SOKÓŁKA®
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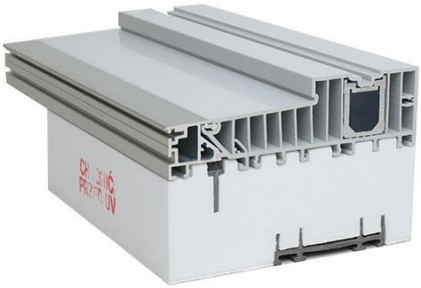


Manual

Transport, Installation, Service

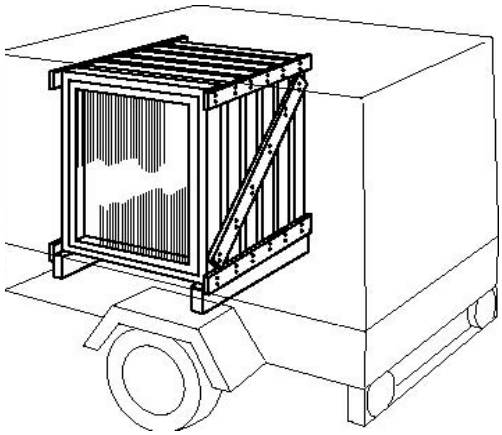
Contents

1. Introduction

This manual is intended for distributors, customers, and anyone who perform installation and service of the products. It is a general manual concerning wooden and wooden-aluminium windows and doors, regardless of the window system. This manual defines the general rules of handling the products during transport, storage, installation and maintenance, taking into account the recommended conditions which should prevail in the building during and after the installation (in particular humidity and protecting the windows against mechanical damage and dirt during construction works). It does not cover particularly unusual building cases such as, e.g. façade walls constructed of windows, or use of special mounting elements.

2. Transport

During transport, the windows and doors should be protected against mechanical damage, humidity, atmospheric precipitation and dust. Therefore, the products should be transported in vehicles protected against outside conditions. Basically, products should be transported in upright position.

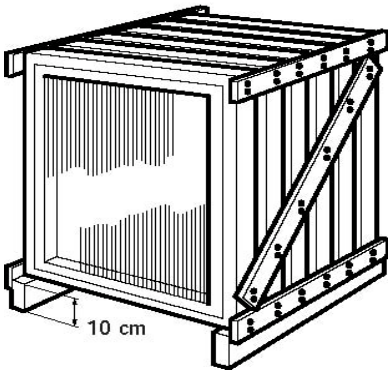


3. Unloading and storage

At the time of delivery, it is necessary to check completeness and quality of the products delivered; any transport damages or missing elements are to be specified in the delivery document and notified to the driver and the manufacturer. Products during storage, transport and installation, should be protected against atmospheric precipitation, humidity of any kind, and dirt. Products should be unloaded and transported in a manner that protect them against damage. Any damages or deformations caused by an improper storage may not be treated as claims. The party which stores the products shall be liable for any damages of this type.

Indoor storage:

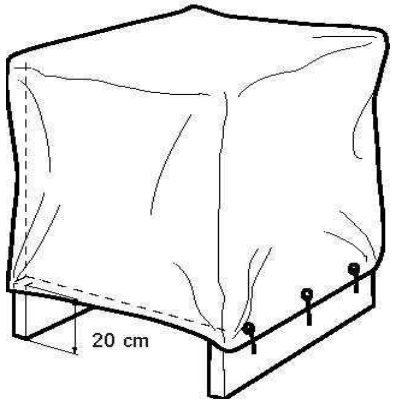
- the storage location should be well-ventilated
- the relative air humidity should be permanently kept at low level
- the products should be stored upright, on a flat, hard surface, about 10 cm above the floor level. Placement on horizontal wooden joists or pallets is required. Keeping sufficient space between individual products, so that the protruding fittings or handles would not damage the adjacent pieces.



Outdoor storage:

Outdoor storage is permitted in exceptional situations, and only for a very short period of time. In this situation:

- store the products under a roof
- ensure good ventilation under and between the windows.
- only in very special cases may the products be stored under tarpaulin. In this case, the top and the sides of the products must be tightly covered.
- the products should be stored upright, on flat joists, at least 20 cm above the ground level
- the space under the tarpaulin should be well-ventilated
- components delivered separately, like fittings or handles, should be stored indoors



4. Installation – general guidelines

4.1 Conditions of installation in buildings

Correct installation of windows is important for their proper use. Installation performed by persons not qualified of appropriate qualifications in this respect can cause deformation of frames, leaks, decreased durability of the products, difficult opening and closing of the sashes, as well as the loss of warranty.

Before starting the installation, it is necessary to check the load capacity of walls surrounding the windows, so that the materials fastening the windows have the sufficiently strong mechanical connection with the walls. It should be remembered that no forces from walls or ceilings can be transferred to the windows.

Those responsible for installation should ensure maintenance of the following conditions during and after installation of the joinery:

- According to the good engineering practice, wooden windows and doors may be installed only after completing all the wet works in the building, such as flooring, plastering, and only if the humidity in the building not exciding 40-70%. The windows are not allowed to get damp due to the relative indoor air humidity over 70% (condensation of vapour on the window elements). It is required to check the air humidity and ensure systematic ventilation or drying of the rooms. The relative indoor air humidity in excess of 70% may cause deformation of the window elements, such as deformation and warps, gaps in tenon joints, gaps in glazing bead joints, swelling of the elements and difficulty in opening and closing of the sashes. Installation of the joinery carried out at the customer's request prior to wet works, may invalidate the warranty.
- Conditionally, it is permissible to perform the installation before the wet works in the building. The absolute condition in this case is to maintain the air humidity in the room between 40 and 70%. It is also absolutely necessary for the construction site management to protect the products against mechanical damage and dirt which may occur during the works of other subcontractors.

4.2 Requirements for joining products with walls

Connections between windows and balcony doors and the building walls should meet the following requirements:

- air permeability,
- water tightness,
- water vapour permeability from the room,
- thermal insulation not lower than a window thermal insulation,
- acoustic insulation corresponding to window insulation plus 15 dB,
- resistance to UV radiation,
- durability,
- aesthetic qualities,
- hygiene.

5. Windows and balcony doors installation

5.1 Placement window in wall opening.

Windows and doors should be situated in the wall opening in such a way, that there were no thermal breaks causing condensation of vapour on the inner side of the frame or on the wall opening surface. The general principles of window placement are presented in Fig. 1

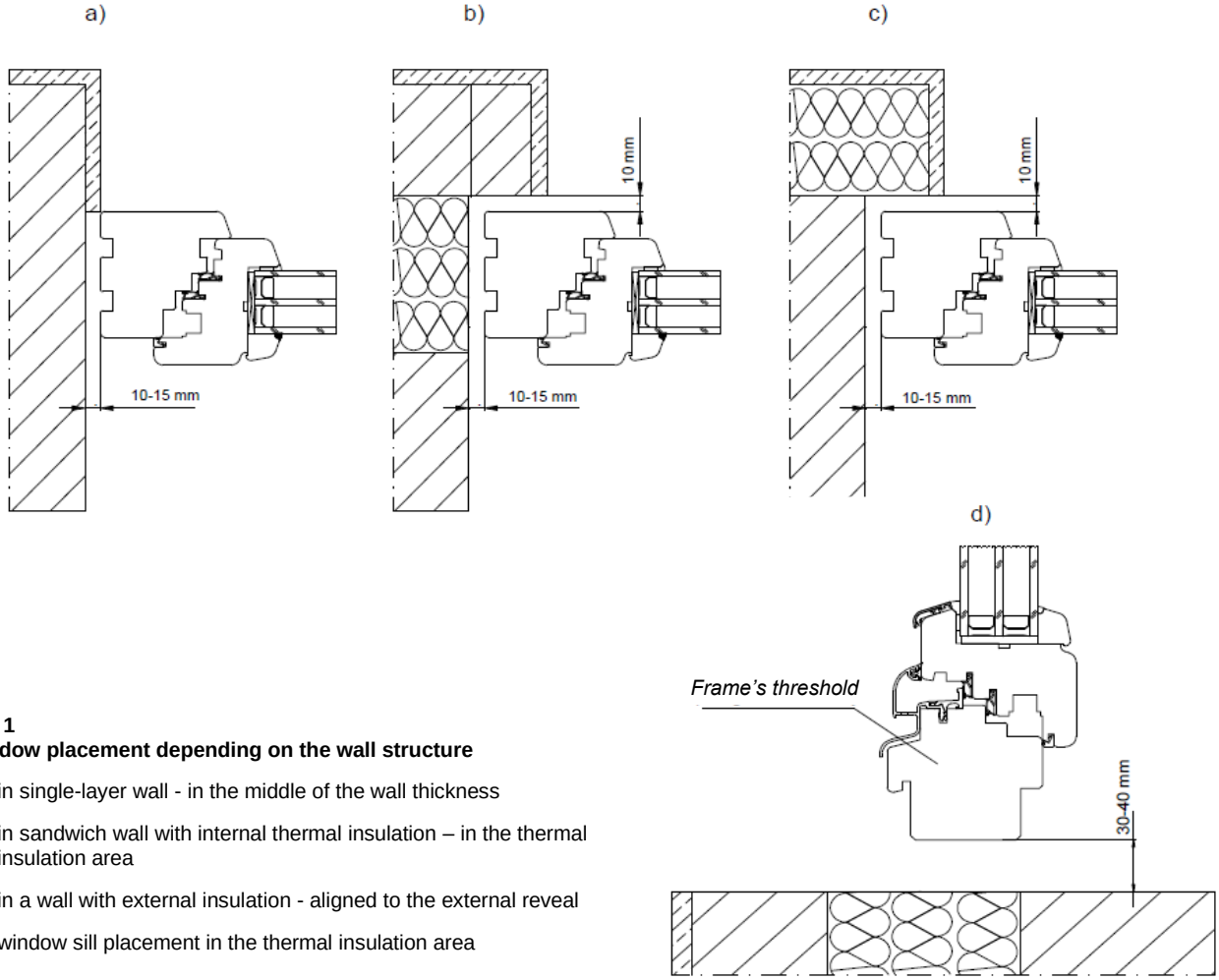


Fig. 1
Window placement depending on the wall structure

a) in single-layer wall - in the middle of the wall thickness

b) in sandwich wall with internal thermal insulation – in the thermal insulation area

c) in a wall with external insulation - aligned to the external reveal

d) window sill placement in the thermal insulation area

First, before installing the window in the wall opening, it is necessary to measure the openings and ensure that the perimeter gaps between the opening and the window frame are wide enough, and whether there is space for distance and supporting wedges from the bottom. It is also necessary to check the the plumb, level and square of the opening.

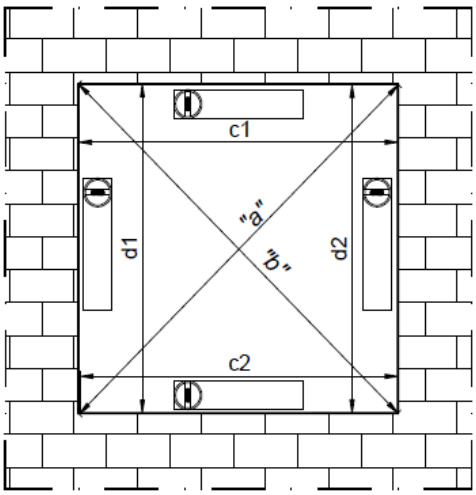


Tabelle 1. limit deviations of the wall opening diagonals

Diagonal length	Up to 0,5 m	0,5-1 m	1-3 m	3-6 m
Deviation „a-b"	±3 mm	±6 mm	±8 mm	±12 mm

Tabelle 2. limit deviations from the nominal size of the wall opening (width, height)

Height or width	Up to 1 m lang	1-3 m	3-6 m
Deviation	±8 mm	±10 mm	±12 mm

The minimum width of the gap between the window frame should be 10 mm with flexible putty sealing or 6-8 mm with impregnated expanding tape sealing. The maximum size of the gap should not exceed 40 mm (or 30 mm if single-component PU foam is used). In the case of the wall opening with reveals, it is recommended to set the window in such a way that the reveal covers the jamb posts and top frame of the window to a width not exceeding half width of the frame. To support the threshold of a window, blocks, wooden beams, steel angles are used. The methods of supporting the threshold are presented in Fig. 2.

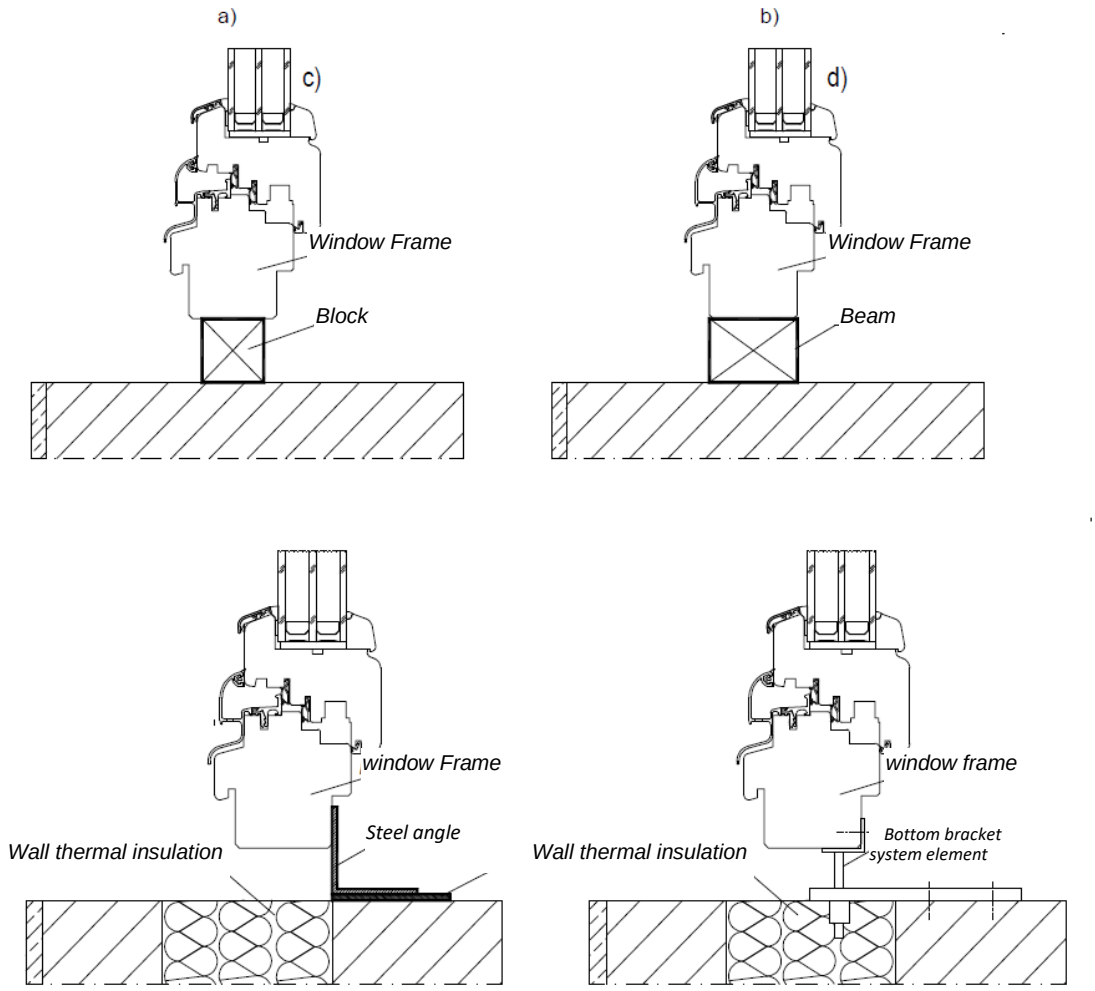


Fig.2 Methods of supporting the window frame threshold

a) with support blocks

b) with beams

c) with steel angles

d) with system supports (brackets)

5.2 Installation window in wall opening

The windows should be fixed to the walls using approved system anchors or expansion screws (dowels). Before starting the installation, the sashes should be removed from the frames and the mounting anchors should be fixed in the frame, or the holes for the expansion screws should be drilled, as per Fig.3.

The fixing points are to be determined according to the following rules:

- distances between fixing points cannot exceed 800 mm
- distance between fixing points and frame corners should come to 50-70 mm
- fixing places should be made as close to the hinges as possible
- fixing places should be determined in such a way that the fixing elements
- (dowels or anchors) could be attached to solid fragments of the frame.

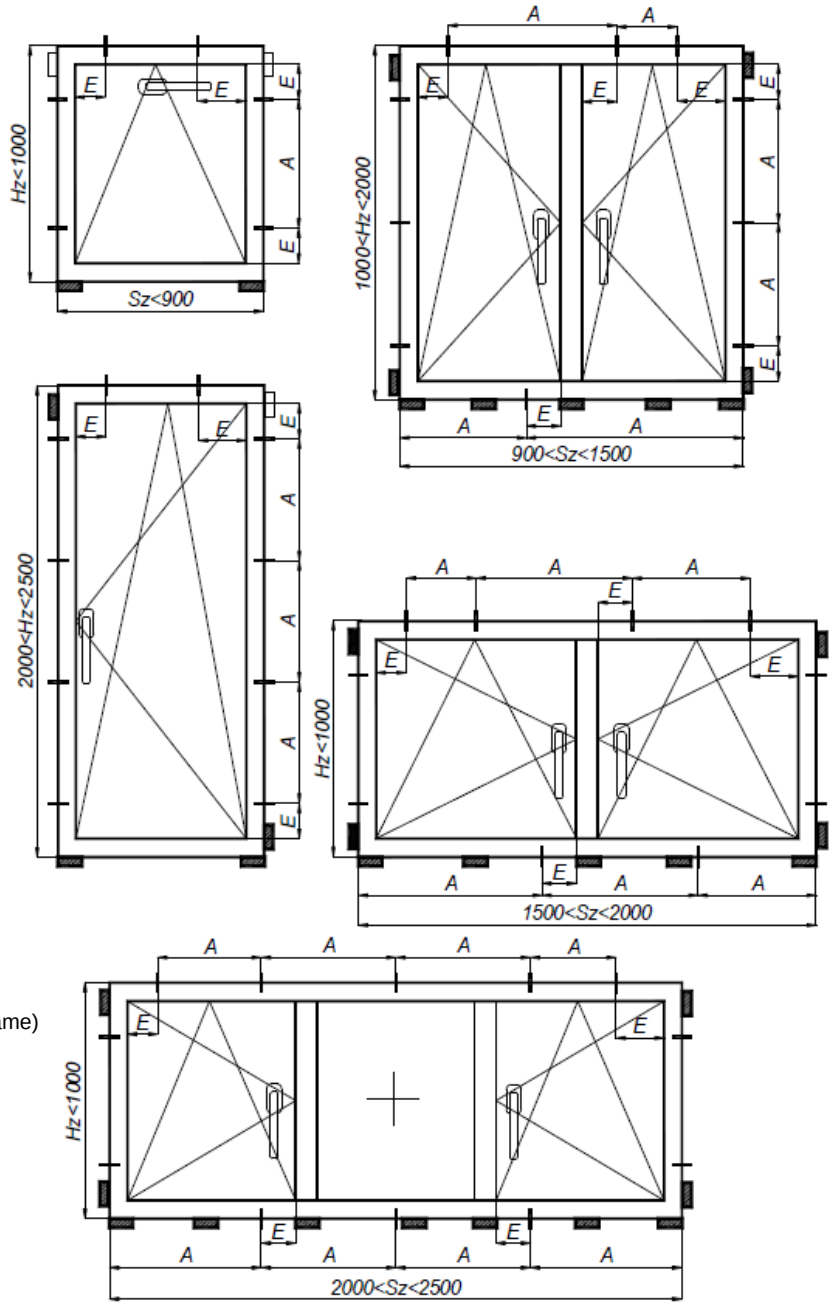


Fig. 3 Window support and fixing points

1. Dimension "A"= 800 mm
2. Dimension "E"= 100 : 150mm

(measured on the inside of the window frame)

Support block spacer

Block

Fixing point

After making the openings or fitting the fixing anchors, set the window in the wall opening on support blocks and immobilize it with wedges, while observing the following principles:

- checking the square, level and plumb of the frame (acceptable diagonal difference - 2mm) Fig. 4
- wedge the frames at the height of tenon knots (frame corners)
- maintaining at least 10mm of clearance between the frame and the wall opening
- checking the opening and closing of the sashes after their installation
- **Maximum diagonal difference „a”- „b”=± 2mm**
- **Maximal Permissible deviation from the plum and level - 1mm/m**

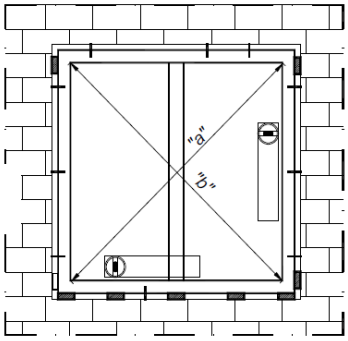


Fig. 4. Checking the window frame setting in the wall opening

After completing the aforementioned actions, fit the frame to the wall, taking care not to change position of the elements. Drill holes in the wall through the previously prepared openings in the frame, or openings in the fixing anchors. Before final tightening of the expansion screws, insert a wooden spacer into the gap between the frame and the wall opening, whereas the spacer is to be as wide as the gap, so that the frame did not bend during tightening. After fixing to the wall, remove fitting wedges, leaving the support blocks in place. The next step is to seal the space between the frame and the wall opening with fitting foam.

Before applying the foam, if the windows are large-sized, particularly in the case of balcony doors, it is necessary to fit horizontal and vertical struts, so that the frame elements would not bend. Once the foam is dry, cut off its excess and start processing the wall opening surface, protecting the joinery against dirt.

5.2.1 Installation of EURO windows and doors (outward opened windows and doors)

Installing the window using only frame dowels, screws or anchors without using support blocks is insufficient. The arrangement of support elements, depending on the way the windows are opened, is shown in Fig. 5.

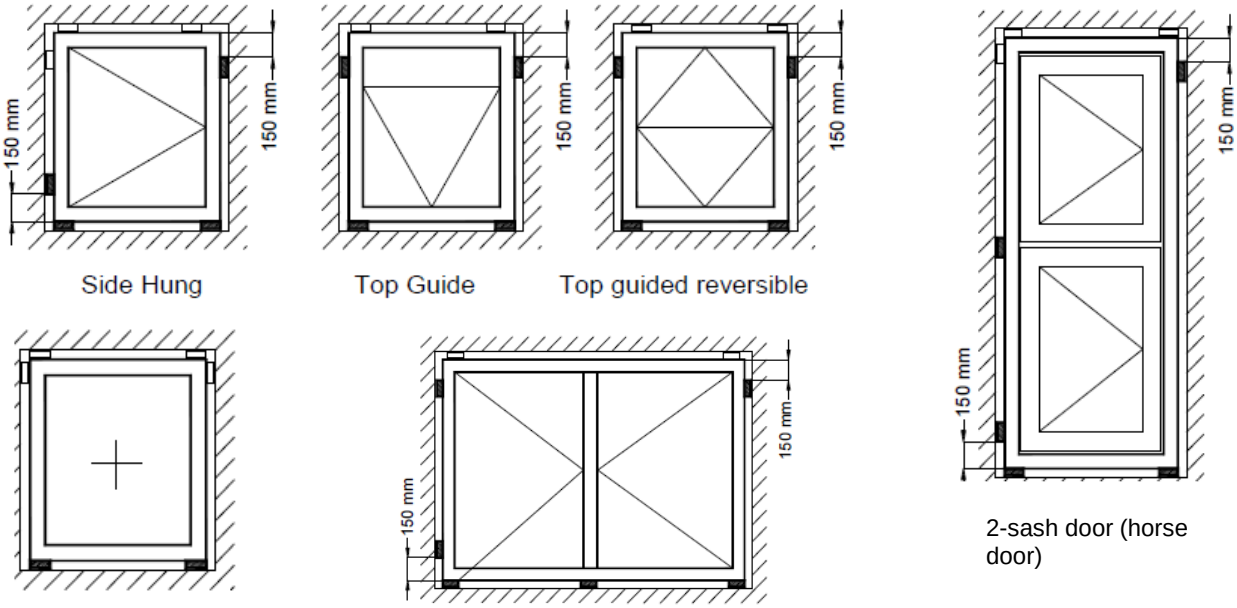


Fig. 5. Basic arrangement of support points for EURO windows

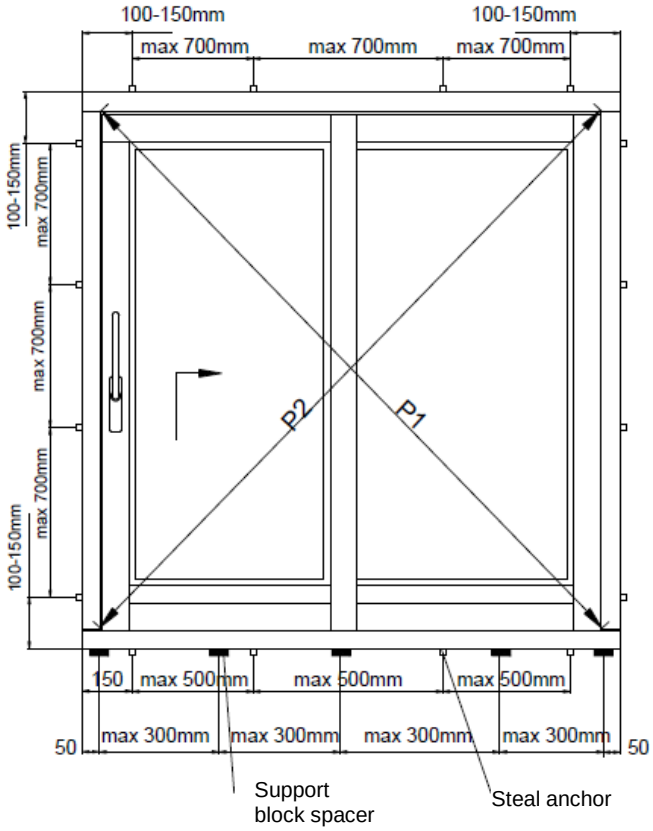
Support block spacer

Block

CAUTION: do not remove the support blocks.
For complex structures, e.g. window-door combinations of fix glazing, support and fixing must be made based on individual designs and calculations.

5.2.2 Installation of HS lift and slide doors (HS)

Lift and slide doors, due to usually large dimensions concerning the structure and weight, are to be installed on an evened, and steady floor (Fig. 6), adjusted vertically and horizontally, and properly secured with dowels to the wall. The clearances should be at least **20 mm.** The door threshold should be supported along the entire length, with maximum spacing 300 mm, and fixed with anchors to the ground. If necessary, the extension profiles can be used. The insulation of the threshold must be made as per Fig. 6. The upper surface of the threshold should be at least 5 mm above the finished floor from the inside. Permissible diagonal difference P1-P2 – 2 mm. Deviation from plumb and level - **0.3mm/m**



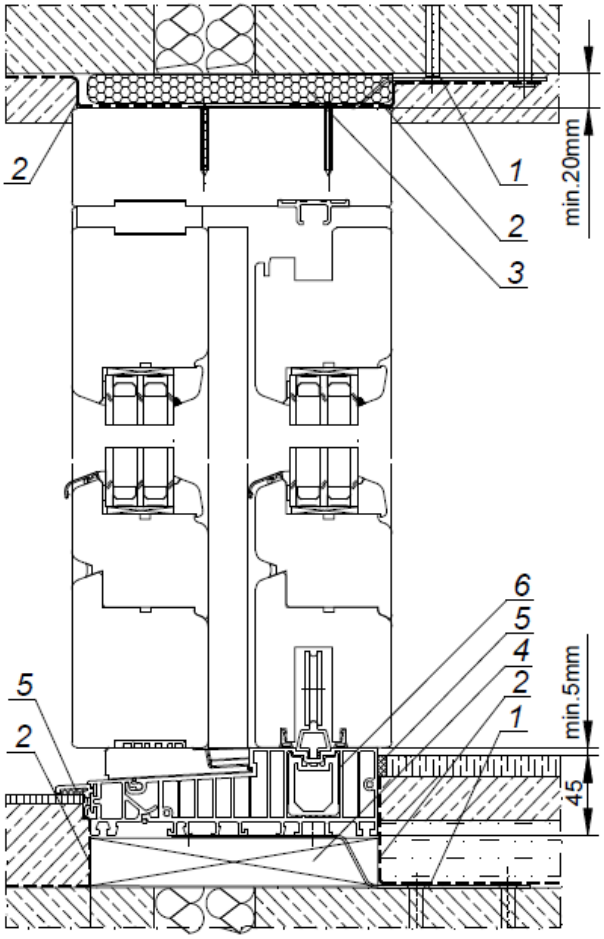
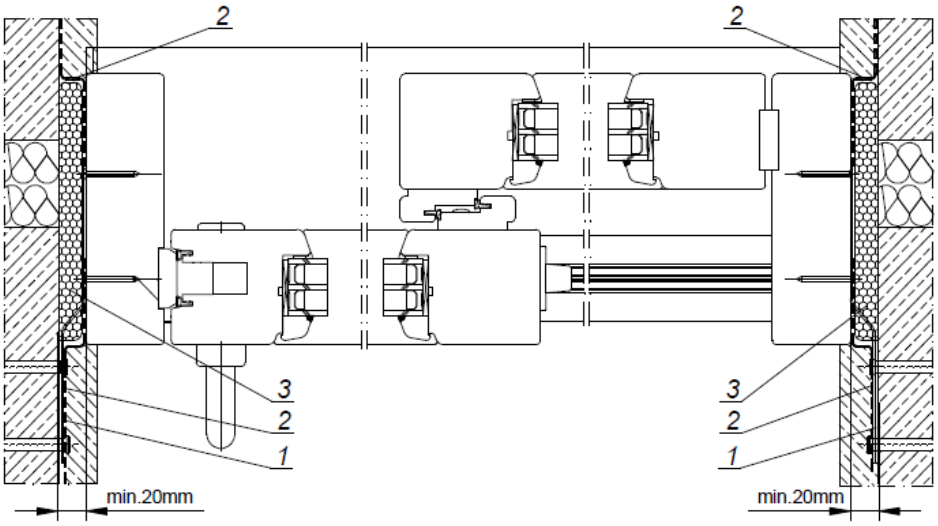


fig. 6 Example of HS door
1– steel anchor, 2 – insulation film, 3 – polyurethane foam, 4 – threshold support (block, beam, system support e.g. XPS,PURENIT, 5 – silicone, 6-threshold



5.2.3 Installation of ECOSLIDE slide doors

Slide doors ECO SLIDE are to be installed on an evened and steady surface (Fig. 7), adjusted vertically and horizontally, and properly secured to the wall with dowels or screws. The clearances should be at least **20 mm.** The door threshold should be supported along the entire length on a continuous ground sill and sealed as per Fig. 7. Permissible diagonal difference P1-P2 – 2 mm

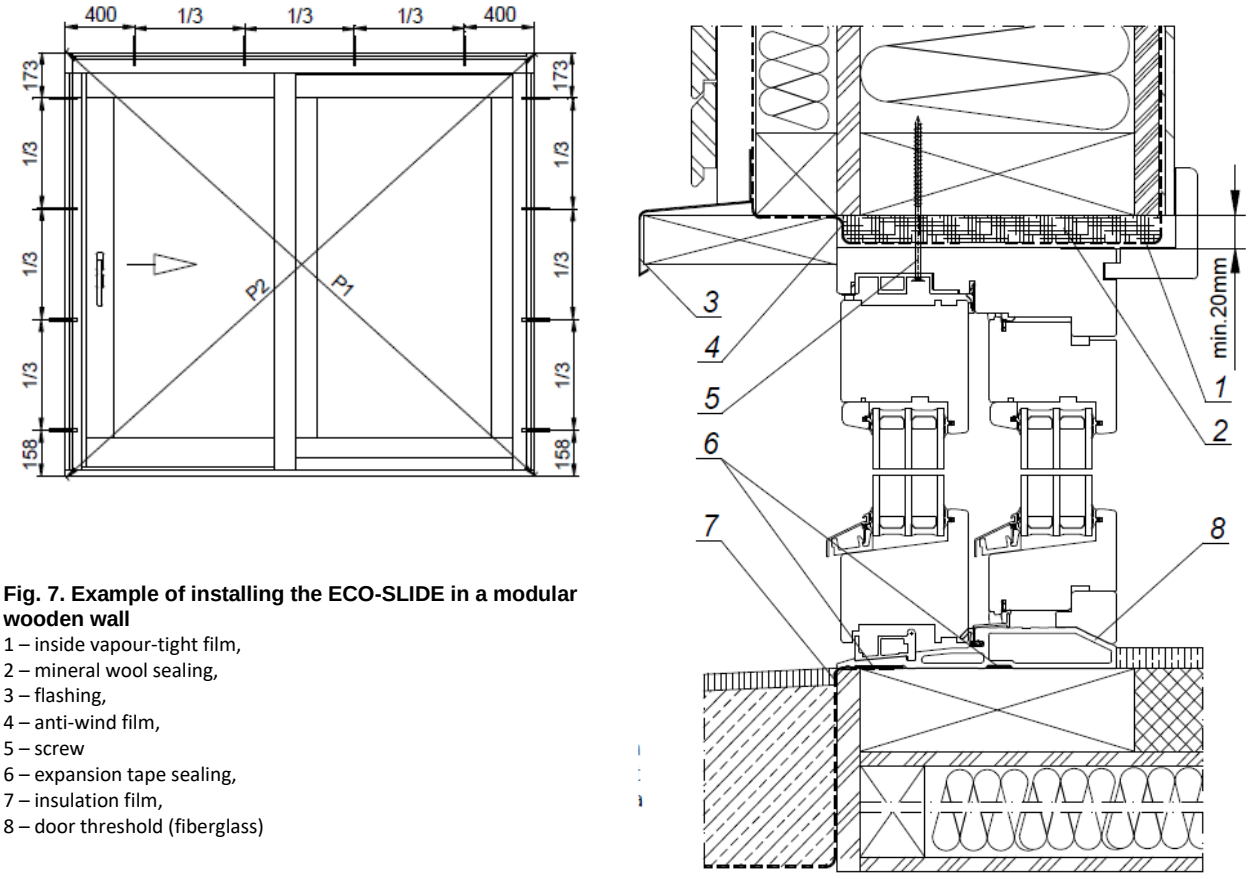
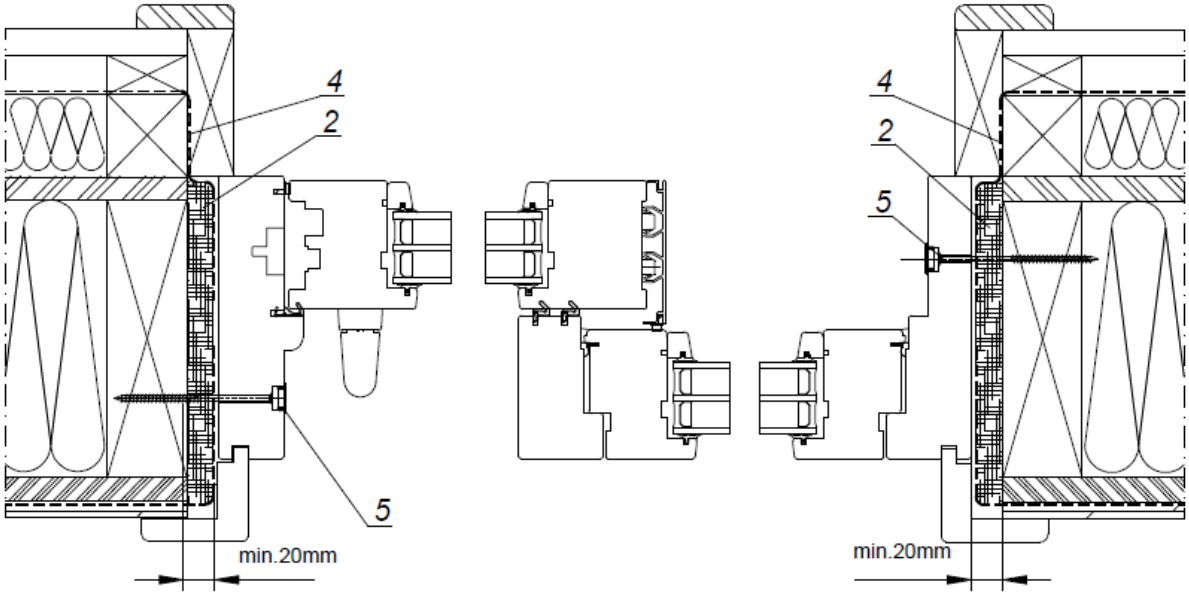


Fig. 7. Example of installing the ECO-SLIDE in a modular wooden wall
1 – inside vapour-tight film,
2 – mineral wool sealing,
3 – flashing,
4 – anti-wind film,
5 – screw
6 – expansion tape sealing,
7 – insulation film,
8 – door threshold (fiberglass)



5.3 Combining windows into sets

Window connection in horizontal set should ensure tightness against rainwater and air permeability and proper matching of the combined units. The joints are made with tongue and groove, seated in the grooves of the door side jambs along the entire length, sealed with silicone and screwed together, spaced no more than **500 mm apart.** Additionally, cover strips can be used (fig. 8).

Joining windows into vertical set requires installation another vertical element between the frames of the adjacent windows, in order to stiffen frame elements.

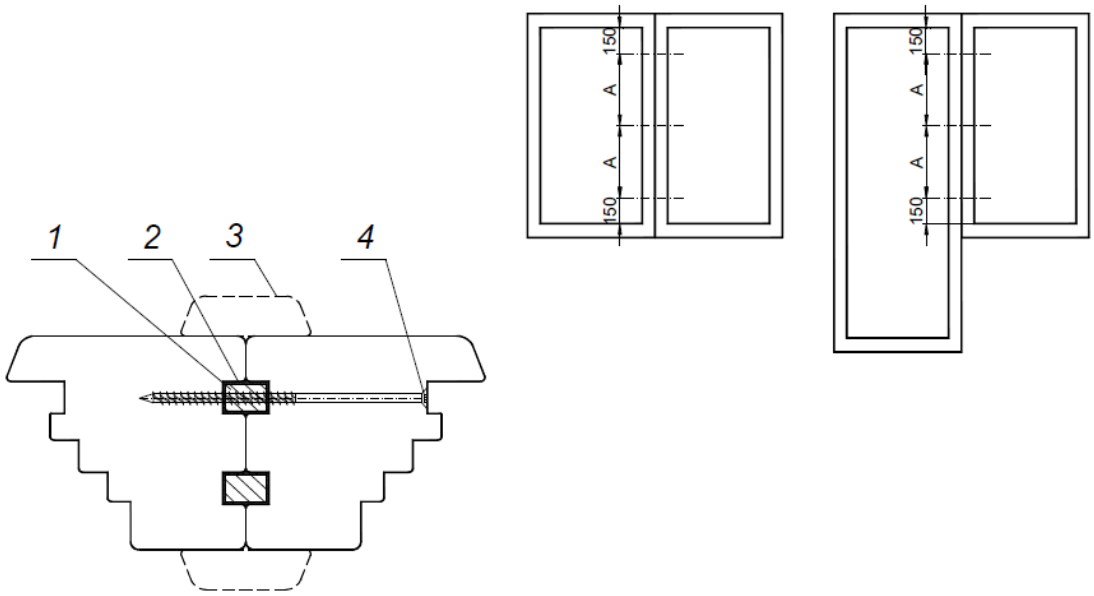


Fig. 8. Combining windows into sets

A – maximum screw spacing 500 mm,
1,2 – connecting joint (tongue and groove) silicone,
3 – cover strip (band),
4 – wood screw

5.4 Sealing and insulating joint between window and wall

The purpose of the sealing is to protect the gap between the window and the wall opening against water, both rainwater from the outside and the vapour from the inside. The general principle of sealing the window-wall joint is: tighter on the inside than on the outside.

Compliance with this principle enables diffusion of vapour through the joint outside the building. When making the sealing, observe the guidelines of the sealing material manufacturers, including:

- chemical compatibility of the adjoining materials,
- cleaning the contacting surfaces,
- grounding the contacting surfaces (depending on the material type),
- requirements concerning humidity and temperature of the base.

The surface of the wall opening at the window fitting location should be smooth, dry and free of dust, otherwise it will be impossible to use sealing and expanding tapes, or PU foams.

Sealing around the window frames consists of three layers: inside, middle and outside.

- **Inside layer – vapour proof**

The inside layer consists of sealing made of vapour-proof tape or permanently flexible sealant. The inside sealing between the window frame and the wall opening should prevent the indoor vapour from permeating to the gap between the window and the building wall, and thus prevent condensation of the vapour in the gap between the window and the wall opening (i.e. in places with temperature lower than the dewing point). Vapour-tightness of the inside sealing should be higher than on the outside. The sealing should be durable and chemically neutral to the surrounding materials.

- **Middle layer - thermal insulation**

The gap between the window frame and the wall opening should be completely filled with a thermal insulation layer. Possible insulation materials are polyurethane foams (two-component foams with controlled foaming are recommended), or mineral wool. The foams used to fill in the joints must not chemically react or release harmful substances. They are to be used in accordance with the manufacturer's guidelines. This concerns in particular the ambient temperature they can be used in and cleanness of the gap to be filled. When injecting the foam, make sure the gap is completely filled, while preventing deformation of the window frame. Mineral sealing materials should fill up the gap between the window frame and the wall opening. Remember to thoroughly fill in any shortages of the insulation material.

- **Outside sealing – vapour permeable**

The outside sealing between the window frame and the wall opening should be vapour-permeable, and at the same time made in such a way as to prevent water to penetrate the gap between the window and the wall. The sealing should be durable and chemically neutral to the surrounding materials. Vapour-permeable films or impregnated vapour-permeable expansion tapes are recommended.

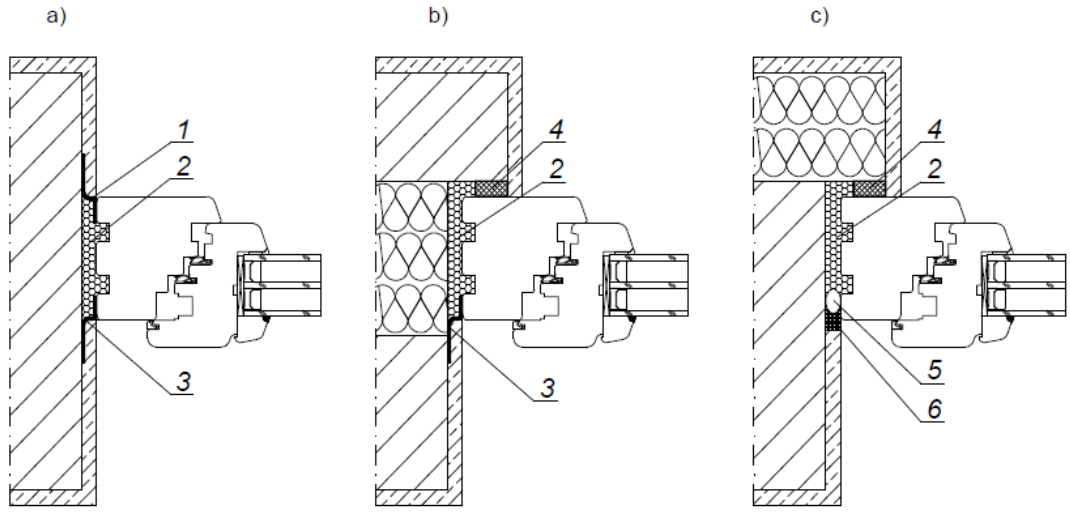


Fig. 9. Window sealing depending on the wall structure

a) in single - layer wall - in the middle of the wall thickness

b) in sandwich wall with inside thermal insulation - in the thermal insulation area

c) in a wall with outside insulation - aligned to the external reveal

1 – outside vapour-permeable tape, 2 – polyurethane foam or mineral wool, 3 – inside vapour-permeable tape, 4 – impregnated vapour-permeable expansion tape, 5 – backer rod, 6 - permanently flexible putty

5.4.1 Installation of window sills

The exterior window sill – regardless of the material it is made of – should protrude about 30-40 mm beyond the wall surface (at least 30 mm). The flange of the sill must be inserted into a groove made in the threshold beam, fixed to the window frame and the joints must be sealed with silicone. In special circumstances, the window sill may be rolled up onto the window frame and attached mechanically, but in this case it is necessary to use self-adhesive expansion bitumen tape between the sill flange, and the joint must be sealed with appropriate silicone putty. In wooden-aluminium windows, the window sill is installed on the window frame below the aluminium section of the frame. When installing aluminium sills, the attention must be paid to:

- temperature-induced dimension size variation (the expansion joints should be spaced every 2,500 mm),
- supporting and prevent the window sill from being uplifted by wind,
- muffling the sound of raindrops (use muffling tapes)
- the end connections between the sills and the wall opening should be selected depending on the specific elevation type,
- ensure continuity of the sides joint between the window sill and the wall opening, as well as in the corners (window-wall-sill),

In the case of sills made of stone or ceramics, the isolation against damp should be put, similarly to sills of balcony door. Inside sills should be seated in the bottom frame section after completing window installation and should be sealed around. The contact surface of the window sill with a frame grove should be sealed in such a way as to prevent water and vapour from penetrating the space under the window frame threshold.

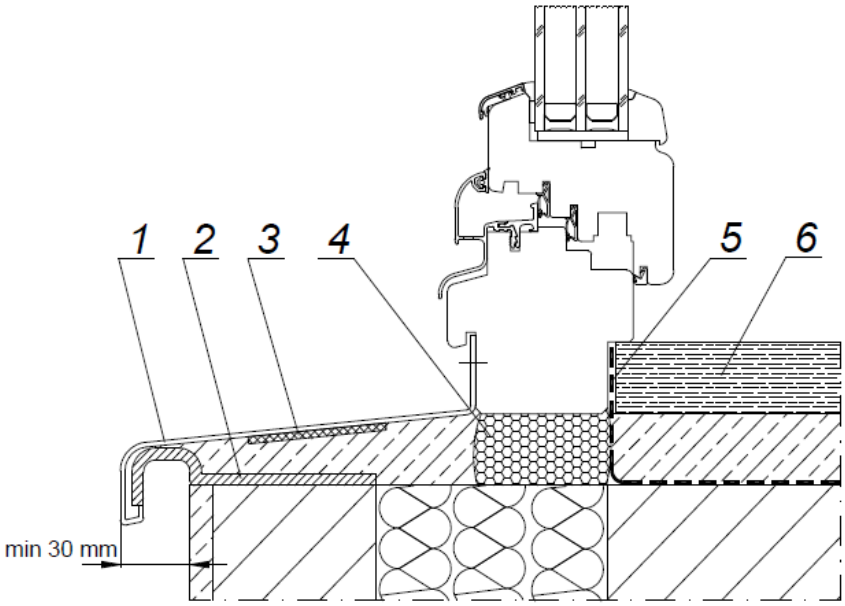


Fig. 10. Example of fitting exterior and interior window sill
1 - aluminium sill,
2 - mounting support,
3 - muffling tape,
4 - polyurethane foam,
5 - vapour-tight insulation film,
6 - interior sill

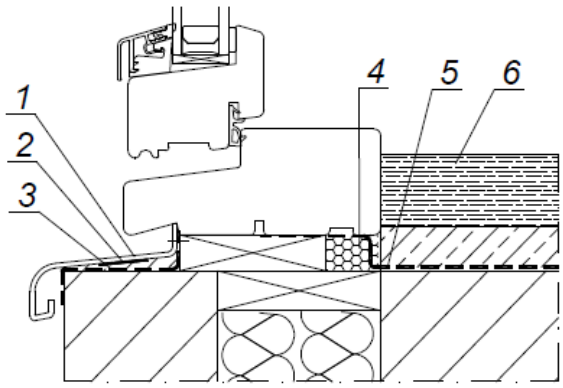


Fig. 11. Example of fitting exterior and interior window sill (Euro windows)

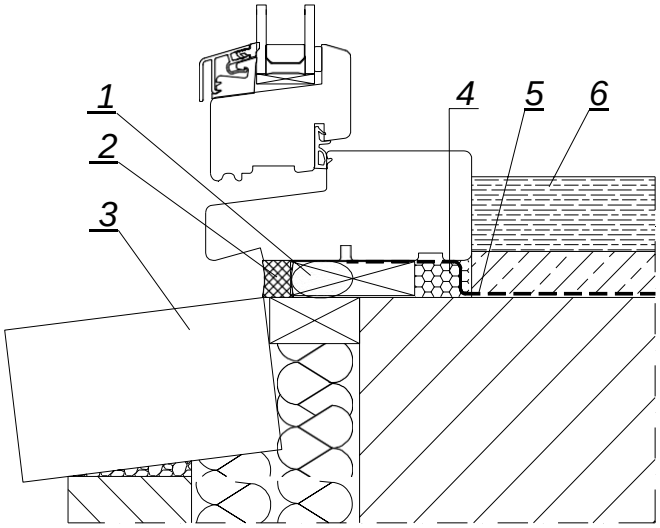


Fig. 12. Example of window threshold sealing in wall with brick outside sill
1 - expansion cord,
2 - permanently flexible putty,
3 - brick outside sill,
4 - sealing,
5 - vapour-tight film,
6 - inside sill

5.4.2 Sealing of balcony door

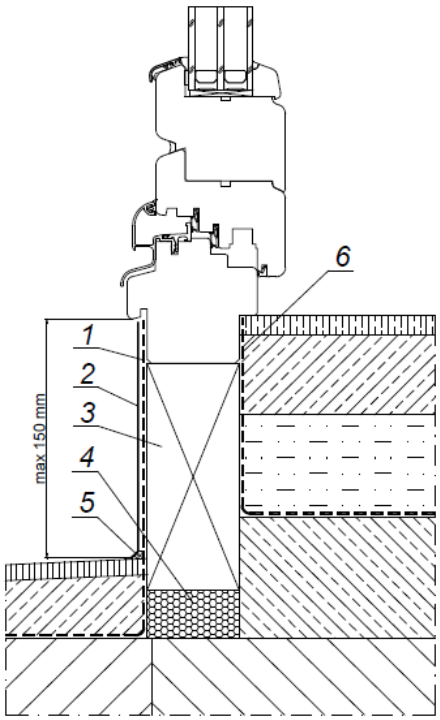


Fig. 13 Sealing of the balcony door
1 - waterproof insulating film
2 - aluminium sill,
3 - supporting beam (impregnated wood, Purenit, XPS)
4 - thermal insulation
5 - silicon
6 - vapor-proof insulating film

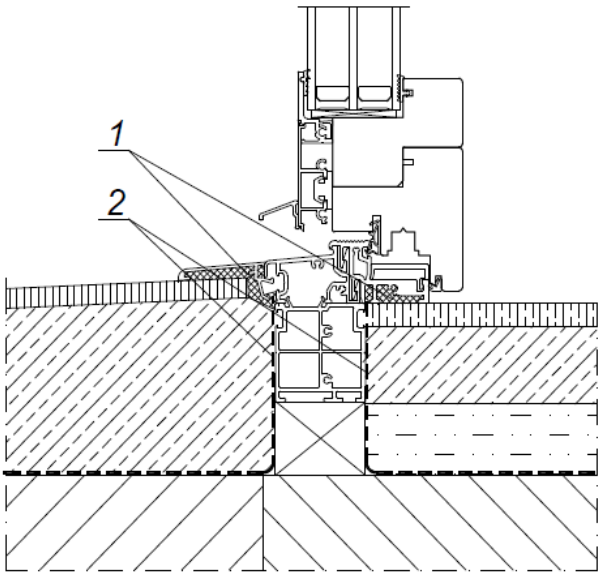


Fig. 14. Sealing of the balcony door with aluminium threshold
1 – Silicon
2 – waterproof film

6. Fittings adjustment

In the production process, the windows are pre-adjusted on the assembly lines. With proper installation of the windows in the building walls, adjustment may not be necessary. Nonetheless, adjustment can be necessary if after fitting the sashes, elements of the fittings or sash rub against the frame, and after the installation, once the windows have settled in the frames

6.1 Fittings adjustment for inward-opening windows

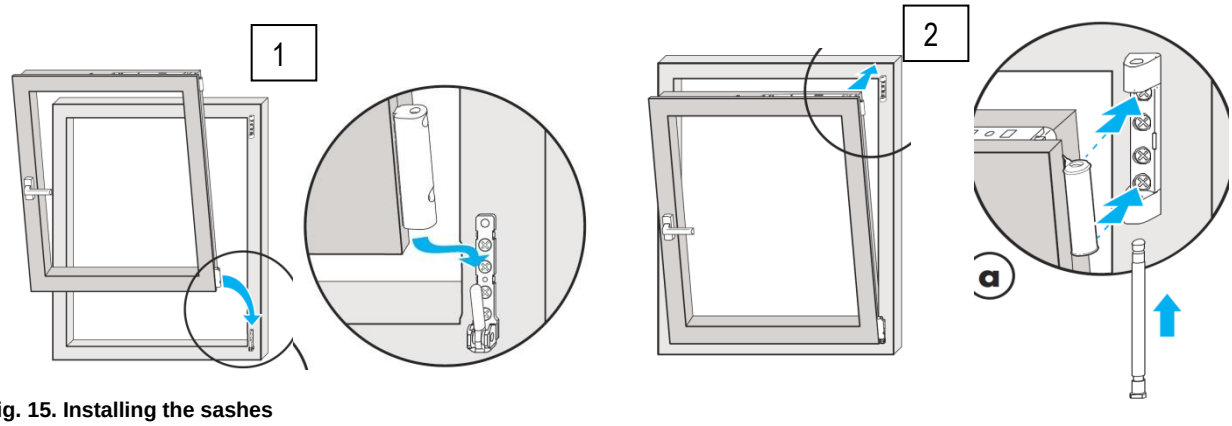
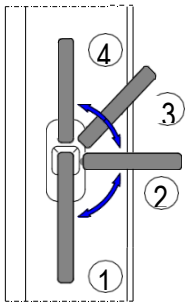
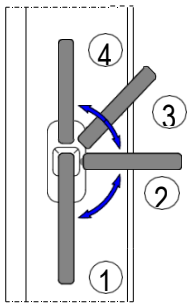


Fig. 15. Installing the sashes
1. Set the handle to “open”, the upper stay should be folded; put the sash onto the pin of the lower hinge;
2. Press the sash against the frame, insert the upper hinge bolt, set the handle to “closed”
Sashes are to be removed in a reverse order.



Handle positions in standard tilt & turn windows
1.Closed, 2.Opened (turned), 3.Micro-ventilation, 4.Tilted



Handle positions in TBT (tilt before turn) windows
1.Closed, 2.Tilted, 3.Micro-ventilation, 4. Opened (turned)

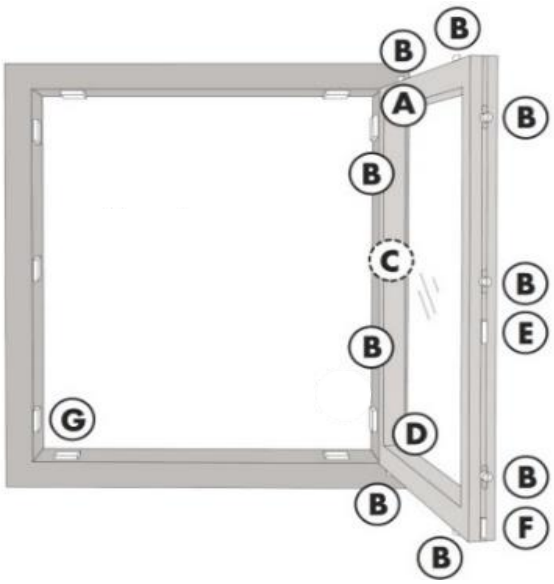
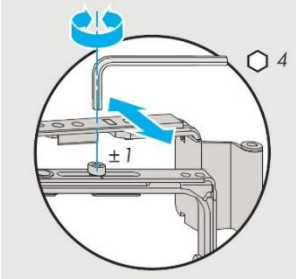
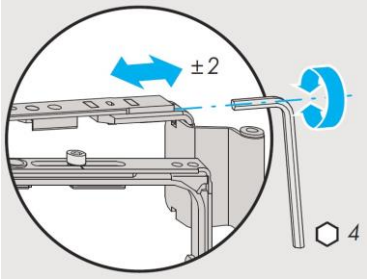


Fig.16. Window adjustment points

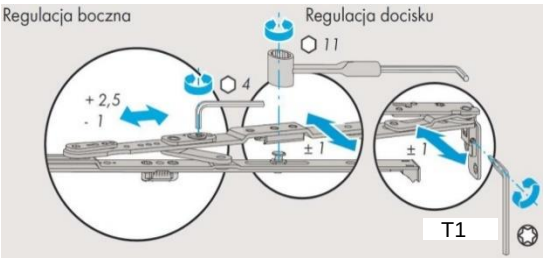
visible fittings– pressure adjustment



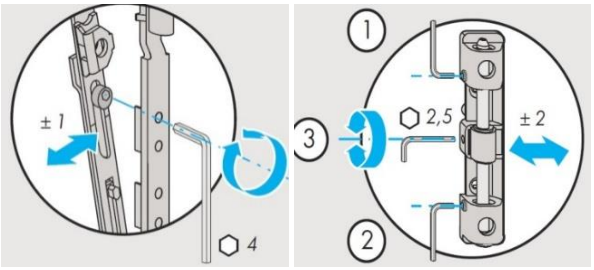
visible fittings – side adjustment



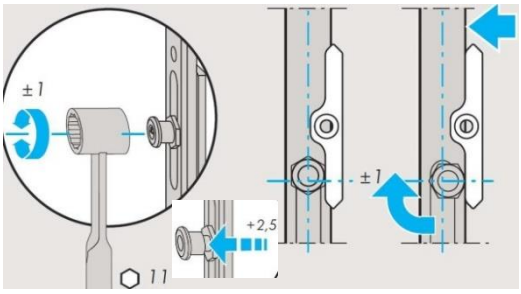
concealed fittings



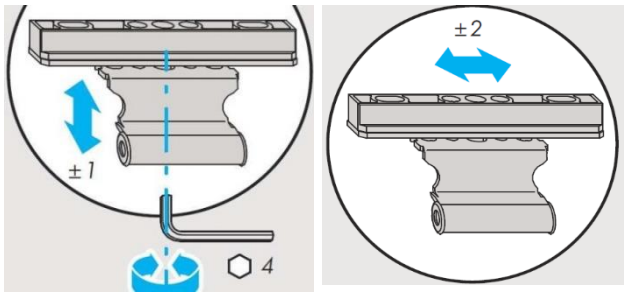
angled and arched windows



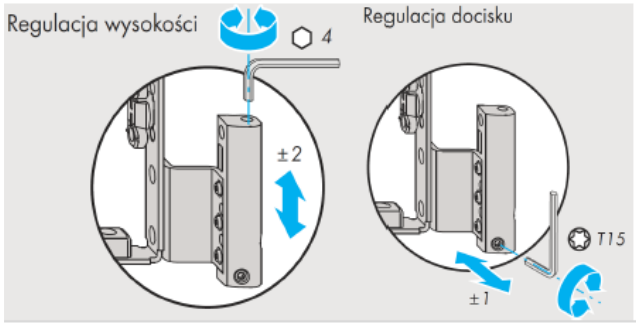
Locking points



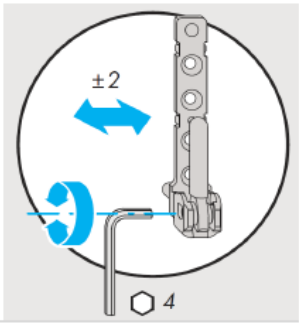
Tilt hinge



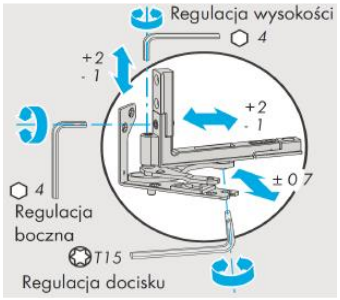
Visible sash hinge



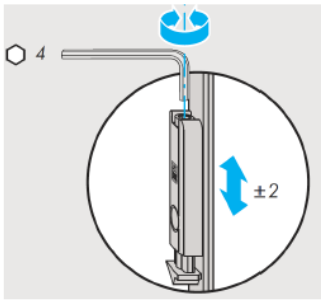
Visible frame hinge



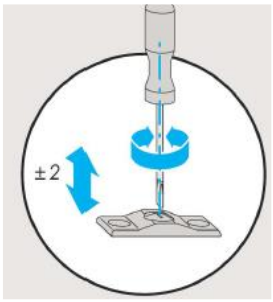
Concealed hinge



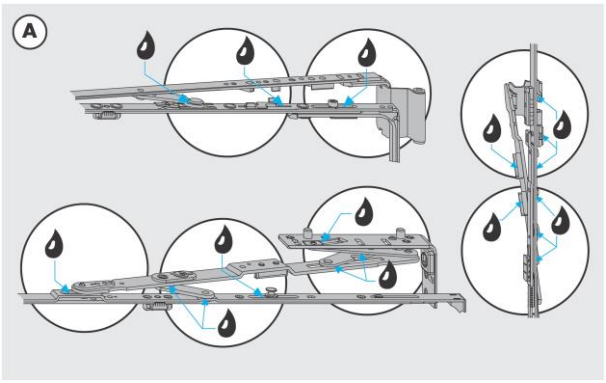
Balcony latch

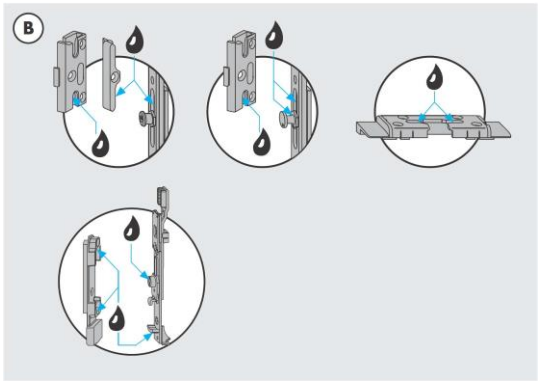


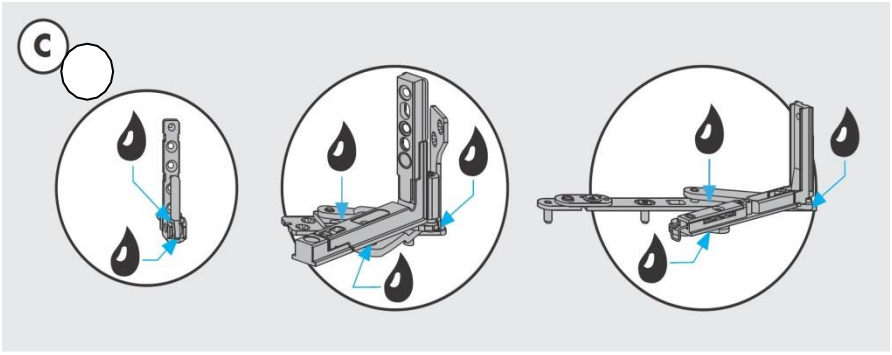
Head run-up (angled, arched windows)



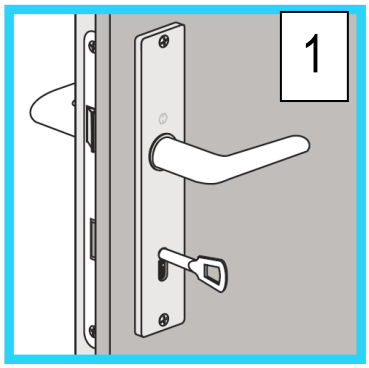
Fittings lubrication for inward opening windows

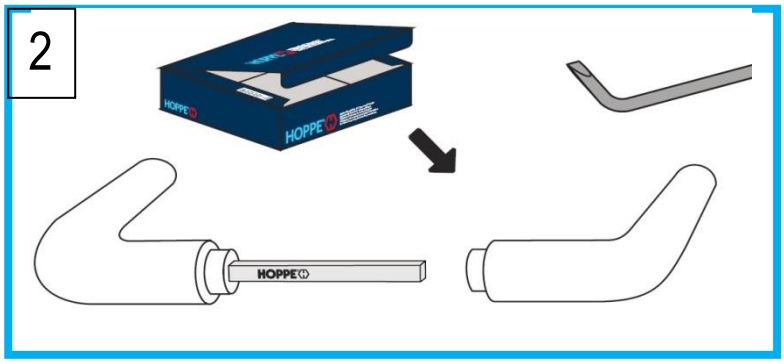


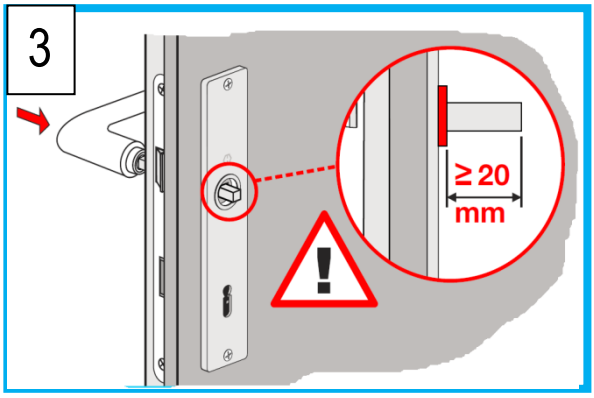


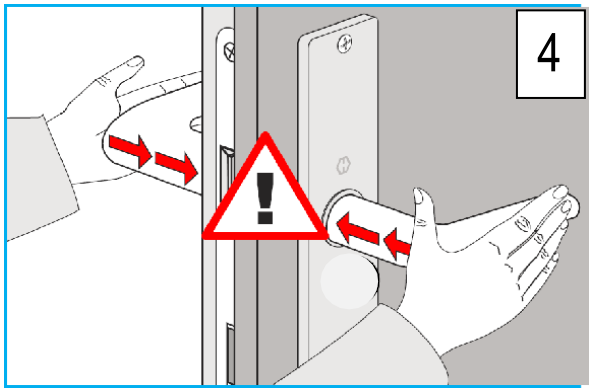


6.2 Installation of two-sided handles









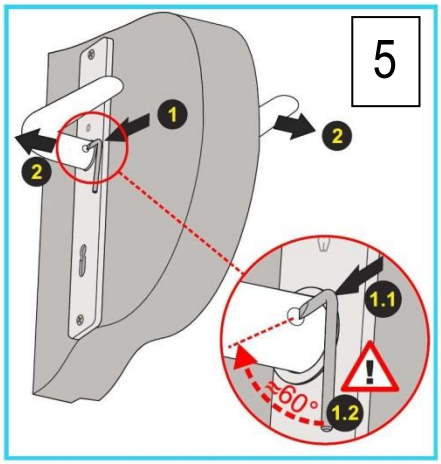


Fig. 18 Assembly and disassembly of double-sided handles

2.Take the handle set and key out of the package

3. Insert the handle with the pin into the cylinder rosette, check how far the pin protrudes outside the rosette. Minimum dimension--20mm

4. Press the handles into the pin

5. In order to disassemble the handles, insert key into the handle opening and turn it about 60 degrees, then pull the handle off the pin

6.3 Fittings adjustment for PSK tilt and slide door

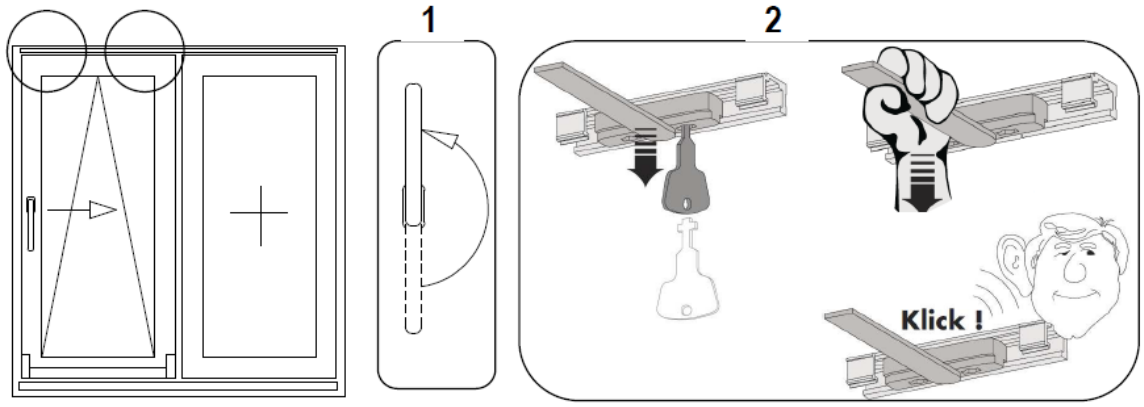


Fig. 19 Removing tilt-and-slide sash

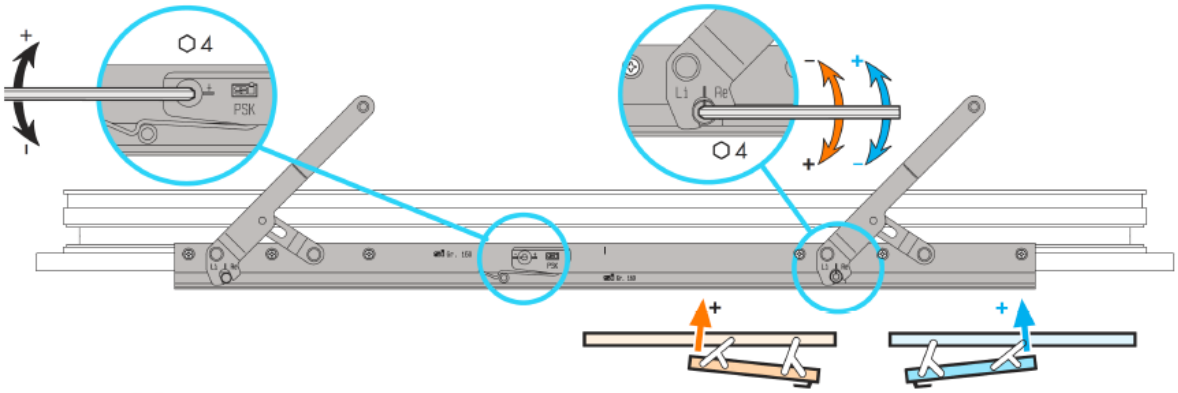
1 – set the handle to tilt position, then tilt the sash

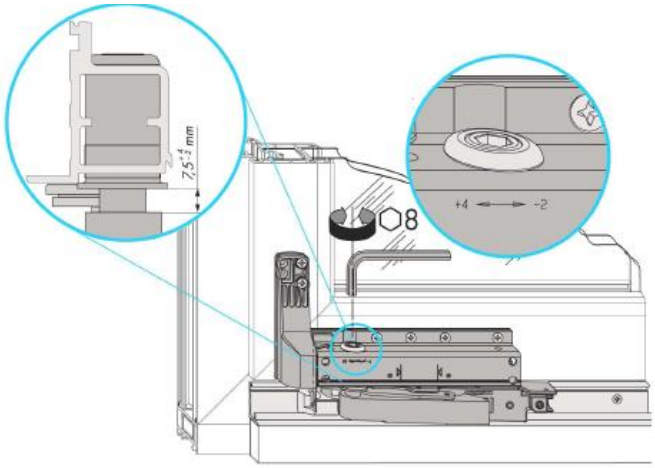
2 – use the key to unlock the latches of the upper stays, remove the arms of the upper stays from sockets

3 – lift the sash

To install the sash, reverse this procedure.

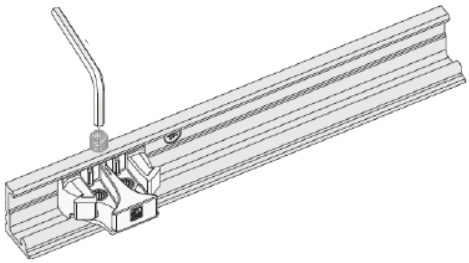
Necessary to check the stay resistance level and adjust if necessary
Do not exceed the maximum adjustment level!





Setting the height of the tilt and slide

positioning of the bolting element
- loosen the Allen screws
- move the bolting element the appropriate way
- re-tighten the Allen bolts (torque 4-4,5 Nm)



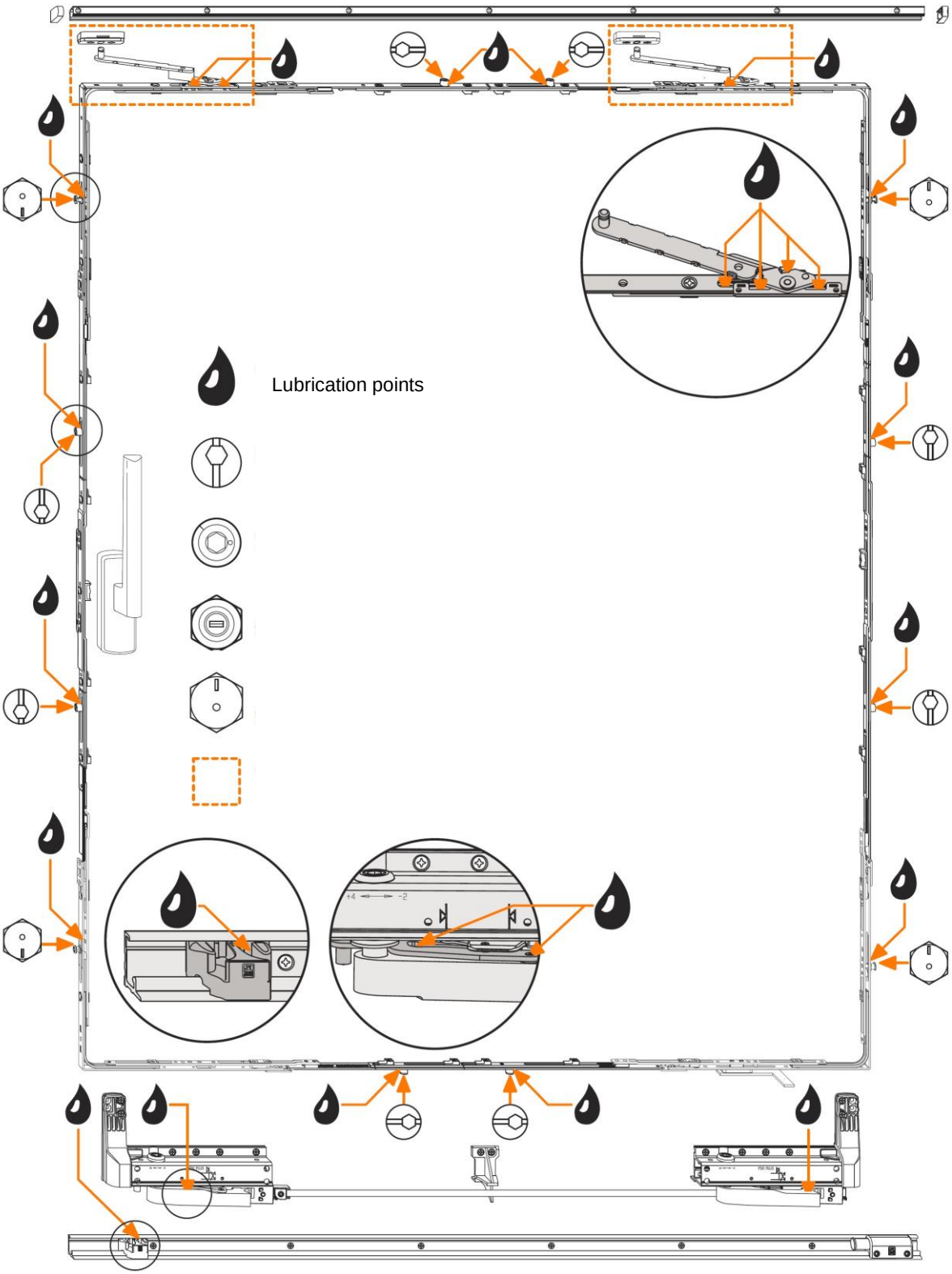
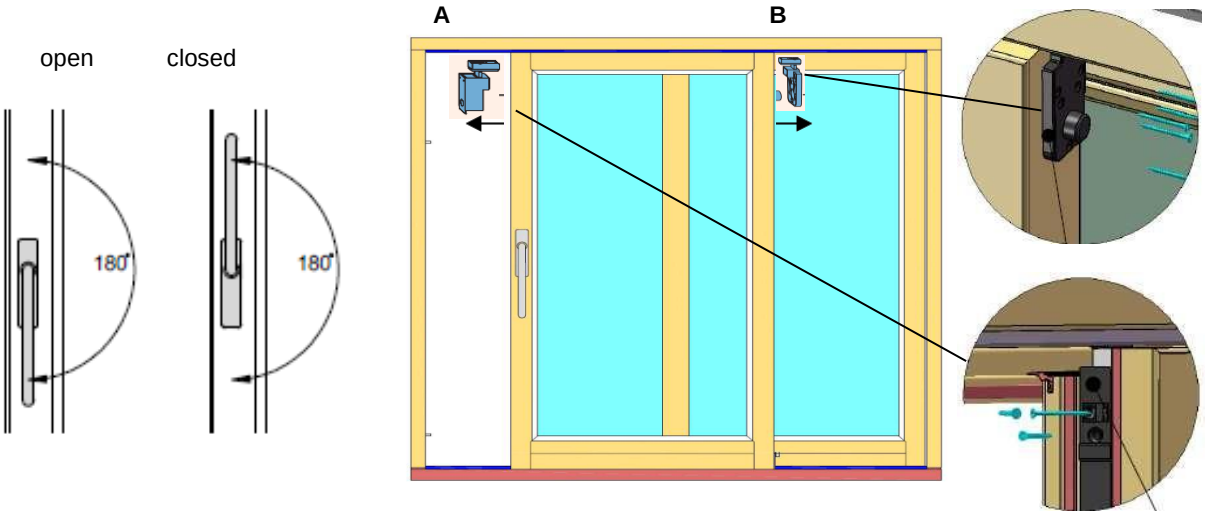


Fig. 20 Lubrication of fittings in tilt and slide sash (lubricants without acid and resin spray are recommended)

6.4 Fittings adjustment for HS lift and slide door



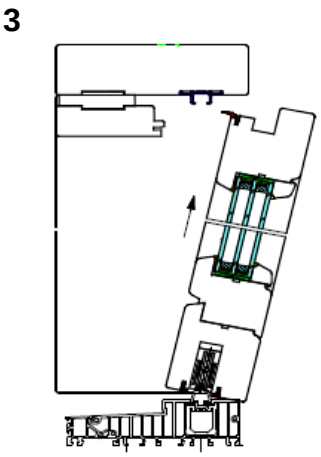
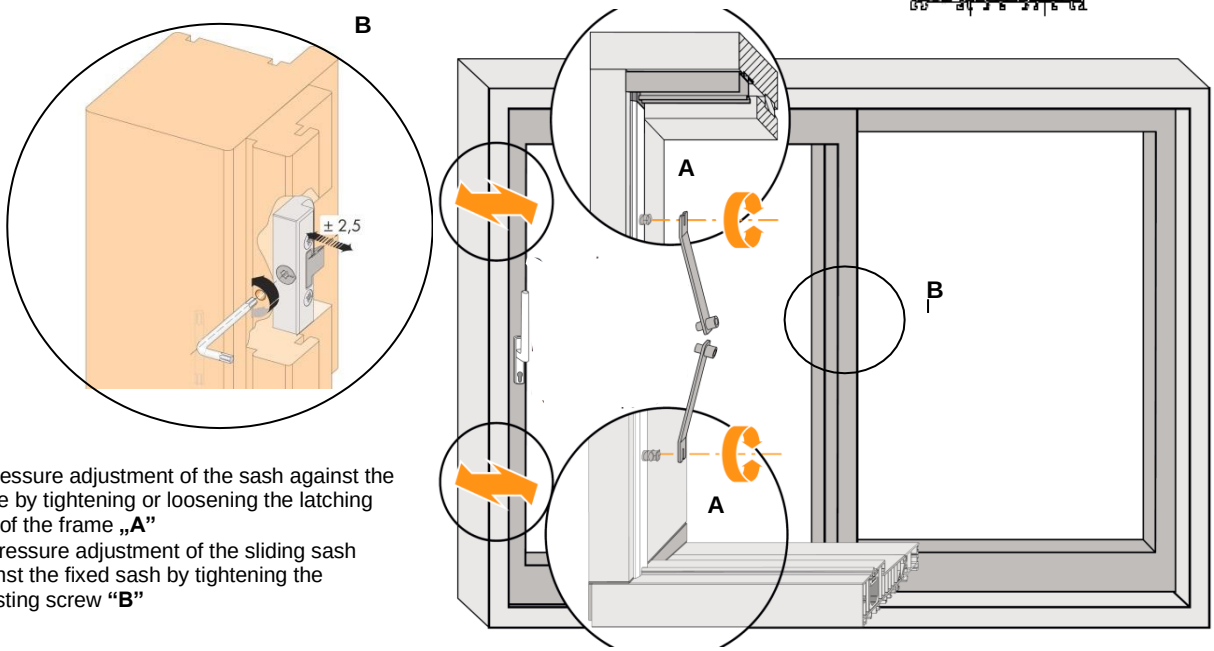


Fig. 21 Removing the sashes

1. Set the handle to “open”, slide the sash
2. Holding the sash, undo the screws which fix the sliders “A” and “B”, then remove the sliders from the sash.
3. Tilt the sash inwards as per point “3”, then, lifting the sash, take it out of the frame

To install the sash, reverse this procedure. CAUTION: the sashes should be removed and installed by at least 2 qualified people



1. Pressure adjustment of the sash against the frame by tightening or loosening the latching pins of the frame **„A”**
2. Pressure adjustment of the sliding sash against the fixed sash by tightening the adjusting screw **“B”**

Installation of handle for HS lift and slide door

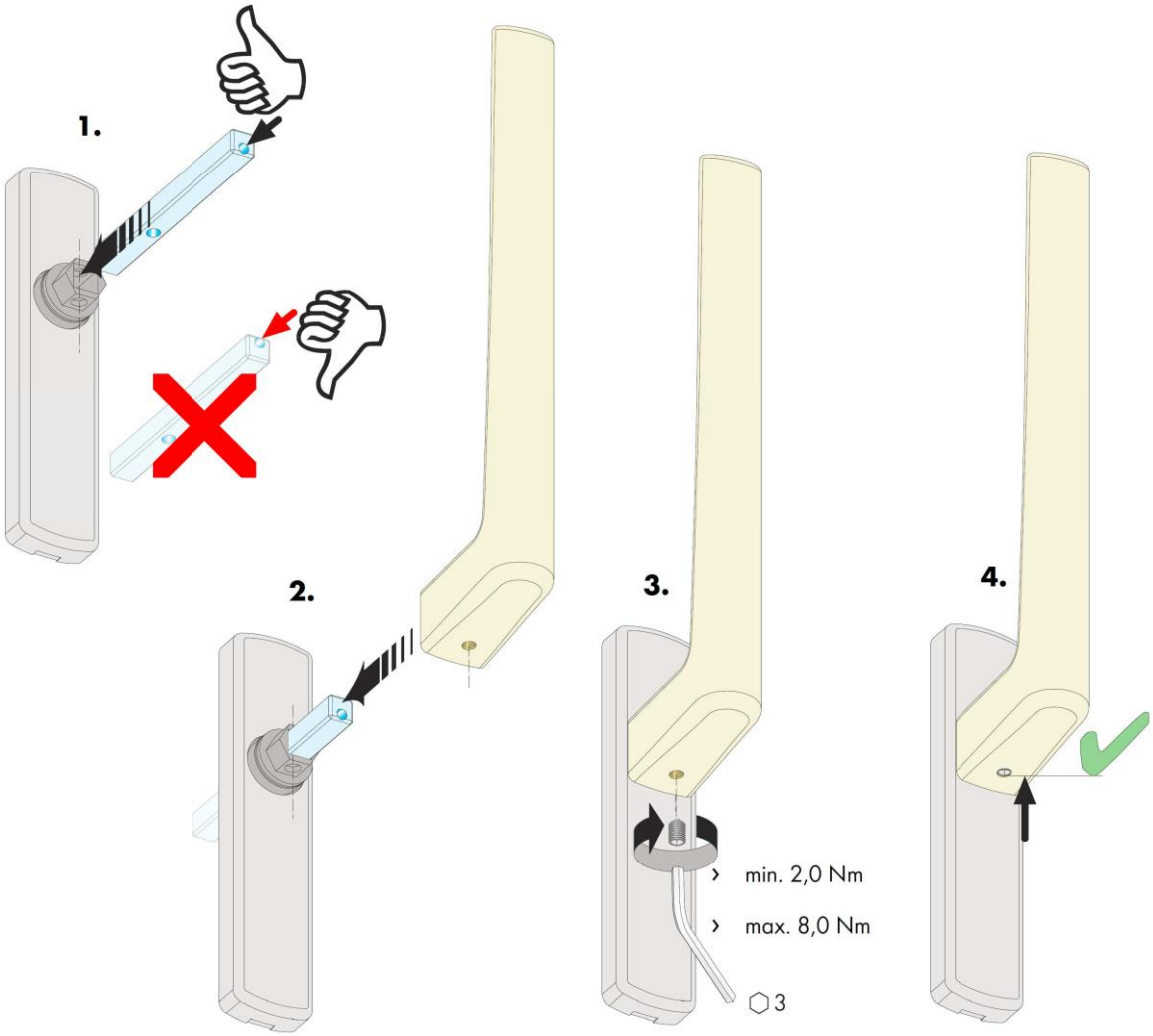
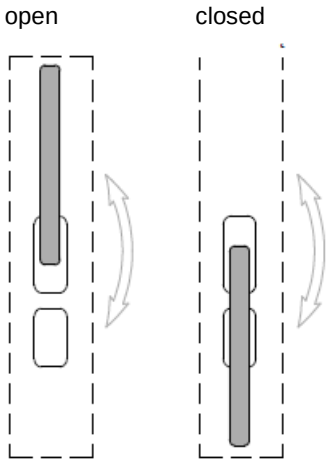
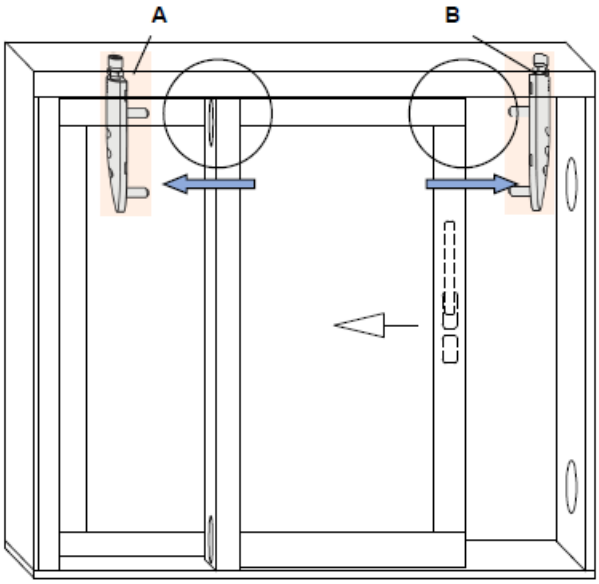


Fig.22 Installing handles in HS lift and slide door

1. Insert the handle pin into the rosette opening, ensuring that the pin is arranged properly, according to mark “1”
2. Insert the handle onto the pin.
3. Use an Allen key to tighten the screw which attaches the handle to the pin
4. Check fastening.

6.5 Fittings adjustment in ECOSLIDE lift and slide door





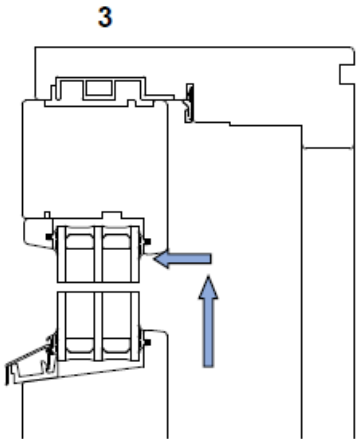
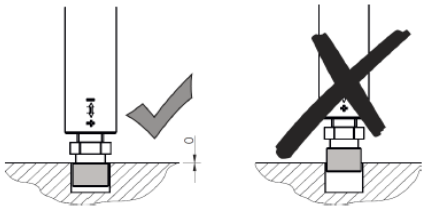
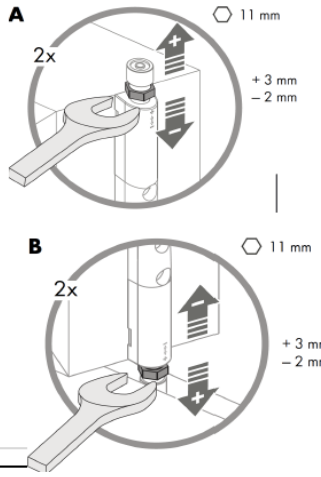


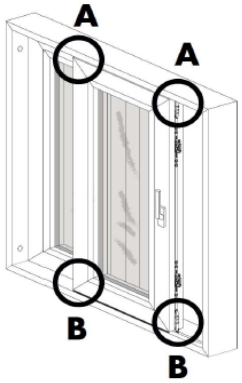
Fig. 23 Removing the leaves

1. Set the handle to “open”, slide the sash
2. Remove the strip covering the slider “A” and, holding the sash, undo the bolts which fix the sliders “A” and “B”, then pull the sliders out of the sash.
3. Tilt the sash inwards as per item “3”, then, lifting the sash take it out of the frame

To install the sash reverse this procedure. CAUTION: the sashes should be removed and installed by at least 2 qualified people



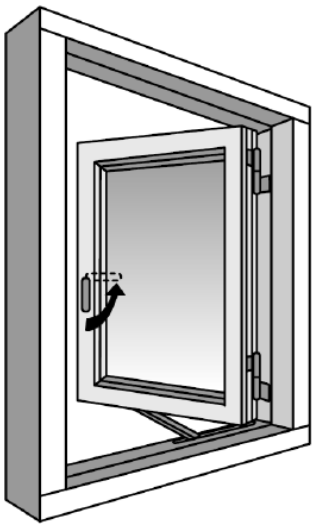


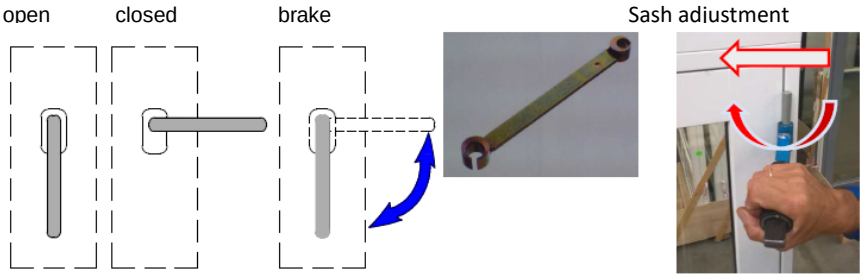


Adjust the overlap of the active sash slides by tightening or loosening the adjustment screws

6.6 Adjustment of EURO/OPTIMA windows and doors

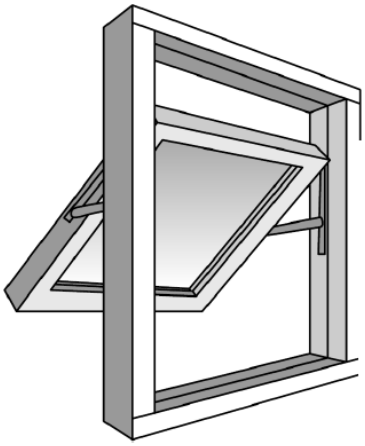
SIDE HUNG WINDOWS





Side Hung windows may be fitted with a handle operated brake, To brake the sash in the opened position, turn the handle to „brake".

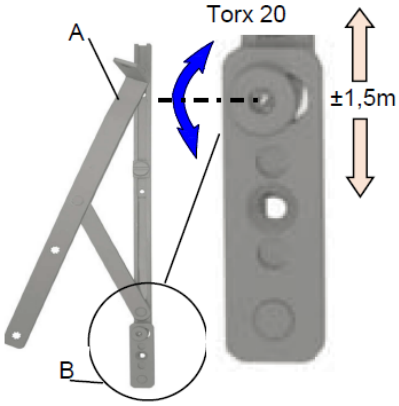
To adjust the gap between the sash and the frame, use the adjustment key to bend the frame hinge as necessary. Sashes can be removed and installed in the open position 90 °.



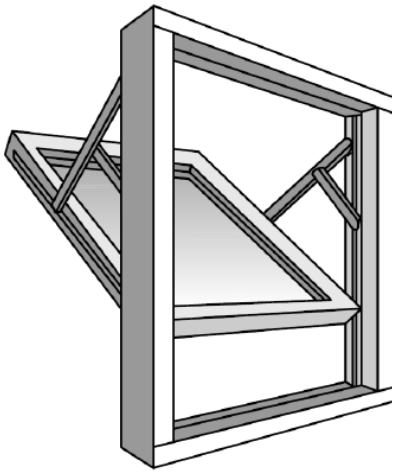
TOP GUIDE

Adjust the position by turning the eccentric bolt "B" with a Torx 20 key; before adjustment, loosen the bolt which fixes the plate "B". To remove the sash, undo the screws which fix part „A" of the fitting and pull the sash out.

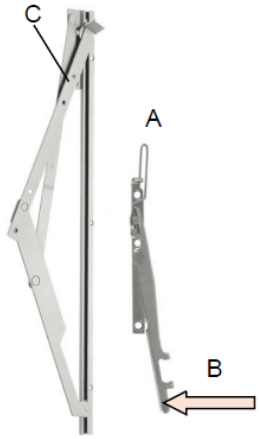
At least 2 people are required to remove the sash



TOP GUIDED REVERSIBLE

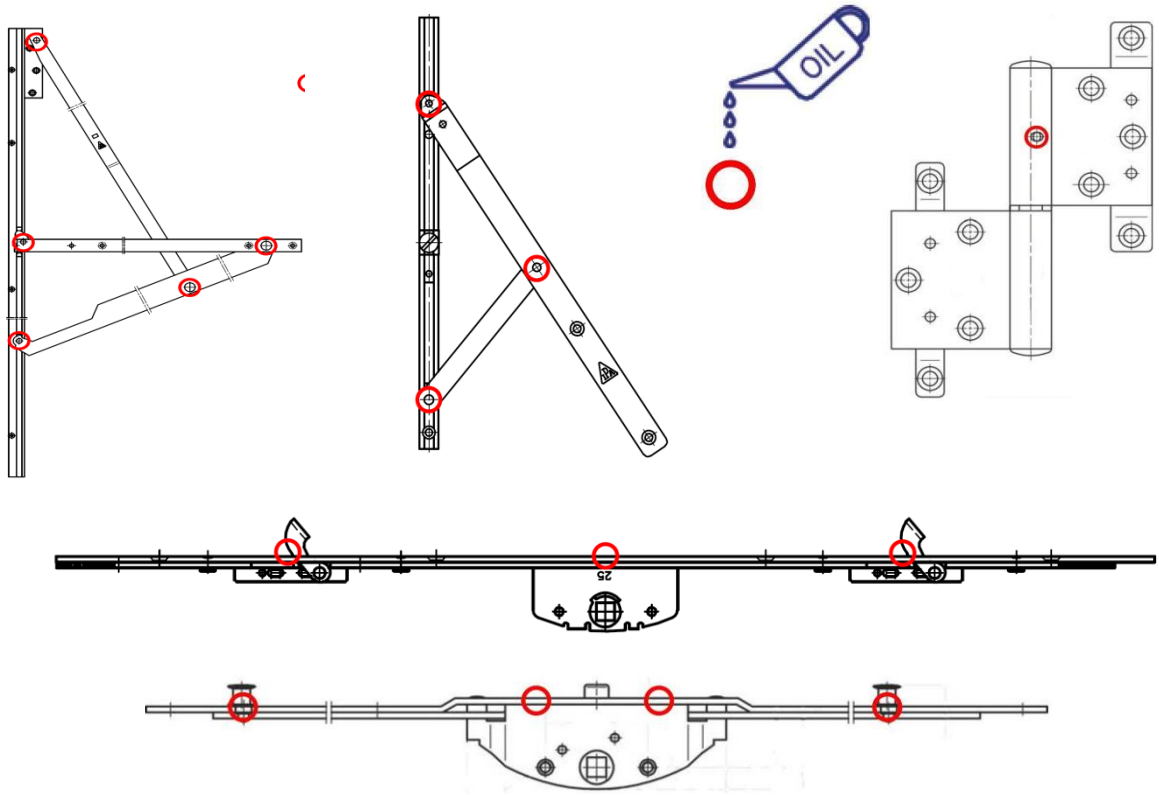


Top Guided reversible fittings allow to turn the sash by 170 o and include a mechanism which prevents opening „A". which works in 2 stages. The first stage enables rotation up to 10 o.
The second stage locks the sash at 170° rotation. In order to unlock the mechanism, every time press the mechanism at point "B". In order to remove the sash undo the screws which fix section "C" of the fitting and pull the sash out. **At least 2 people are required to remove the sash. The fitting mechanism has no adjustment.**



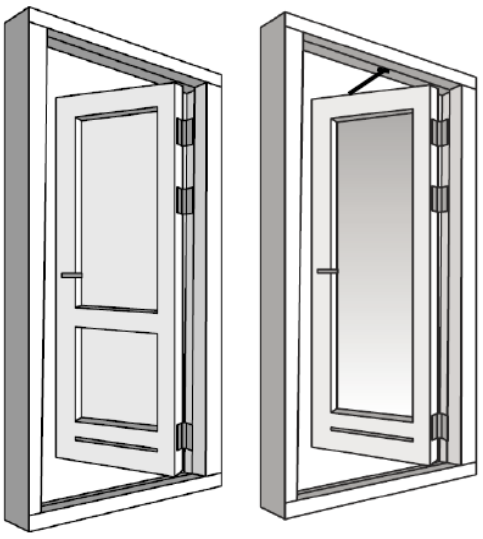
**

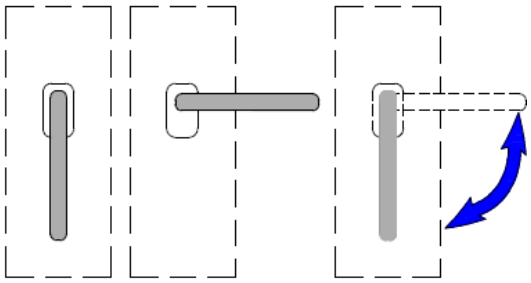
BESCHLÄGE SCHMIEREN



EXTERNAL DOOR, BALCONY DOOR

External door balcony door closed open Brake

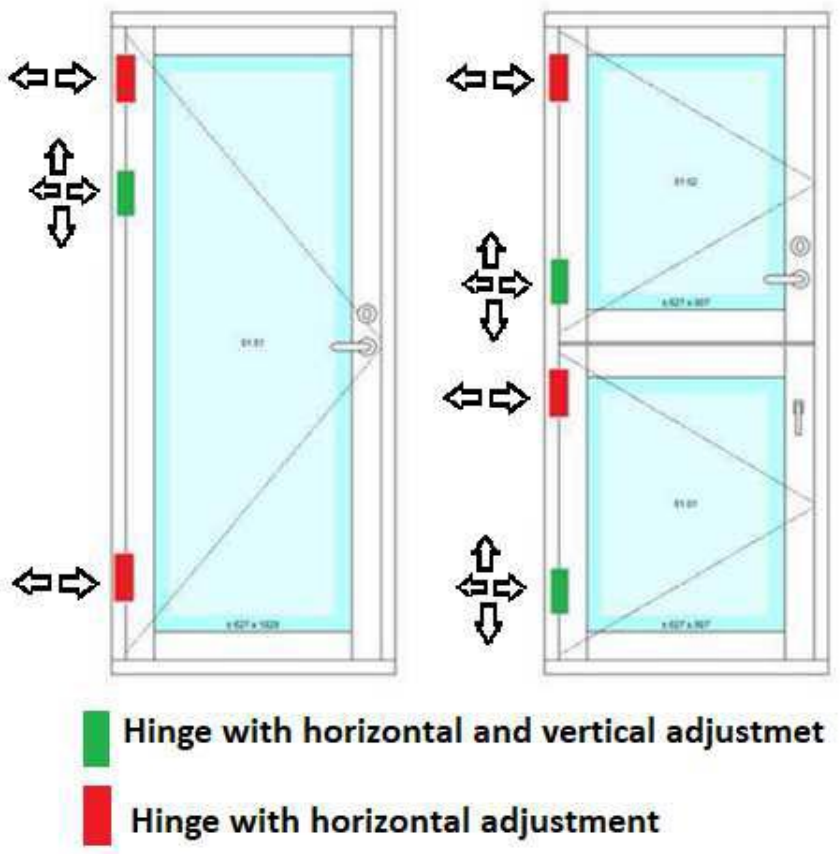




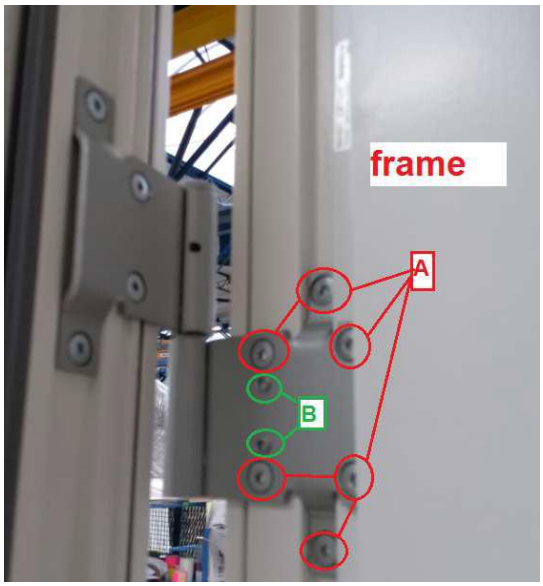
Balcony doors are by default fitted with a handle operated brake break. To brake the sash in the opened position, turn the handle to „brake”.

To adjust the gap between the sash and the frame, use the adjustment key to bend the frame hinge as necessary. Sashes can be removed and installed in the open position 90°.

Door hinges – adjustment instruction



GENERAL DESCRIPTION



The green marked hinges on the top diagram including the vertical adjustment screw (+ /- 2mm) as shown on the left picture above. The hinges can be also adjusted in horizontal direction with using of screws marked with letter **B** on the right picture above.
The red marked hinges on the top diagram are adjustable horizontally only with using of screws marked with letter **B** on the right picture above.

All hinges are without washers between top and bottom hinge part to make possible vertical adjustment.

Adjustments - TOOLS

In order to make adjustment there are needed following tools:
1. Allen key 6mm
2. Allen key 3mm
3. Torx 20

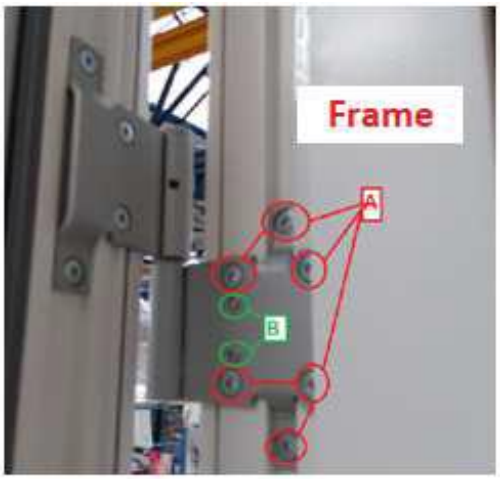
IMPORTANT! The adjustment of the adjustable hinges with using of CRANKED KEYS is forbidden, because of big risk to damage the hinges!

Adjustments – DESCRIPTION

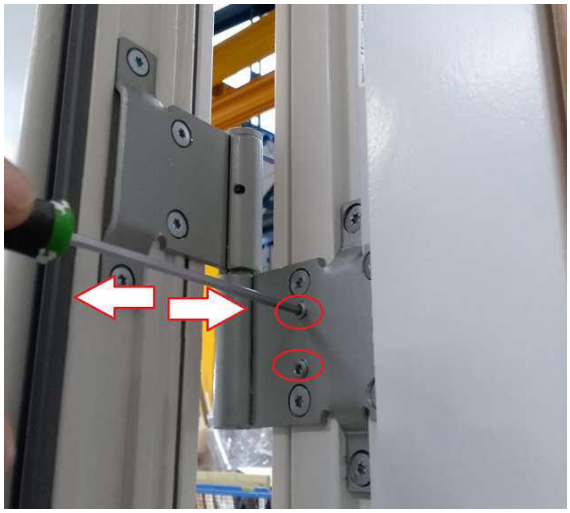
1. Vertical adjustment – in order to adjust the sash position in vertical direction please use Allen key 6mm. The adjustment range is +/- 2mm.

2. Horizontal adjustment – in order to adjust hinge in horizontal direction please open the sash and follow with steps:

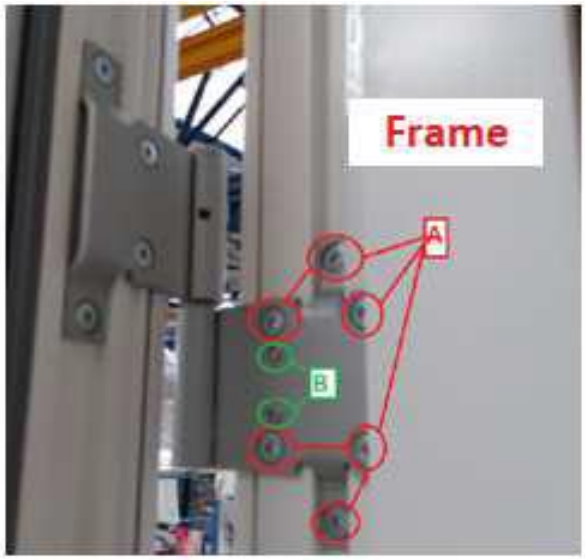
a) Use key/screwdriver with Torx 20, please loosen the screws shown with letter **A**



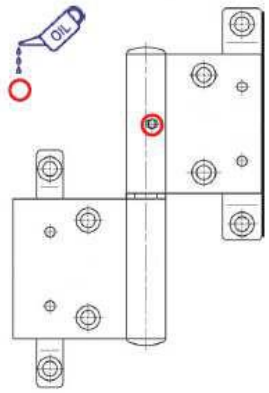
b) Use Allen Key 3mm in order to make horizontal adjustment, please rotate the screws marked with letter **B** as above



c) Use key/screwdriver with Torx 20, please tighten all screws loosen before marked with letter **A**



LUBRICATIONS – the lubrication should be repeated min. twice a year.



7. Product maintenance

In order to guarantee a long period of reliable operation, all movable parts of the fittings should be lubricated at least once a year. Otherwise, they may seize up. (we recommend WD-40 or other spray lubricants). Apart from lubricating the fittings, you should also care of the window itself. It is recommended to carry out renovation painting at least every 3 years. This prevents weather factors from having a direct effect on the wood, as well as gives the windows a new, fresh look. In factory, the windows and doors are painted with eco-friendly, water-soluble acrylic paints. When choosing restoration painting, make sure it is compatible with the existing coating.

During restoration painting, do not paint fittings and gaskets.

- **Cleaning and maintenance of paint coating on wooden surfaces**

Twice a year (preferably before summer and winter) the surface of wooden windows should be thoroughly cleaned of dust, insect stains and other impurities, using delicate detergent and water. This should be done not only for aesthetic purposes, but also to prevent the coating from damage caused by dirt (such stains may cause appearance of mould and fungi). After cleaning, apply protective emulsion. Caution! Most glass cleaning products contain ammoniac. After cleaning window pane or glass door, remove the remains of the ammonia, preferably with clean water. Clean the elements with soft cloth.

- **Inspecting technical condition of paint coatings on wooden surface**

Systematic visual inspections enable prompt detection of possible damages. The condition of the coatings should always be checked after a hailstorm, as impact of the ice crystals can damage their surface. Any cracks, chips and peeling of the coating should be repaired immediately. Prompt maintenance prevents the damage from spreading, which, consequently, lets you save time and avoid unnecessary expenses.

- **Restoration of paint coatings on wooden surfaces**

Before starting the renovation, protect the fittings and gaskets against being covered with paint. All the areas to be renovated should be thoroughly cleaned with a mild detergent and rinsed with clean water. Renovate the window frames using the same products which were earlier used by the manufacturer. In order to determine the exact specification of the paints and colours used in the given product, contact the window manufacturer.

When restoring the surface, it should be remembered that impregnation, application of the primer and top coat cannot be carried out under 8° C, while the relative humidity cannot exceed 80%. We do not recommend applying the coatings in intense sunlight. Water-soluble products are fit for use for 12 months, provided they are stored in airtight containers, at a temperature above 5 ° C.

Note: Wooden windows must be protected against dirt from construction site chemicals. Protect them with low-adhesive tapes, after making sure it is suitable for wooden windows (some adhesive tapes may damage the coating). Irrespective of the type of the tape, it must be removed from the surface immediately. Leaving the film stuck to the glass pane and the window too long may damage the surface. Upon completion of construction works inside and outside the building, remove protective foil from the windows and thoroughly clean them with water. After completing installation, ensure appropriate ventilation, in order for humidity to evaporate quickly (for buildings under construction). Long-term air humidity in excess of 70% may permanently damage the windows.

- **Cleaning and maintenance of paint coating on aluminium surfaces**

Twice a year (preferably before summer and winter) aluminium surfaces of the windows should be thoroughly cleaned of dust, insect stains and other impurities, using mild or slightly alkaline detergent and water no warmer than 25℃.

During cleaning the temperature cannot exceed 25℃. Do not use steam and strongly acidic or alkaline detergents. Do not use organic solvents containing esters, ketones, alcohols, aromatic compounds, glycol esters, chlorinated hydrocarbons, etc. Fats, oily and tarry substances can be removed from the surface using petroleum-derivative solvents without aromatic compounds. The same applies to removing the remains of glue, silicone rubber, adhesive tapes. Detergents used for cleaning cannot react with the surface longer than an hour. If necessary, the cleaning process can be repeated after 24 hours. After each cleaning, the surface must be immediately rinsed with clean, cold water.

- **Cleaning and maintenance of gaskets**

Window gaskets should be cleaned once a year. In order to prevent them from sticking to the paint coatings, it is also possible to use special products for maintenance of sealing surfaces – they are neutral substances on the basis of silicone resin intended for maintenance of window gaskets: rubber, silicone, plastic. Using this preparation makes the gaskets stay flexible for a longer time period, which extends their functionality and life. It prevents freezing of the gaskets in the sections. The substance is applied on the seals using a cloth. Wash with clean water, to which you can add a small amount of neutral or slightly alkaline detergents. Washing can be more effective if you wipe the products with soft cloth. The temperature of water and mixture of detergents used for washing also cannot exceed 35°. Do not clean the surfaces with steam, as it can irreversibly deform the gasket; do not use strong acidic or detergents, or detergents from an unknown source, as well as surfactants which could react with rubber.

- **Glass cleaning**

The glass surface should be regularly washed, depending on the degree of dirt. Solid stains, such as cement mortar, cannot be dry cleaned. To remove them, moisten the glass with plenty of clean water. To remove greasy stains, use, for instance, spirit or isopropanol, then rinse with lots of water. Outside reflexive surfaces may not be cleaned with any caustic or alkaline substances (fluorides, chlorides) or cleaning powders, as they can damage the surface. Remove greasy stains with acetone or ammonia, observing the rules of using these substances.

8. Improper use of windows

Improper use of the products, i.e. use contrary to the intended use, occurs when:

- Objects are inserted between the window frame and the sash, preventing proper operation of the fittings
- due to improper use of the window and balcony door, or effects of the wind, the sash makes a strong impact against the frame – which can cause damage or malfunction of the fittings or other components of the window
- Extra loads are applied to the window sash
- During closing, any objects are inserted between the sash and the frame
- Surface is restored using improper paint or varnish products
- During restoration painting, fittings or their elements are covered with paint
- Causing high dampness of the rooms

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