

Windoor installation guidelines

System 1000 – Folding /sliding glass

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IMPORTANT – in brief

- All roof membranes must be installed independently of the Windoor system to ensure that rain water does not enter the balcony space.
- The section above the folding glass must be absolutely horizontal, i.e. max. 2mm up/1mm down in the middle.
- Check the diagonals of the opening dimensions to ensure it is square.
- Cut EPDM rubber gaskets over length, then starting in the centre of the top frame install the gasket along the top frame, down both side frames and finally into the bottom frame to meet in the middle of the bottom frame.
- When the opening glass is opened it is essential that the folding glass is correctly engaged in the adjacent glass prior to it opening. The glass must be tight on the guide arm while it is opening.
- Lubricate the rollers and the inside of the aluminium channel with silicone spray to ensure easy operation of the folding glass.

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INSTALLING THE ELEMENTS

Check the structural support

Before starting an assembly, check that all work previously carried out has been completed to the required standard to ensure the installation of the elements can be done correctly.

The balcony opening should not deviate more than +/- 5mm from a plumb line and this should be lined relative to the balcony above and below to ensure an acceptable finish.

Fixing the element to the building

Balcony units are fixed through the top and bottom sash, not the sides.

Fixing is carried out using M10 machine bolts. The head of an M10 bolt fits in to the two channel bolt races extruded in the Windoor element.

As a fundamental principle, elements can be fixed in three ways: -

1. Fixing using steel C brackets
2. Fixing with HOP brackets
3. Fixing on an extruded fixing plate

These 3 methods will be dealt with separately below.

DPM Membrane

A reinforced membrane is installed between the outside face of the sub construction and the Windoor elements and brackets to provide additional protection against water penetration.

The membrane is mounted on the front of the floor slab before the fixing brackets are installed. When the brackets and elements have been installed, cut the polythene membrane and then lead the bottom part of the membrane into the outside groove of the top sash of the balcony element below.

Glue / seal the membrane to the top surface of the balcony deck, e.g. by means of a line of silicone compound.

(as seen in the section below)

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Fixing using steel C brackets

The C brackets are typically made of 6-10mm galvanised steel.

The C bracket is not a standard Windoor component and must be designed and dimensioned for the project at hand.

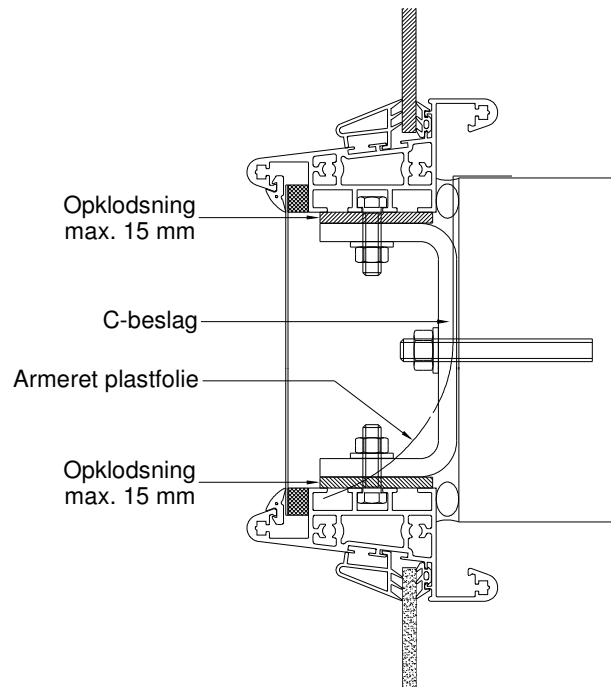
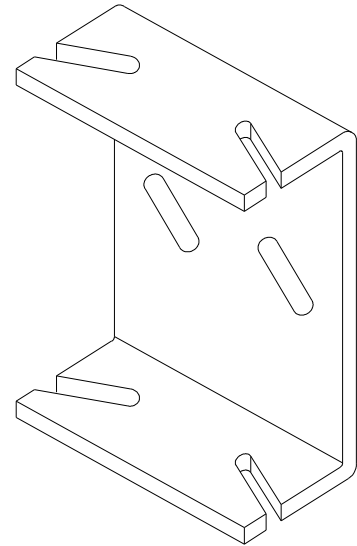
The bracket is used to fix the Windoor element at the top and bottom frame of the unit. The bracket has diagonal slotted holes in the top and bottom plate to fit M10 bolts.

The diagonal slot allows adjustment of the element +/-5mm in and out.

Unless otherwise stated in the project design, the bracket is installed 0.2m from each corner of the element. Additional brackets are installed at the spacing specified by the structural engineer, but generally at 1.0m centres.

If the balcony element has an overlight (fanlight) then the position of the fixing brackets should be designed to coincide with the vertical aluminium extrusion in the overlight. This allows for adjustment of the top frame of the folding section to ensure that it is absolutely level.

Packing shims can be installed between the steel C bracket and the Windoor element to provide tolerance, these shims can be up to 15mm thick.



Vertical section – Windoor element fixed to C brackets

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Fixing with HOP brackets

The HOP bracket is a 3mm thick stainless steel profile. It is a Windoor standard product which can be supplied with the elements.

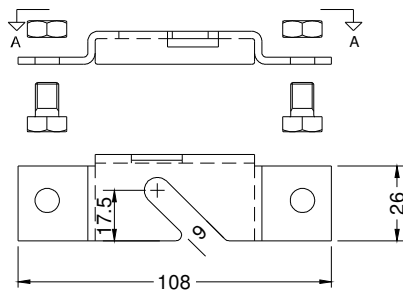
The bracket can be used to install the element at either the top or bottom position. Usually it would be preferable to use a HOP bracket on the top frame with a steel bracket or steel member along the bottom frame.

The HOP fitting is fixed to the unit sash using 2 M10 x 12 machine bolts. The oblique slot in the fitting also fits a 10mm bolt.

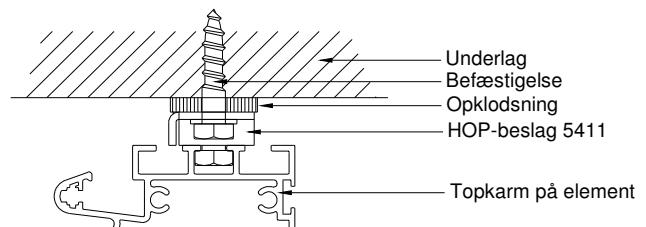
The diagonal slot allows adjustment to the element of +/-5mm in and out.

Unless otherwise stated in the project, a HOP bracket is fitted 0.2m from each corner and then evenly spaced along the element at nom. 1.0 m centres. If the balcony element has an overlight (fanlight) then the position of the HOP bracket should be designed to coincide with the vertical aluminium extrusion in the overlight. This allows for adjustment of the top frame of the folding section to ensure that it is absolutely level.

Depending on the sub construction, it might be necessary to use several HOP brackets fitted next to each other to enable sufficient anchors to be installed to accommodate the imposed loads.



Snit A-A



Installing the system with HOP brackets

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Fixing on an extruded fixing plate.

The fixing plate is a 2mm thick aluminium section supplied in the same length as the Windoor element, it is a Windoor standard product which can be supplied with the elements.

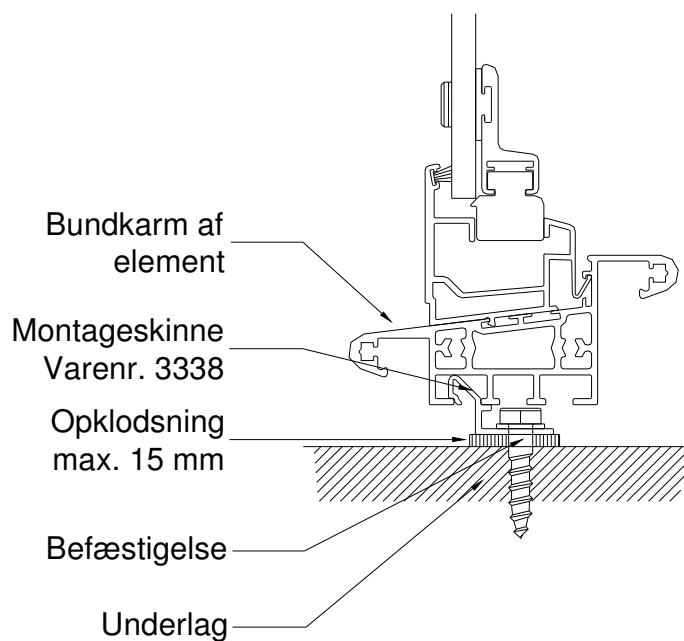
The base is used to fix the bottom frame of the system.

The element is fixed by placing it onto the fixing plate at the bottom and then inclining it to the vertical position and securing using a HOP bracket or a steel C bracket on the top frame.

The fixing plate is predrilled with Ø8 holes @ 250mm.

Fixings are not supplied by Windoor.

The fixing plate is installed ensuring it is both horizontal and straight along the length of the element (this is important to ensure the fixing plate engages correctly in the bottom frame).



Fastening the bottom frame with a fixing plate - vertical section.

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Setting up elements

The units must be installed both plumb and level to the building.

Installation is carried out using M10 machine bolts.

If C brackets or HOP brackets are used then the element can be adjusted by moving the bolts in the groove in the top and bottom frame of the element and in the slots in the fixing bracket.

The height is adjusted using packing shims. The height of the packing shims must not exceed 15mm.

IMPORTANT!

If the folding glass is to work correctly, the head frame of the unit must be mounted absolutely level, the correct method is to install the element with a 2mm bow up centrally to allow for settlement when the glass is installed.

In consideration of the operation of the folding / sliding glass, the diagonals of the opening should be checked. A tolerance in the diagonal dimensions of up to 3mm is permitted.

Elements must be positioned exactly above each other so that horizontal and vertical flashings will be aligned.

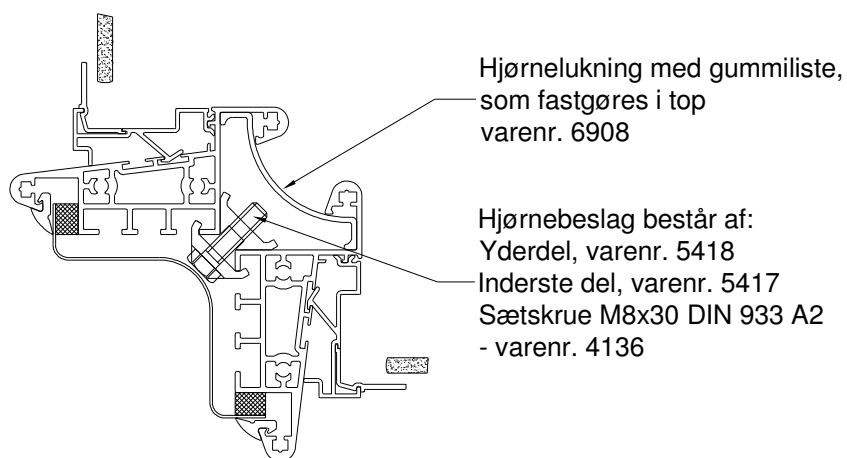
Windoor installation guidelines

System 1000 – Folding /sliding glass

Joining two elements

Where two balcony elements are installed to form a 90° corner, the units are joined together using the corner joint brackets supplied with the element. Position the brackets approx. 0.2 m from each corner and also centrally on the element.

These fixings are not designed to transmit load from one element to the next but will ensure that the corner is stable and secure.

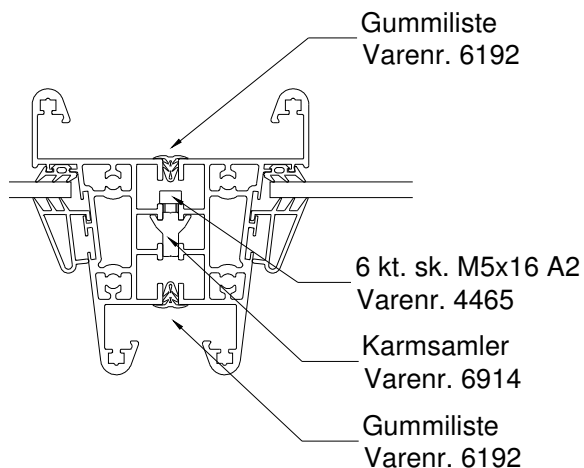


*Flush joining of units.
Horizontal section*

Where an element is not fixed on its top frame, (i.e. in a top floor application where the element is supplied with a glass roof), special brackets must be designed to ensure that loads on the front element are transferred to the side element. This bracket needs to accommodate both wind and service loads.

With corners less than 90°, the elements are installed using angles bent to the correct angle. The brackets are installed with M10x12mm machine bolts.

Two elements positioned adjacent to each other are assembled using frame fixings supplied with the element. Fixings are positioned 0.2 m from the top and bottom corner and centrally.



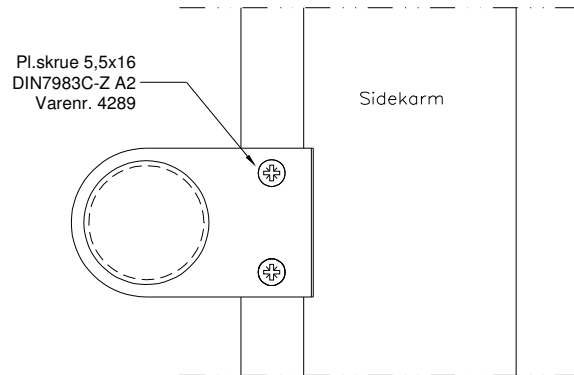
Two elements positioned adjacent to each other – Horizontal section

Windoor installation guidelines

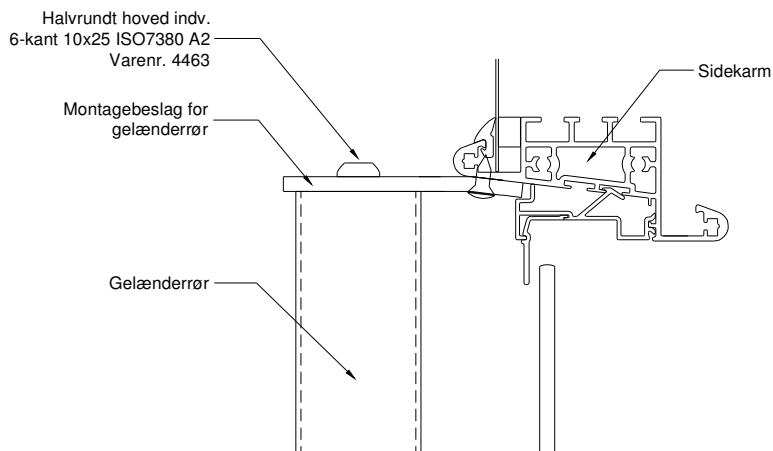
System 1000 – Folding /sliding glass

Installing the handrail

The extruded handrail and brackets are supplied loose for assembly / installation on site. The element will have been predrilled to receive the handrail bracket.



Lodret snit



Vandret snit

Assembly of handrail and brackets

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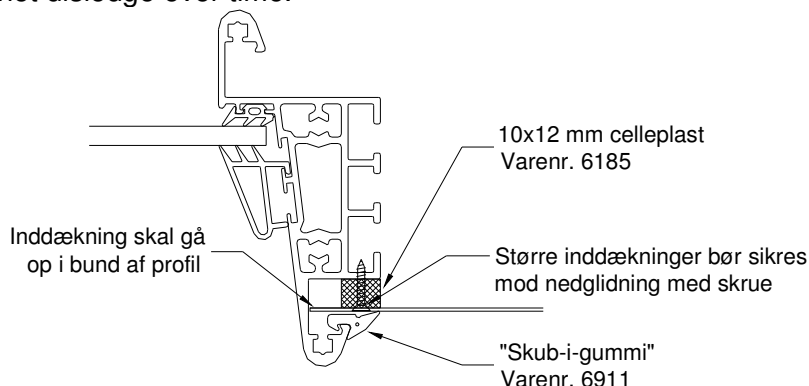
FLASHINGS

External flashings

Windoor balcony elements are designed so that external flashings are installed without the use of screws or blind rivets.

A 10mm x12mm foam strip is adhered to the frame of the element; the flashing is then pressed against this strip. The flashing is secured using an EPDM rubber gasket supplied with the element. This method ensures a waterproof system.

The flashing must be designed to ensure that the bottom end of the flashing reaches the bottom of the frame of the element. This will ensure that the flashing has engaged correctly in the system and will not dislodge over time.



Principle for installing flashings with EPDM gaskets.

To use this solution, flashings must be installed on all four sides of the balcony section.

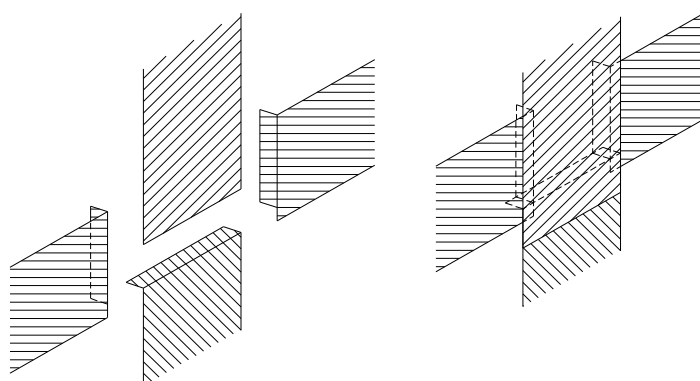
The rubber gasket must be continuous around the perimeter of the element (as shown in the drawing on the next page). The EPDM gasket is joined along the bottom frame of the element and is sealed using Dana Ergo 5039 Universal.

Wide flashings, e.g. opposite floors and walls, should have an end bend as shown in the drawing on the next page to ensure they do not bow.

Vertical lap joints between flashings should be sealed with a butt strap and liquid butyl.

If a glass plate is used to form the horizontal or vertical joint between elements, acetic acid based silicone should never be used. The joints between the glass plate and the aluminium flashing should also be sealed with liquid butyl.

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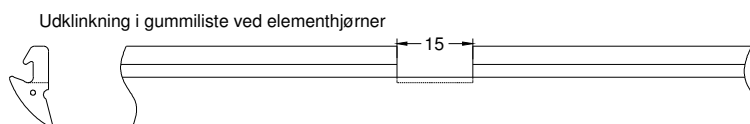
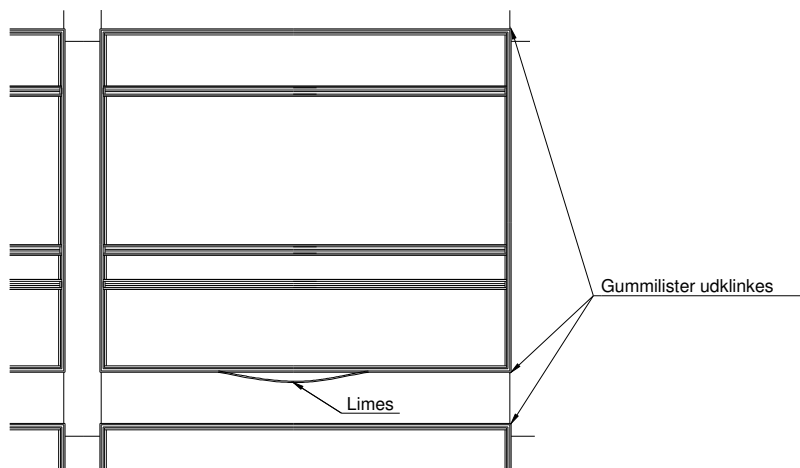


Example of flashings with end bends

IMPORTANT!!

Before installing the EPDM rubber gasket, cut it to the correct length, i.e. 2-3cm longer than the actual length required. Over time, the EPDM rubber will tend shrink which is why it should be installed over-length. The EPDM gasket should be notched at the corners of the element to enable it to bend neatly round the corner.

To aid installation of the gasket, soapy water should be applied (never silicone) to the rubber gasket and the flashing. Do not stretch the rubber strip during installation. Use a flat wooden wedge to push the rubber gasket into place.



Mounting the EPDM rubber gasket

Internal flashings

Internal flashings at floors, walls and ceilings should be installed using self tapping screws and sealed against the structure with silicone.

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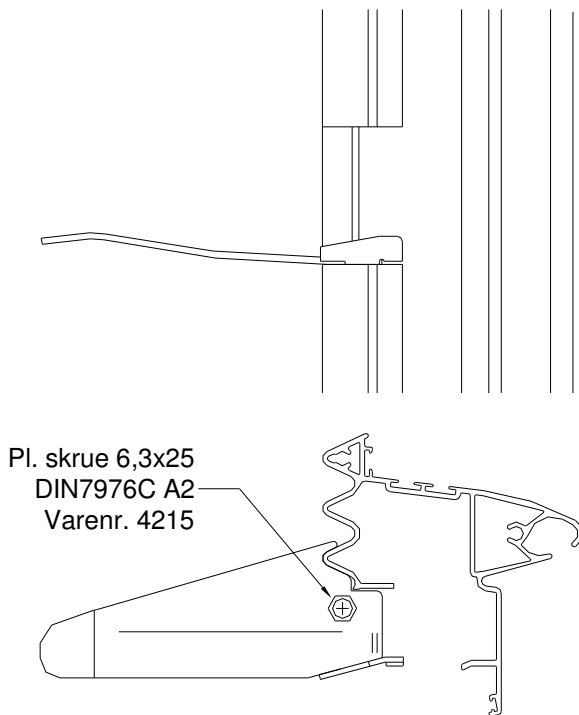
INSTALLING FOLDING GLASS

Guide arm

Before installing the folding glass, check that the unit has been set up correctly.

The (stainless steel) guide arm is fixed to the head of the element. There is a cut out in the profile which coincides with the width of folding glass. The guide arm is fixed to the head frame by means of a screw (supplied with the element) screwed directly into the screw race in the top frame.

The screw should be tightened using a ratchet socket wrench to ensure that it goes in straight and tight (if a power drill is used there is a risk that the screw will not be screwed straight into the groove and the guide arm will then not tightened correctly).



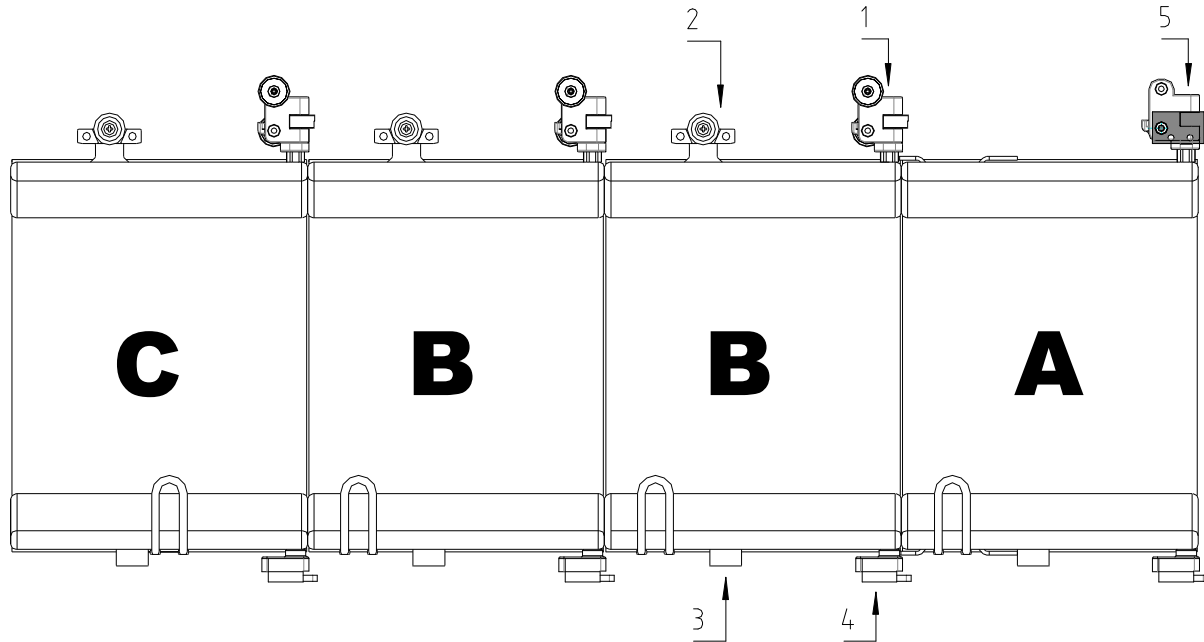
Installing the guide arm

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System 1000 – Folding /sliding glass

Installing the folding glass

The panes are packed in the order they will be installed. Glass C is the first to be installed so will be outer most when packed on the pallet. Glass type B will be required next so will be packed next and finally glass A.



Folding glass units seen from inside, right-hand

The roller fittings (2) and guide blocks (3) must be loose / loosened before installing the folding glass units.

Install the last folding glass (C) first by leading the swivel fitting (1) up into the groove on the outside of the head extrusion (above the folding glass). Offer up the glass at a slight angle (not vertical); now tilt the bottom of the folding glass towards the centre of the opening. Push the roller fitting (2) (on the top edge of the glass) into the channel on the top frame and then by bringing the glass vertical engage the glass block (3) into the bottom channel using the slots cut in the extrusion.

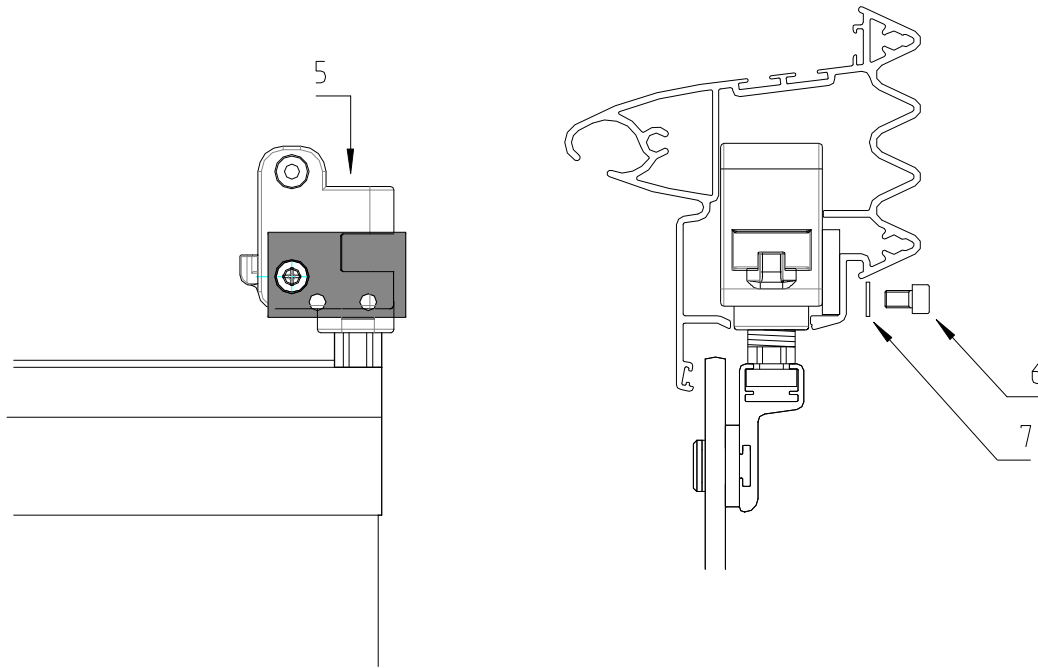
When the glass is installed in the channel, push it to the opposite side of the element.

Repeat the above procedure for folding glass unit(s) (B) and finally glass unit (A).

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The 1st folding glass **(A)** is fixed with two M5x8 **(6)** screws and washers **(7)** 5,3/10 through the pre-drilled holes in the top frame of the element into a small aluminium plate on the rear fitting **(5)**.



Fixing the first pane.

Adjusting the folding glass

The height of the glass and also its orientation (vertical) is adjusted using an open spanner to adjust the bolt on the swivel fitting **(1)**.

The glasses are installed vertically to ensure that the gap between each of the glasses is consistent from top to bottom.

Open the 1st glass **(A)** and stack it against the wall.

The locking cam **(8)** forms a lock at the bottom of the folding glasses and needs to be positioned correctly.

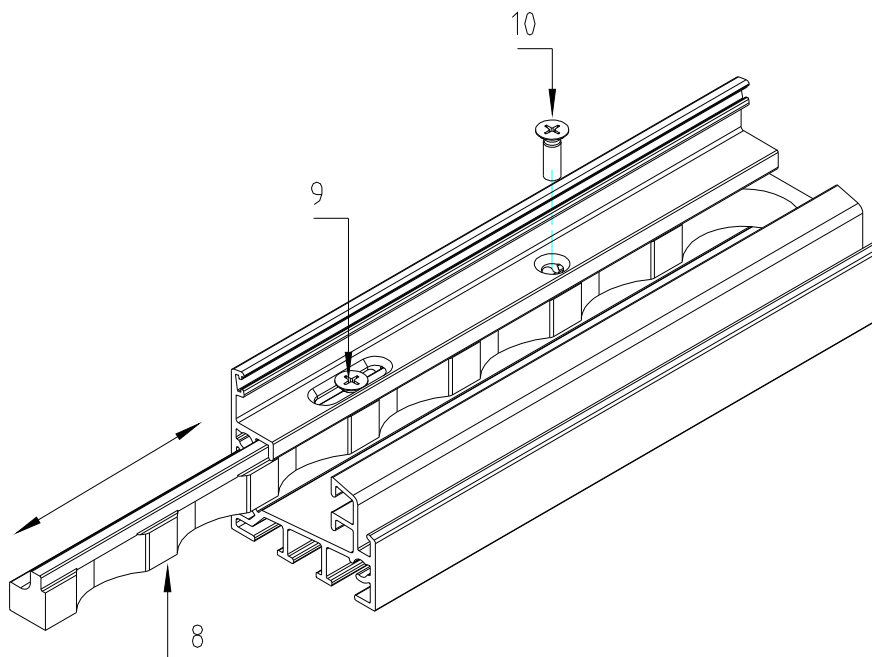
If the element is installed correctly then the side frame needs to be absolutely vertical ± 1 mm. In order to guarantee this is the case, the locking cam does have a degree of tolerance, the locking cam must be adjusted to ensure that the glasses will be vertical when they are installed. The screw **(9)** is installed centrally in the slotted hole in the bottom frame and will allow adjustment.

The first glass can now be installed absolutely vertical.

If this is not case then the locking cam can be adjusted to ensure it becomes vertical.

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When the correct position is found, i.e. the first glass is vertical; the locking cam is secured with the screw (10) 5x16 art. nr. 4283 in the round countersunk hole. The hole in the lock cam shall be predrilled using a $\varnothing 3,5$ mm hole.



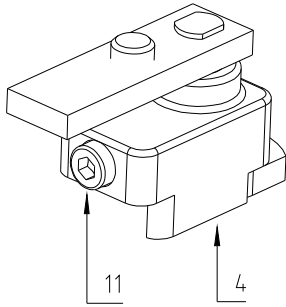
*Justering og sikring af låsekammen i profilet
under foldeglassene*

With glass A in the open position, glass B is pushed towards glass A, so that the fitting at the top on glass B engages in the fitting at the top of glass A.

The fitting at the top of glass B shall be secured in the fitting of the top of glass A before the fitting (4) at the bottom of glass B hits the allenscrew (11) on the fitting on the bottom of glass A.

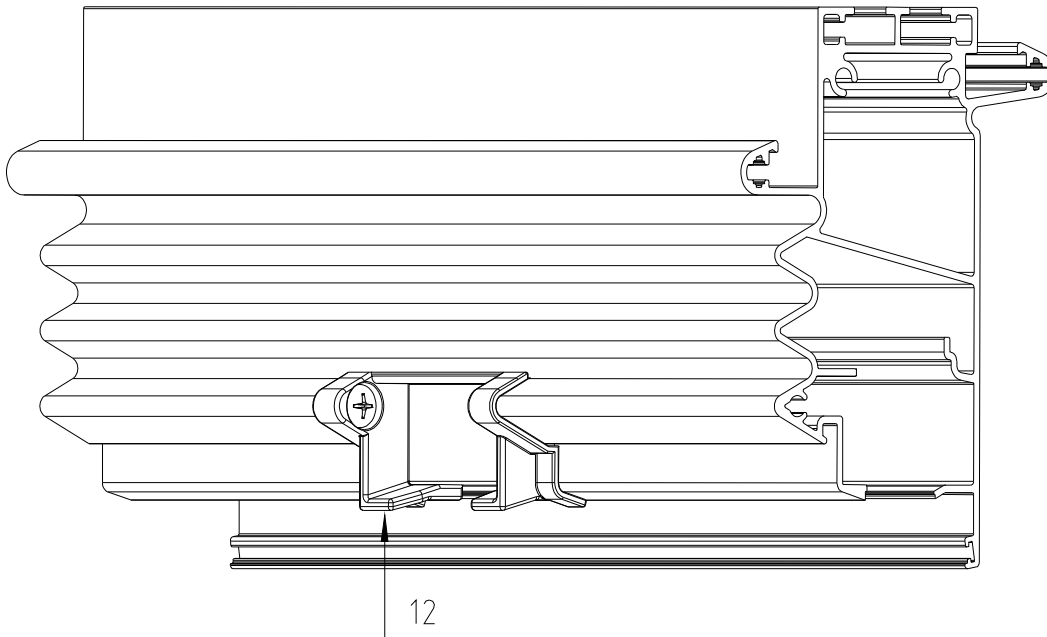
The allenscrew (11) can be adjusted, so there is app. 0,5 mm gap between the head of the screw and the fitting on glass B.

Window installation guidelines System 1000 – Folding /sliding glass



Adjustment of roller and styreklods

Open glass B app. 20 mm and press the roller (2) against the guidearm (12).



Secure the roller in this position with the use of a 10 mm open spanner. At the same time keeping pressure on top of the glass towards the opening side.

Adjust and secure the guide block (3) under the glass so it fits the opening in the profile under the folding glass.

Open glass B completely and park it against glass A.

The same procedure is now to be followed for the rest of the glasses.

Windoer installation guidelines System 1000 – Folding /sliding glass

IMPORTANT! If any adjustment is made to a glass then the entire above operation will need to be repeated.

Windoor installation guidelines System 1000 – Folding /sliding glass

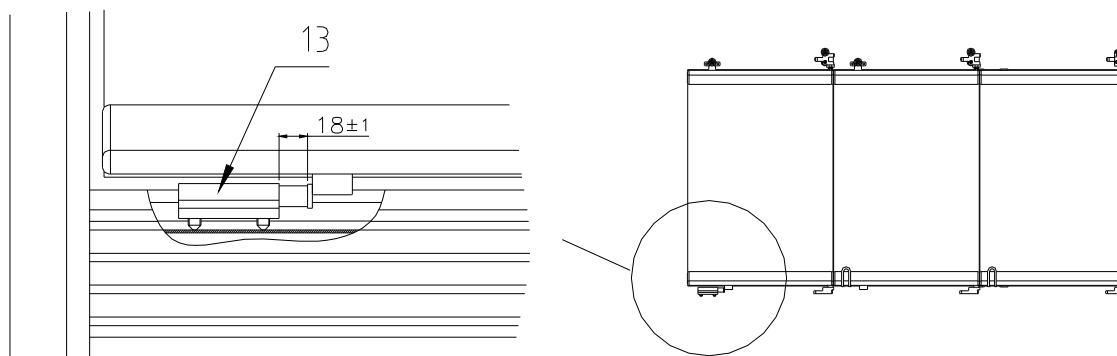
Positioning the spring fitting

Insert the spring fitting **(13)** into the aluminium extrusion below the folding glass.

Distribute the glasses in the opening to ensure there is an equal distance between each glass.

Position the last glass **(C)** in the closed position, push the spring fitting **(13)** against the guide block **(3)** so that the end of the spring extends approx 18mm outside the fitting. Mark the required position, of the spring fitting, relative to the aluminium frame using a pencil and then open the glass again to give space to fix the spring fitting **(13)**.

Fix the spring fitting **(13)** to the aluminium frame using the two Allen screws.



Positioning and fixing the spring fitting

The glasses can now be closed again. To close the 1st glass **(A)**, the spring fitting **(13)** will need to be compressed; this is done by pushing the rest of the glasses **(B & C)** against it. When the 1st glass **(A)** is closed then the rest of the glasses **(B & C)** can be released and the spring will then hold all of the glasses tight.

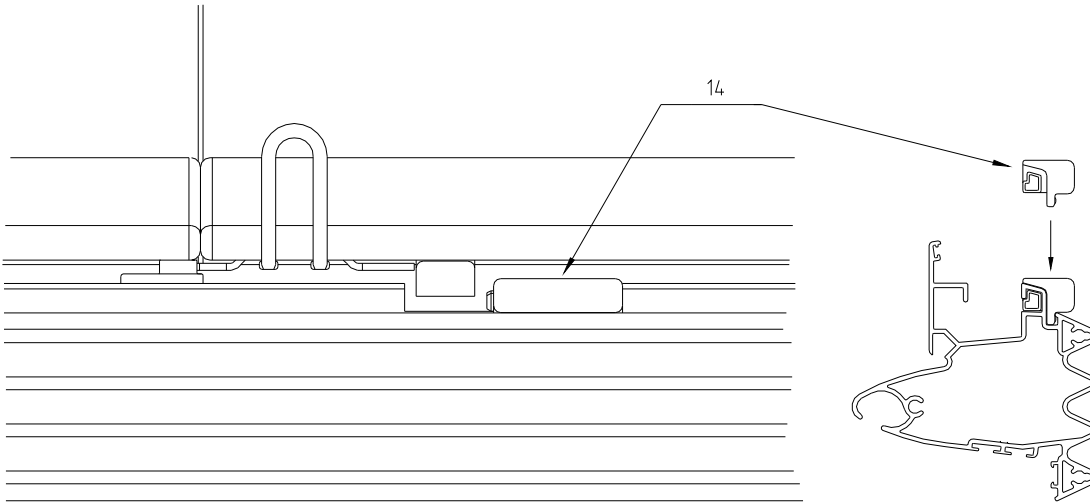
Lubricate the wheels and interior rolling surfaces of the aluminium sections carefully with silicone spray to ensure easy operation of the panes. Do not use oil or other lubricants.

Window installation guidelines

System 1000 – Folding /sliding glass

Opening safety device

The plastic opening safety device (14) is pushed down into the groove:



Fixing the opening safety device

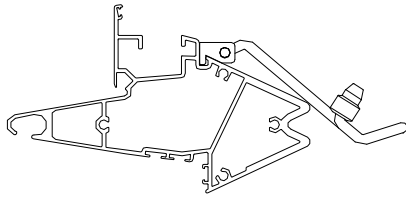
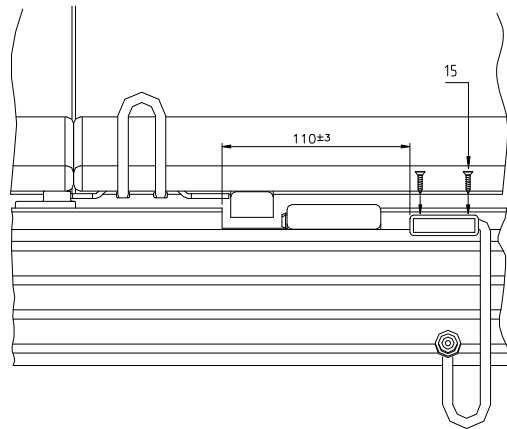
Ventilation stay

There are two types of ventilation stays, the one which is used depends on the aluminium section below the folding glass.

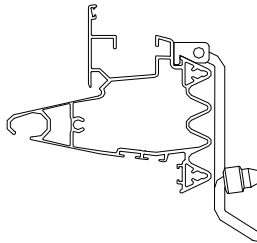
Press the fitting into the groove in the aluminium section and fasten it using the 2 screws provided (15) (fitting 5323 required a screw 2.9 x 13, fitting 5322 requires a screw 2.9 x 16)

Window installation guidelines

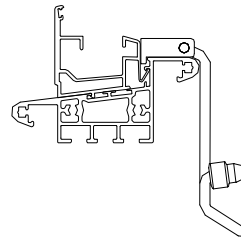
System 1000 – Folding /sliding glass



Beslag 5323



Beslag 5323



Beslag 5322

Fixing the ventilation stay

Windoor installation guidelines

System 1000 – Folding /sliding glass

Locking strap

The locking strap is an elasticated strap which is fixed to the wall adjacent to the 1st glass **(A)** to hold the folding glasses in the open position.

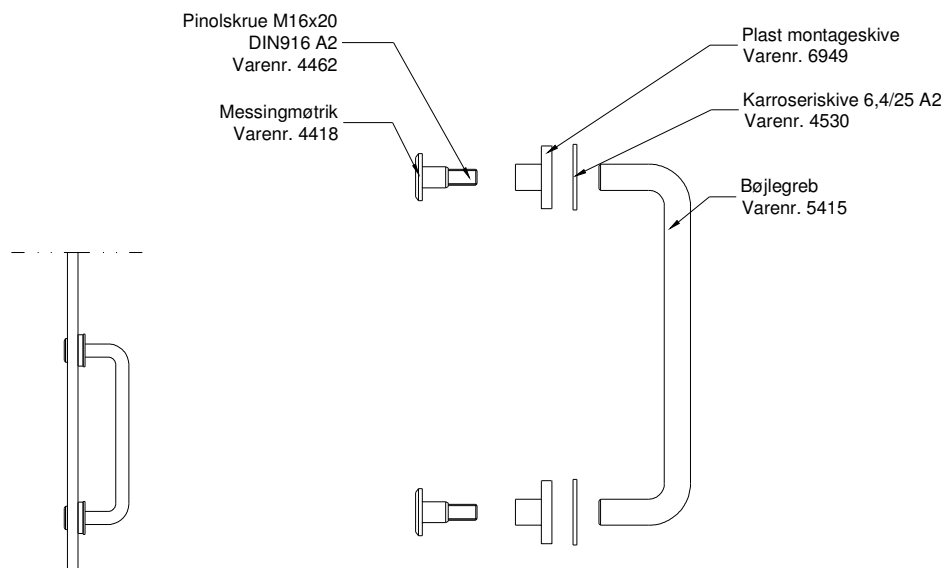
Fix the locking strap at the same height as the lower edge of the folding glass and adjacent to the guide block **(13)** (when the glass is in the open position).

The guide blocks **(13)** have a slot machined into them which is designed to receive the locking strap. The locking strap is elasticated so it can lock as many glasses as are required at any one time.

There are two types of locking straps, one is designed for 'screwless' mounting (when fixing it to an adjacent element at 90°). The other is designed to be screwed to the wall adjacent to the balcony. Windoor do not supply screws and rawlplugs as these are depend on the construction of the wall.

Fixing the handle for full height glasses

For the folding glasses which are designed to be used as a door solution, handles must be fixed on each of the glasses.



Fixing handles on doors

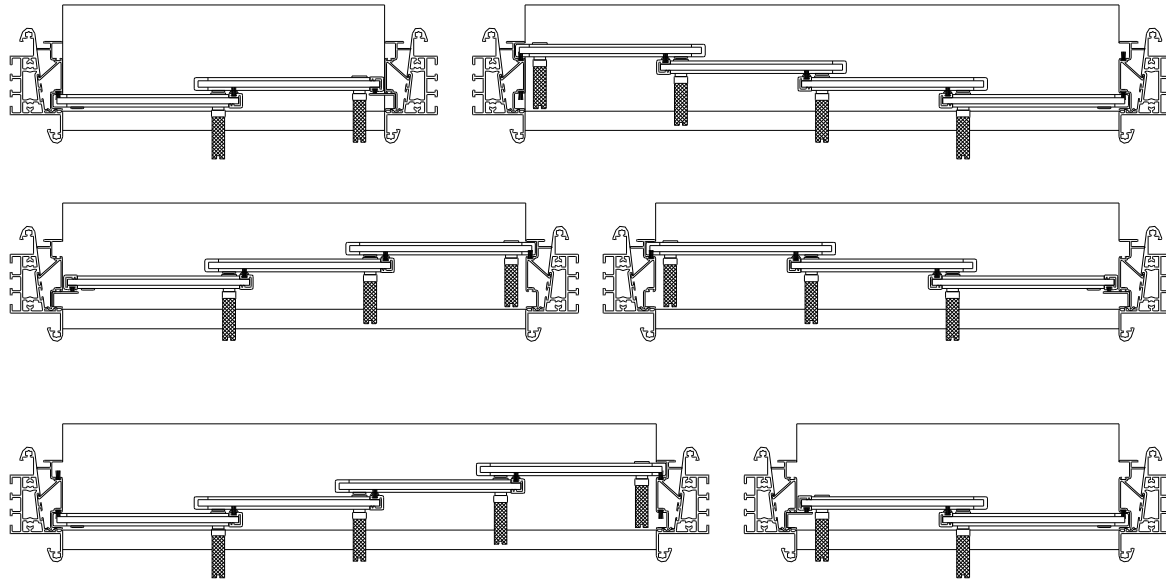
Window installation guidelines

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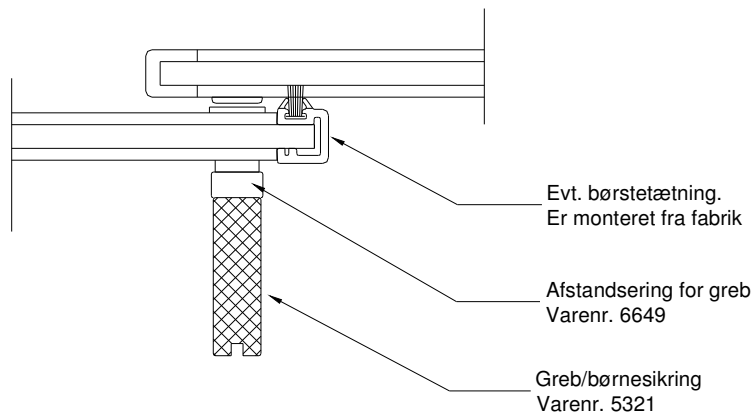
MOUNTING THE SLIDING GLASS

The sliding glass is installed by inserting the top of the glass unit into the top groove and then positioning the bottom rail of the glass into the groove / runner on the bottom frame.

The quantity of sliding glasses will determine the position of the glasses on the runners, they are installed in accordance with the drawing below.



Location of sliding glass units, the position is dependent upon the quantity of glasses.



(Note! The drawing illustrated here is shown with a brush strip but this is not a standard Windowor supply)

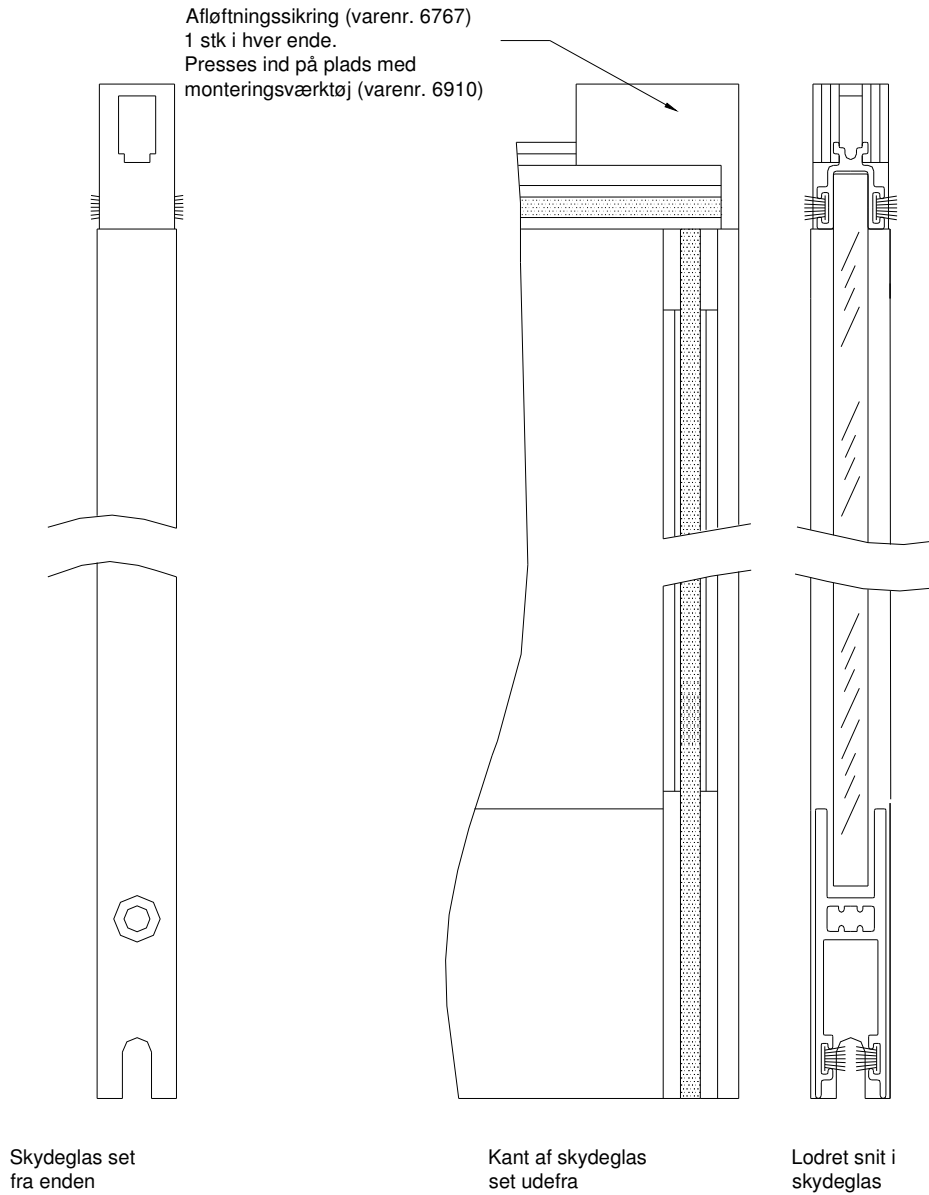
Fixing the spacer and handle - horizontal section

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Install safeguards at the top of the sliding glass unit to prevent it from being uninstalled.

These safeguards can be installed / uninstalled using a fixing tool, part no. 6910.



INSTALLING ACCESSORIES

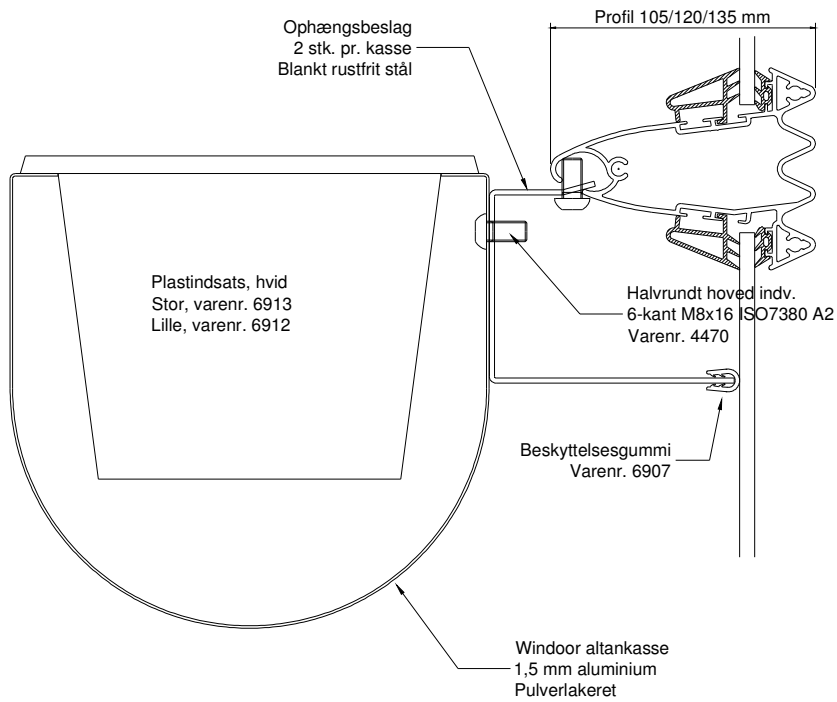
Window box

Windoor installation guidelines

System 1000 – Folding /sliding glass

The window box can be supplied in two lengths, 720mm and 916mm.

The window box is installed on two brackets fixed (without having to drill holes) into the nose of a horizontal extrusion.



Section 105/120/135mm

Installing the window box