

Aluminium



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.sarnaWindows.eu, 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 sealed combined glazing units, but not exceeding 6 years from the date of production,
 - b) 5 years - for aluminium fixtures and the entire Product (i.e. profile, colour, fittings), but not exceeding 6 years from the production date,
 - c) 2 years - for additional window accessories (i.e. door self-closers, window sills, drip caps, handles, additional locks, filling panels, mosquito nets, reed relays, insulating combined glazing units ordered separately, etc.), but not exceeding 3 years from the production date.
2. Information on the date of production can be obtained from the manufacturer or the seller by providing the order number.

B. Complaints:

1. **Complaints shall be lodged directly at the place of purchase of the Products immediately upon their discovery, i.e. no later than within 14 days of their discovery, under pain of losing warranty rights.**
2. When lodging a complaint, a proof of purchase with serial numbers of Products, a description of damage, and contact details (address and phone number of the Customer) shall be submitted.
3. Claims under the guarantee may be made only upon payment of 100% of the sales price of the Product.
4. The Manufacturer's Guarantee shall not exclude, limit or suspend the rights of the Purchaser under the provisions of the warranty for defects of the goods sold.

C. Periods for handling complaints and fulfilling guarantee obligations by the Manufacturer:

1. Complaints shall be processed within 14 working days from the date of receipt of a complaint. Complaints submitted directly to the Manufacturer without reference to the Seller shall be dealt with within 21 working days. Consideration of the complaint means that on the above dates the Manufacturer shall decide whether the Customer's request is valid or whether it refuses to accept the complaint.
2. In case it is necessary to inspect the defective Product by the Manufacturer's service team, the deadline for the investigation of the complaint may be extended accordingly, but not more than another 21 working days.
3. Should a complaint be accepted, the Manufacturer shall decide on the manner of performance of obligations under the guarantee, i.e. removal of the physical defect of the Product (repair), replacement of the Product with a defect-free product or an appropriate price reduction.
4. The time limit for the fulfillment of obligations under the guarantee is 21 working days from the date of complaint acceptance. If it is not possible to fulfill the obligations under the guarantee within 21 working days for reasons beyond the control of the Manufacturer, the repair period may be extended accordingly, of which the Manufacturer shall inform the Customer.
5. Should removal of the defect of the Product depend on the weather conditions, the Manufacturer shall remove the defect if it is possible to maintain the technological parameters of the Product.



D. Exclusions:

1. **The guarantee shall only cover manufacturing defects and/or material defects; it shall not cover:**
 - a) mechanical damage, including but not limited to: glass crack, external scratches on the glass, profile scratches, etc.,
 - b) incorrect installation and defects resulting from it,
 - c) changes, alterations or repairs to the Product made by persons other than those authorised by the Manufacturer,
 - d) damage resulting from improper use of the Product (i.e.: indoor air humidity above 70%, continuous exposure to temperatures above 70°C, continuous immersion in water, etc.),
 - e) damage caused by contact with materials generating galvanic vapours or acids,
 - f) damage caused by chemical agents,
 - g) damage caused by insufficient maintenance,
 - h) damages caused by natural forces and physical events, such as water vapour condensation, frosting or freezing (in case of inadequately or insufficiently ventilated and heated rooms), cracks in the glass pane as a result of climatic factors (pressure or temperature differences), or the sound of internal muntins,
 - i) damages resulting from random events, e.g. fire, flood, lightning strike, etc,
 - j) adjustment, maintenance and cleaning of the Products, as well as replacement of fuses, batteries and other consumables that are subject to natural wear and tear during the guarantee period.
2. Wood-like colours may vary from those shown in the templet. Thermal printing imitates real wood with a unique grain pattern in its various parts. Therefore, colour differences between individual profiles may occur, which emphasises the individual character of the joinery and does not constitute grounds for complaints.
3. Door joinery, especially when it is in dark colour, exposed to direct sunlight, may be subject to an unfavorable physical phenomenon consisting in bending of the leaf/sash profiles. This bending is caused by uneven elongation of the outer and inner walls of the section due to their different surface temperature of the profiles (inside 25° C, even 65° C in the sun). The better thermal insulation of the profiles, the greater temperature difference and the more pronounced their deflection may be. The greatest deflection occurs during the hours of maximum insolation. In the following hours, the temperatures are equalized and the profiles return to their original shape. The described phenomenon is considered natural and is not the basis for a complaint.
4. Under certain conditions of observation of a window covered with decorative foil, the impression of a different shade of foil color may appear. This is caused by the intensity and angle of the sun's rays on the foil, the direction of the foil and profiles in relation to each other. We are dealing here with the optical effect of natural reflection of light. This is a situational impression that is not subject to complaint.
5. Covering an insulating glass unit with a protective film increases thermal stress in the sunlit glass. This type of uneven stress can cause the glass to crack, which is not covered by the manufacturer's warranty.

GENERAL GUIDELINES FOR INSTALLATION AND OPERATION

Modern aluminium structures retain their very good performance properties provided that they are properly installed to the walls of a building. The following actions contribute to the correct installation of the product:

1. Building wall opening arrangement.

The opening in the wall in which a window or door is to be installed should be larger than the external dimensions of the frame. The size of the gaps between the aluminium frame and the masonry depends on the length of the sections, their colour and the way their gaps are filled. The angle of the opening should be 90° and the diagonals should not differ by more than 1 cm, which can be easily checked with a tape or string. If corners of the opening are not at right angles, the geometry of the frame can be deformed, which affects the functionality of the entire product. All internal surfaces of the opening must be as smooth as possible and free from voids. The bottom surface of the opening must be horizontal, uniform, even and have a layer of material on which the product can be stably supported.

2. Setting frame to the wall.

HST windows, doors or Lift&Slide doors should be placed on a load-bearing sill which ensures continuous load transfer, thermal insulation and maintenance of the level (maximum slope is 0.5 mm / 1 m of the sill length). The position of the window or door in relation to the wall should be such that the 10°C isotherm passes through the structure. Only then water vapour condensation on the inside of the product during normal conditions of use can be avoided. In a layered wall insulated with mineral wool or polystyrene the isotherm is located in the strip of insulating material, therefore the installation should be carried out at a depth of this strip. In case of a wall insulated from the outside, it is recommended to install aluminium structures close to the strip of external insulation. The structure should be levelled and in the case of HST doors the spacing between profiles should be equal. The gap between the frame and the wall on both sides should be equal and must allow free compensation of the thermal expansion of the product.

3. Fixing structure to the wall.

It is recommended to fix windows and doors with steel anchor bolts (Fig. 2), or dowels (Fig. 1), and stainless steel, or galvanised screws, as well as with support blocks. The fixing must ensure that the external loads are transferred to the building structure, while the functionality of windows and doors must be maintained (the sash movement when closing and opening must be smooth). At least 2 fixing points must be used on each side of the structure. Arrangement of the fixings according to the guidelines in Fig. 3.

4. Ferrule adjustment.

Once the sashes have been installed, their position in relation to the frame and adjacent sashes shall be adjusted using ferrule adjustments (hinges, air latches), and then the adjustment of the mating ferrules (catches, bolts) must be carried out. The sashes must be levelled, and the gaps between the profiles of adjacent sashes equalled.

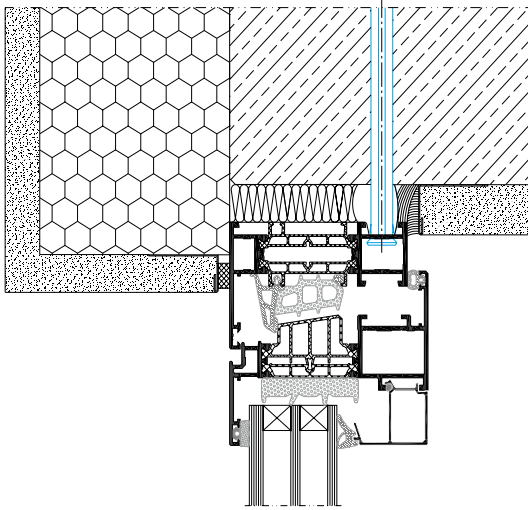


Fig. 1. Fixing with dowel

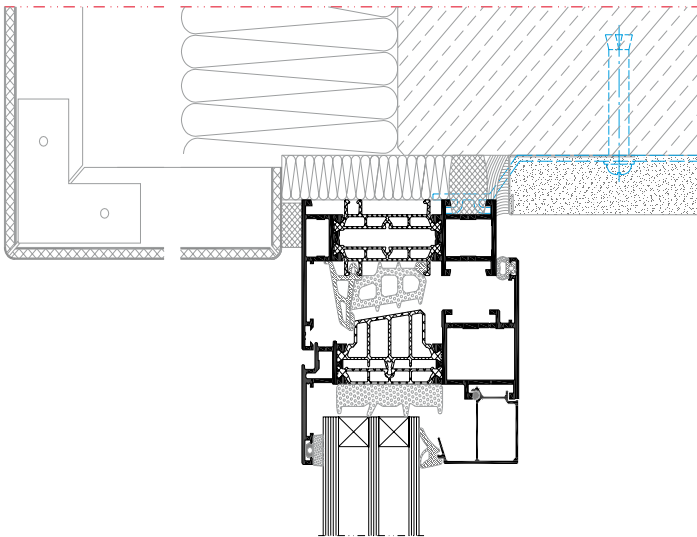


Fig. 2. Fixing with an anchor bolt

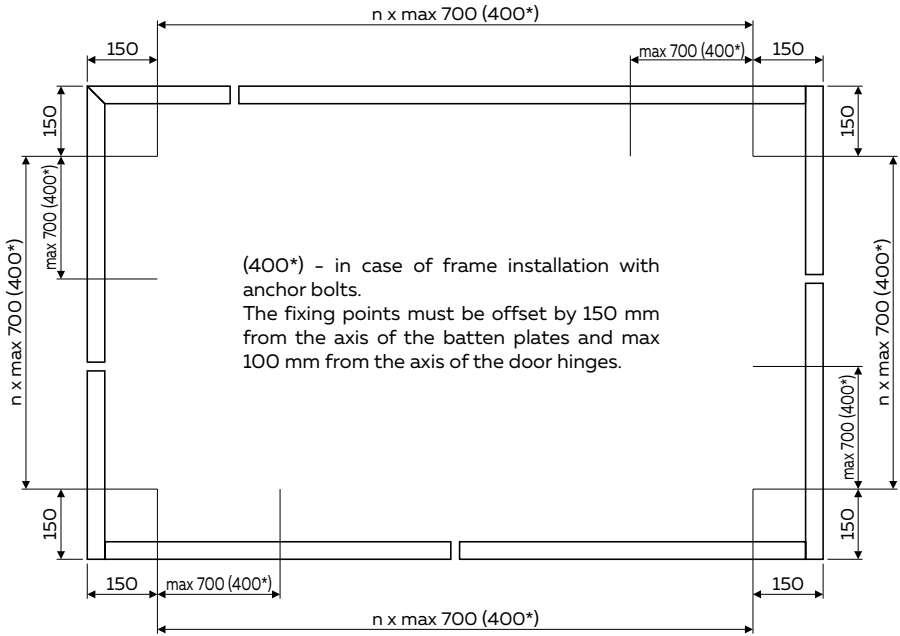


Fig. 3. Arrangement of fixings

5. Insulation of the product.

Insulation of the space between the frame and the wall is to prevent the ingress of water, both rainwater from the outside and water vapour from the inside and is to provide thermal and acoustic insulation. For this purpose mineral wool, assembly foams or polyethylene rollers, silicone compounds, expansion tapes and vapour-permeable and vapour-tight membranes are most commonly used. The insulation layer around the frame should be uniform, without gaps and of the same thickness. On the outer side, the vapour barrier is applied with particular care along the bottom frame and the corners. Care must be taken to ensure very good vapour transmission on the inside of the joint. If the cavities of window openings are plastered after the installation of the aluminium structure, the window and door must be secured so that the plaster does not come into contact with the surface of the product.

MAINTENANCE AND CLEANING

Powder and oxide coatings are not resistant to mechanical damage caused by sharp tools and abrasives.

Powder and oxide coatings are sensitive to, among other things, organic thinners, concentrated alcohol, acids, alkalis, and petroleum-based compounds. Therefore, it is not allowed to come into contact with these agents.

In particular, protection must be provided against contact of the coating with lime, cement and other alkaline building materials. Joint sealing compounds, other auxiliary materials such as glazing compounds and mastics, cutting and drilling lubricants and coolants, adhesives, joint mortars, putty, adhesive tapes, etc. which come into contact with the coated surfaces must be pH neutral and must not contain substances which could damage the applied paint or oxide layer. Exposure to sunlight increases the aggressiveness of chemicals. Therefore the above mentioned materials must be tested for suitability for the respective coating before use.



If adhesive tape remains on the surface of the powder coating, especially in sunlight and at high ambient temperatures, it may cause chemical reactions leading to bonding the tape to the powder coating. Protective tapes should be removed immediately after installation.

In addition to the exposure to weathering agents (sun, frost, precipitation), aluminium profiles in the exterior walls are exposed to aggressive atmospheric components and are therefore elements on which dirt builds up. Consequently, these components must be cleaned regularly, at a frequency depending on the location of the structure.

The frequency of cleaning depends on many factors such as:

- the geographical location of the building,
- the environment (surroundings) in which the building is located, e.g. marine, industrial, acidic / alkaline, etc,
- the degree of atmospheric pollution,
- wind zone,
- extent to which the building is sheltered by neighbouring buildings,
- potential for the transfer of particles (especially sand) causing erosion to the coating,,

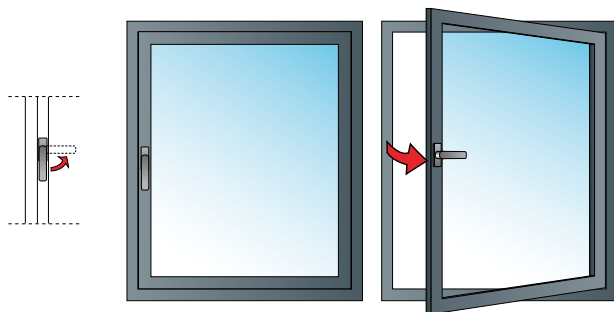
- if the environmental conditions of a building change during its use, e.g. from a rural to an industrial environment.

Washing is often the cause of coating defects and therefore the rules described below should be followed:

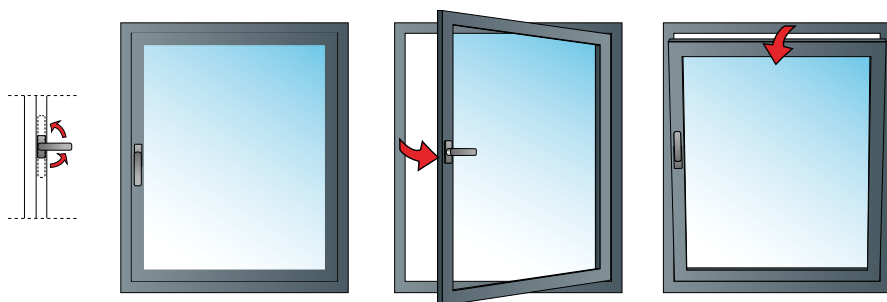
1. Washing must be carried out at least twice a year.
2. The recommended method for cleaning varnished surfaces is regular washing with a solution of mild detergent (e.g. 5% dishwashing liquid) in warm water. All surfaces should be cleaned with a soft sponge or cloth. Brushes harder than those made of natural bristle must not be used (window cleaning may be carried out simultaneously for convenience). After washing, the surface must be rinsed thoroughly with clean water.
3. After washing and rinsing, anodised surfaces can be polished with a dry, soft cloth to restore the gloss or, if heavily soiled, polished with a slightly abrasive polishing paste and preserved with a special maintenance agent that does not contain wax, petroleum jelly, lanolin or similar substances.
4. If atmospheric pollution has caused stains that are difficult to remove, extraction gasoline is recommended to remove them from painted surfaces. In this case, abrasives (sandpaper, polishes) or solvents containing ketones, esters or alcohols cannot be used.
5. Clean water must be used for washing. Washing can be more effective if using a decorative, non-scratching fabric to wipe the surface.
6. The temperature of the coatings must not exceed 25°C during washing.
7. The temperature of water used for washing must not exceed 25°C. The coating must not be washed with a steam jet.
8. Before cleaning the surface, the effectiveness of the cleaning agents must be confirmed. The test shall be carried out on non-visible surfaces. If undesirable effects occur, the test cleaner should not be used.
9. Under no circumstances should cleaning agents with a pH below 5 or above 8 be used.
10. Strongly acidic or strongly alkaline cleaning agents (including those containing detergents) and surfactants that may react with aluminium must not be used.
11. Abrasive cleaners must not be used and the surface must not be cleaned by rubbing. Fine cotton fabrics intended for industrial cleaning may be used. When wiping, the fabric should not be pressed too hard against the surface to be cleaned.
12. Organic solvents containing esters, ketones, alcohols, aromatic compounds, glycol esters, chlorinated hydrocarbons, etc. must not be used.
13. Detergents of unknown origin must not be used.
14. Salt or chemicals to remove ice near the profiles must not be used.
15. The maximum exposure time for the cleaning agent shall not exceed one hour. If necessary, the washing process can be repeated after 24 hours.
16. After each washing, the surface must be rinsed immediately with clean, cold water.
17. Regular washing prevents formation of intense and difficult to remove dirt. For exterior applications, where the decorative appearance and protective function are particularly important e.g.: portals, shop fronts etc., weekly cleaning is recommended. In such cases water and chamois leather (suede) may be used for cleaning; then all the elements must be wiped from top to bottom with a soft dry cloth.
18. Window frames, window sills and façades must be cleaned regularly. Its frequency depends on aggressiveness of the environment and the construction of the façade.
19. Gaskets made of EPDM material require no special maintenance.

CORRECT OPERATION OF WINDOWS

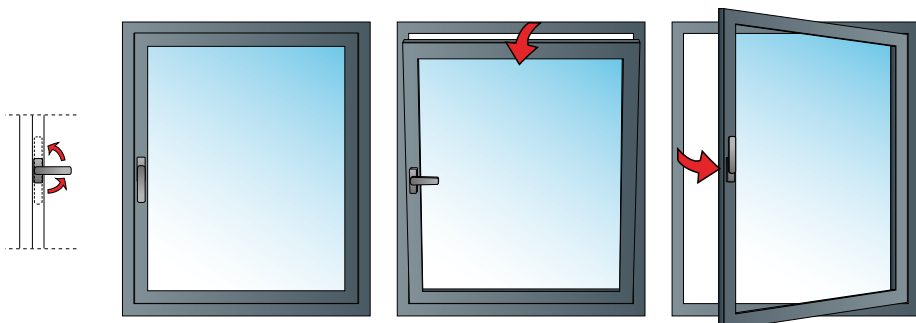
a) pull-apart window



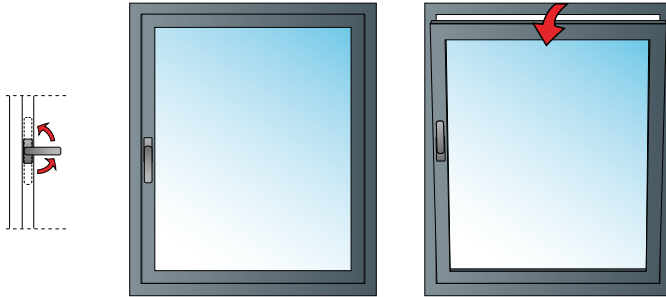
b) turn-and-tilt window



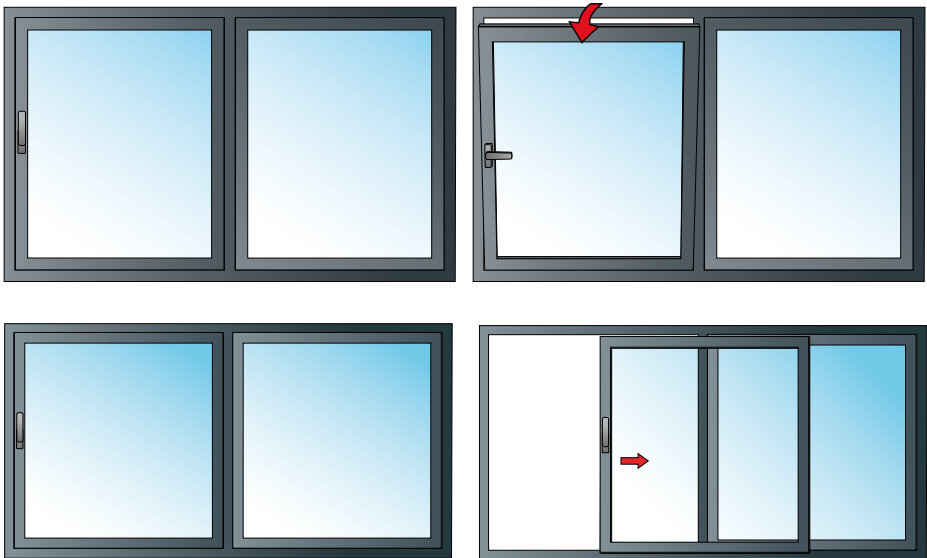
c) tilt-and-turn window



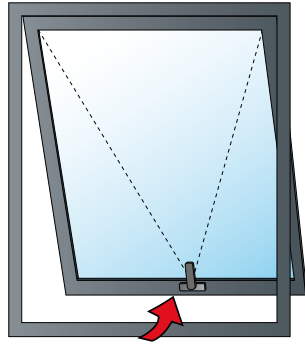
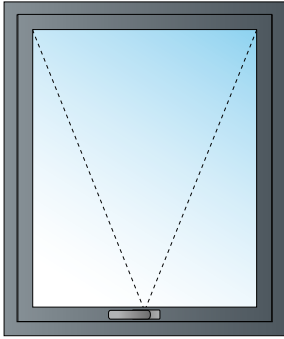
a) tilt window with side handle



b) tilt-and-slide window

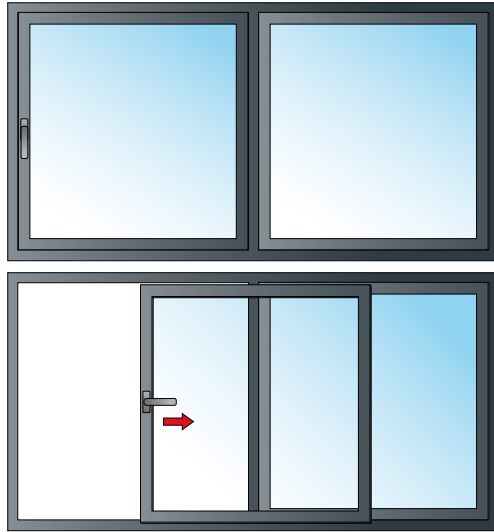


a) hinged window

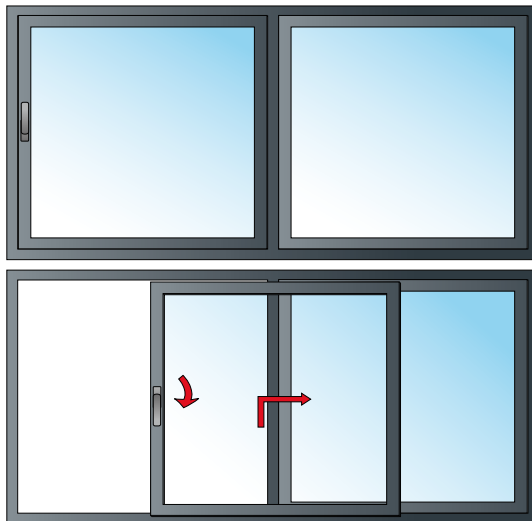


CORRECT OPERATION OF DOORS

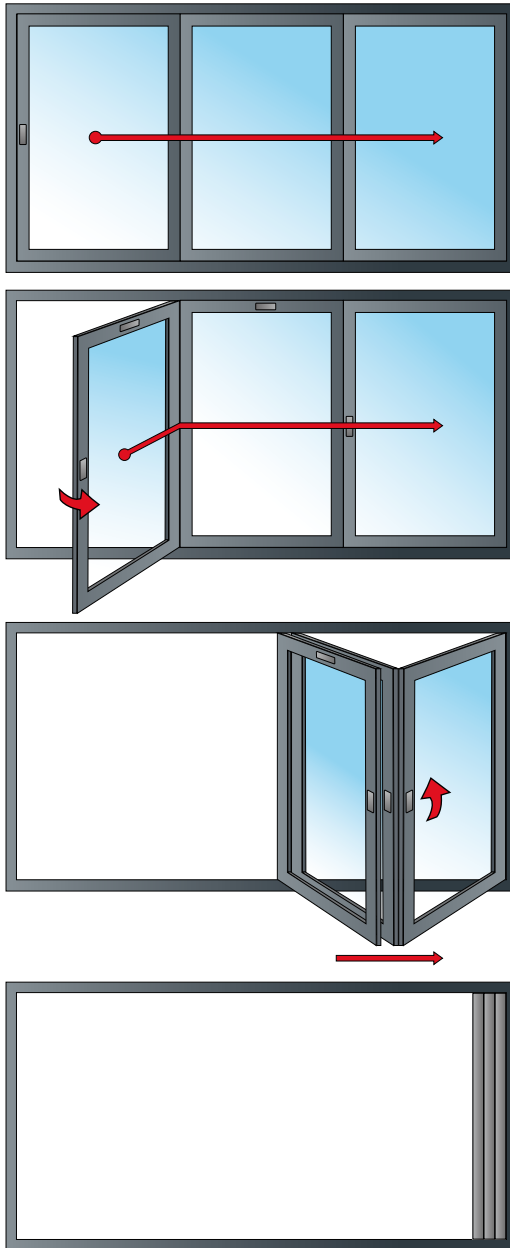
a) sliding doors



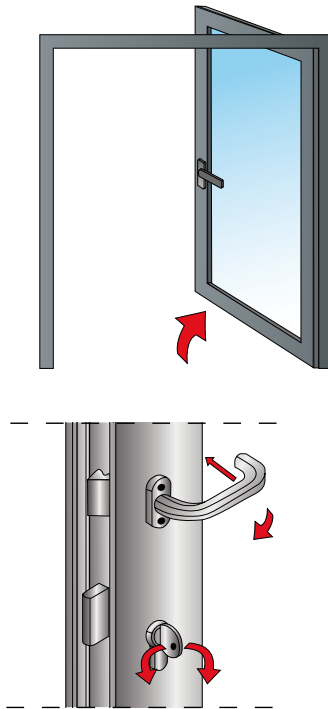
b) lift-and-slide doors



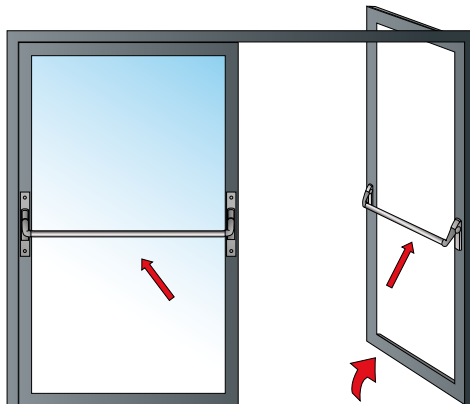
a) folding doors



a) single leaf doors

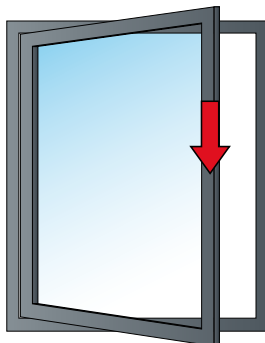


b) panic doors

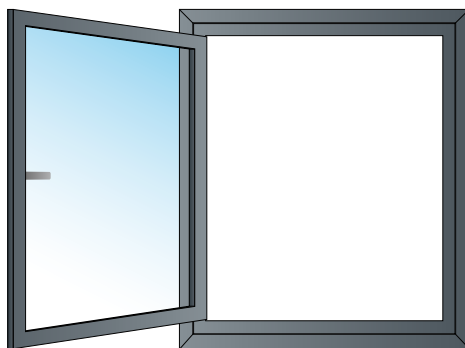


IMPROPER USE OF WINDOWS AND DOORS

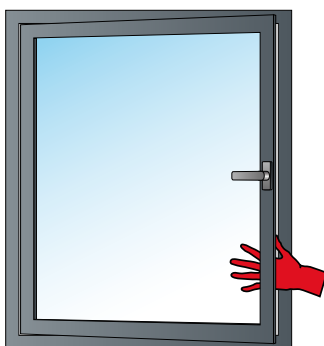
a) no other load may apply to the window sash



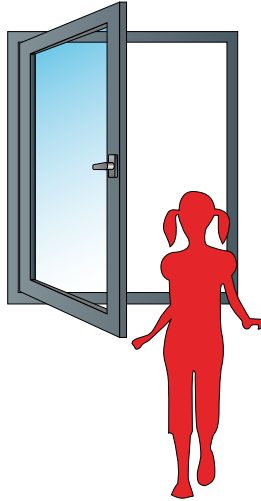
b) window sash should not be pressed against the frame



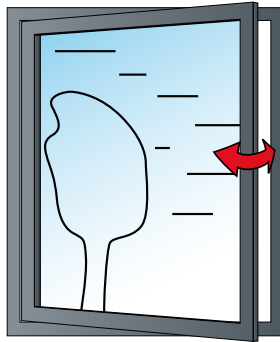
c) snap-fastening sash can lead to injury; no hands should be inserted between the sash and the frame when closing the window



a) in the case of access to the window by children or persons with mental disorders it is necessary to install e.g. a lockable handle or a turn lock



b) windows should not be left open during strong winds



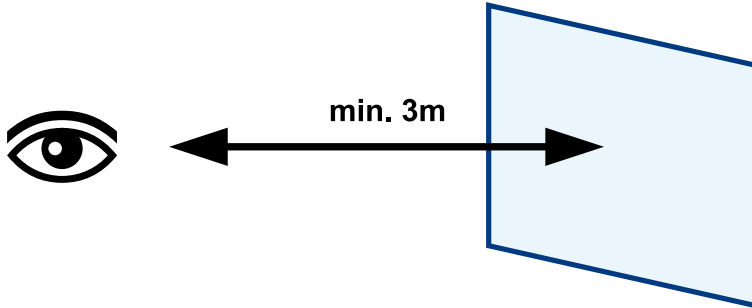
VISUAL INSPECTION ON COMBINED GLAZING UNITS

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.

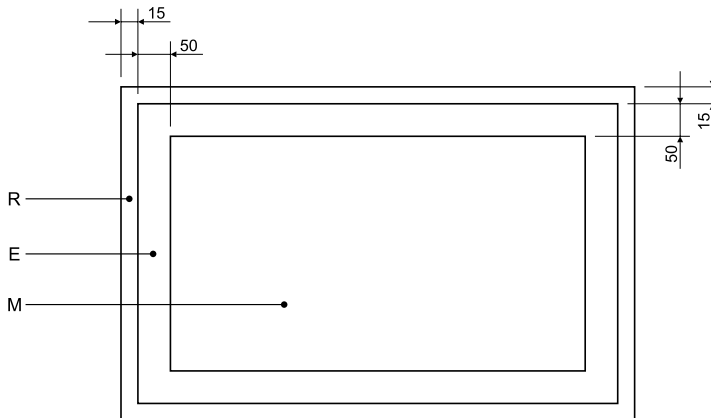
Inspection time should not exceed **1 minute** for an area of 1m².



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.

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			

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	

4. Linear irregularities

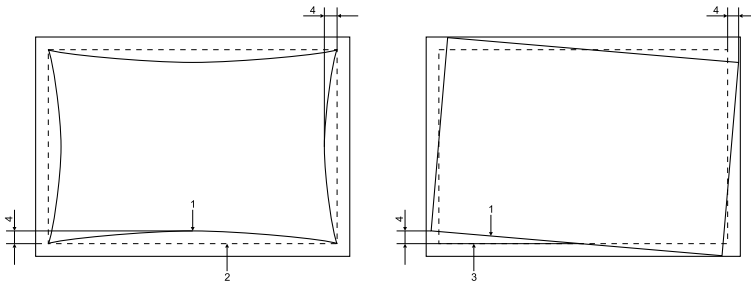
Linear irregularities – flaws, which may be on or in the glass, in the form of marks or scuffs, e.g. a scratch.

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. 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.

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.

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.

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.

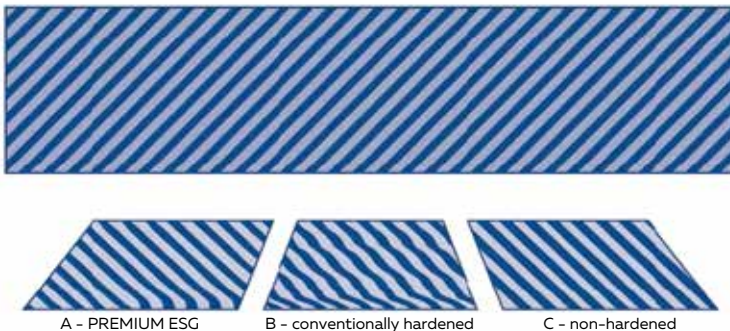
9. Disadvantages of toughened glass (based on PRESSGLASS Company Internal Standard)

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),

Straight line tempel

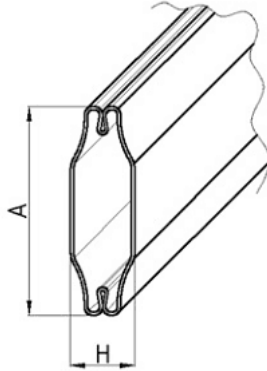


- c) „roller reflection” - with glass that is thicker than 8 mm and with thinner but larger glass, small imprint marks may become visible („roller reflection”).

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

10. Evaluation of the internal glazing bars

The internal glazing bar should be assessed from a distance of 3 m from the angle at which it is visible in normal use, in daylight, without direct sunlight. Defects not visible from this distance are not taken into account. The surface A of the bars is subject to assessment, while the side surface H is not subject to assessment (see drawing).



GUIDELINES FOR ASSESSMENT OF BUILT-IN ALUMINIUM JOINERY

1. Functionality check

Deformations, including changes in the shape and dimensions of windows (bulging, hourglass) should not significantly impair their performance, i.e. functionality.

They must not cause damage to the window elements, i.e. pulling out and damaging the fittings, corrosion of the fittings, damaging the seals.

- 1.1 Opening and closing of the sashes should be done without jamming and stopping.
- 1.2 The opened sash should not close or open under its own weight.
- 1.3 When closed, the sash should adhere evenly to the frame, ensuring tightness between those elements.

2. Quality check

The assessment of the paint finish on aluminium joinery shall be carried out visually, either with natural eyes or corrected by means of medical glasses, at an angle of $90^\circ \pm 30^\circ$ to the surface to be assessed, for a maximum of 10 seconds.

The inspection shall be carried out at a distance of:

- 5 m for components used outdoors,
- 3 m for internal surfaces.

Deviations that are not visible under the above described conditions of observation shall not be considered defects. Pre-marking of the locations of potential deviations is not permitted.

External surfaces shall be viewed in diffuse daylight, internal surfaces in normal (diffuse) light from an artificial source. In cases of doubt, the perpendicular angle of vision is decisive. The assessment of the appearance of a built-in aluminium window must be carried out at an angle of approx. 60° from the following distances:

- 5 m for components used outdoors,
- 3 m for components used indoors.

External elements are assessed in diffuse daylight and internal elements in light appropriate to the use of the room.

Finished woodwork is subject to qualitative assessment.

2.1 The following coating defects are unacceptable under the above conditions:

- a) excessive roughness,
- b) runs,
- c) blisters,
- d) interjections,
- e) craters,
- f) dull spots,
- g) pores,
- h) indentation,
- i) scratches.

2.2 The coating should be of even colour and gloss with good coverage.

2.3 Cracks reaching down to metal surface of the substrate are unacceptable.

- 2.4 The evaluation of insulating combined glazing unit should be carried out according to the guidelines for the visual quality assessment of glazing units.
- 2.5 Varnished surface of additional accessories (e.g. door handles, hand grips) without any paint chips. Individual discolourations, capillary scratches and spot inclusions are permissible provided they are not visually striking.

3. Corrections made by a qualified technician

A qualified technician can remove minor surface damage, deformation and tarnishing with the appropriate tools and cleaning agents. Such professional repairs do not affect the durability of the profiles.

The criteria given above apply when assessing the results of the repair.

Reference documents:

1. PN-EN 14351-1+A2:2016 Windows and doors. Product standard, performance characteristics. Part 1: Windows and external doors that have no fire resistance and/or smoke control characteristics.
2. PN-EN 12020-1 Aluminium and aluminium alloys - Extruded precision profiles in alloys EN AW-6060 and EN AW-6063 - Part 1: Technical conditions for inspection and delivery.
3. Quality guidance. Windows, exterior doors and façade elements. Plattform Fenster und Fensterfassaden. Wien.
4. Technical conditions for the execution and acceptance of construction works. Installation of windows and doors. Building Research Institute, Warsaw 2016.