

GLAZING AND PROCESSING GUIDELINES

FOR ISOLAR SOLARLUX® VARIODIRECT

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1. Scope of application

These Glazing and Processing Guidelines only apply to ISOLAR SOLARLUX® variodirect in insulating glass, used in window, façade and partition wall systems made of tried and tested, common materials and profiles that correspond to the current state of the art. Compatibility with other materials is to be checked.

Compliance with these Guidelines is mandatory for installation and glazing and is a prerequisite for warranty.

The generally applicable guidelines for professional glazing in the most current version apply, in particular:

- DIN 18 361 – Glazing work
- BF-Richtlinie zur Beurteilung der visuellen Qualität für Systeme im Mehrscheiben-Isolierglas
- (BF [Federal Sheet Glass Association] Guideline for Assessing the Visual Quality of Systems in Insulating Glass Units) ISOLAR Glazing Guidelines for Insulating Glass Units
- Recognised codes of practice
- DIN 18 073 – Roller shutters, solar shading and black-out equipment in building construction

Glass rebates are to be designed in accordance with DIN 18545 Part 1. Drainage of the rebate area of the insulating glass unit must be ensured at all times and under all circumstances.

In all other respects, the provisions of document 3 of the “Institut des Glaserhandwerks für Verglasungstechnik und Fensterbau” (Glazing trade institute for glazing techniques/technology and window construction) in Hadamar “Klotzungsrichtlinien für ebene Glasscheiben” (‘Blocking guidelines for flat panes’) apply.

Only by adhering to these Guidelines will it be possible to produce technically and physically flawless glazing with ISOLAR SOLARLUX® variodirect blinds integrated in the cavity between the panes. These Guidelines are a prerequisite for achieving and maintaining the type-specific functions of ISOLAR SOLARLUX® variodirect blinds in the insulating glass unit.

These Guidelines only apply to premises with normal room temperature and humidity. They do not apply, for example, to swimming pools, special damp rooms and rooms with loads and requirements that go beyond the usual typical extent.

In order to ensure their proper function all ISOLAR SOLARLUX® variodirect units must be operated together with the motor control unit and regulated power supply units approved according to Arnold Glas specifications. In case of non-observance, no warranty can be provided.

2. Storage and transportation

All products from the ISOLAR SOLARLUX® variodirect series are to be carefully stored protected from contamination, moisture and heat/direct solar radiation. On principle, ISOLAR SOLARLUX® variodirect elements may only be transported in a vertical position. ISOLAR SOLARLUX® variodirect units are supplied with the blind raised. When storing and transporting the panes, it is paramount that they are never placed on the plug-in connection or terminal contacts. ISOLAR SOLARLUX® variodirect elements may only be moved when the blind package is raised and in installation position. Damage might otherwise occur to the rope pull system.

3. Control system and power supply units

ISOLAR SOLARLUX® variodirect elements are driven by a 24 V direct current motor. The power is usually supplied by a power supply unit. The 230 V power supply is to be provided on site and the electrical connections are to be implemented in accordance with local requirements.

4. Insulating glass units

ISOLAR SOLARLUX® variodirect may only be installed in vertical areas. When using swivel/tilt and top-hung sashes, a maximum inclination angle of 3° from the vertical is permissible. The plug connection required for the power supply (connection cable sections) protrude laterally by approx. 10 cm. The arrangement of this connection is top right when viewed from the outside. The serial number for identification is attached to the top right (motor side) of the underside of the head profile when viewed from the inside.

5. Glazing of window/insulating glass

When dimensioning the supporting structure, particular attention is to be paid to the deflection limit of the insulating glass at the edges of the panes.

5.1. Glazing rebate design

Current technical findings only allow for sealing systems with free rebate space for metal and plastic frames to function properly. Glass rebates are to be designed, on principle, in accordance with DIN 18 545 Part 1.

For ISOLAR SOLARLUX® variodirect, the following special features are to be taken into account:

The connection cable must not be subjected to sharp bending, and care must be taken to ensure that the clearance between the glass edge and the rebate base is never less than ≥ 7 mm in the case of ISOLAR SOLARLUX® variodirect. The connection cable and the plugs must not obstruct pressure equalisation or the water flow in the rebate.

The edge cover must not exceed 20 mm. When planning and using special constructions (e.g. passive house windows) with larger edge covers, consult Arnold Glas prior to designing.

5.2. Window systems

ISOLAR SOLARLUX® variodirect is suitable for installation in standard profile systems. The system requires an edge seal of approx. 14 mm, which must be covered by a profile system. The use of EPDM sealing profiles with a correspondingly large lip coverage is recommended.

Metal and plastic windows

All glazing systems used must guarantee perfect sealing of the glazing rebate in all conditions on a long-term basis in order to ensure their proper function. The table "Beanspruchungsgruppen zur Verglasung von Fenstern" (Stress groups for the glazing of windows) and their explanations by the Institut für Fenstertechnik (Institute for Window Technology) in Rosenheim are regarded as part of these guidelines.

Wooden windows

Glazing with sealant-free rebate space is also stipulated for wooden windows. According to the current state of the art, this is possible for nearly all designs. If an opening of the glazing rebate for pressure equalisation is infeasible, glazing can be produced with the rebate space filled. It should be noted, however, that even the slightest defect or leak in the frame or glazing system can rapidly cause damage to the insulating glass due to the retention of moisture. The warranty does not cover any damage caused by this.

The glazing system is selected to ensure that a preformed strip can at least be used on the outside. The outer strip must ensure that the glass elements are not clamped in the rebate and that local overloading cannot occur when installed.

Composite systems

Composite structures such as wood/aluminium, plastic/aluminium, wood/plastic or similar are to be provided with openings for pressure equalisation as described above.

Window contacts

With swivel and tilting elements, care must be taken to ensure that a window contact is always provided in the rebate area, which interrupts the flow of current when the window is opened. If window contacts are installed for wireless transition between sash and window frame, they require a mounting position that prevents moisture from affecting the contacts. Placing the contacts in the vertical area on the strip side is recommended. Cables are to be installed in loops to allow compensation for changes in length.

5.3. Cable connections

Only connection cables approved by Arnold Glas are to be used. Connection cables longer than 20 metres are not recommended, as voltage losses may occur. In the case of radial cabling, care must be taken to use the same cable lengths. None of the cables may be subjected to tensile loads.

Contact with standing water is to be avoided; consequently, cable connections in the rebate space must always be placed along the vertical glass edges in the rebate. Connecting wires must not obstruct pressure equalisation or the water flow in the rebate..

When installed, no movements may be transmitted to the connecting wires of the panes. Cable connections must be properly insulated. Only acid-free solder is to be used for solder connections.

All holes, cut-outs, edges, corners, etc., through or over which cables are laid must be deburred in order to avoid cable damage.

5.4. Power supply

If pressure contacts for wireless transition are used between movable and immovable frame parts, these must be mounted exclusively in the dry areas of the frames. The pressure contacts must be coordinated with the control system. ISOLAR SOLARLUX® variodirect elements can be made with pressure contacts, which interrupt the power when the window is opened.

6. Installation instructions

6.1. Blocking

The glazing units must be professionally installed and blocked in accordance with the general guidelines for the blocking of insulating glass elements. The window elements must be designed to ensure that the insulating glass units do not assume any load-bearing functions and that there are no mechanical stresses in the glass. The block material used must be compatible with the edge seal of the insulating glass and, if laminated safety glass is used, also with the PVB film.

The openings for pressure equalisation must not be closed by the blocking. The entire thickness of the insulating glass units must lie on the blocks and the block width must be adjusted to the total thickness of the elements. Electrical cables must not be trapped or damaged by the blocking in any way. The weight of the pane must be transferred to the frame structure properly.

ISOLAR SOLARLUX® variodirect elements are to be installed horizontally and vertically in the frame. If the unit is installed on site in sash or fixed glazing, after adjusting and aligning the insulating glass unit for the liftable and lowerable types of blinds, the slat curtain must be lowered and the blocking then set to ensure that the curtain and the end rod hang freely and symmetrically between the spacers. There must be no contact between the end rod and the lateral vertical spacers in the insulating glass. During commissioning, the distance between the end strip and the spacer is to be checked to ensure it is evenly distributed on the left and right when moving the unit up and down. Contact during operation can lead to functional restrictions and damage.

6.2. Connection

The plugs are to be cleaned before plugging in. The installer must pull the connecting cables into the construction or into the empty piping as provided by the customer.

Before installing ISOLAR SOLARLUX® variodirect elements, the cables are to be checked for damage or short circuits. It must be ensured that the terminating plug of the motorised blind types is firmly connected to the contacts on the circuit board.

6.3. Functional test

The blinds must be checked independently of the mains. The blinds must neither be connected to controls nor to the mains via a transformer ready for operation. The test must be carried out with an independent power supply before and after glazing.

The function check may only be carried out at temperatures of > 10 degrees Celsius. When testing and commissioning the blinds at low outside temperatures (< 10 °C), the cavity between the panes must be checked or approved by Arnold Glas before moving the blinds. A minimum of 23 mm cavity must be provided for operation with the 29 and 32 mm systems and symmetrical glass structure.

A functional test is regarded as the point in time at which the ISOLAR SOLARLUX® variodirect element is electrically connected for the first time after delivery and the blind is raised or lowered. The functional test is to be performed using a blind testing device (independently, as described above) a maximum of 14 days after delivery; this is to be carried out at the first point of delivery, at any rate, before the panes are installed.

A warranty claim concerning the function of the blind shall only be valid if the Final Inspection form is filled in during the inspection and sent completed to Arnold Glas within 14 days of delivery. This accompanying document serves as a basis in the event of a complaint. If this is not returned to Arnold Glas within the specified period, the warranty and liability shall be void.

After successful testing of the blind in the finished façade or the installed window at the installation location, the blind is to be left in the lowered position and the blind slats set to a see-through position if necessary. In order to avert the risk of the slats adhering to each other accidentally, depending on the season, when insulating glass elements are in a new state, it is important not to leave the curtain permanently in a gathered position (> 7 days).

6.4. Commissioning in unheated buildings

Commissioning at low ambient temperatures, i.e. below 10 degrees Celsius, is not permitted. This is particularly important during the construction phase and in unheated buildings.