Guarantee Book

Timber

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1. GUARANTEE CONDITIONS

MS więcej niż OKNA Sp. z o. o. (the Manufacturer) guarantees high quality of the Products on the principles specified in the Guarantee Book available on the Manufacturer's website www.ms.pl/warranty/, in the form applicable as of the date of sale.

As part of the guarantee, the Manufacturer declares the high quality and proper operation of the Products within the limits set by the applicable European standards; in the absence of such standards, by the standards and factory guidelines applied by the Manufacturer, which are described further in the Guarantee Book.

A. Guarantee period:

1. The guarantee period shall be from the date of sale of the Product indicated in the proof of purchase (VAT invoice):
   a) 5 years - for the tightness of insulated glass units filled with Argon, but no longer than 6 years from the date of manufacture,
   b) 5 years - for wooden windows, covering the entire Product (i.e., frame, hardware), but no longer than 6 years from the date of manufacture,
   c) 2 years - for wooden doors, covering the entire Product (i.e., frame, hardware), but no longer than 3 years from the date of manufacture,
   d) 2 years - for additional window accessories (i.e., door closers, windowsills, drip caps, handles, additional locks, infill panels, insect screens, magnetic sensors, separately ordered insulated glass units, etc.), but no longer than 3 years from the date of manufactur.
2. The guarantee period for the paint coating depends on the climatic conditions to which the product is exposed at its installation site. The impact of these factors and the corresponding warranty durations are presented in the table below.

		EXPOSURE CONDITIONS					
		Moderate: typical inland areas not significantly elevated above sea level		**Severe:** a reas exposed to harsh weather conditions located inland (>700 m above sea level) and/or within 3 km of the coastline		**Extreme:** a reas situated at high altitudes (>1000 m above sea level) and/or within 0.5 km of the coastline	
		opaque	semi-transparent	opaque	semi-transparent	opaque	semi-transparent
CONSTRUCTION	**Covered:** (e.g. porch or deep roof overhang)	**10 yrs**	**6 yrs**	**8 yrs**	**6 yrs**	**7 yrs**	**5 yrs**
	Partially covered: recessed >100 mm from building façade (e.g. window set into reveal)	**8 yrs**	**6 yrs**	**7 yrs**	**5 yrs**	**6 yrs**	**4 yrs**
	Uncovered: (e.g. flush with façade, protruding beyond façade, or above third floor)	**7 yrs**	**5 yrs**	**6 yrs**	**4 yrs**	**5 yrs**	**3 yrs**

3. Information regarding the production date may be obtained from the Manufacturer or the Seller by providing the order number.

B. Filing a complaint:

1. **Complaints must be submitted directly at the point of purchase immediately upon discovery of the defect, and no later than 14 days from its detection. Failure to do so within this timeframe may result in the loss of Guarantee rights.**
2. When submitting a complaint, the customer must present proof of purchase, provide the serial numbers of the Products, a description of the defect, and contact details (address and phone number).
3. Guarantee claims may only be submitted after full payment (100%) of the Product's sale price has been made.
4. Exercising rights under the Manufacturer's Guarantee does not affect the Seller's liability for non-conformity of the sold item with the contract.

C. Complaint review and fulfillment timeframes by the Manufacturer:

1. Complaints are reviewed within 14 business days from the date of receipt. Complaints submitted directly to the Manufacturer, bypassing the Seller, will be reviewed within 21 business days. Review means that within the stated timeframe, the Manufacturer will declare whether the complaint is accepted or rejected.
2. If inspection of the Product by the Manufacturer's service team is required, the review period may be extended by no more than an additional 21 business days.
3. If the complaint is accepted, the Manufacturer will determine the method of fulfilling the Guarantee obligations, i.e., repair of the physical defect, replacement of the Product with a defect-free one, or an appropriate price reduction, subject to the next point.
4. If the Guarantee holder is a consumer, the Manufacturer may opt for replacement when the consumer requests repair, or opt for repair when the consumer requests replacement, if the chosen method is impossible or would incur excessive costs for the Manufacturer. If both repair and replacement are impossible or excessively costly, the Manufacturer may decide to reduce the price accordingly.
5. The timeframe for fulfilling Guarantee obligations is 21 business days from the date the complaint is accepted. If fulfillment is not possible within this period due to circumstances beyond the Manufacturer's control, the repair period may be extended accordingly, and the Manufacturer will inform the customer.
6. If defect removal depends on weather conditions, the Manufacturer will carry out the repair when it is possible to maintain the required technological standards during the process.

D. Exclusions:

1. **The guarantee shall only cover manufacturing defects and/or material defects; it shall not cover:**
   a) products stored prior to installation in a manner inconsistent with the Manufacturer's recommendations,
   b) modifications, alterations, structural interference, planing marks, or repairs performed by individuals not authorized by the Manufacturer,
   c) mechanical damage, including but not limited to: broken glass, external scratches on glass, coating defects on surfaces not visible after installation, gasket deformation, damage to the drip cap or blockage of drainage channels,
   d) damage caused by natural forces or physical phenomena, including: condensation, frost or freezing (in inadequately ventilated or heated rooms), glass breakage due to climatic loads (pressure or temperature differences), or rattling of internal decorative grilles,
   e) damage resulting from random events such as flooding, fire, bird interference, lightning strikes, hailstorms, acid rain, or other meteorological anomalies,
   f) swelling of wood, warping of sashes and frames, cracks or breakage at joints of sash and frame rails, malfunctioning hardware caused by prolonged high humidity during so-called wet construction works, and lack of proper ventilation and heating, resulting in wood moisture content exceeding 20%,
   g) minor shade variations in products when orders are fulfilled in multiple stages,

h) discoloration, chipping, peeling, and development of mold or other damage to paint coatings caused by improper use of the Product (e.g., indoor air humidity exceeding 70%, continuous exposure to temperatures above 70°C, permanent immersion in water, etc.),
i) damage to paint coatings:
- due to contamination,
- resulting from insufficient maintenance, use of masking tapes and care products unsuitable for wooden joinery. Recommended maintenance materials are listed in Section 3: Guidelines for Care, Maintenance, and Renovation of Wooden Joinery,

j) contact with materials that emit galvanic vapors or acids,
k) natural color changes in wood during use and/or caused by exposure to sunlight,
l) variations in tone/shade of the paint coating resulting from uneven color intensity. This is due to the natural structure of wood (grain pattern, coloration, density), which affects the absorption of paint,
m) adjustment, maintenance, and cleaning of Products, as well as replacement of fuses, batteries, and other consumable components subject to natural wear during the Guarantee period,
n) minor irregularities in silicone seal surfaces resulting from the application and removal process,
o) mnor irregularities in glazing beads that do not impair the intended use of the Product, resulting from the technological process and small gaps at bead joints due to the natural property of wood to slightly shrink,
p) differences in glass tint caused by window deliveries at different times, resulting from technological changes introduced by glass manufacturers.
q) improper installation and defects resulting from it,
r) products for which the Buyer received a price reduction due to permanent defects,
s) missing visible components and accessories not reported at the time of delivery,
t) minor defects that do not affect the functional value of the Product.

2. Applying foil to insulated glass units increases thermal stress on sunlit panes. Such uneven stress may cause glass breakage, which is not covered by the Manufacturer's Guarantee.
3. It is recommended to shield external doors from direct exposure to precipitation (rain, snow) by installing an open vestibule or a canopy directly above the door, protecting it from the aforementioned weather conditions in such a way that splashing water does not wet the door Surface.
4. Attaching any type of grilles or security devices directly to joinery elements may void the Guarantee, unless such installation does not compromise the structure or other components affecting the quality and functionality of the product.

2. GENERAL GUIDELINES FOR WINDOW INSTALLATION AND OPERATION

1. Measurement, selection, and installation of windows should be entrusted to professionals, authorized dealers, or MS-certified installation teams.
2. Before installation (prior to dismantling old windows), carefully verify that the delivered windows:
   - match the order and invoice,
   - meet actual requirements (quantity, dimensions),
   - are undamaged (no scratches or cracks on frames or glass).
3. Windows must be transported in a vertical position and protected against damage.
4. Store in a dry, well-ventilated area, protected from direct sunlight and high temperatures.
5. Before installation, protect glass panes, frames, and sashes from contamination with mortar or paint (preferably using painter's foil), as such stains are very difficult to remove without damaging the window.
6. Installation guidelines are provided on page 5.
7. Only use self-adhesive (paper) tapes suitable for surfaces coated with water-based lacquers when taping joinery during installation. These tapes must be removed promptly, no later than one week after application.
8. Windows are equipped with an internal ventilation and drainage system; the bottom frame includes a drainage drip cap designed to channel water outside.
9. Ensure that the drainage holes in the installed drip caps on the bottom frame remain unobstructed and that their external outlets allow free water flow onto the windowsill.
10. Before using the window, check that hardware components are free of plaster, mortar, or dust, and clean them if necessary.
11. Hardware maintenance instructions are provided on page 18.
12. Seals in wooden windows should be maintained twice a year by lubricating them, preferably using sticks specifically designed for this purpose.
13. Resin leaks or stains may be gently cleaned with turpentine, taking special care during the process.
14. In poorly heated rooms with high humidity or limited ventilation, condensation may occur on the glass surface, which is typically the coldest area in the room. During severe frost, dripping water may freeze at the contact point between the glass and the seal. The recommended solution to this issue is to improve ventilation (e.g., additional ventilation devices, more frequent airing).
15. It is recommended to operate joinery under appropriate thermal and humidity conditions:
   - room temperature: 18–22°C,
   - relative humidity: 50–70%,
   - properly functioning supply and exhaust ventilation system.

2.1. PRINCIPLES OF PROPER INSTALLATION

1. Proper installation requires correct positioning of the window within the wall, secure mechanical anchoring, and effective sealing.
2. Installation of windows and balcony doors should be carried out only after the completion of most wet construction works (e.g., plastering, flooring).
3. Prior to installation, the optimal installation technique should be determined based on the specific conditions of the building, and appropriate types of installation materials should be selected. Recommended installation techniques are listed below. Detailed instructions for specific types of windows and balcony doors are provided in later sections of the Guarantee Book.
4. Before installation, inspect the window for mechanical damage and visible defects. Damaged windows and doors must not be installed. Verify the accuracy of window dimensions and wall openings. The gap between the window and the wall should be uniform and selected according to the table below:

	width or height of window/door			
side length	**up to 150 cm**	**up to 250 cm**	**up to 350 cm**	**up to 450 cm**
minimum installation gap	≥ 1 cm	≥ 1,5 cm	≥ 2 cm	≥ 2,5 cm

Modern insulation materials such as triple-function tapes do not require such large expansion joints and these can be reduced. Relevant values are given in the table below:

	width or height of window/door			
side length	**up to 150 cm**	**up to 250 cm**	**up to 350 cm**	**up to 450 cm**
minimum installation gap	6 mm	8 mm	8 mm	8 mm

Regardless of the type of thermal insulation used, the installation gap between the window/balcony door frame and the wall opening should not exceed 40 mm. If this distance is greater, a frame extension must be applied.

5. Remove the sash from the frame and protect the hardware from contamination.
   NOTE: The removed sash should be placed upright on its bottom edge to maintain the correct positioning of the glass within the sash.
6. Before inserting the frame into the opening, apply expanding tape according to the structure of the window opening:
   - for openings without reveals: apply the tape to the outer edge of the frame at the top and sides so that it seals the space between the frame and the wall (see Fig. 5, p. 9).
   - for openings with reveals: apply the tape to the edge of the reveal so that it seals the space between the frame and the reveal without protruding into the visible opening (see Fig. 5, p. 9).

   When performing sealing, observe the following principles:
   a) for permanently elastic sealants (e.g., silicone), the depth of the sealing layer "t" should be at least half the width of the gap "b", but not less than 6 mm (see Fig. 6, p. 10).
   b) for impregnated vapor-tight expanding tapes, dimensions must be selected appropriately to the gap size (see Fig. 6, p. 10).

   NOTE: Tape width must be matched to the joint width according to the manufacturer's recommendations. To ensure proper adhesion of the expanding tape to the window opening, the surface must be thoroughly cleaned and, if necessary, primed.
7. Place the frame into the window opening, level it horizontally and vertically, and check the diagonals. Below are the permissible diagonal deviations for window openings (wall recesses):

opening dimension	**up to 50 cm**	**50-100 cm**	**100-300 cm**	**300-600 cm**
tolerance	± 3 mm	± 6 mm	± 8 mm	± 12 mm

8. For lengths exceeding 120 cm (both vertically and horizontally), spacer blocks must be used.
9. Support and positioning blocks are used to correctly place windows/doors within wall openings (reveals).

The arrangement of these blocks depends on the type, model, and size of the window/door, as well as its opening method (see Fig. 4, p. 9). Support and positioning blocks must be placed in a way that minimizes the risk of frame deformation due to temperature, self-weight, or operational loads. Bottom support blocks should be positioned centrally under the vertical elements of the frame or mullion. For large tilt-and-slide or lift-and-slide doors, the bottom running rail must be continuously supported along its entire length, with spacing not exceeding 300 mm. Positioning blocks, used to set the window/door in place during installation, must be removed after the frame is fixed. Support blocks must not be removed.

10. Fix the frame using anchor bolts (see Fig. 2, p. 8) or mounting brackets (see Fig. 3, p. 8).
    If anchor bolts are used in the lower part of the frame, the bolt holes must be sealed with silicone. Fastener placement is shown in Fig. 1, p. 7. Note: Polyurethane foams and similar insulating materials do not serve as structural fasteners for windows/doors; their sole purpose is to insulate the installation gap.
11. The lower part of the frame, on the exterior side, may be additionally sealed by applying vapor-permeable foil between the bottom frame and the wall (see Fig. 8, p. 11).
    An example of window installation with an overlay roller shutter box mounted between the window and the lintel is shown in Fig. 7, p. 10.
12. When installing an aluminum threshold, the floor beneath it must be leveled (see Fig. 9, p. 11).
    The threshold must be fixed using expansion bolts or screws (see Fig. 10, p. 11), spaced no more than 500 mm apart.
13. After the sealing tape has fully expanded, moisten the remaining space between the frame and the wall with water and fill it with installation foam.
    To ensure proper foam expansion, moisten the foam after application.
    NOTE: Use only low-expansion foam—high-expansion foam may cause the frame to bend inward. When using polyurethane foam, always follow the manufacturer's instructions.
14. Once the foam has cured, remove any excess.
15. Seal the interior joint around the entire perimeter using vapor-tight foil or silicone (see Fig. 5, p. 9).
    To shape the joint properly and reduce silicone usage, a foam backer rod may be used (see Fig. 5, p. 9).
16. Conceal the joint:
    a) on the exterior (expanding tape): plaster, paint with emulsion paint, or leave exposed.
    b) on the interior (foam, vapor-tight foil, or silicone): plaster, cover with gypsum board or plaster (see Fig. 5, p. 9).
17. Reinstall the sashes and adjust them if necessary (this should be performed by a properly trained technical service technician).
18. Window and door combinations may be assembled using a so-called "loose tongue" inserted into the grooves of the frame uprights along the full height, sealed with silicone, and joined with screws spaced no more than 800 mm apart (see diagrams in Fig. 11, p. 12 and cross-sections in Fig. 12, p. 12).
    Horizontal combinations are constructed in a similar manner.

NOTE: An installer trained and certified by MS więcej niż OKNA may modify the installation method without voiding the Guarantee.

2.2. FASTENER PLACEMENT

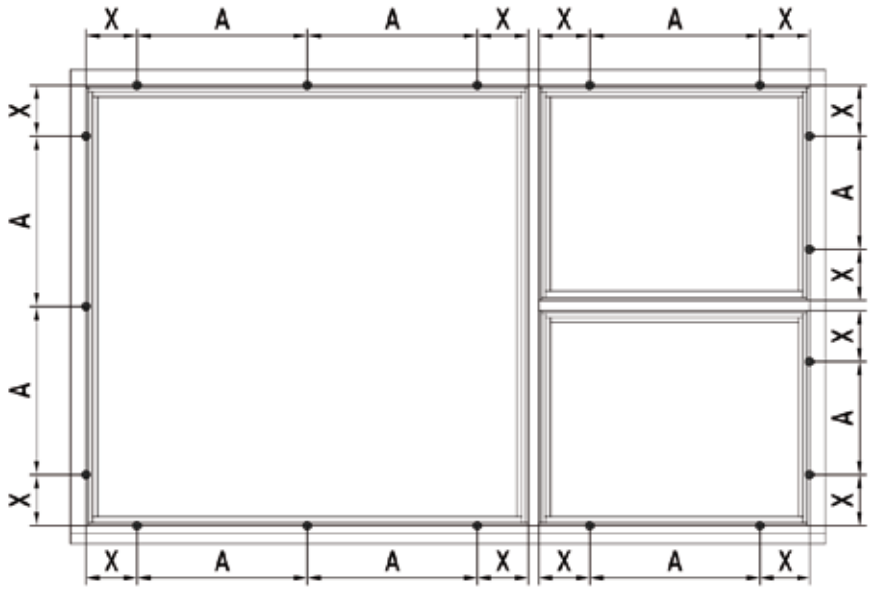


Fig. 1 Fastener Placement Diagram

A – distance between fastening points: maximum 800 mm
X – distance from the inner edge of mullions and transoms: maximum 150 mm

2.3. INSTALLATION METHODS

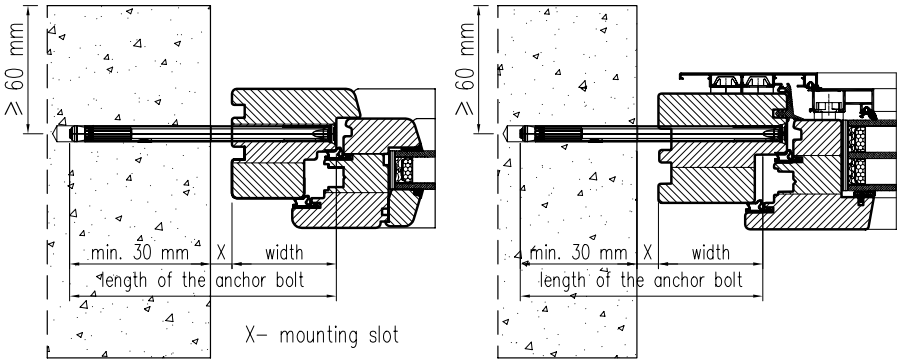


Fig. 2. Direct installation – using an anchor bolt

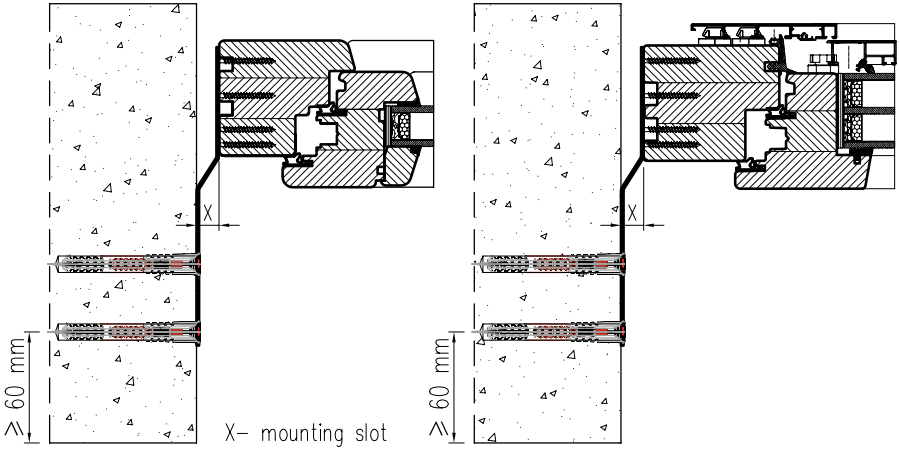


Fig. 3. Direct installation – using a mounting bracket

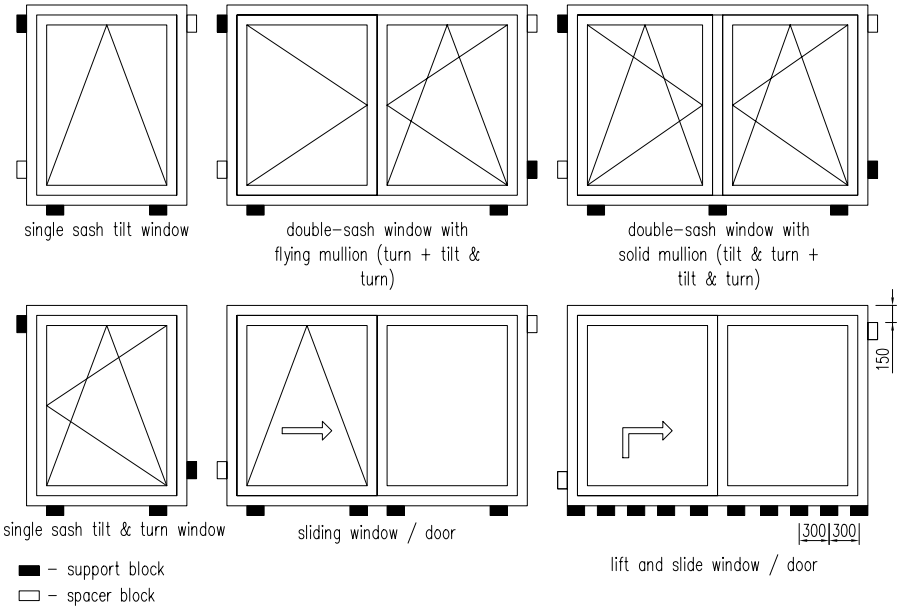


Fig. 4. Placement of support and spacer blocks

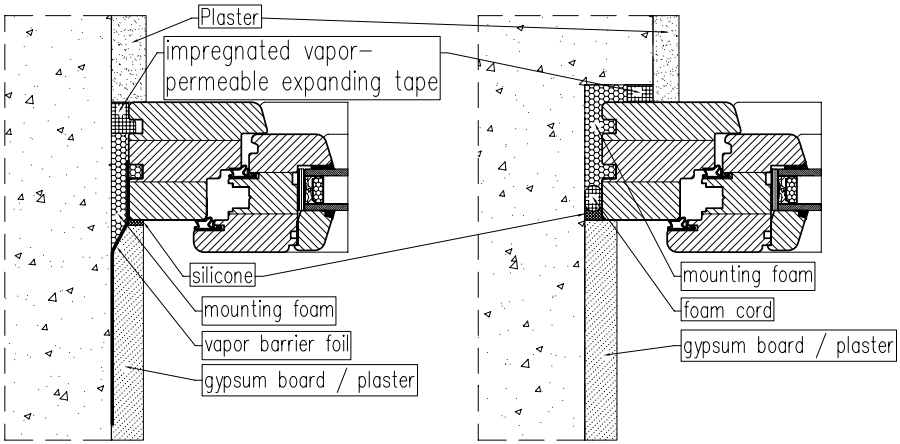


Fig. 5. Sealing of gaps between window without recess and with recess in solid wall reveal

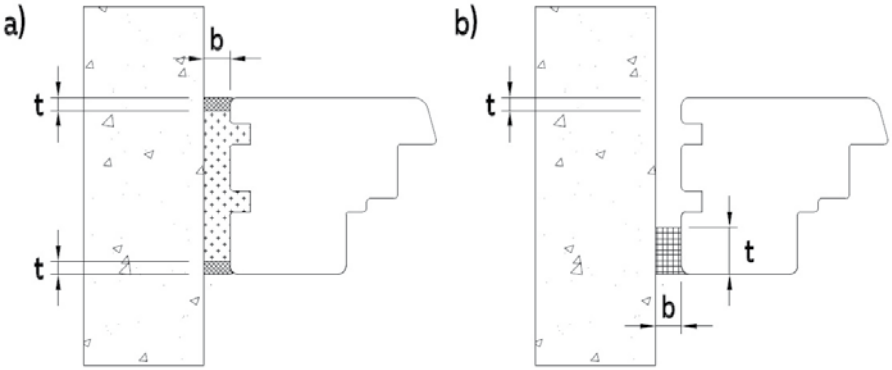


Fig. 6. Sealing Dimensions:

a) with permanently elastic compounds,
b) with impregnated vapor-tight expanding tapes.

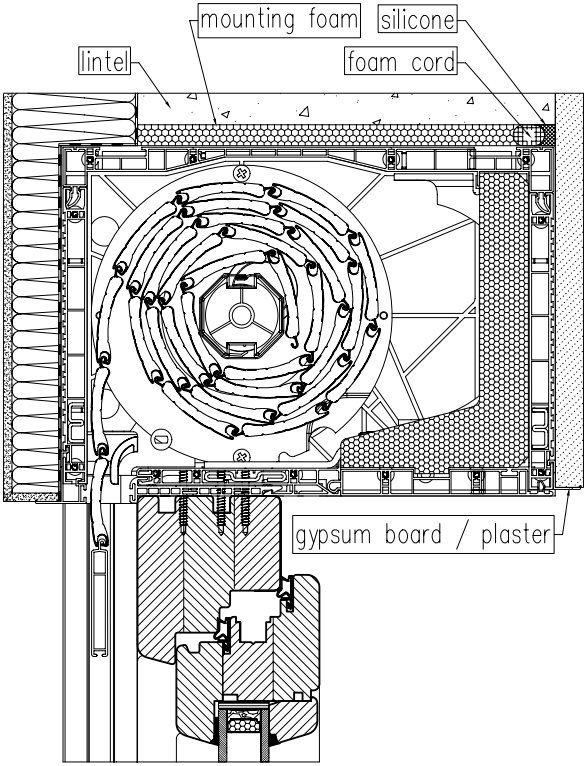


Fig. 7. Connection of Window with Surface-Mounted Roller Shutter Box

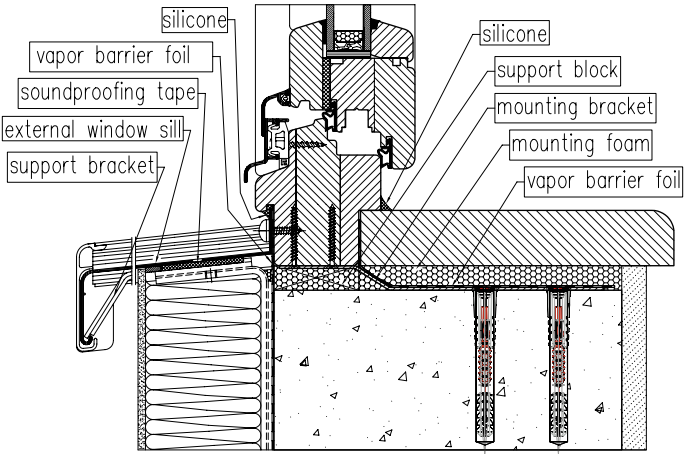


Fig. 8. Sealing and Finishing of Window Sills

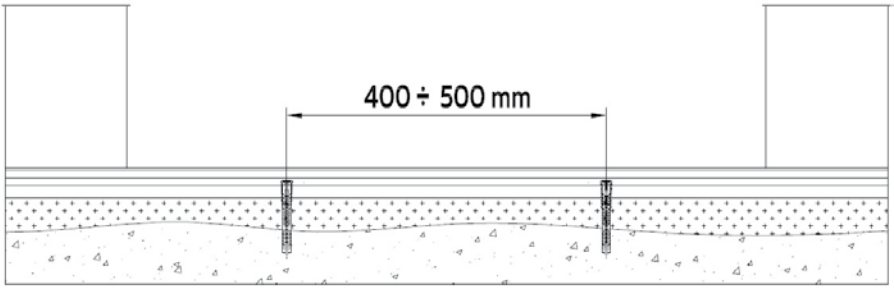


Fig. 9. Leveled Installation of Aluminum Door Threshold

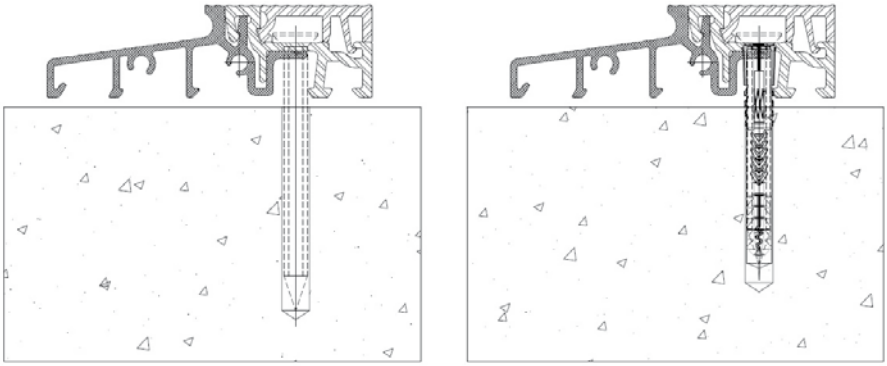


Fig. 10. Door Threshold Mounted with Expansion Bolts or Screws

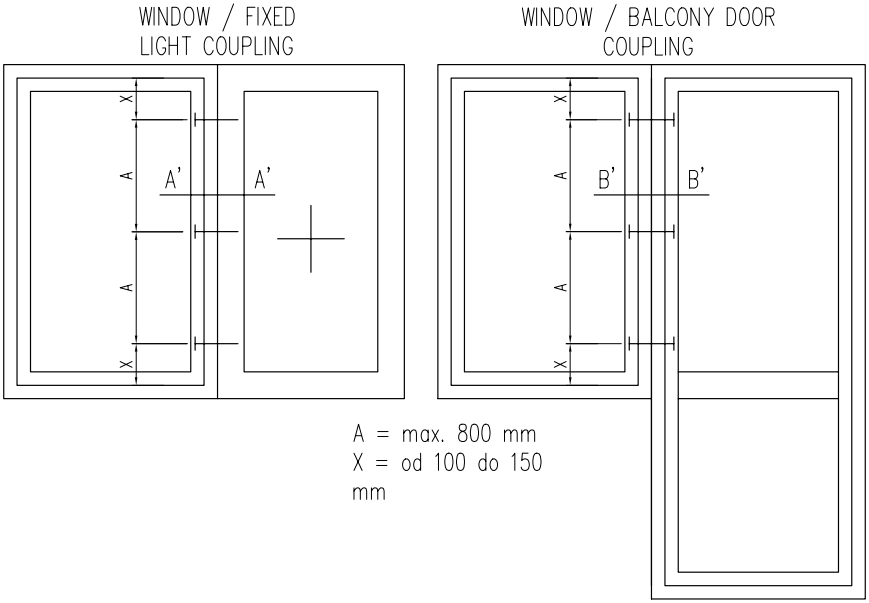


Fig. 11. Diagram of Window and Door Connections in Sets

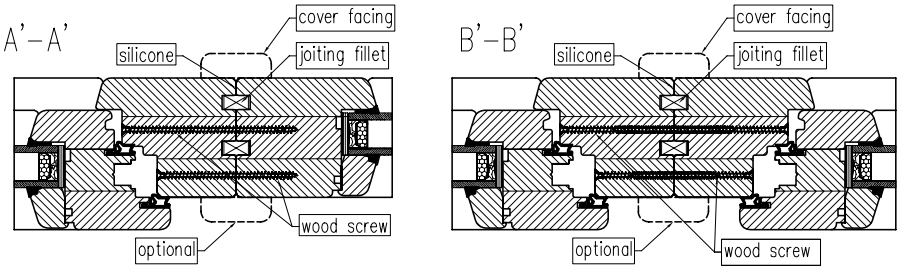


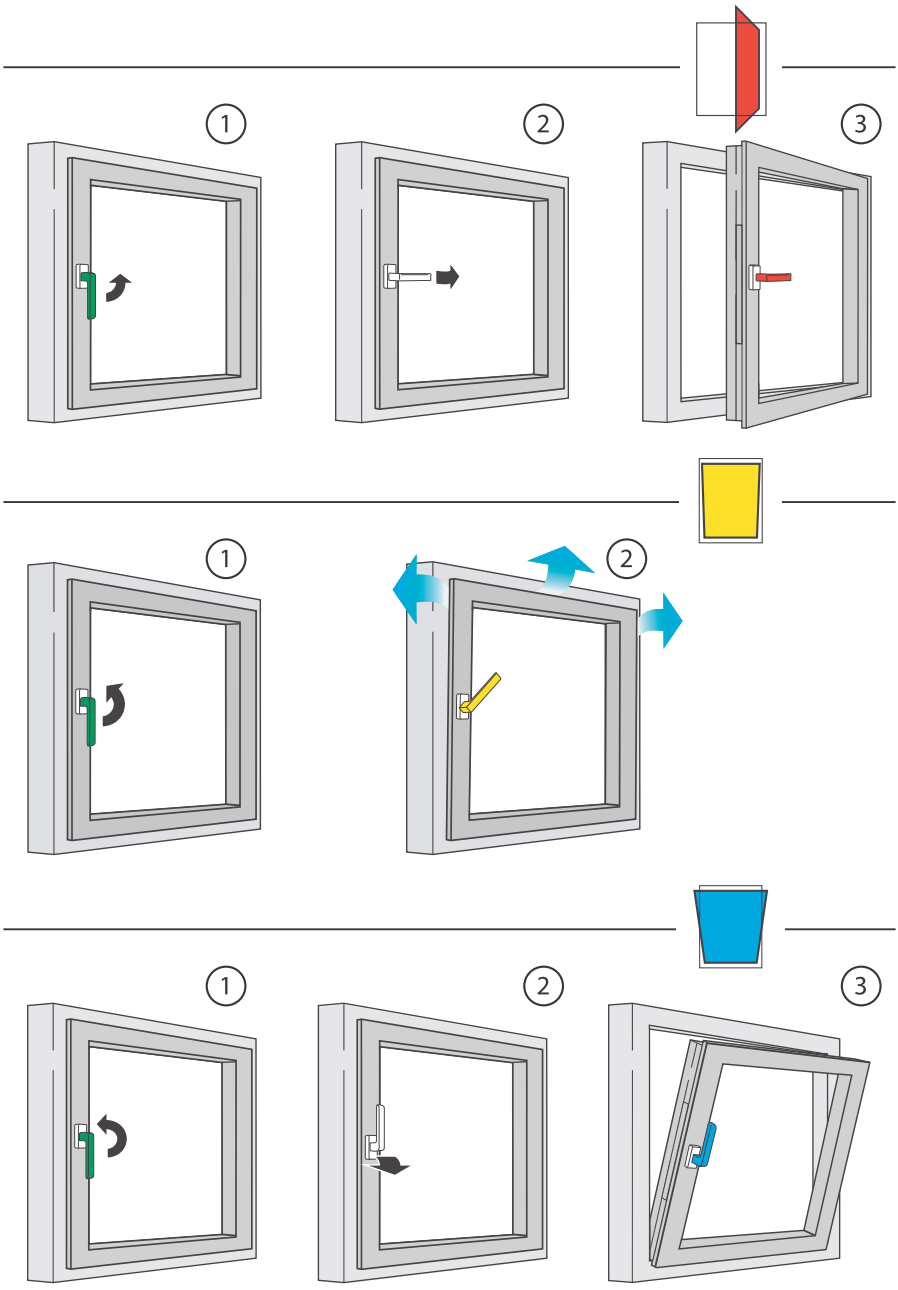
Fig. 12. Recommended Example Connections of Windows and Doors

2.4. INSTALLATION INSTRUCTIONS FOR EXTERIOR DOORS

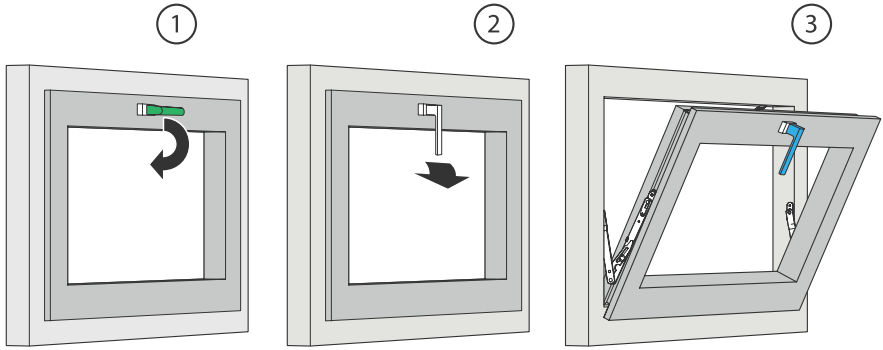
1. Review the product description and verify compliance with the order and specifications. In case of defects or discrepancies, repackage the product and initiate the complaint procedure.
2. Check the dimensions of the wall opening – the opening should be prepared with a clearance of at least 10–15 mm between the wall and the frame on each side.
3. Clean and level the edges and surfaces of the wall opening.
4. Insert the frame into the wall opening and secure it using mounting wedges.
5. Door installation is recommended using mounting/expansion screws.
6. The length of mounting/expansion screws depends on the frame width, the distance between the frame and the reveal, and the minimum anchoring depth in the wall.
7. Drill holes for mounting/expansion screws before placing the door frame into the wall opening. Fastening points should be determined according to the following criteria:
   - distance between fastening points should not exceed 800 mm,
   - distance from frame corners should be at least 150 mm,
   - add one fastening point in the frame section where hinges are installed,
   - additional fastening points should be placed in the lintel and threshold.
8. Determine the floor level and align the bottom edge of the door leaf accordingly. Correct any misalignment of the frame in the opening and secure it using mounting wedges.
9. Check and, if necessary, adjust the vertical alignment of the frame section with hinges using wedges. Once verified, fasten this section with mounting/expansion screws according to the selected installation method.
10. Check how the door leaf opens and closes in the frame. Make necessary adjustments to the leaf relative to the frame, or if needed, adjust the unfixed frame section relative to the leaf and wall opening.
11. The frame section and locking mechanisms should be aligned not with a level tool, but according to the door leaf. Recheck the opening and closing of the leaf in the frame.
12. Make final corrections if needed. If not, permanently fasten the frame sections to the wall using mounting/expansion screws.
13. When installing exterior doors, use horizontal and vertical spacers (recommended: at least 3 horizontal and, if needed, 1–2 vertical). This protects the frame from deformation caused by expanding foam. Do not remove spacers before the foam has fully cured.
14. Using a level and tape measure, check the following:
   - vertical alignment of side frame sections in two planes,
   - horizontal alignment of the top frame section,
   - diagonals of the frame to ensure equal lengths,
   - make corrections if necessary.
15. Fill the gaps between the frame and the wall with low-expansion polyurethane foam, following the instructions on the packaging.
16. Install the threshold with a gasket and cover the mounting holes in the threshold and frame sections.
17. Remove the protective film from the door leaf after installation.
18. Perform final adjustments to ensure proper opening, closing, and sealing of the door leaf, and check the uniform contact between the leaf and the frame.

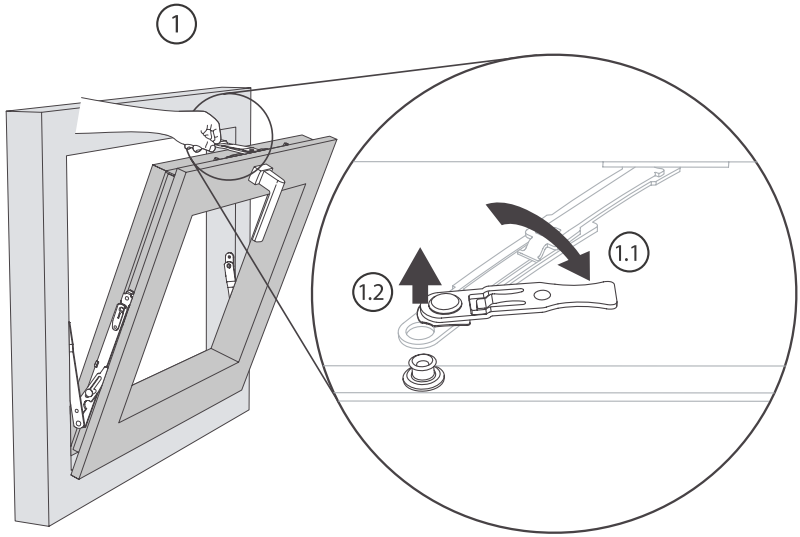
Additional notes/information:
It is prohibited to install the exterior door frame using only mounting foam. Despite its name, the foam is not a structural fixing element. Its primary function is to seal the gap between the frame and the wall. Installing exterior doors using only foam may result in the door falling out due to a strong slam during a draft. We recommend installing the door frame using mounting/expansion screws.

2.5. OPERATION OF TILT-AND-TURN WINDOWS

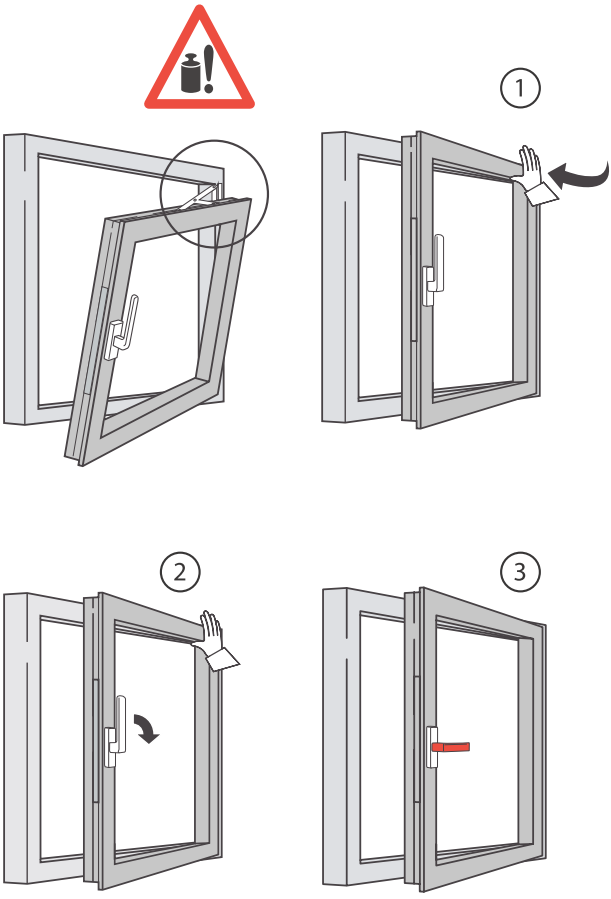


2.6. OPERATION OF TILT WINDOWS





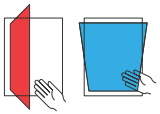
2.7. INCORRECT OPERATION – CORRECT POSITIONING OF THE SASH



2.8. RULES FOR THE SAFE USE OF WINDOWS

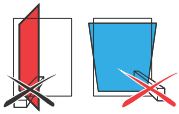
- Danger of falling out of the window.

- Danger of injury (crushing) if, for example, one' s hand gets between the frame and the closing sash.



- Do not hit the open sash against the wall or the break jamb.

- Do not place any objects between the sash and the frame.



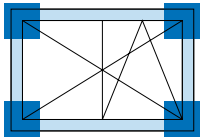
- Do not stress the sash in any way.

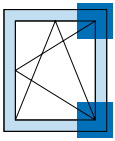
- Danger of injury from the open sash during strong winds.

2.9. FITTING ADJUSTMENT AND MAINTENANCE INSTRUCTIONS

To ensure proper functioning of the joinery, the following actions must be performed at least once a year:

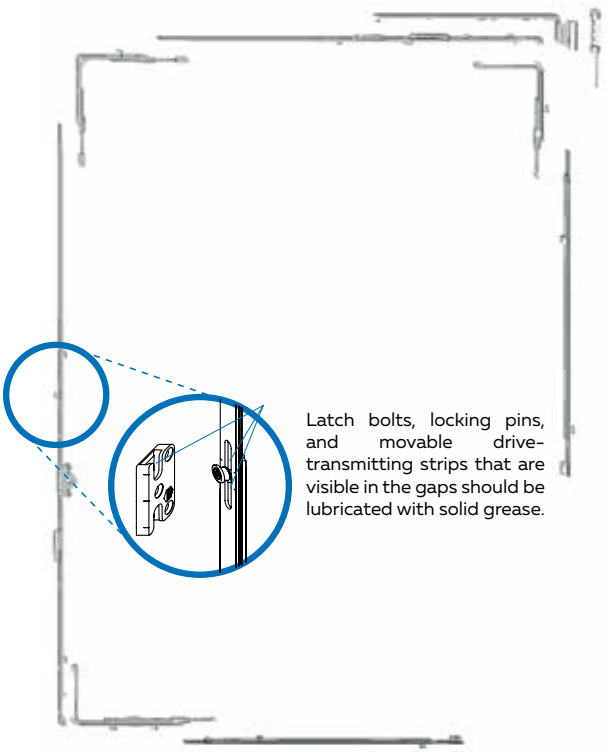
- fittings responsible for safety must be regularly inspected. This includes checking the fastening and wear level ,
- all moving parts must be lubricated or oiled as needed,
- only cleaning and maintenance products that do not affect the anti-corrosion coatings of perimeter fittings may be used.





The following tasks should be carried out by a specialized service provider:

- replacement of fitting components,
- hanging and removing the window sash,
- adjustment operations on fittings, especially around hinges and stay arms.



Latch bolts, locking pins, and movable drive-transmitting strips that are visible in the gaps should be lubricated with solid grease.

The information provided in the instructions also applies to all types of windows not specifically listed in this document (e.g. double-sash windows, casement windows, tilt windows, etc.).

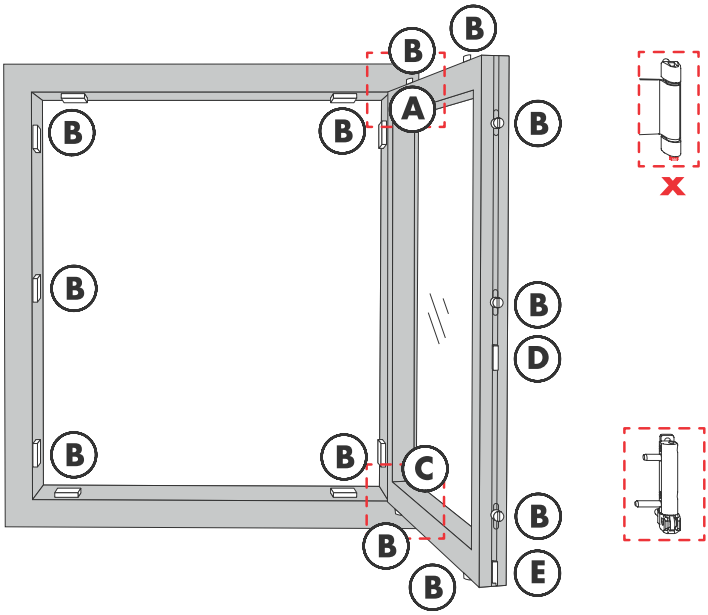
MAINTENANCE - ASSESSMENT AND LUBRICATION

It is important to check all safety components of the ferrule ( ) for fixing and possible friction.

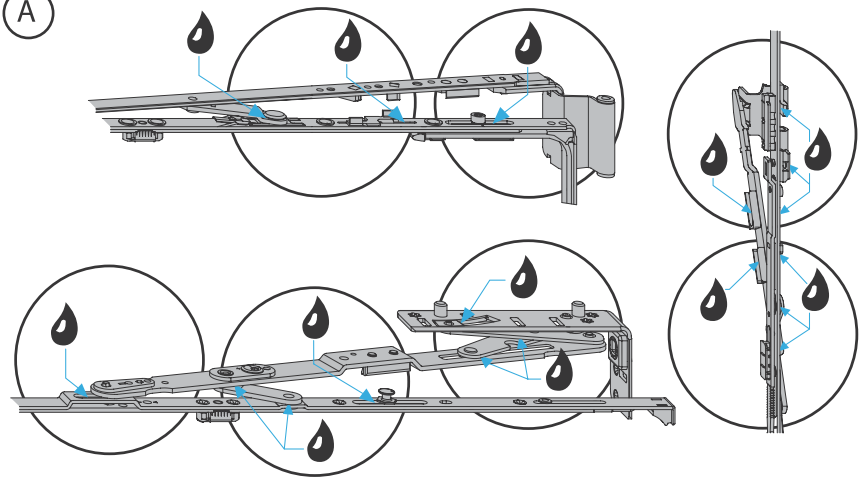
- The upper frame hinge pin (x) must be pressed all the way in. If not, the hinge pin should be pressed all the way in.
- It is necessary to ensure that the fixing screws are not loose and that the handle is securely fastened. All loose screws must be tightened with a suitable tool.
  Caution: the screws must not be overtightened!
- Damaged ferrule parts or overtightened screws must be replaced by appropriate service staff.

All friction points are to be lubricated.

- Only greases/oils that do not contain acids or resins may be used.
- For lubrication of the ferrule's moving parts, spray lubricants, which are to be inserted into every opening of the ferrule should be applied. After lubrication, the windows must be opened/closed several times until the lubricant has distributed, and then the excess lubricant wiped off. The frame catches where the ferrule enters the fitting should be lubricated with a solid-consistency grease.



A



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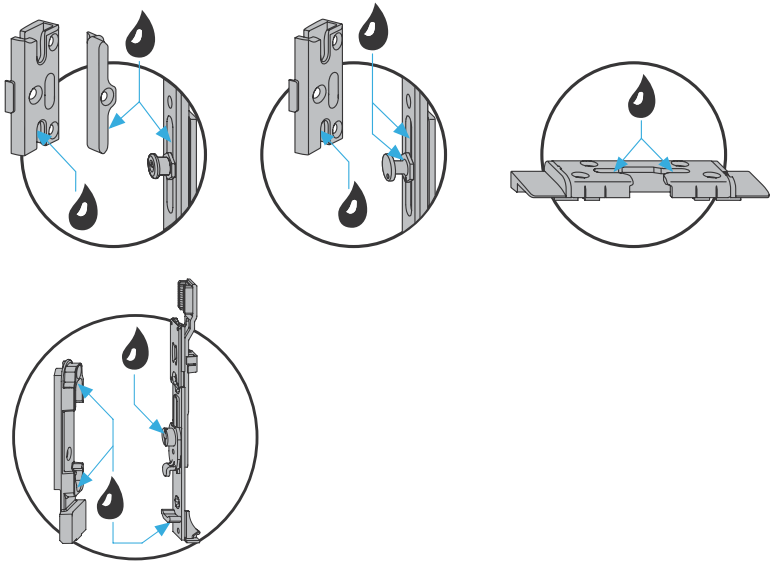

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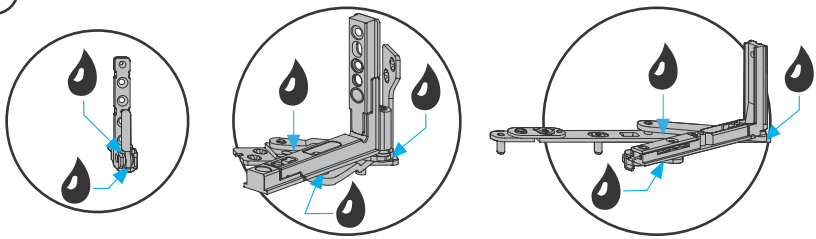
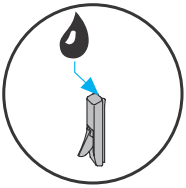


D



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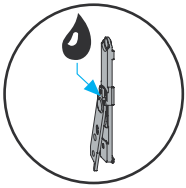


3. GUIDELINES FOR CARE, MAINTENANCE AND RENOVATION OF WOODEN JOINERY

Wooden surfaces should be wiped at least twice a year with clean water to remove dirt. Dirt may cause damage to the lacquer coating and contribute to the growth of surface algae and fungi.

3.1. Care

After installation and then at least every 12 months (but not before 14 months have passed—and not during frost or adverse weather conditions), wooden elements with coatings should be treated with care products intended for wooden windows and doors, available from MS.

3.2. Maintenance

Cleaned lacquered surfaces should be carefully inspected for damage. Any damage should be repaired as follows:

a) minor, localized coating damage – if possible, lightly sand only the affected areas with sandpaper (grit 180–220) and thoroughly remove dust. Be careful not to sand through the primer layer. Then apply two coats of GORI 660-xx topcoat lacquer using a brush designed specifically for acrylic paints with soft, split-end bristles.
b) in case of extensive but superficial coating defects, sand the entire frame with sandpaper (grit 180–220). Be careful not to sand through the primer layer. Then apply two coats of GORI 660-xx topcoat lacquer to the entire frame.
c) in case of deep scratches (damage) exposing raw wood, sand the affected areas with sandpaper (grit 180–220), then impregnate with GORI 356-xx. Next, apply one coat of GORI 615-01 translucent primer to match the original base shade, or use a suitable white, RAL, or NCS primer for opaque finishes. Finally, apply two coats of GORI 660-xx topcoat lacquer using a brush.
d) during painting, pay attention to the following: do not perform impregnation, priming, or topcoat application at outdoor temperatures below +12°C or air humidity above 85%. Water-based products, such as those listed above, have limited storage capability. When tightly sealed and transported/stored in frost-free conditions, their shelf life is approx. 24 months from bottling. Please follow the technical instructions for these products. Rubber gaskets should not be painted.

Important Note!!!
Most window glass cleaning agents contain ammonium chloride (salmiak).
Any residue of salmiak after cleaning windows or doors should be removed—preferably with clean water. Then wipe window or door elements dry with a cloth.
Do not use any cleaning agents containing anionic surfactants, as they damage the molecular structure of acrylic resins in paints and lacquers.

3.3. Renovation

Wooden elements exposed to natural external weather conditions should undergo not only decorative color treatment but also be protected against fungal attacks, blue stain, and the effects of weather and ultraviolet radiation acting on the surface.
Renovation of wooden elements should be carried out at regular intervals, depending on the intensity of the shade and color of the joinery, weather conditions, or exposure level, but before significant weathering (graying) of the surface occurs.

1. Surfaces of window elements to be renovated should be lightly sanded with sandpaper (grit 180–220) and wiped with a damp cloth.
2. Then carefully inspect the lacquer surface for any damage, and impregnate and prime any major damage according to the maintenance guidelines.
3. During painting, pay attention to the following: do not perform impregnation, priming, or application of final coatings when the outdoor temperature is below +12°C and air humidity exceeds 85%. Water-based products, such as those listed above, have limited storage capability. When tightly sealed and transported/stored in frost-free conditions, their shelf life is approx. 24 months from bottling. Rubber gaskets should not be painted. Technical instructions for these products must be followed.

4. GUIDELINES FOR ASSESSING INSTALLED WOODEN JOINERY

4.1. Functionality Check

1. Opening and closing of sashes should occur smoothly, without jamming or resistance.
2. An open sash should not close or open under its own weight.
3. A closed sash should fit evenly against the frame, ensuring a seal between the elements.

In case of any irregularities, fittings should be adjusted by correcting the sash alignment relative to the frame.

4.2. Quality Inspection

The lacquer coating of wooden joinery is assessed visually.
External elements should be inspected in diffused daylight, and internal elements in lighting appropriate for the room's use, at a 90° angle to the surface.
Inspection is conducted from a distance of approximately 2 meters.
Deviations not visible under the above-described observation conditions are not considered defects.
Pre-marking of potential deviation areas is not permitted.
Only closed joinery is subject to quality assessment.

The following coating defects are permissible:

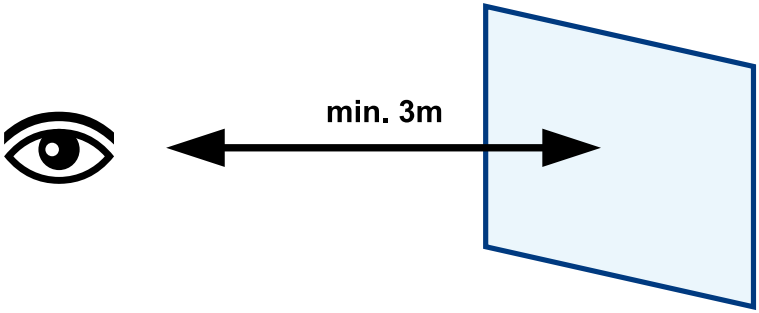
- runs on rebate surfaces,
- small blisters and craters not reaching the substrate, appearing as isolated scattered points,
- point inclusions in the same color,
- visible wood grain pattern,
- shallow dents up to 4 mm^2 in area and 0.5 mm in depth, up to 5 per window surface and 8 per door surface,
- surface scratches not reaching the substrate, with a total length of up to 400 mm per window surface and 500 mm per door surface,
- isolated discolorations,
- slight color shade differences and surface irregularities in lacquer in areas not visible after installation.

Lacquered surfaces of additional accessories (e.g. handles, grips) must be free of lacquer chipping.
The assessment of insulating glass units should be conducted according to the following Guidelines for Visual Quality Assessment of Insulating Glass Units.

5. VISUAL INSPECTION ON COMBINED GLAZING UNITS

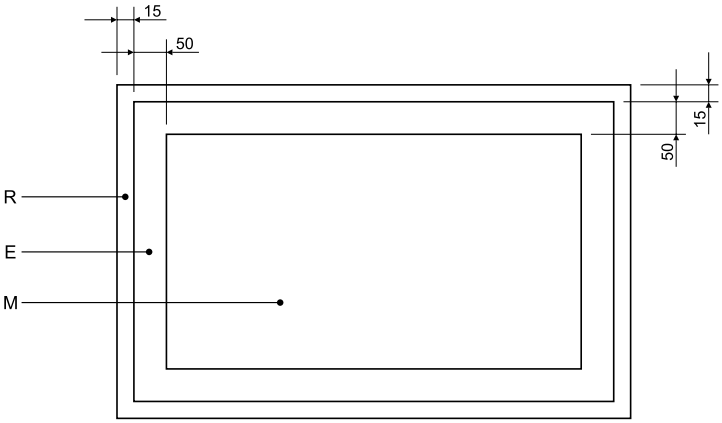
5.1. Conditions for inspections on glazings

The glazing shall be assessed from a minimum **3 m** distance, at an angle such that the glazing is seen in normal use, in daylight, without direct sunlight. It is necessary to look through the glass and not at the glass.
Defects not visible from such a distance are not taken into account.
Inspection time should not exceed **1 minute** for an area of 1m^2.



The size of the defect depends on:
- the construction of the glass (single chamber, double chamber, laminated safety glass)[1],
- its location on the glass,
- size of the glass.

Before starting to inspect the glass, its **INSPECTIONZONE** should be determined as shown in the figure below.



R – edge zone of 15 mm in case of panes mounted in window frames or equal to the width of the edge seal in case of panes with an exposed edge
E - perimeter zone with a width of 50 mm from the edge zone
M - main zone

[1] In case of 2-chamber glass (e.g. 4-16-4-16-4), the number of defects given in the following tables should be multiplied by 1.25. In case of 1-chamber glass including laminated safety glass, the number of defects should be multiplied by 1.5.

5.2. Spot flaws

Spot flaw – sferyczne lub półsferyczne zaburzenia przezroczystości widoczne podczas patrzenia przez szkło, tj. wtrącenia stałe, pęcherzyki, dziurka w powłoce, itp.
„Halo" – a locally distorted area, usually around a spot flaw.

ZONE	Flaw extent without „halo" envelope (ø in mm)	Glass size S (m^2)			
		S≤1	1<S≤2	2<S≤3	S>3
R edge area	all sizes	Allowable			
E perimeter area	ø≤1	No more than 3 pieces allowed per area ø≤20cm			
	1<ø≤3	4 pcs.	1 piece per metre of perimeter		
	ø>3	Inadmissible			
M major area	ø≤1	No more than 3 pieces allowed per area ø≤20cm			
	1<ø≤2	2 pcs.	3 pcs.	5 pcs.	5 pcs. +2 pcs./m^2
	ø>2	Inadmissible			

5.3. Dirt

Dirt – material present on a surface of the glass which may take the form of a stain or „patch".
Stain – a flaw larger than a spot flaw, often irregular in shape, partly with a mottled structure, e.g. such as fingerprint.

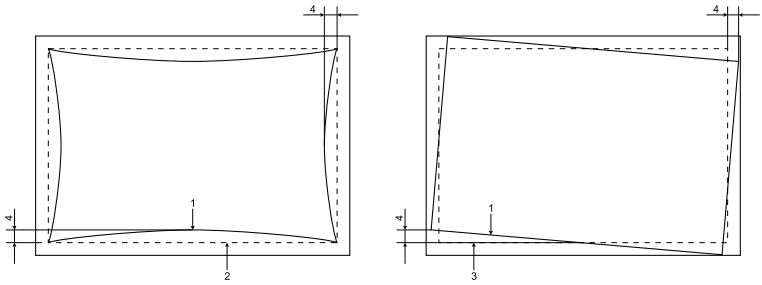
ZONE	Type and size of flaw (ø in mm)	Glass size S (m^2)	
		S≤1	S>1
R edge area	all sizes of dirt, stains, runs	Allowable	
E perimeter area	Dirt ø≤1	Allowable	
	Dirt 1<ø≤3	4 pcs.	1 piece per metre of perimeter
	Stain, run ø≤17	1 pcs.	
	Dirt ø>3 and stains ø>17	1 pcs.	
M major area	Dirt ø≤1	Max 3 pcs. per area ø≤20cm	
	Dirt 1<ø≤3	Max 3 pcs. per area ø≤20cm	
	Dirt ø>3 and stains ø>17	Inadmissible	

5.4. Linear irregularities

Linear irregularities – flaws, which may be on or in the glass, in the form of marks or scuffs, e.g. a scratch.
Cluster – a group, an accumulation of very small flaws that seem to be a stain.
Thin capillary cracks are acceptable, provided they do not occur in a cluster.

ZONE	Length of single scratch / linear irregularity	Total length of scratches / linear irregularities
R edge area	Allowable	
E perimeter area	≤30 mm	≤90 mm
M major area	≤15 mm	≤45 mm

5.5. Rectilinearity tolerances for spacer frames



1 – spacer frame
2 – theoretical shape of a spacer frame
3 – theoretical location of the spacer frame
4 - deflection

In case of 1-chamber glazing, the straightness tolerance of the spacer frame is 4 mm for lengths up to 3.5 m and 6 mm for the longer sides.

In case of 2-chamber glass, the permissible frame deviation in relation to the parallel straight edge of the glass or other frame (frame shift) is 3 mm for edge lengths up to 2.5 m.
For longer edge lengths, the permissible deviation is 6 mm.

5.6. Foreign matters on the spacer frame

Occurrence of single, non-accumulated foreign bodies on the distance frame, e.g. residues of desiccant, glass particles, frame, muntin bars, etc., which may have got inside the combined glazing unit during production, is acceptable. These effects are not subject to complaints.

The sealing compound of the unit may protrude beyond the edge seal and be visible in the inter-pane space.

5.7. Allowable defects on the pane edge

- external shallow edge damage or chipping that does not affect the strength of the glass and does not extend beyond the width of the edge seal,
- internal chipping without loose spalling which has been filled by a sealant.

5.8. Other acceptable visual effects

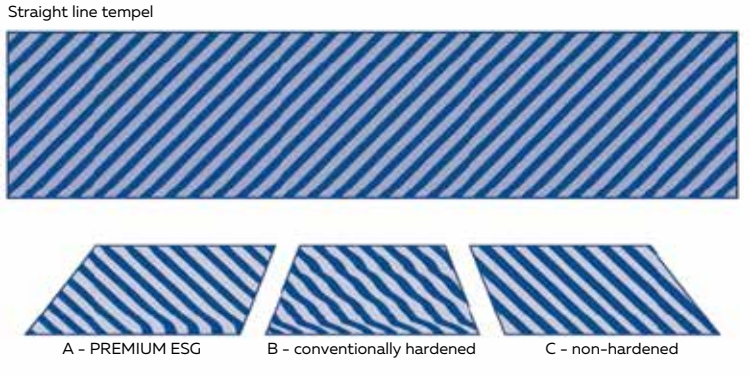
- fogging, condensation on the glass surface,
- imprints of suction cups, stickers, rollers visible on damp (fogged) glass,
- different coloured lines, so called Brewster's reflected rays,
- colour change of glazing bars due to coatings or own colour of glass,
- 1 mm gaps in the joint of the spacer frame,
- gaps in the connection of the internal muntins.

5.9. Disadvantages of toughened glass (based on PRESSGLASS Company Internal Standard)

It is important to bear in mind that there may be additional phenomena in toughened glass resulting from the heat treatment. These phenomena do not mean that toughened glass is defective.
These include:

a) the rainbow effect - caused by the anisotropy of strength and the formation of a specific stress field generated during toughening. It causes a double refraction of light in the glass which becomes visible under polarised light - the stress fields are visible as coloured areas called „polarised fields" or „leopard spots". „Polarised fields" are visible on the glass when observed from a small angle also in daylight (this phenomenon is well visible on toughened car windows),

b) „RolerWaves" - these occur during the toughening of glass in horizontal furnaces and are surface deformations caused by the hot glass (temperature close to the softening point) coming into contact with the furnace rollers. This creates deviations in the straightness of the glass. These deviations are usually visible in reflected light. When placing orders for glass panes to be used for glazing façades, it is recommended that the customer take into account the „Roler Waves" phenomenon and specify the direction of application of the glass panes to the hardening furnace (directional hardening),



c) „roller reflection" - with glass that is thicker than 8 mm and with thinner but larger glass, small imprint marks may become visible („roller reflection").

The Toughened Glass Internal Standard of the toughened glass supplier will apply to the assessment of toughened glass.

Reference documents:
1. Guidelines for the Installation of Windows and External Doors, ift Rosenheim, 2022.
2. Technical Conditions for the Execution and Acceptance of Construction Works. Installation of Windows and Doors, Building Research Institute (ITB), Warsaw, 2016.
3. Quality Guidelines. Windows, External Doors, and Façade Elements, Plattform Fenster und Fensterfassaden, Vienna.
4. PN-EN 14351-1+A2:2016 Windows and Doors – Product Standard, Performance Characteristics – Part 1: Windows and External Doors.
5. PN-EN 1279-1_6:2018 Glass in Building – Insulating Glass Units.