1 INTRODUCTORY PROVISIONS

A) Despite all the efforts to maintain a high quality, some deficiencies may occur and then the assertion of rights and liability for defects found in products, goods, or services offered by the company ALUPLAST s.r.o. is governed by this Claims Procedure.

B) Claims Procedure is issued and provided in accordance with the Civil Code (Act No. 47/1992 Coll.), the Commercial Code (Act No. 513/1991 Coll.) and the Consumer Protection Law (Act No. 250/2007 Coll.).

C) To determine which aforementioned legal regulation is necessary to apply in the course of the complaint process, the type of participants in the business case is decisive. If the participant in the business case is a consumer, the complaint procedure is governed by the Civil Code and Consumer Protection Law. If the consumer is not a party to the business case, the complaint procedure is governed by the Commercial Code.

D) The Claims Procedure is posted on ALUPLAST s.r.o. website (https://www.aluplast.sk/others/downloads/return_policy_aluplast_en) and in printed form it is available in an accessible place at the headquarters of the company.

E) Posting the Claims Procedure on the company website and in an accessible place at the headquarters of the company is considered by the parties as the acquaintance with the current valid Claims Procedure.

F) The customer agrees and is acquainted with the Claims Procedure which they were notified before the contract was signed or before the order was sent. The conclusion of Contract for Work, sending an order, or signing a Cooperation Agreement, are considered as the expression of assent to the Claims Procedure.

G) The customer is obliged to keep and observe all the safety instructions contained in Operating and Maintenance Instructions (https://www.aluplast.sk/service-and-support/adjustment-and-maintenance), which are included in the accompanying documentation of the product. Before commencing the use of the product, it is necessary to study thoroughly and provide other product users with the contents of Operating and Maintenance Instructions. If the customer or other user does not follow the instructions for the proper operation and maintenance of the product, the product may be damaged.

H) Interpretation of some terms used:

- **customer** - an order party who orders a product, goods, or services from ALUPLAST s.r.o.,
- **consumer** - a natural person who is not acting within their business, trade, or professional activities,
- **complaint** - assertion of the liability for defects in product / goods /services,
- **settlement of a complaint** - termination of complaint procedure
    - by the repair of the product, goods or services;
    - by replacement of the product or goods;
    - by returning the purchase price for the product, the goods, or the services in case the repair of the product, goods or services is not possible and the customer has allowed the return of the product or goods;
    - by paying a reasonable discount on the price of the product, goods or services;
    - by a written request to take over the repair of the product, goods or services in the place where the product or goods were built in the real estate if the customer did not appear in spite of the request to take-over;
    - by a written request to take over the repaired product or goods at the ALUPLAST s.r.o. headquarters if the customer did not come to take the product or goods despite the invitation;
    - by a written request to make the property in which the repair, or replacement of the goods, product or the service available, or to take the goods or the product back if the property was not made available despite the invitation;

- by reasoned rejection of the complaint,

- **work** - fixed product or goods built in the real estate provided by the ALUPLAST s.r.o. company for the customer,
- **product** - product manufactured by the ALUPLAST s.r.o. company **goods** - product manufactured by other entity than ALUPLAST s.r.o.
- **standard quality** - quality that ensures the preservation of all essential properties and parameters of the construction product,
- **construction product** - any product or goods which are manufactured and marketed for permanent installation in buildings and whose parameters affect the parameters of the building with respect to the basic requirements for the construction;
- **inherent properties of a construction product** - the characteristics of the construction product which are related to the basic requirements for the construction;
- **parameters of construction product** - are parameters related to relevant inherent properties shown by a level, class or description
- **level** - is the result of an assessment of the inherent property parameter of a construction product shown in numerical form;
- **class** - is the range of parameter levels of the construction product limited by the minimum and maximum values;
- **defect** - is the property of a construction product which precludes the achievement of the standard quality of a construction product
- **apparent defect** - defect which can be detected on the basis of visual and functional control of the construction product and documents, such as:
  - differences arising from the confirmed and provided technical specification of a construction product or service, e.g.
    - differences in the number of construction products or services,
    - differences in dimensions of a construction product,
    - different manner of sash/leaf opening,
    - other parameters of glass panes, etc.
  - visible damages, e.g. scratches and cracks,
  - missing accessories, e.g. handles, caps, connecting and extension profiles, etc.,
- **hidden defect** - defect which cannot be determined by visual or functional control of a construction product or service, or a defect that arose during the proper use of the construction product when properly maintained and it causes limited functionality or complete malfunction of the construction product, e.g. non-functional door lock, mechanical defect on fittings, misting of insulating glass in the cavity between glassing, profile sheet coming off, etc.
- **taking product** - the ALUPLAST company considers the product to be taken when
  - the bill of delivery is signed by an authorised person on the party of customer,
  - by the signature of customer´s authorised person in the Assembly Logbook
  - by the signature of customer´s authorised person in the Delivery and Take-over Report

2 CONDITIONS FOR CLAIM ASSERTION

A) Apparent defects must be noted when the product, goods, work or service is taken over in the bill of delivery or in the work delivery report, otherwise they shall not be accepted when a claim is made after the construction product or work has been accepted. Only those apparent defects are accepted which can be proved that they occurred prior to the takeover of the construction product or work.

B) The claim of a construction product, work or service must be submitted electronically to the email address servis@aluplast.sk or in a written form to ALUPLAST s.r.o., Moštenická ul.8, 971 01 Prievidza or personally at the reception desk of the ALUPLAST s.r.o headquarters.

C) When making a claim, it is absolutely necessary to provide the following information:

- marking **COMPLAINT**,
- the order number and position number or the invoice code under which the product, goods or service are registered at the ALUPLAST s.r.o. company,
- detailed description of the defect including a description of the circumstances leading to its occurrence
- **detailed photo documentation of the defect,**
- the requested method of claim settlement,
- the name and telephone number of the owner or operator of the property where the product is built-in,
- the address of the property where the product is built-in.

D) The claim is asserted under sections (A) and (B) when it is continuously being registered, back confirmation of the claim delivery is provided, and the settlement is planned, and the complaint is settled. Claims by phone and claims without the required data under B) shall not be settled.

E) The assertion of the claim does not affect the customer's obligation to pay their obligations within the due date.

F) Standard period for complaint settlement is 30 business days, in complex cases, this period may be extended mainly depending on weather conditions.

3 WARRANTY PERIOD

A) The warranty period for products, goods and services is set as follows:

- **60 months** for mechanical properties of the profiles:
  - deflection of more than 1 mm/1 m
  - strength, hardness, carrying capacity
  - apparent loss, change in colour or the aesthetic of surface treatment compared to the supplied condition
- **60 months** for the door panels:
  - deflection of more than 1 mm/1 m
  - cracked door panel
  - deformation of the front panel layers
  - moisture condensation in the space between glass panes
  - apparent loss, change in colour or the aesthetic of surface treatment compared to the supplied condition
- **60 months** for multiple glazing:
  - moisture condensation in the space between the panes of multiple glazing
  - the corrosion of low emission layer
- **36 months** for the mechanical properties of fitting (when properly treated and regularly maintained as described on https://www.aluplast.sk/service-and-support/adjustment-and-maintenance
- **24 months** for accessories delivered with products (e.g. blinds, window sills, mosquito nets, etc.),
- **24 months** for assembly and construction works,
- for other products, goods and services which are not listed, the warranty period ranges under generally applicable legal regulations.

B) The warranty period starts from the date of receipt of the product, goods or works, i.e. on the date of signature of the bill of delivery or report on work delivery.

4 DEFECTS EXCLUDED FROM THE POSSIBILITY TO ASSERT A COMPLAINT

A) The possibility for applying a claim does not include explicitly the defects arisen by:

- Mechanical damage, improper setting, improper maintenance, improper use of a construction product, improper handling, failure to comply with the instructions for operation and maintenance which were caused by the customer or by a third party,
- Using the work under conditions that may induce physical or chemical imbalances in relation to the properties of the building as a whole (e.g. project defects or materials used in construction) and depending on specific local conditions (e.g. increased humidity, dust, emissions, copper sheet flashing in the vicinity of filler holes, zinc particles, substances from eternit facades, sills and so),
- Damage due to structural failure of the construction (the additional quiescent load of built-in fillings of holes on the building, own weight of surrounding building structures, building settlement, instability of lintels, wooden perimeter construction, etc.),
- Force majeure (mainly fire, hail, floods, earthquakes, etc.).

B) The possibility for bringing a claim does not include explicitly also the defects of the products or goods in the event that the customer was acquainted with them, and the customer was provided a discount due to the defects. Similarly, it is also applies to the complaints about defects of construction and assembly works.

C) The possibility for bringing a claim does not include explicitly also the defects of the products or goods in the event that the customer was notified of a inconvenient technical or dimensional solution in written form with a notice "no guarantee" in the quotation, or in the order confirmation, and nevertheless the customer insists on that solution, i.e. that he ordered these products.

5 PRINCIPLES OF COMPLAINT APPRAISAL

5.1 PROPERTIES OF HOLE FILLING (plastic (PVCu), aluminium windows and doors)

The products of the ALUPLAST s.r.o. company are characterized by the basic credential properties according to the standard EN 14351-1 + A1: 2010:

- **Resistance against wind load under** EN 12210: 2001
- **Waterproof under** EN 12208: 2001
- **Air permeability** under EN 12207: 2001
- **Heat transfer coefficient** under EN ISO 10077-1:2009
- **Total solar energy transmittance (solar factor g-value**) under EN 410
- **Light transmittance** under EN 410
- **Sound insulation** under EN ISO 140-3 and EN ISO 717-1

Mandatory values for the purpose of this document are the properties of products from these source materials:

- Statement on the characteristics of a product by the manufacturer under EC CPR 305/2011
- CE product marking by the manufacturer under Regulation EC CPR 305/2011
- Initial type testing of a product issued by Notified Body
- System or product passport issued by Notified Body

Source materials (documents) may be presented in Slovak, Czech, German, or English. In the event of a complaint about the basic credential product properties, the burden of proof lies on the party of the

customer. In the event that the act of proof on the party of customer confirms the eligibility of the complaint about the basic credential properties, the supplier is obliged to cover the expenses of proofing

5.2 PLASTIC (PVCu) AND ALUMINIUM PROFILES (frames and sashes/leaves)

Claimable defects are solely defects that prevent a full use of the construction product and impair its credential or aesthetic properties. The assessment of the legitimacy of complaint about a defect is based on the following principles:

A) Optical defects on the interior and exterior surfaces are judged from the distance of min. 3 m and of min. 5 m respectively, from the observed surface under an observation angle that corresponds to the general use or view of the structure. It is reviewed in diffuse daylight (e.g. when cloudy sky) without direct contre-jour lighting (e.g. direct sunlight). Lighting when reviewing a defect from the interior must correspond to the standard lighting of the room when it is normally used. Defects that are not visible under these conditions are not claimable (generally, the defects of any type withe the size less than 0.5 mm are acceptable because they cannot normally be recognized with the naked eye). These rules are applied with respect to Slovak ("SlovEnergoOkno-Posudzovanie kvality vyhotovenia výplní stavebných otvorov a konštrukcií" - Attachment n. 1) and German ("Verband Fenster+Fassade (VFF)-Richtlinie für visuelle Beurteilung von Oberflächen von Kunststofffenster und Türelementen" - Attachment n. 2) norms for assessment of visual surface quality of PVCu and aluminium windows, doors, facades.

B) Spot and surface damage to the surface of the frame or sashes/leaves, colour changes, or surface roughness of various kinds and reasons of origin are permissible unless they are visible when assessed under the conditions of point A, section 5.2.

C) Scratches and nicks are equally admissible, however only in the event that the sum of their lengths in one aluminium element is less than 90 mm and provided that they are not visible when assessed according to the conditions of point A, section 5.2.

D) When assessing profile deflections, before and after installation, standards STN 73 3134 and STN 74 6210 are considered. The sash and/or frame deviation from the straightness shall not be greater than 1mm by 1m of any rail length. The deflection of the rails of frames and/or sash and leaves is measured with a 1 meter long steel ruler. The deviation from straightness shall not affect the declared properties of the product.

E) When bending plastic and aluminium profiles, slight deformations of front profile surfaces may occur during technological process of bending but these deformations are not a reason for a complaint.

F) In the corner welding, the leftovers of a split laminating sheet or white spots shall not be visible. White spots of the welds covered with finishing paint or wax cannot be considered as a defect. When assessing the defects seen by the naked eye, the regulations stated in point A, section 5.2 apply to the full extent.

G) Corner joints and T-joints of the profiles on the products shall be made to have as aesthetic design as possible, however always in accordance with supplier's system documentation. When assessing the defects seen by the naked eye, the regulations stated in point A, section 5.2 apply to the full extent. When there are differences in the profile height less than one hundredth of the profile in the place of profile joints, or the joints of the aluminium profiles have a gap less than 0.5 mm, it cannot be considered as a defect.

H) When the thermal bridges and other parts of profile surfaces located in unseen places when the sash/leaf is closed are not varnished or varnishing is not finished, it is not considered as a claimable defect.

I) Roughness between glazing bars referred to less than 0.5 mm is not considered as a claimable defect.

J) The gaps between covering strips on façade elements or at the contact place of the vertical and horizontal bar are not considered as a claimable defect. It is a standard design solution for dilatation of aluminium profiles.

K) The anodic oxidation (anodising) of the aluminium may have a slightly different shade when supplied by different suppliers or from different production batches. This is not considered as a claimable defect.
L) Anodic oxidation (anodising) is a surface treatment that is loose with all alkaline building materials (lime, mortar, plaster, ...). Therefore, if the frames get dirty at the construction site, substantial and irreversible changes of the material surfaces may occur (stains, marks). These changes are not considered as a claimable defect.
M) So-called extrusion lines on the surface of aluminium profiles are not considered as a claimable defect.
N) Colours like RAL 9006 and RAL 9007 and many others are produced and supplied in various colour shades (variations). Therefore, in the case of different suppliers of product component, it is not possible to provide identical shades of the colours for window profiles, guiding profiles for roller shutters, or blinds, insect screens, door fitting, or outside windowsills. Different sub-shades of the same RAL colour on those goods/products are not therefore considered as claimable.
O) There may be a technically unavoidable colour difference between the colour RAL - a colour card printed on paper sheets and the colour on the aluminium profile or sheet. This kind of difference, however, is not considered as claimable.
P) The visual quality of powder coating surface treatment of aluminium profiles is assessed on the interior and exterior surfaces from the distance of min. 3 m and of min. 5 m respectively, from the observed surface and under an observation angle that corresponds with the general use or with the view of the structure. It is tested in diffuse daylight. Lighting when reviewing a defect from the interior must correspond with the standard lighting of the room when it is normally used. These rules are applied with respect to Slovak (SlovEnergoOkno-Posudzovanie kvality vyhotovenia výplní stavebných otvorov a konštrukcií-Attachment n. 1) and German („Verband Fenster+Fassade (VFF)-Richtlinie für die visuelle Beurteilung von organisch beschichteten (lackierten) Oberflächen auf Aluminium“ - Attachment n. 3) norms for assessment of visual surface quality of PVCu and aluminium windows, doors, facades.
Q) Colour shade is compared by means of visual check according to the standard STN EN ISO 3668.
R) The protective tape shall be removed from the products not later than 3 months after constructions are installed. Due to weather conditions, the protective tape changes its properties making it difficult or impossible to remove. This defect is not claimable.
S) Surface treatment made with textured surface paints cannot be coated with a protective tape because the tape does not adhere to that type of surface. The absence of a protective tape on such surface treatments is therefore not claimable.

5.3 DOORS AND DOOR PANELS

A) Door tightness is assessed solely in a locked state when the leaf is properly pressed to the frame with all the locking points. The untightens of a closed but unlocked door is therefore not considered as a defect.
B) It is not possible to claim a bending door leaf if the door panel, or glazing were not ordered from the ALUPLAST s.r.o. company. The deflection of the door leaf, or the frame is assessed according to point D), subchapters 5.2.

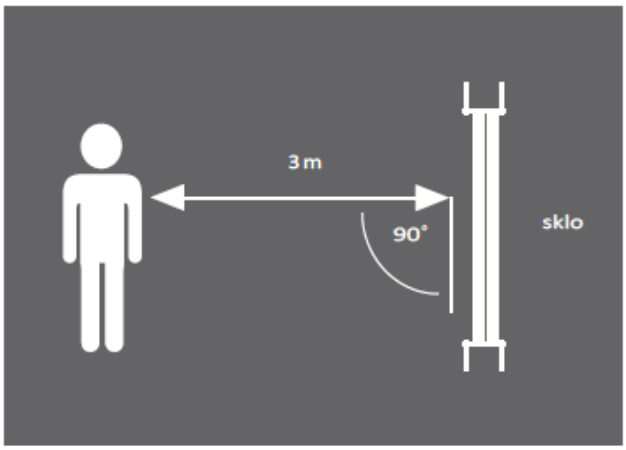
5.4 GLASS PANELS

5.4.1 VISUAL GLASS QUALITY ASSESSMENT

A) The assessment of the visual quality of the glazing is based on the European standard EN 1279. The European standard EN 1279 is the main governing document that sets out the mandatory requirements and criteria for the visual inspection of insulating glass. European standards such as EN 572-2 Float glass /

EN 1096-1 coated glass / EN 12150 - Thermally tempered safety glass / EN 12543 Laminated glass and laminated safety glass refer to these criteria.

B) The glass must always be viewed in a vertical position and at a right angle (90 °). The distance of the observer from the inspected glass is 3m. Visual assessment is performed in diffused daylight conditions (e.g., cloudy skies), without direct sunlight or artificial lighting.



During the visual inspection, it is necessary to look through the glass, not on its surface. Any glass error should be detected within 60 seconds. If the error is not visible when viewed through the glass from a specified distance or the error is not detected within 60 seconds, the error is considered not to be visible or is considered as disturbing element for the users. Not all visible glass defects require glazing replacement. No magnifying accessories or strong light sources (e.g., halogen lamps or reflectors) may be used during the visual inspection. All defects should be quickly and easily visible from a distance of at least 3 m from the glass. After detecting the error, it is necessary to measure the error using the correct measuring device (ruler / tape measure) and then compare the measured value with the data given in the tables below.

5.4.2 ADMISSIBLE DEFECTS FOR VISUAL QUALITY OF GLASS IN BUILDING

The table with admissible values is compiled regarding the float glass, heat-hardened (tempered) glass, heat-strengthen glass, laminated glass, uncoated or coated glass.

- **Point errors** - These errors include air bubbles (gas cavities), pebbles, grains of dirt and materials. An evaluation of these errors is always performed to determine their quantity and magnitude. Permissible limits are given in Tables 1 and 2.

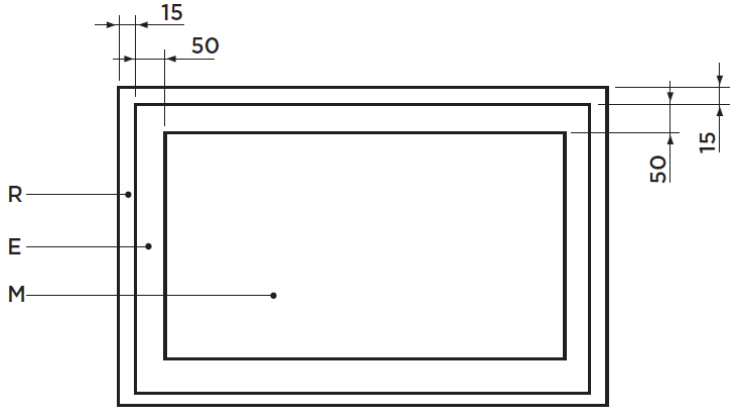


Figure 1. visual zones: R - zone 15 mm wide, usually covered by a frame or a corresponding edge gasket in frameless systems; E - zone along the edge of the visible area 50 mm wide; M - main view zone

Zone	Error size (Ø in mm)	Glass area S (m^2)			
		S ≤ 1	1 < S ≤ 2	2 < S ≤ 3	3 < S
R	All sizes	Without limitations			
E	Ø ≤ 1	Permissible, if there are less than 3 point errors on any area of Ø ≤ 200 mm			
	1 < Ø ≤ 3	4	1 per meter circumference		
	Ø > 3	Non-permissible			
M	Ø ≤ 1	Permissible, if there are less than 3 point errors on any area of Ø ≤ 200 mm			
	1 < Ø ≤ 2	2	3	5	5+2/m^2
	Ø > 2	Non-permissible			

Table 1.: Permissible number of point errors

Zone	Dimensions and types (Ø in mm)	Glass area S (m^2)	
		S ≤ 1	3 < S
R	All sizes	Without limitations	
E	Points of Ø ≤ 1	Without limitations	
	Points 1 < Ø ≤ 3	4	1 per meter circumference
	Smudges of Ø ≤ 17	1	
	Points Ø > 3 and smudges Ø > 17	1	
M	Points of Ø ≤ 1	Max. 3 on every area of Ø ≤ 200 mm	
	Points 1 < Ø ≤ 3	Max. 2 on every area of Ø ≤ 200 mm	
	Points Ø > 3 a smudges Ø > 17	Non-permissible	

Table 2.: Permissible number of point and smudge errors

- Errors smaller than 0.5 mm are not taken into account and further evaluated in the visual assessment of the insulating glass.
- During the visual assessment of the insulating glass, any contamination in the space between the glasses is considered as point / linear errors.
- Other residues from the production process are considered as point / linear errors.
- **Defects on the outer surface of the glass, which may have occurred after installation, cannot be claimed under warranty.**

- **Linear errors** - Linear or elongated glass errors can be in the form of deposits, smudges, scratches and have a certain length and area. We divide two types of linear errors. A “hair scratch or hairline defect” is a fine mechanical damage to the glass surface of a hair thickness. The permissible number of such errors is given in Table 3. The second linear error is called “rough scratch” and is a sharp mechanical damage, this type of error is unacceptable.

Zone	Individual lengths in mm			Total sum of individual lenghts in mm		
	2-pane glazing	2-pane glazing with laminated glass x1,5	3-pane glazing x1,25	2-pane glazing	2-pane glazing with laminated glass x1,5	3-pane glazing x1,25
R	Without limitations					
E	≤ 30	≤ 45	≤ 38	≤ 90	≤ 135	≤ 113
M	≤ 15	≤ 23	≤ 19	≤ 45	≤ 68	≤ 57

Table 3.: Permissible linear errors

- **Edge spacer straightness tolerance** - For insulating double glazing, the edge spacer straightness tolerance is 4 mm up to a length of 3,5 m and 6 mm for longer lengths. The permissible deviation of the edge spacer from the parallel edge of the glass or other edge spacer (e.g. in triple glazing) is 3 mm up to a length of 2,5 m. For larger formats, a tolerance of 6 mm is allowed. (Table 4)

Glazing type	Edge spacer straightness tolerance (in mm)	Insulating glass side length (in mm)
2-pane glazing	4	≤ 3500
	6	> 3500
3-pane glazing	3	≤ 2500
	6	> 2500

Table 4.: Edge spacer straightness tolerances

- **Insulating glass thickness tolerance**

Glazing type	Insulating glass thickness tolerance
2-pane glazing – all panes are made from float glass	± 1,0 mm
2-pane glazing – at least one pane is made from laminated, opaque or other than float glass	± 1,5 mm
3-pane glazing – all panes are made from float glass	± 1,4 mm
3-pane glazing – at least one pane is made from laminated, opaque or other than float glass	+2,8 / -1,4 mm

Table 5.: Insulating glass thickness tolerances

- **Heat-hardened safety glass, heat-sealed glass and also laminated safety glass assembled with heat-hardened glass and heat-sealed glass:**
  - The local deflection on the surface of glass - except heat-hardened safety glass and heat-sealed glass with patterned glass - must not exceed 0.3 mm with respect to the 300 mm long measured section.
  - Deformations related to the total length of the glass edge - except from heat-hardened safety glass and heat-sealed glass from patterned glass - shall not be more than 3 mm per 1000 mm of the glass edge length. Other than these, e.g. more strict tolerance on a deflection should be agreed in advance. With square formats and approximate square formats (up to 1:1.5) and also with units with a nominal thickness <6mm, larger deformations may occur.

5.4.3 PROPERTIES OF INSULATING GLASS

The values of product properties, e.g. sound reduction index, thermal properties, transmittance and the reflectance of the light, and the characteristics of the solar energy which are stated for the given functions refer to the test sample under the relevant standards in force. In case of different formats and glazing compositions, different methods of the build-in, as well as external influences, the given values and optical perception can change.

The following properties of the insulating glass shall not be considered as claimable defect:

A) **Inherent colouring** - All materials used for insulating glass have inherent colouring depending on the material which may be more visible with increasing thickness and shall not be considered as claimable defect.

B) **Insulating glass with muntin glazing "georgian" bars:**

- Due to changing climatic conditions, the glazing bars may temporarily bend. These can then deviate from their original linear axis. However, none of the above is perceived as a glass defect. The greater the glass, the more intense these effects are. When temperatures return to normal, the glazing bars return to their original position.
- A visible change in the color of the glazing bars is caused by the use of coated glass.
- Climatic influences (e.g. the effect of insulating glass), as well as shaking or manual shaking tend to produce a temporary knocking noise with the grids (the rattling of the grid).
- The glass is protected from damage by so-called protective spacers ("Fish eyes"). However, they can not prevent the glass from vibrating. When using protective spacers, they may be compressed, cracked, or displaced along the round surface of the glazing bars and possibly even fall. Due to UV radiation to their yellowing and loss of elasticity.
- Visible cuts remaining after cutting and slight paint scrape-offs in the area of cut which remain after production.
- Deviations in perpendicularity of divided areas by bars are assessed with regard to product tolerance, installation and overall impression.
- Changes in grid lengths in the cavity of insulating glass, which are caused by significant changes in ambient temperature.

C) **The assessment of the visible edge area at the joint of insulating glass** - In the visible edge area of the joint and, thus away from light area of glass, there may be recognizable characteristic features from the production on glass.

D) **The damage of the outside areas -** Those defects can also be assessed under **Table 1-3**. Otherwise, the following standards and directives apply:

- **STN EN 572 - 2 to 6 and 8,** Basic soda lime silicate glass products.
- **STN EN 1096 - 1**, Glass in Building. Coated Glass
- **STN EN 1863 - 1**, Glass in Building. Heat strengthened soda lime silicate glass.
- **STN EN 12150 - 1**, Thermally toughened soda lime silicate safety glass.
- **STN EN ISO 12543 - 6**, Glass in Building. Laminated and laminated safety glass.
- **STN EN 14179 - 1** , Heat soaked thermally toughened soda lime silicate safety glass
- **STN 70 1621**, Insulating glass. Requirements for the appearance and dimensions.
- **STN EN 1279-1 to 4,** Building glass, Insulating glass.
- **STN EN 356**, Glass in Building. Security glazing.
- **EN 1279 -** Insulated sealed glass units

5.4.4 PHYSICAL PHENOMENA

Physical phenomena that cannot be prevented are excluded from the visual quality assessment and are therefore not considered to be insulating glass defects. Visual quality and other visual aspects of insulating glass are given in European standard EN 1279-1 in Annexes F and G.:

A) **The actual color of the glass** - differences in the color perception of the glass can be caused by the content of iron oxide in the glass, the coating process, the coating itself, differences in glass thickness, the construction of insulating glass. Such a difference cannot be avoided.

B) **Differences in the color of insulating glass** - facades made of insulating glass containing coated glass can have different shades of the same color, which is an effect that can be amplified when viewed from an angle. Possible causes of color differences include slight changes in the color of the substrate to which the coating is applied and slight changes in the thickness of the coating itself.

C) **Occurrence of interferences** - insulating glazing made from float glass can cause interference in the form of spectral colors. Optical interferences are a characteristic phenomenon of overlapping two or more light waves when meeting at one point. They appear in more or less strong color zones, which change

their position when pressure is applied on the glass panel. This physical phenomenon is amplified by the plane parallelism of the glass surface. This planar parallelism ensures an undeformed view. These interferences occur randomly and cannot be controlled.

D) **Insulating glass effect** - Insulating glass has a closed volume of air / gas, the state of which is determined by the barometric air pressure, the location of the production plant and the air temperature at the time of production. After the installation of insulating glass at other altitudes, during temperature changes, during pressure drop, short-term concave or convex folds of individual glass panes and thus optical distortions occur. Multiple surface reflections may also occur. These mirror images may be more distinctive, if e.g. the glazing background is dark or when the panes are coated. This phenomenon is a physical law of insulation units.

E) **Multiple reflections** - Multiple reflections may occur on the surface of the insulating glass. These mirror images are more highlighted when e.g. the glazing background is dark or when the panes are coated. This phenomenon is the physical law of all insulating glass.

F) **Anisotropy (Irisation)** - occurs in glasses that have undergone a thermal process in the production of toughened ("tempered") safety glass. This is a misleading optical phenomenon, which arises due to different stress zones in the glass, which cause double refraction of light shafts when polarized particles of daylight hit the glass. Only polarized daylight particles make spectral colored circles visible, regular and irregular strips on the glass, etc.

G) **Moisture condensation on indoor and outdoor surfaces (dew)** - Under certain conditions, dew may form on the outer surfaces of the insulating glass. The occurrence of moisture condensation is influenced by many factors.

- **Moisture condensation in the room** - On the pane facing the interior is conditioned by the insulating properties of the glass (Ug), indoor humidity and indoor and outdoor temperature. Condensation is supported by limited air circulation (curtains, blinds, etc.). It usually points to the problem of the building's construction solution and is not a glazing error.
- **Condensation in the insulating glass interspace** - The presence of condensation in the cavity indicates that the unit is not airtight. Therefore, this is considered as an insulating glass defect.
- **External condensation** - If the outside humidity is high and at the same time the outside air temperature is higher than the surface temperature of the pane, condensation (triple glazing) may also condense on the outside of the glass for a short time with very good thermal insulation (Ug). This is proof of the excellent insulating properties of the glazing and is not a defect of the glazing.

H) **Wettability of the glass surface (outer side of the insulating glass)** - can be different, e.g. due to the imprint of cylinders from production process, fingers, labels, residues of sealing material, polishing and smoothing agents, etc. If the glass surface is wet due to dew, rain or water during cleaning, the different wettability may become visible.

I) **Crack in the glass** - overloading of the glass using force due to impact, thermal stress, movements of the frame structure or possibly contact with the structure may lead to glass breakage, which is not a warranty error. If the stress of the glass was already present during its production (cutting, grinding), its processing could not be successful.

The defects of the glass caused by physical phenomena mentioned above can not be accepted as a complaint.

5.4.5 ''SPONTANEOUS'' CRACKING OF GLASS

This phenomenon occurs because of the following reasons:

A) When insulating glass is stored in direct sunlight. In this case, zones of accumulated thermal energy are created. This heat causes an unfavourable glass load. Conventional insulating glass is able to bear such stress only in limited quantities and, therefore the damage due to thermal fracturing occurs. It is therefore necessary to store both the structures and the glazing in a dry, sheltered place that is protected from weathering and direct sunlight.

B) When opening sashes, two or more glass panes are placed in a parallel position with a narrow unventilated gap or gap which is ventilated with difficulty. In this case, zones of accumulated thermal energy are created. This heat causes an unfavourable glass load. Conventional insulating glass is able to bear such stress only in limited quantities and, therefore the damage due to thermal fracturing occurs. This is the case of slide, lift and slide, tilt and slide portals, and folding doors. Therefore, in this case, it is recommended to replace all types of glass with thermally hardened (heat treated glass).

C) If a heating unit is placed in the distance less than 300 mm from the glass. Glass may crack by thermal fracture. Therefore, in this case, it is recommended to replace all types of glass with thermally hardened (heat treated glass).

D) In case a part of glass is in the shade and a part in the direct sunlight. Glass may crack by thermal fracture. Therefore, in this case, it is recommended to replace all types of glass with thermally hardened (heat treated glass).

E) When various objects such as thermal insulation, furniture, plants, building materials, and so on are placed too close to the glass. There is a gap formed which is difficult to be ventilated with limited escape of accumulated heat. Glass may crack by thermal fracture. Therefore, in this case, it is recommended to replace all types of glass with thermally hardened (heat treated glass).

F) Under the influence of different atmospheric pressures in the place of production and the place where glass is installed into building. Each glazing planned to be installed at the altitude higher than 900 m above sea level, is necessary to be specified by customer at the time when a price inquiry and, consequently, an order are made.

G) Spontaneous explosion of ESG safety heat-treated glass. It is referred to as an ESG glass explosion due to the cluster of nickel sulphide, an uncontrollable, random and unpredictable process which is not considered as claimable.

H) In the case of improperly sized insulating glass. For this reason, it is necessary to observe the recommended dimensions and composition of the insulating glass mentioned in subchapter 5.4.7.

No cracked and broken glass is claimable after the Bill of Delivery is signed on the date of its acceptance. The exception to this provision are defects of insulating glass caused by the improper preparation of the glazing rabbet and the improper padding of the glass, however, it applies only if they were caused by the company ALUPLAST s.r.o. Prievidza.

5.4.6 REQUIREMENTS FOR GLAZING

In order to avoid damage to the glass, or so called dropped sash/leaf, it is necessary to observe the following conditions:

A) The glazing rabbet must be clear of all roughness that might come into contact with the insulating glass. It must be dry, clear of dust and other impurities which could reduce or completely eliminate the adherence of sealing materials.

B) Insulating glass is placed on glazing bridges and pads (see fig. 2, 3 and 4) which must be by at least 1 mm wider on each side comparing to the thickness of the insulating glass. The pads must be long and thick enough to bear the weight of the insulating glass. The minimum number of pads is 4 pieces for whole sash. Padding ensures the clearance between the edge of the insulating glass and the frame. It is used to prevent movement of insulating glass in glazing plane. As for the material used for the pads when glazing, it is necessary to use pads made of high-strength, durable, non-absorbing plastic 1 - 6 mm thick. The material used for padding must be chemically compatible with the silicone adhered to the sash, with the insulating glass edge sealant, as well as the PVB foils, in the case of safety laminated glass.

Fig. 2 Glass padding in the basic filling structures, showing the layout of the pads

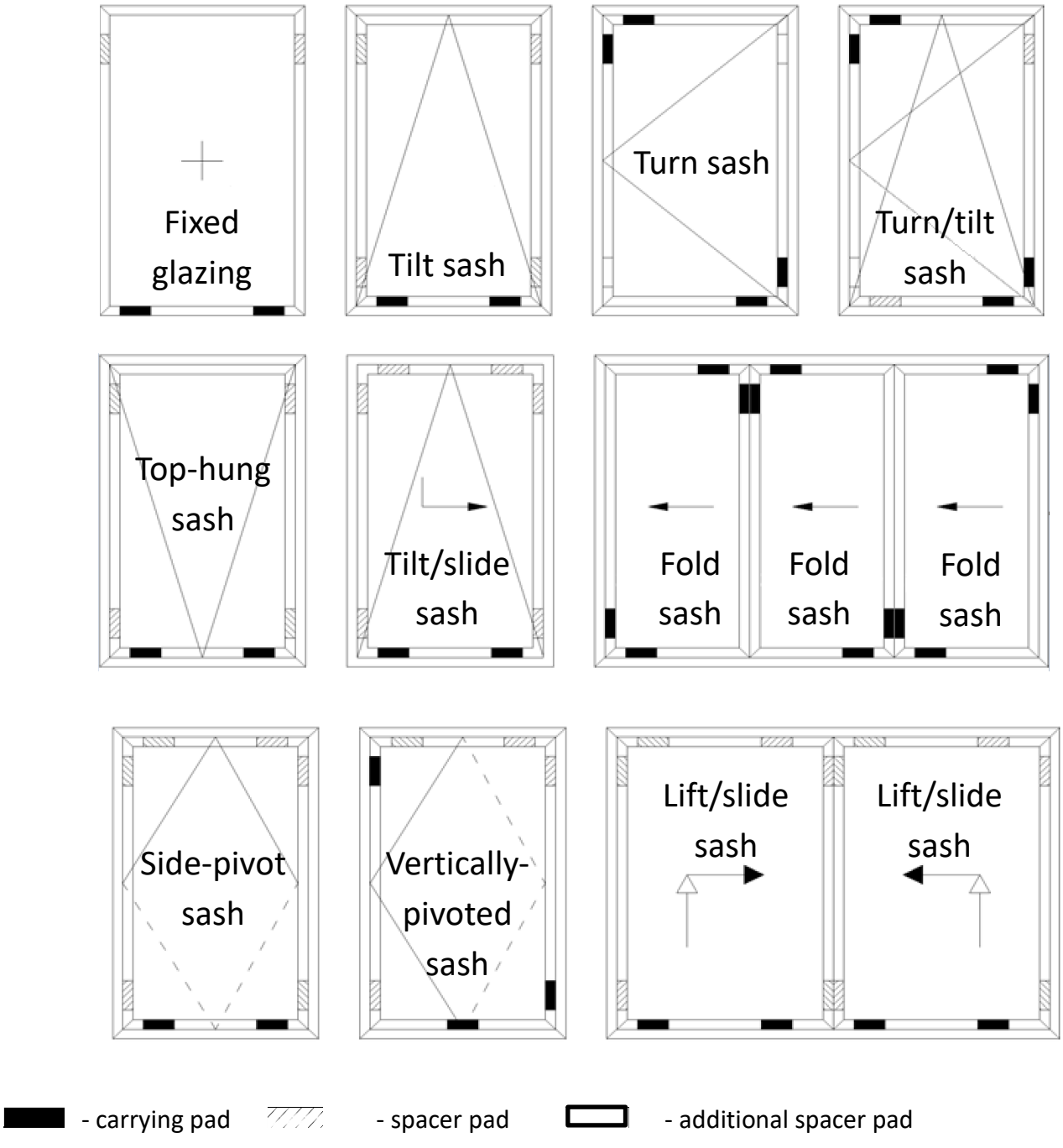


Fig. 3 Principles for glass padding (PVC)

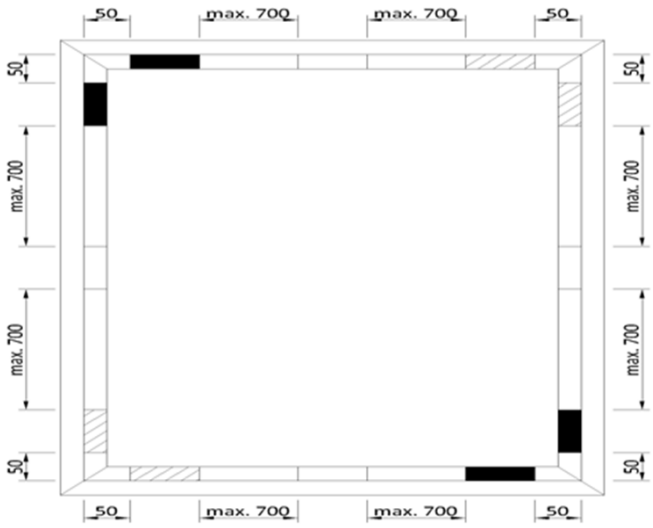
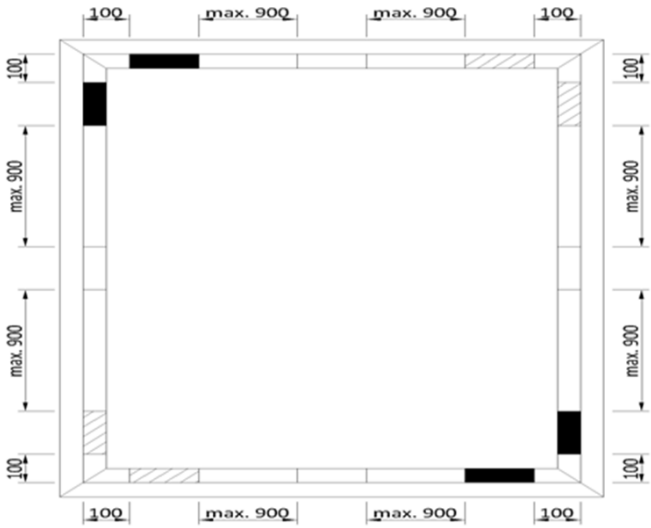


Fig. 4 Principles for glass padding (AL)



Other principals for the layout of pads:

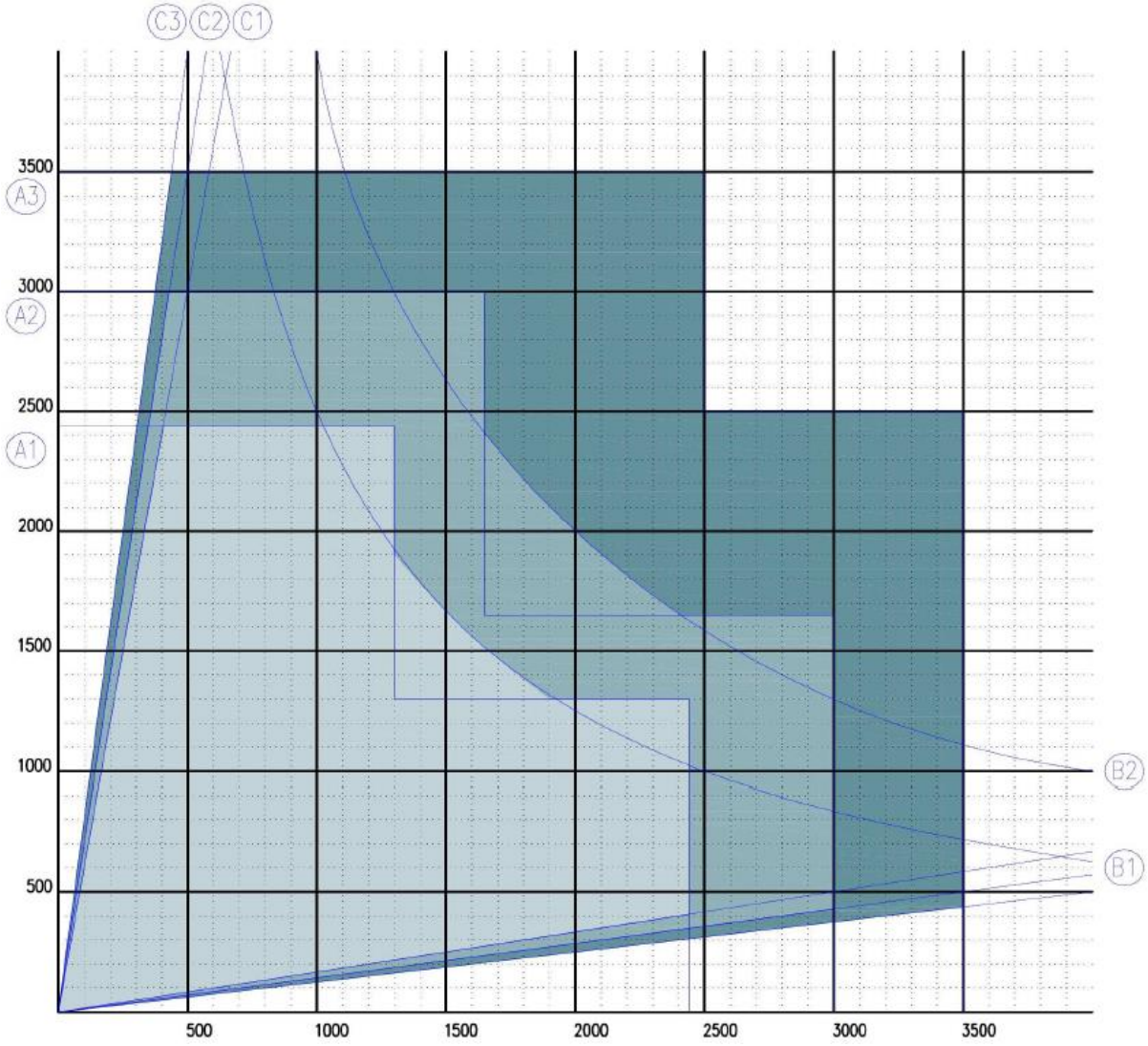
- In the case of the use of concealed pressure hinges, the pads must be placed opposite each hinge,
- For sliding sashes (tilt/slide and lift/slide sashes) pads must be placed opposite each tandem roller carriage,
- In the case of safety fitting, the spacer pads shall be placed on the sash in the location of each safety locking point.

The defects of insulating glass caused by the improper preparation of the glazing rabbet and the improper padding of the glass may be considered as claimable in case they were not included in the delivery provided by the company ALUPLAST s.r.o. Prievidza.

5.4.7 RECOMMENDED DIMENSIONS AND INSULATING GLASS COMPOSITION

Chart 1: Recommended glass thicknesses depending on the dimensions, area and side ratio - DOUBLE GLAZING

	Double pane		Spacer width	A	Max length of edge	B	Area	C	Ratio	Weight
	ext	int	[mm]		[mm]		[mm]			[kg/m2]
1.	4	4	≥12		1300		2440		2,5	1:6	20
2.	6	4	≥12		1650		3000		4,0	1:7	25
3.	6	6	≥14		2500		3500		-	1:8	30



Production limitations:

- Minimal size: 180 x 350 mm
- Maximal size: 2500 x 3500 mm
- Maximal size ESG/FL 4mm: 1500 x 2500 mm
- Maximal size ESG/LOWe 4mm: 1250 x 2200 mm
- Maximal size ESG/LOWe 6mm: 2400 x 3500mm

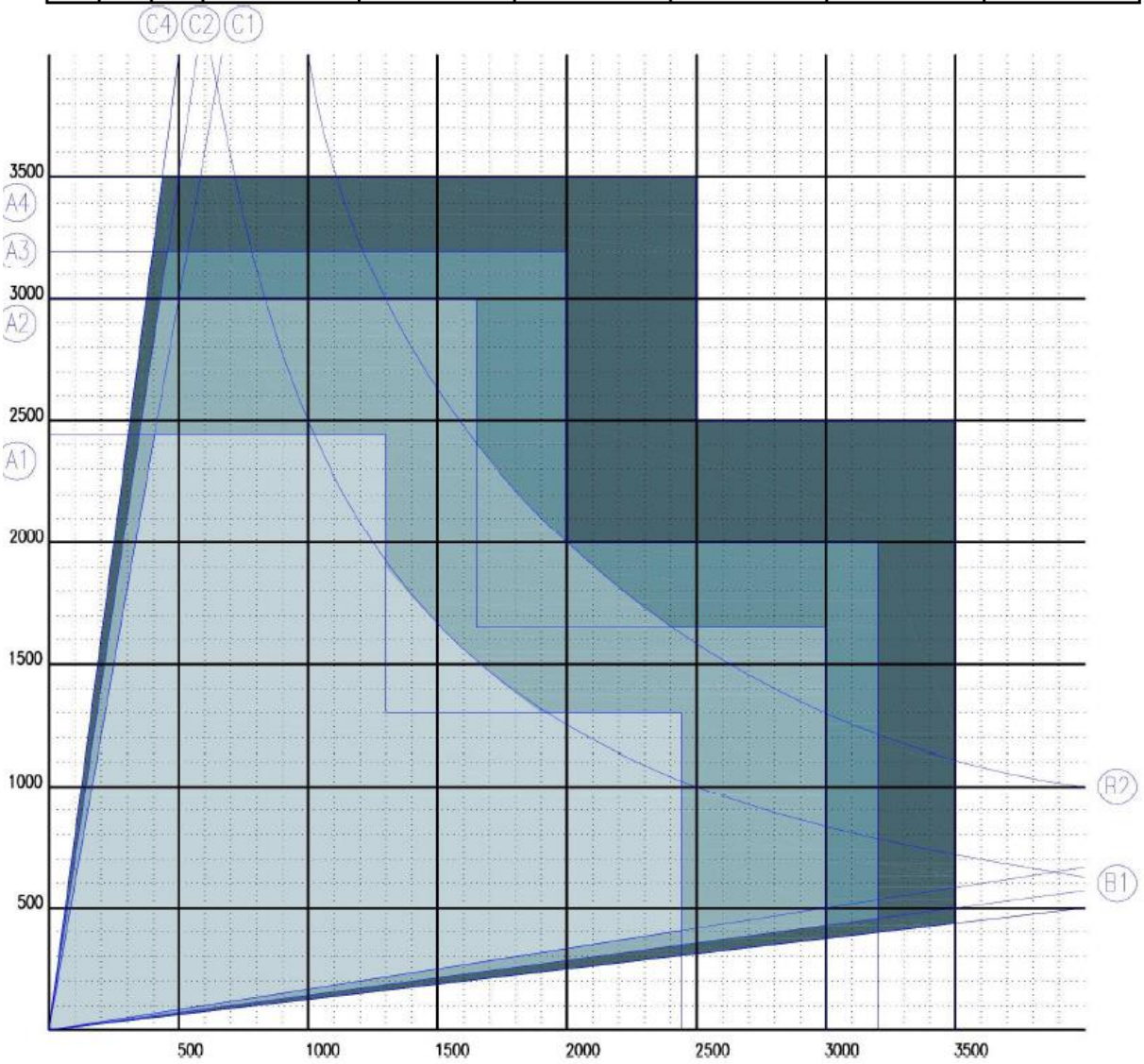
*maximal production sizes of other glass types (decorative, laminated, sun insulating) differ

Rules for dimensioning of VSG:

FLOAT	VSG
4mm	3.3.X
6mm	4.4.X
8mm	5.5.X

Chart 2: Recommended glass thicknesses depending on the dimensions, area and side ratio - TRIPLE GLAZING

	Double pane			Spacer width	A	Max length of edge	B	Area	C	Ratio	Weight
	ext	-	int	[mm]	[mm]	[mm]		[mm]			[kg/m2]
1.	4	4	4	≥12	1300	2440		2,5		1:6	30
2.	6	4	4	≥12	1650	3000		4,0		1:7	35
3.	6	4	6	≥14	2000	3200		-		1:7	40
4.	6	6	6	≥14	2500	3500		-		1:8	45



Production limitations:

- Minimal size: 180 x 350 mm
- Maximal size: 2500 x 3500 mm
- Maximal size ESG/FL 4mm: 1500 x 2500 mm
- Maximal size ESG/LOWe 4mm: 1250 x 2200 mm
- Maximal size ESG/LOWe 6mm: 2400 x 3500mm

*maximal production sizes of other glass types (decorative, laminated, sun insulating) differ

Rules for dimensioning of VSG:

FLOAT	VSG
4mm	3.3.X
6mm	4.4.X
8mm	5.5.X

5.5 FITTING

Warranty does not cover the defects caused by mechanical damage, unprofessional setting, improper maintenance or incorrect operation, failure caused by not following the instructions for operation and maintenance caused by the customer or by a third party.

The prerequisite for preserving the functional properties of a fitting is their regular maintenance, and especially, their adjustment (at 1x per year). As the need for fitting adjustment is not a defect but a part of its maintenance, it cannot be the subject of a claim.

5.6 DOOR CLOSER

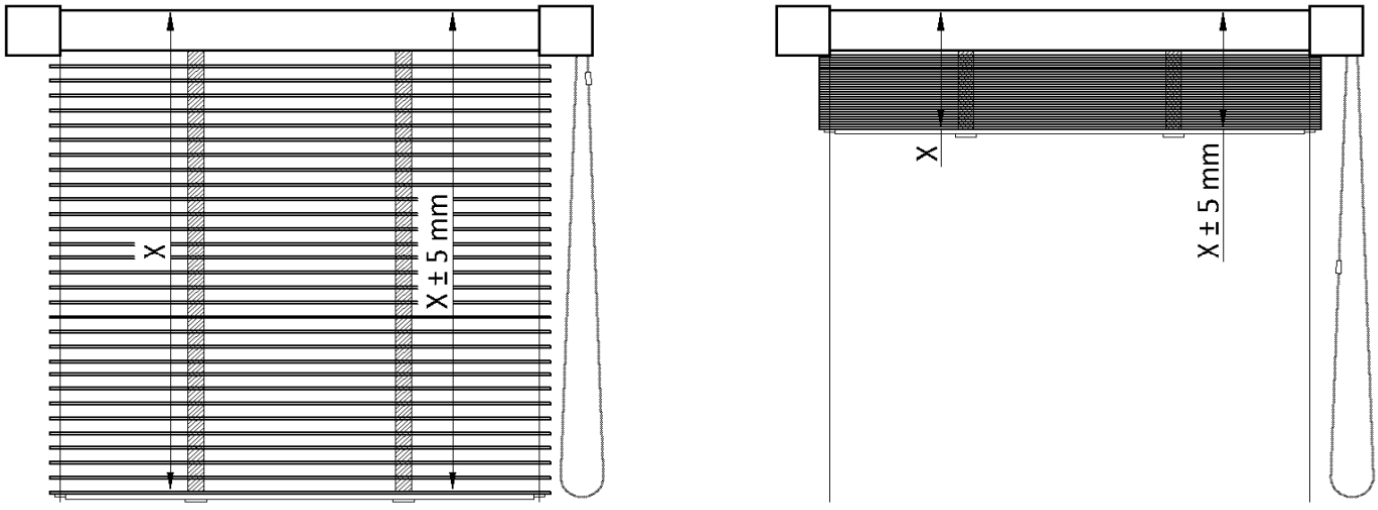
In addition to regular maintenance, the door closer requires also setting to winter or summer mode (2x per year). As the need for door closer adjustment is not a defect but a part of its maintenance, it cannot be the subject of a claim.

5.7 VENETIAN INTERIOR BLINDS

The following defects are not considered as claimable (in general, this refers to a damage and dysfunction resulting from improper use):

A) ordinary partial, or total wear of the product,
B) uncomplete closing of slats,
C) the wearing-out of slats,
D) mechanical damage to separate elements of the interior venetian blinds,
E) broken chain of the controls,
F) the oblique operation outside of tolerances (see **Fig.** 5).

Fig. 5 Tolerances for oblique operation



The maximum difference in height at the place of the slats is given by the value **± 5 mm.**

5.8 INTERIOR AND EXTERIOR WINDOW SILLS

Claimable defects are considered to be solely visible defects that prevent from a proper use of the sill. The assessment of the legitimacy of complaint about a defect is based on the following principles:

A) Mechanical damage and optical defects are assessed from a distance of about 1 m from the observed surface at an observation angle corresponding to the general use in the room. It is examined in diffuse daylight (e.g. when cloudy sky) without direct contre-jour lighting. The defects assessed that are not visible under these conditions, are not claimable (generally, the defects of any type with the size less than 0.5 mm are acceptable because they cannot normally be recognized with the naked eye).

B) Spot and surface damage to the window sill surface and defects, e.g. scratches, changes in colour or surface roughness of different kind and for different reasons of origin are acceptable if their largest dimension is less than 3 mm and their number does not exceed 5 pieces per element.

5.9 FLYSCREENS

The following defects of flyscreen's are not considered as claimable (in general, this refers to a damage and dysfunction resulting from improper use):

- normal wear of the product (rubbed-off paint, deflection of mesh, the loss of functionality of the fixing pins during frequent removal of the fixed net, etc.),

5.10 CONSTRUCTION AND INSTALATION WORKS

A) If the customer purchases products from ALUPLAST s.r.o. without installation service, the defects caused by incorrect installation are not claimable,

B) When assessing a complaint, it is not possible to accept the defects / damage caused by the interventions, actions of the customer:

- the removal of base profiles and anchor elements,
- The removal of carrying and spacing installation pads from under the infilling structure and from the sides of infilling structure during follow-up construction works after installation,
- contaminating structures with mortar, lime, plaster,
- drilling into profiles to make a opening for cables or when fixing other structures,
- padding an open window sash or door leaf with prisms, bricks, slabs so that they get mechanically damaged,
- damaging the profile area, or glass with sparks from carbon grinder,
- cleaning the profiles or glass by inappropriate detergents,
- when open sash/leaf is not secured against a sudden and violent impact on the frame of the structure, or on the reveal of the opening.
- the load applied by building constructions on installed window constructions(construction settlement, deflection of window lintels and girders, by torsion, deflections and instability of wooden building structure into which windows, doors were mounted, etc.)

6 WARRANTY SERVICE

A) **The warranty service** refers to a free rectification of defects which are subject to warranty in accordance with this Claims Procedure.

B) If the service technician finds out during the inspection or service intervention that there are defects which are not claimable under section 4, or the defects that are in contradiction with the complaint

assessment principles set out in article 5, the complaint is considered as unauthorized and shall be rejected. A maintenance service is considered as a non-warranty service and it is invoiced according to the tariffs on service works.

C) Complaints or requests for warranty service shall be send to the email address **servis@aluplast.sk** with following information:

- labelling as **WARRANTY SERVICE - ORDER or COMPLAINT**
- the number of the order under which the product/goods/service are registered at the company ALUPLAST s.r.o.,
- the item number in the order,
- exact written description of the defect, description of the situation when the defect occurred,
- **detailed photo documentation of the defect,**
- the name and phone number of the customer, in the event of a complaint filed by a sales representative
- the address where the non-warranty service is to be provided.

D) Request for warranty service, or to bring a complaint can be submitted via online Complaint Form on our website here:
https://www.aluplast.sk/servis-a-podpora/reklamacny-formular%20

7 NON-WARRANTY SERVICE

A) **Non-warranty service** is a paid service and includes:

- rectifying any defects within warranty period that are not covered by Claims Procedure
- repairs after the warranty period
- other services provided by the Service Department (fitting adjustment, the adjustment of self-closing device, etc.).

B) The service is provided according to actual tariffs.

C) Order for non-warranty service shall be send to the email address **servis@aluplast.sk**,

- marked as: **WARRANTY SERVICE - ORDER**,
- the number of the order under which the product/goods/service are registered at the company ALUPLAST s.r.o.,
- the item number in the order,
- exact written description of the defect, description of the situation when the defect occurred,
- **detailed photo documentation of the defect,**
- the name and phone number of the customer, in the event of a complaint submission by a sales representative,
- the address where the non-warranty service is to be provided.

8 FINAL PROVISIONS

A) The Claims Procedure takes effect from **25.07.2022** for the dealing with the complaints brought by customers unless otherwise provided (in the contract for work, in the order, or in the cooperation agreement).

B) This Claims Procedure is binding for all employees of the ALUPLAST s.r.o. company, as well as for all customers of the ALUPLAST s.r.o. company. Starting on the date of taking effect, all the foregoing provisions and practices applied and observed when dealing with complaints cease if they are not a part of a properly concluded contract between the customer and the ALUPLAST s.r.o. company.

C) This Claims Procedure as amended on **25.07.2022** was duly approved by the senior management of the ALUPLAST s.r.o. company.

ALUPLAST s.r.o.