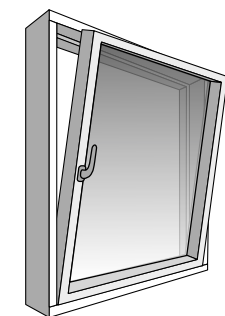


Cleaning position

Tilt-turn windows

Function: Tilt-turn windows are an inward-opening window which has both a side and bottom-hinged function. The side hinged function is primarily used in connection with cleaning of the external face of the glazing unit, while the bottom hinged function is used to provide daily ventilation.

Operation: The sash is operated with a handle in the sash jamb. When closed, the handle will point downwards. Depending on the type of fitting, one function is carried out by turning the handle to the horizontal position – the other function is carried out by turning the handle to the vertical position. To avoid incorrect operation, ensure that the sash is pushed firmly in towards the frame before using the handle. At full tilt in the bottom-hinged position there will be a ventilation opening at the top.

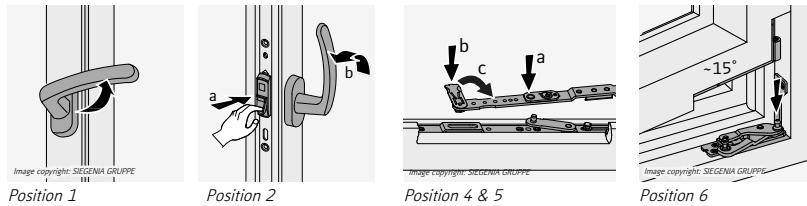


Separation of frame and sash:

1. Turn the handle to the horizontal position (side-hinged position) and open the sash.
2. Activate the safety lock at the side of the sash.
3. Turn the handle to the vertical position (tilt position).
4. Turn the locking washer in the top of the sash.
5. Lift the locking washer up and separate the turning joint

CAUTION: the sash is now loose.

6. Almost close the sash (the sash should still tilt) and thereafter lift the sash up and out.



Maintenance: The locking and pivot points should be lubricated at least once a year.

Side hinged windows

Operation - standard: Side-hinged windows, in the standard version, are fitted with sturdier fasteners (storm stays) and sash stays that are used to open and close the window. If ordered, stays can be fitted with security devices. Storm stays are fitted on the hinge side and are used to hold the window in the open position.

Operation - with friction brake: Side-hinged windows can be supplied with a friction brake. These are operated in the same way as for side-hinged standard windows.

Operation - with handle and lever: Side-hinged windows can be supplied with locking bolts, with or without a handle-controlled brake. Both the locking mechanism and the friction brake is operated via a handle in the side of the sash. The brake is fitted in the bottom section of the sash and allows the window to be kept open in a random ventilation position, from approx. 5 cm to 90°. Locking is done by turning the handle on the open window to the lock position. The window must never be closed with the handle in the locking position!

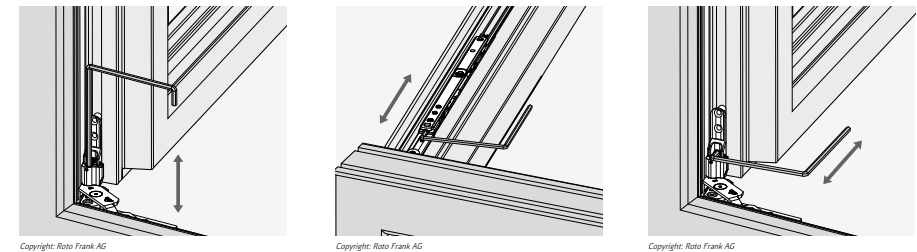
Operation - side hinged windows, general: Always ensure that an open window is secured by a storm stay or brake.

Adjustment: Sash stays can be tightened or slackened by turning the ring bolt. Slack brakes can be adjusted to the desired friction with an adjustment screw. Handle-controlled brakes cannot be adjusted.

During strong winds, the friction brake may not be able to retain the sash in the ventilation or open position. It is not advisable to leave your home with the windows in the ventilation position.

Adjustment - Daylight and tilt-turn: Side hung Daylight and tilt-turn windows can be adjusted in the directions up-down and sideways. All adjustments are done by first opening the frame and using a 4 mm Allen key.

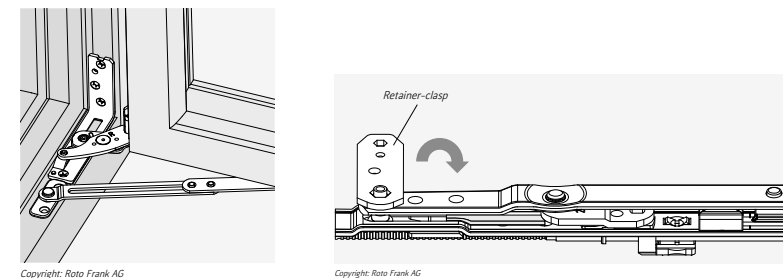
Adjusting Daylight



Separation of frame and sash: Side-hinged sashes in standard version can be lifted from the frame when the sash is opened to 90°. For sash with friction brakes: the brake must be released before the sash is lifted out. This is done by disassembling the friction arm in the frame rebate. Depending on the size of the window, this will require 1 or 2 persons.

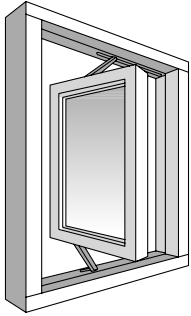
Separation of frame and casing - Daylight:

1. Open the sash
2. Turn the lock-disc at the top of the sash
3. Lift the sash away from the bracket at the bottom.



Position 1

Position 2



Side-guided windows

Operation: Side-guided windows can be installed with sash stays or handle-operated locking bolts (see previous pertaining to side-hinged windows). Side-guided windows have the advantage that exterior cleaning can be done from the inside of the house. Side-guided windows can be opened up to 90°. This will give an opening of approx. 10–15 cm at the rear of the sash, which is sufficient space to reach out to clean the exterior of the glass.

This function is intended exclusively for cleaning of the window's exterior and should not be used for ventilation or airing.

Separation of frame and sash: The frame and sash can only be separated by removing the screws that hold the control arms on the sash.

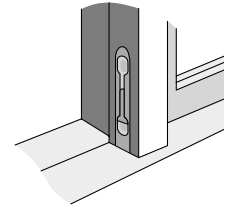
Note: separation of even small sashes will require 2 persons.

Adjustment: Brackets on side-guided windows are adjusted on the top bracket.

Emergency escape release

Location and release: For safety reasons, and to meet fire regulations, 2 pane and multipane windows can be fitted with a moveable emergency escape mullion. This means that the intermediate section (mullion) on the frame is attached to the standing sash and opens simultaneously when this is opened. The emergency escape mullion is released by releasing the catches at the top and bottom.

Adjustment: The catches can be adjusted by turning the bolt. The bolts can be made longer and the stopper at the bottom can be adjusted, as this is conical.



Operations and functions – Doors

Entrance doors

Operation: Entrance doors, as standard are fitted with a lock case for a cylinder lock and 3-point locking. The top and bottom locking points are activated when the handle is lifted upwards – this ensures that the door is completely closed tight, and can now be locked. All three locking points are released when the handle is turned downwards.

Separation of frame and sash: When the door is opened 90°, the door can be lifted off the hinges.

Half doors

Operation: The two separate parts of the door can be opened as one single door, when the handle on the lowest door is turned to the open position before the handle on the upper door is used. For lockable doors with 2-point locking, the handle on the upper part must be lifted upwards before the door can be locked. For doors without lock cases for cylinder locks: See operation of patio doors.

Separation of frame and sash: When the door is opened 90°, the door can be lifted off the hinges.

Patio doors- and window doors

Operation: The handle operates a locking bolt with three locking points, along with a friction brake in the top part of the door sash. The door can be opened when the handle is turned to the horizontal position.

The friction brake allows the sash to be held open in a random ventilation position from approx. 5 cm to approx. 90°. The door is locked in the ventilation position by turning the handle on the open door to the closed position.

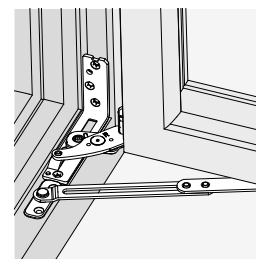
During extremely strong winds the friction brake may not hold the frame in the ventilation position.

Do not close the door with the handle in the closed position. On double patio doors, there is normally only a handle on the first moveable part of the double door. The other part is in the closed position, held by flush bolts.

Separation of frame and sash: When the door is opened 90°, the door can be lifted off the hinges. If the door is fitted with a brake, this must first be released from the frame.

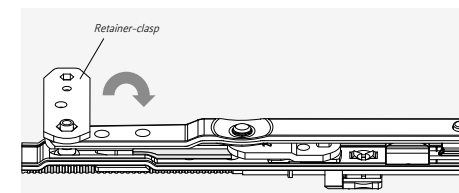
Separation of frame and casing – Daylight:

1. Open the sash
2. Turn the lock-disc at the top of the sash
(CAUTION: the sash is now loose)
3. Lift the sash away from the bracket at the bottom



Copyright: Roto Frank AG

Position 1



Copyright: Roto Frank AG

Position 2

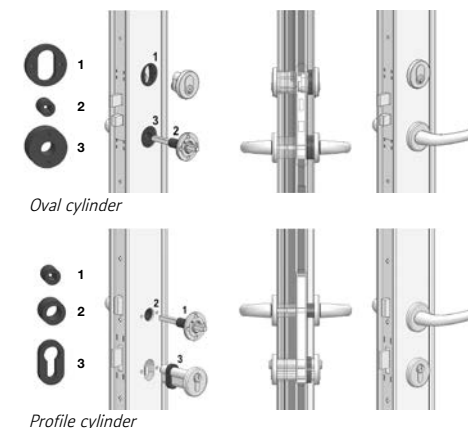
Installation instruction for increased density with ironmongery set

Please follow these installation instructions for an increased tightness of entrance door

Install the following gaskets

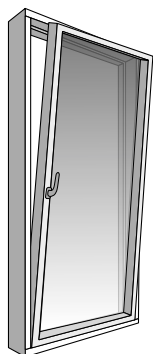
1. Around the cylinder. It is important that the gasket is completely against the lockbox.
2. On the handle's spindle and push towards the handle.
3. In hole for handle. It is important that the gasket is completely against the lockbox.

The gaskets are mounted from the outside of the door.



Oval cylinder

Profile cylinder



Tilt-turn balcony doors

Function: Tilt-turn balcony doors are an inward-opening doors that have both a side and bottom-hinged function.

The side hinged function is primarily used in connection with cleaning of the external face of the glazing unit, while the bottom hinged function is used to provide daily ventilation.

Operation: The sash is operated with a handle in the sash jamb. When closed, the handle will point downwards. Depending on the type of bracket, one function is carried out by turning the handle to the horizontal position – the other function is carried out by turning the handle to the vertical position. To avoid incorrect operation, ensure that the sash is pushed firmly in to the frame before using the handle. At full tilt in the bottom-hinged position there will be a ventilation opening at the top.

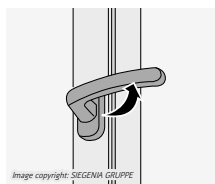
Separation of frame and sash:

1. Turn the handle to the horizontal position (side-hinged position) and open the sash.
2. Activate the safety lock at the side of the sash.
3. Turn the handle to the vertical position (tilt position).
4. Turn the locking washer in the top of the sash.
5. Lift the locking washer up and separate the turning joint

Note: the sash is now loose at the top.

6. Almost close the sash (the sash should still tilt) and thereafter lift the sash up and out.

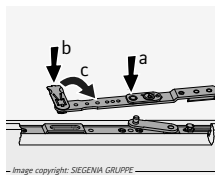
Maintenance: The locking and pivot points should be lubricated at least once a year.



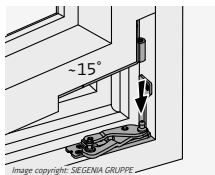
Position 1



Position 2



Position 4 & 5



Position 6

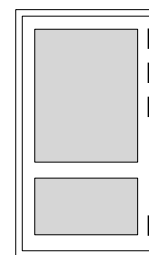
Adjustment of doors

Fine adjustment of entrance doors, half doors and patio doors

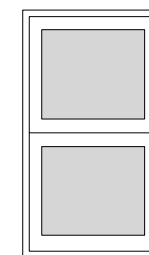
All doors are installed with adjustable hinges; it is possible to make finer adjustments to the height and side position of the door sash.

The illustration on page 18 shows the location of the various types of adjustment points (does not apply to doors manufactured before 20th January 2014, tilt-turn balcony doors or doors with special hinges, e.g. brass, coloured and stainless).

All externally hinges can be adjusted up and down and sideways – only against hinge side.



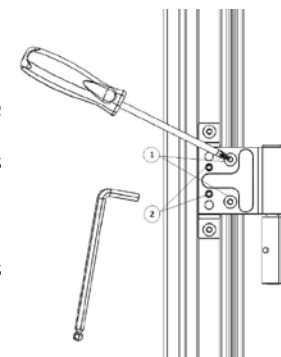
All externally hinges can be adjusted up and down and sideways – only against hinge side.



Sideways adjustment of the door sash (approx. +/-1 mm)

The door sash can be adjusted sideways so that the door sash is moved further inwards or outwards relative to the frame.

- Begin by loosening the 4 outermost screws (1) on the hinge before starting adjustment (use Torx 20).
- By turning the adjuster screws (2) anticlockwise, the door sash is moved in towards the frame (use a 3 mm Allen key).
- By turning the adjuster screws (2) clockwise, the door sash is moved away from the frame.
- After adjustment has been carried out, tighten the 4 outermost screws (1). Note: do not overtighten the screws.



Up/down adjustment of the door sash (approx. +/-1 mm)

The door sash can be adjusted in height via the up/down adjustable hinges. If the adjustment screws are turned anticlockwise, the door sash is lowered (use a 6 mm Allen key).

The door sash is raised by turning the Allen key clockwise.

Adjustment of strike plate

The strike plate on the frame can be adjusted if required during the transition from summer to winter; this can be done by bending the "tongue" outwards or inwards, until the door closes tightly into the frame.

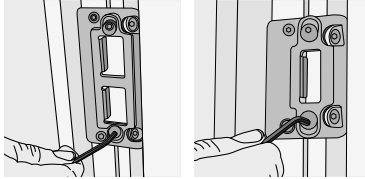
Adjustment of security strike plate

There are two different types of security strike plate; both can be adjusted. Both the strike plate at the cylinder and the Cremone bolt can be adjusted.

One is adjusted by using a Torx 15.

The other is adjusted using a 3 mm Allen key.

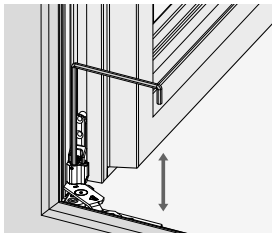
Use a Torx key:



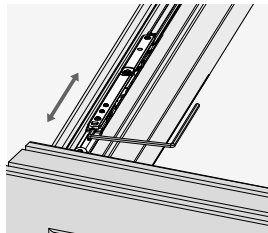
Adjustment - Daylight and tilt-turn window doors:

Daylight and tilt-turn window doors can be adjusted in the directions up-down and sideways. All adjustments are done by first opening the sash and using a 4 mm Allen key.

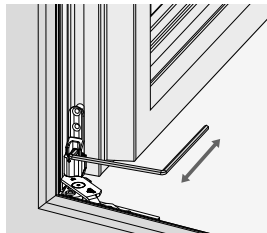
Adjusting Daylight



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Copyright: Roto Frank AG

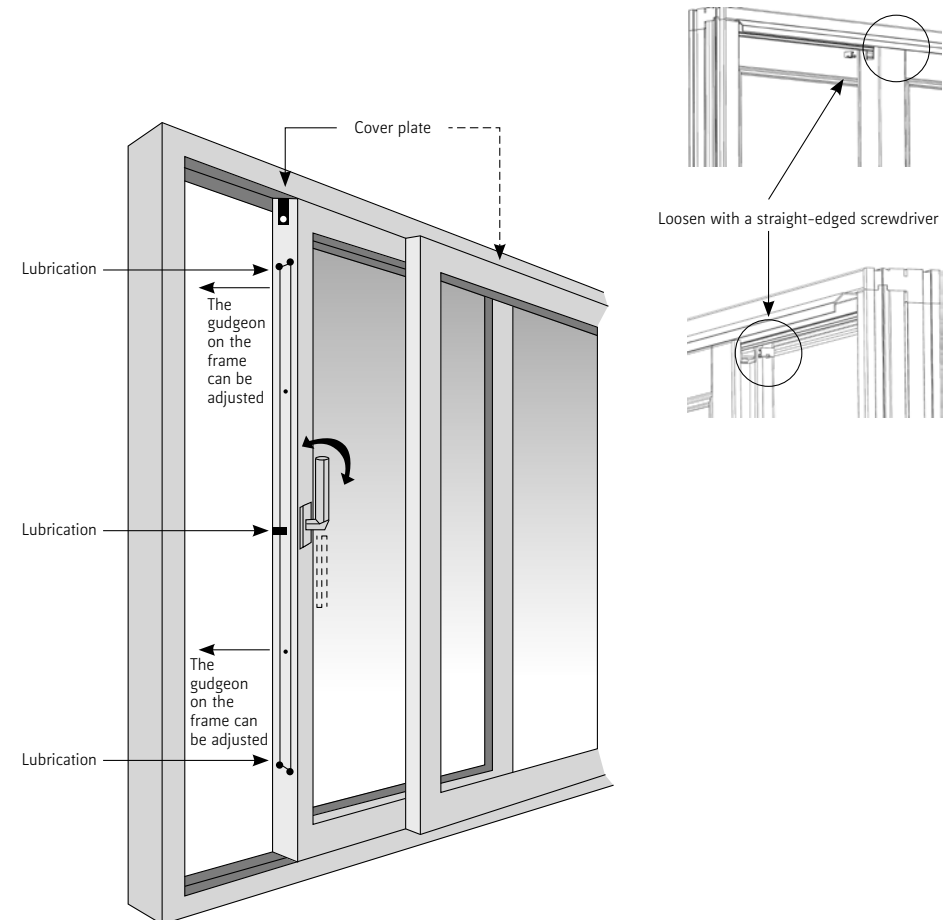
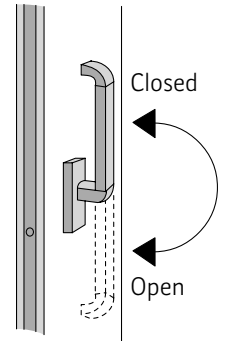
Sliding doors

Operation: Sliding doors are operated by turning the handle 180° at the bottom, thereafter the door is released and can be slid to the side. The door can be retained in a random position; however, it is only locked in the closed position (handle upwards).

Separation of frame and sash: The sash is lifted up and tilted out at the bottom.

Adjustment: Minor seasonal adjustments may be required.

Maintenance: To allow the door to glide more easily, acid-free Vaseline can be applied to the guide rail. The locking mechanism and rollers should be lubricated once a year - or as required. It is also important to keep the guide rail free of leaves and dirt.



Folding doors

A folding door is opened at the casement using the slightly curved handle – by operating the handle and opening the door approx. 90°. Thereafter, the flush bolts at the bottom of the side of the next section are opened, and the next handle on that side can be used. Thus the sections can be pushed to the side. Repeat until the desired opening is achieved.

Thereafter the sections without handles are opened, by opening the flush bolts at the bottom and top on the side of each section. Thereafter, If there are several sections on that side, the flush bolts on the side of the next section are opened, and the next handle on that side can be used. Thus the sections can be pushed to the side. Repeat until the desired opening is achieved.

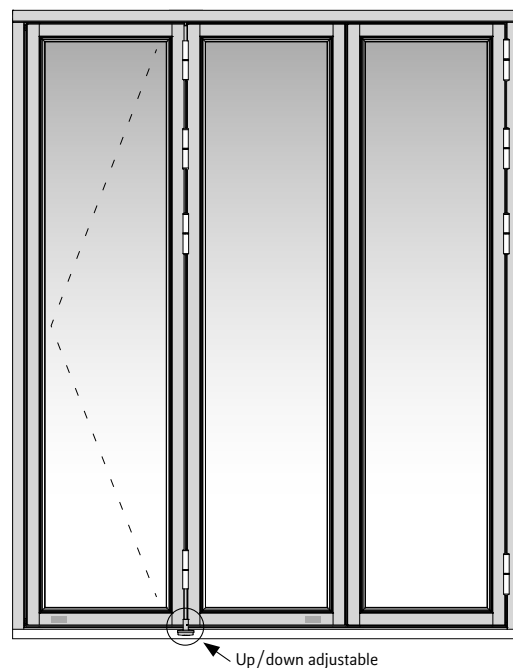
Maintenance: The hardwood bottom sill can be treated with hardwood oil. Other maintenance of folding doors is the same as for general windows and doors.

Adjustment: The drawing shows the hinges that are adjustable – either sideways and/or up/down.

See guidelines for Adjustment of doors.

All externally hinges can be adjusted up and down and sideways – only against hinge side.

Note: It is recommended that there is 3–4 mm gap between the sash and the frame at the top for optimal function.



Stainless steel spindles with roller

Maintenance and cleaning

Spindles with rollers are made from stainless steel, which is generally a very tough material, but it is still susceptible to surface damage. This damage can be, for example, in the form of flash rust, which are small metal particles that settle down as small red patches on the surface.

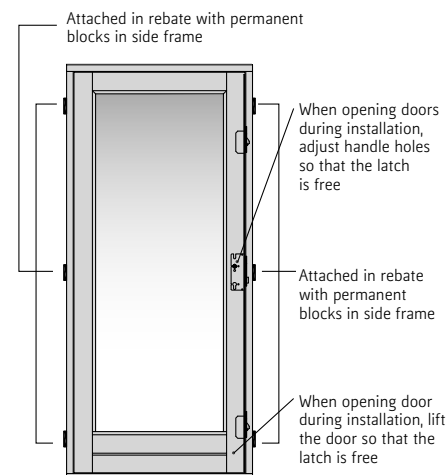
In order to avoid an attack by flash rust, it is important to coat the surface with a thin acid-free oil. This should be done before the folding doors are put into usage, and we recommend that you repeat this treatment a couple of times per year. If you live near the coast, the folding doors are particularly prone to this, and the treatment should therefore be carried out more often in order to achieve optimal protection.

The acid-free oil must be applied with a lint-free cloth. Be careful not to overdose on the amount of the acid-free oil, as the protective effect is achieved with a fine, thin film.

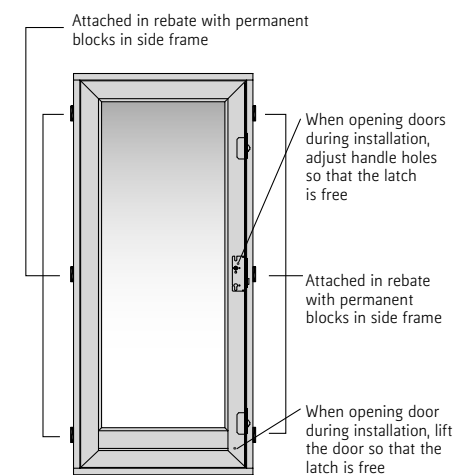
If flash rust occurs due to a lack of maintenance, it can be removed by using a stainless steel cleaning agent which is used in ordinary household cleaning.

In addition, the folding doors are maintained as windows and doors.

Installation Secure By Design – timber



Installation Secure By Design – timber/alu



Maintenance – General

The surfaces on windows and doors should be regularly checked, so that any damage can be repaired as soon as possible. In particular, horizontal sills are subjected to wear and tear from weather and wind and must therefore be maintained more regularly than other surfaces.

Surface treatment – pinewood

All units are supplied with environmentally-friendly surface treatment, that protects against rot and fungus. Re-treatment can be carried out using suitable wood protection or paint. Before surface treatment the units must be thoroughly cleaned with a suitable cleaning agent (not washing up liquid); paint etc. must be scraped off and the units must be sanded with sandpaper. Remove sanding dust and apply primer oil/paint. This should also be sanded when dry. Remove sanding dust and apply the first stroke. Handles, locking mechanisms, moving parts, glass seals, sealing tape and DVV marking must not be painted over. Opening sashes must not be closed until the unit is completely dry. Surface treatment should be repeated when the most exposed areas begin to show signs of deterioration.

Surface treatment – aluminium

General cleaning should be sufficient, preferably at the same time that the glass panes are cleaned. Cleaning agents must have a neutral pH value (5–8).

Any damage to aluminium surfaces can be repaired by sanding the affected area smooth, removing sanding particles and treating with metal paint/paint according to the manufacturer's instructions. This type of treatment will, however, remain visible.

Surface treatment – hardwood bottom sills

The units are supplied primed and after installation should be treated with a suitable final treatment. During the first year the units should be treated 2 times. At regular intervals (minimum once per year) the surfaces should be checked to ensure they are still protected and water-proof. Timber must be re-treated as required. The maintenance intervals stated are a guideline only; the durability of any treatment is dependent on the exposure of the units to sun and wind. In particular, south and west-facing sides are more exposed. A good way to see if the timber is fully impregnated is if water forms "pearls" on the surface. Teknooil-Aqua-6130.

Resin spots

Timber is a living material. Therefore resin spots can appear on painted surfaces. Discolouration (particularly in lighter colours) or penetration by resin spots can, to some extent, be removed using white spirit. The surface can then be treated.

Sealing strips

Units are fitted with weather-resistant sealing strips, that are held in place in a groove in the sash. These can be cleaned with ordinary cleaning agents.

IMPORTANT: Sealing strips must not be removed.

Glass sealing (sealant tape and strips)

Sealant tape does not require any maintenance; however, it is recommended that these are checked annually, particularly at the bottom. If there is any leakage, the sealant tape must be replaced. It is recommended that the glazing beads are replaced at the same time. It is important that the surface on the glazing beads is regularly maintained.

Lubrication

Hinges, handles and riveted joints, locking bolts, other joints, lock collars, slots, locks and lever locks must be lubricated at least once a year, or as required, with regular household oil. For sashes with friction brakes and/or hidden side swing or side swing brackets, it is important to keep the hinge tracks free of oil and dirt. These must never be painted over.

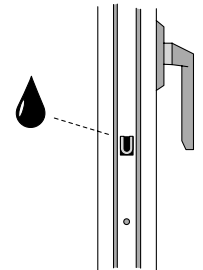
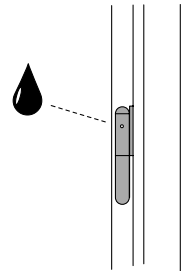
Cylinders must be lubricated once a year with lock oil (e.g. from Ruko).

Cleaning

Use plenty of water during the first cleaning after building work is completed. Glass pane labels can be removed after being softened with water. Any glue or silicone residue can be removed using a solvent or thinners.

After cleaning windows, dry the sash and frame parts with a dry cloth. The exterior of timber should also be cleaned.

IMPORTANT: Solvents (e.g. petrol, thinners or agents containing ammonia) must never be used on painted surfaces.



Ventilation

Adequate ventilation is important, both to prevent moisture damage and the formation of condensation, but also to maintain a sound indoor climate.

If the outside temperature is around 0° and condensation forms on the inside of a thermal pane, this is due to the fact that the air is too moist; this is not a fault with the pane.

Energy-saving panes

Energy-saving panes is the term for panes that have an inner layer of glass covered with a thin, invisible metal coating that reflects heat back into the room. To further reduce heat loss between the panes, the atmospheric air is replaced by a type of gas.

When the inner glass layer reflects the heat back into the room, this pane is heated; however the outer glass layer is not – due to the minimal heat loss through the pane. When condensation forms on cold surfaces the temperature difference between the glass layers can lead to short-term formation of condensation on the outside. This is particularly common when the air is still and will therefore disappear when the air begins to flow, or the temperature rises.

Also note that:

- New windows are better sealed than older ones, which increases the need for ventilation.
- New or refurbished houses must (for approximately the first year) be ventilated more than older houses.
- An adult person gives off approx. 2 litres of water per 24 hours.
- When the room temperature falls, issues with moisture increase.
- Close-fitting curtains can increase moisture problems.
- On “still” days the sun adds more warmth than is lost during normal ventilation.
- Inadequate ventilation leads to a poor indoor climate.

APPENDIX 14 in the Window Industry Technical Regulations

Anticipated outcome of industrially surface treated timber units

Businesses certified according to the Technical Regulations for DVV carry out surface treatment of timber units, that as a minimum give the following outcome: (Terminology according to the Danish Technological Institute, surface treatment catalogue).

All surfaces are treated; however, the thickness of coatings is not identical on every surface.

	Anticipated outcome	Function class	Comments
Visible surfaces on closed units	DLGU**	III*	The layer thickness average value > 60 µm (80 µm)
Visible surfaces on open units	DG***	III*	The surface must not be absorbent
No visible surfaces (against walls)			No requirement

* Function class III

South and west-facing building components with changing moisture conditions, or traffic pollution or other aggressive influences. See also supplementary outcome specifications.

** Covered, closed, smooth and filled surfaces (DLGU) surfaces, edges and rebates uniform in colour and sheen that are smooth to the touch. Pores are closed. Holes, cracks and joints are closed and filled. Unevenness from the underlying surface may occur – Hardwood is exempt from the requirement for a filled surface.

*** Covered and smooth surface (DG).

Surfaces, edges and rebates uniform in colour and sheen that are smooth to the touch. Unevenness, open pores, holes, cracks and joints caused by underlying surfaces may occur.



Supplementary outcome specification

In general, it must be accepted that timber is a natural material that is very nonhomogeneous. Therefore structure and sheen variations can occur. Cracks and other normal timber variations e.g. imperfections close to knots, including partial peeling, eruptions and puckering can occur. Lighter colours in particular may show colour anomalies from knots etc. Knots may be filled with a suitable material; however, visibility cannot be avoided. Similar colour variations may occur in the form of yellowish strata/surfaces.

Other imperfections in surfaces may be ridges/bumps caused by exuding resin. These bumps may be randomly located on the surface or follow the ring formation within the timber.

Resin can also permeate through paint coatings and form small drops on the surface. When the drops have been on the surface long enough to crystallise, they may be brushed or scraped off, without damaging the surface coating.

Timber pieces with a high concentration of resin can occur. Resin spots can in these situations be more significant.

Manufacture is industrial, with the advantage of uniform high quality and treatment on all surfaces.

Unless otherwise agreed, it must be expected that glazing beads are installed using a seaming tool, with subsequent breakthrough into surface coatings.

The durability of surface coatings on bottom glazing beads of timber cannot be expected to correspond to the durability of other surfaces.

On south-facing facades that are exposed to strong sunlight and sea air, or where there is a high degree of moisture influence from the room side, the maintenance intervals should be adapted to the circumstances.

For maintenance, please refer to the Paint Industry Coating Catalogue or paint manufacturers.

10-year guarantee

The guarantee declaration applies to windows supplied and installed in Denmark, Ireland & UK (excluding the Faroe Islands & Greenland) from 1st September 2013.

On the premise that the elements in your order are installed in accordance with the installation instructions and that they are maintained according to instructions, we provide a 10-year guarantee as follows:

On our DVV marked products we offer a 10-year guarantee, composed of 5 years DVV guarantee in accordance with window industry regulations and in addition our extended 5-year guarantee

The window industry DVV guarantee is available at: www.vinduesindustrien.dk

Please note that the above guarantee does not encompass:

- Damage and functional problems arising from lack of, or inadequate lubrication and maintenance and the removal of the units' exterior powder coated surface
- Products that are affected by external influences, such as: other building components, including various foam types, also extreme heat, moisture, chemical and climatic influences etc.
- Ring seals inside fittings (hinges, locks, closure fittings) and sealing strips that have to be replaced due to general wear and tear and use.

- Visual faults in panes will be assessed in accordance with the window industry Appendix 20: Visual quality deviations in thermal panes as found on www.vinduesindustrien.dk

The guarantee deadline for visual faults in panes is maximum 1 year after delivery

- Sealing for doors, supplied with 1-point locks
- Water ingress at the door edge of inward opening doors
- Functional stability in units that are larger than the units in our price list
- Units supplied with colourless/glazed surface coatings. For these, a 5-year DVV guarantee applies
- For panel and leaf doors a 5-year DVV guarantee applies as standard
- For electrical components, in general a 1-year guarantee applies.

Due to the high level of insulation in low-energy products, in certain situations condensation may form on the exterior side of thermal panes.

If bottom glazing beads or window bars are of timber, also doors with timber bottom sections, the durability of surface coatings on these cannot be expected to correspond to other surfaces, and so these will require more frequent maintenance. Please refer to the section in the user manual concerning "Anticipated outcome of industrially surface treated timber units" on page 25.

Brief information about thermal glass panes

Replacement

If it should be necessary to replace panes, this should be carried out by professional tradespeople. For panes that are held in place with glazing beads, these must be removed with care before the pane can be removed. If panes are fitted with aluminium covers, these must be removed using specialist tools placed between the timber and aluminium, before the pane can be removed.

Panes

Panes are manufactured according to the window industry's standards and guarantees including Standard EN 1279 for thermal panes. The section below is an excerpt from the window industry's guidelines and guarantees.

Maintenance

Panes should be cleaned at regular intervals, depending on the nature of external influences.

Installation materials must be maintained or replaced when there are any signs of deterioration. This requires a level of professional competence.

Pane guarantee

A guarantee is given that the pane will remain free of condensation inside the pane for 10 years.

The guarantee covers replacement panes and replacement according to the window industry's compensation table.

Visual faults

Panes that deviate from the window industry's guidelines for thermal pane visual quality Appendix 20, will be replaced by supply of a new pane up to 1 year after delivery.

Glass is an industrial product composed of among other elements calcium, quartz and soda.

Despite the fact that the raw material undergoes a thorough purification process, in certain cases minor imperfections and fissures can occur inside the glass in thermal panes.

Guarantee claims concerning imperfections in the glass will be assessed based on the method outlined below, where an evaluation will be made of whether these are insignificant and part of the natural structure of the material and as such do not fall within the guarantee – or whether they are sufficiently significant such that the user is entitled to a replacement pane.

Assessment criteria for visual faults

Panes shall be inspected at a distance of a minimum of 2 m from the inside, this must take place in diffused lighting (e.g. overcast sky) without direct sunlight or artificial lighting. Imperfections that cannot be observed at a distance of 2 m are not considered to be faults. When controlling reflection the distance shall be a minimum of 5 m.

Interference effect – Optical interference is due to superposition of two or more light waves at a single point. The effect is seen as variation in intensity of the colored zones, which changes when pressure is applied to the glass.

Specific effect due to barometric conditions – IGU includes a volume of argon, hermetically sealed by the edge seal. If the insulating glass is installed at another altitude, or when the temperature or barometric pressure changes, the panes will deflect inwards or outwards.

Anisotropy – IGU that contain a heat-treated glass component may show visible phenomena known as anisotropy. When heat-treated glass is viewed in polarized light, the areas of stress show up as colored zones, sometimes known as a "leopard spots". The amount of polarized light depends on the weather and the angle of the sun. Anisotropy is not a defect but a visible effect.

Condensation on exterior and interior pane surfaces – the effect of condensation on the outer surfaces of the insulating glass pane is a phenomenon conditioned by physical properties of the glass and existing atmospheric conditions (low temperature and high humidity). This is not a defect, but rather confirms the high quality of insulating glass units.

Mark information on glass surfaces – Multiple reflections can occur in varying intensity at the surfaces of glass units. Can be seen particularly well if background viewed through the glazing is dark. Second mark can be a wetting of glass surfaces e.g. effect of rollers, fingerprints, labels, vacuum suction holders, sealant residues, silicone compounds etc.

Toughened glass without Heat Soaked Test – HST is a test for nickel sulphide (NiS) inclusion within the glass pane. Glass without HST has the potential to spontaneously implode. Fixed, tempered glass containing NiS inclusions which become heated e.g. under the influence of solar radiation, increase in volume slowly, which results in additional increase of internal stress.

Thermal cracking – glass is a homogeneous, amorphous, solid, brittle and hard construction. It has negligible internal stress, so it can be cut and processed, but also it can break due to thermal or mechanical external factors.

Guarantee claims

Any guarantee claim must be submitted to the tradesperson or distributor from whom you have purchased the product(s).

If the guarantee claim is brought about through incorrect installation, the guarantee claim must be submitted to the tradesperson who installed the unit(s). If the fault is due to incorrect use or lack of maintenance, the guarantee will not apply.

Further information concerning the DVV guarantee is available at:
www.vinduesindustrien.dk

Excerpt from the DVV guarantee terms and conditions
Further information concerning DVV is available at:
www.vinduesindustrien.dk. including complete guarantee
terms and conditions.

§ 3. Premises for coverage according to the guarantee declaration.

- 3.1 The guarantee declaration is given on the following premises:
- The unit must be DVV marked.
 - The unit has been installed and maintained in accordance with the Guarantor's installation and maintenance instructions and the specification "Anticipated outcome of industrially surface treated timber elements", as supplied to the Consumer.
 - That the fault is not due to circumstances that have arisen after the unit has been supplied by the Guarantor, including faults that can for example be traced to incorrect storage, transport or installation by an intermediary/contractor.
 - That the unit has not been damaged by external influences, e.g. impact, shock, movement in adjacent constructions or similar.
 - That the unit has not been subject to modification after delivery, e.g. sanding, sand blasting, etching, painting, cladding or other surface treatment.
 - That the units pane(s) have not had components "added" and/or had any "inbuilt elements" added such as leading, alarm systems, blinds etc., that have caused condensation in the inside of the pane.
 - Added "Energy saving glazing bars" on panes do not affect the guarantee.

§ 4. Extent of coverage for the guarantee declaration.

- 4.1 Insofar as there is a justifiable claim in respect of manufacturing and/or material defects in the unit within the in § 2.1 stated period (for info on § 2.1 please read the full DVV terms & guarantee document), the Guarantor is obliged to repair faults/defects alternatively to supply a new product at no cost to the consumer.
- 4.2 The Guarantor does not cover however, within this guarantee, expenses incurred for disassembly of the old unit, also installation of the new unit, in addition to any expenses for subsequent works in connection with the replacement of the unit are not covered by this guarantee.
Insofar as the unit at the point in time for the guarantee claim is no longer in production, the Guarantor is obliged to instead replace the defective unit with a corresponding unit. Insofar as manufacturing/material faults can be rectified in a defensible manner by repair or partial replacement, the Guarantor can elect to apply this solution instead.
- 4.3 Replacement of individual components or repair will not lead to an extension of the original guarantee period.

References to further information

Re: ventilation.

There are a number of relevant articles that can be obtained from a library or be ordered from the Danish Building Research Institute (www.sbi.dk), for example:

Indoor climates in homes, Ole Valbjørn and Peter A. Nielsen.

SBI reference no. 179.

Moisture insulation in buildings, Nils Erik Andersen, Georg

Christensen and Flemming Nielsen. SBI reference no. 178. 1993.

Smaller houses, insulation. Moisture. Acoustics. Fire. Ventilation.

Structural strength. SBI reference no. 189. 2nd edition. 1999.



