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Processing guidelines solar control systems in the cavity

Installation in Insulating Glass

Processing guidelines solar control systems in the cavity

1.0 Introduction and general notes:

1.1 BF motivation and aim

This guideline is intended to provide insulating glass manufacturers with the basis for handling the system unit in insulating glass. The aim is to create and safeguard certainty and confidence in sheet-integrated systems thanks to a consistently high quality standard.

1.2 Regulations

- Construction Products List
- VE07/2
- EN 1279
- EN 13120 Internal blinds
- DIN 18361 Glazing works
- DIN 18073 Roller shutters, awnings, rolling doors and other blinds and shutters in buildings.
- The generally accepted technical rules and standards.
- TRLV (German technical rules for the use of linear supported glazing).
- Country-specific standards and regulations
- Technical guidelines of the glazing industry.

1.3 *This guideline does not take into account system-specific particular features, and describes the general principles.*

1.4 Areas of application

- Windows, doors, facades, overhead glazing, partition walls
- Multiple-sheet insulating glass, double, triple
- Hanging types
- Operation
- Control

1.5 *The hanging unit is usually supplied preassembled and must still be connected to the insulating glass components.*

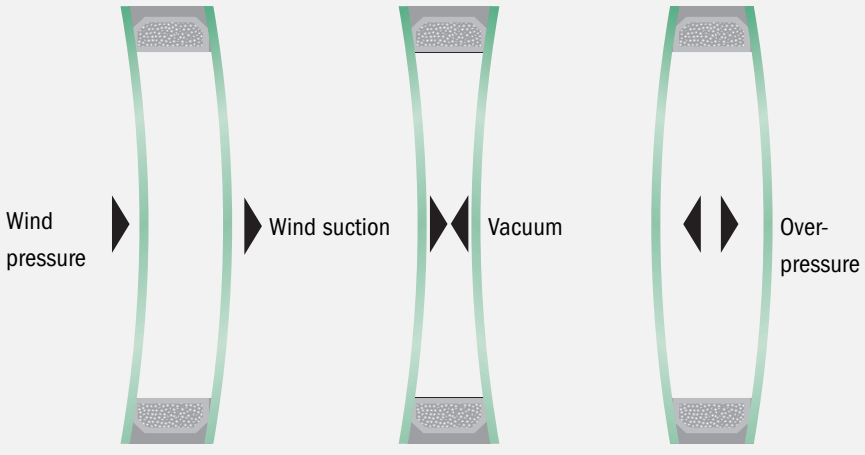
2.0 Notes on glass structures

- Under customary conditions of use, it must be ensured that the hanging can be raised and lowered unhindered, or that the hanging can be turned in any desired position.
- Contact between the solar control system and the sheets of the insulating glass unit cannot be ruled out in every case. Suitable measures, e.g. glass dimensioning, control etc., must be taken to eliminate the risk of damage to the solar control system.
- When using coated glass, it is necessary to take into consideration the product-specific properties of the glass so that an optimum effect can be achieved in combination with the system unit. In case of doubt, a coating at position 3 is recommended.

2.1 Structural analysis

The basis for all glass thickness calculations is TRLV 2006 - 08, which was introduced in accordance with building regulations. These technical regulations stipulate, among other things, types of glass, calculation methods, permissible stresses and strains and deflections for the different applications.

On account of the particular building-physics factors relating to insulating glass with built-in components in the cavity, it is necessary to take into consideration additional influencing factors which can significantly influence the results compared with standard insulating glass. In certain load situations, the sheets deform inwards and / or outwards, which can impair the function of the flexible elements.



Climate-induced stress

Influencing factors to be taken into consideration are for example:

- Air pressure on the production date (fluctuating daily). Low air pressure means a higher risk of inward bulging at a later stage unless suitable measures are taken.
- Temperature (relative air humidity) on the production date.
- Difference in altitude between production location and installation location.
- Sheet format and height-to-width ratio.
- Insulating glass structure (glass thickness, symmetrical or asymmetrical structure).
- Installation location and local conditions.
- Position of the solar control system during transportation.
- Transportation route to the installation location.

Which limit values of pane deflection, loads and superpositions provide the basis for the operational capability of the installed system must be defined by the insulating glass manufacturer. The stipulations under building law of TRLV remain unaffected. Vertical or horizontal installation must also be taken into consideration.

Heating of the solar control systems can give rise to additional climatic stresses which can also subject the edge seal to a greater load. The insulating glass manufacturer must take into consideration the increased temperature difference according to Table B1 of TRLV for the system.

2.2 Edge seal

Version in accordance with DIN EN 1279 1 to 6, or DIBt Construction Products List

Notes on choice of materials for the sealants to be used:

- The insulating glass manufacturer is obligated to choose the sealant materials to be used (butyl, secondary sealant) to match the temperatures and loads to be expected.

- The sealant overlap (spacer back, glass edge) must, depending on the sheet format, the glass structure and the resulting edge seal loads, be checked by the insulating glass manufacturer and if necessary increased.

3.0 Further processing of the solar control system

3.1 Incoming goods inspection

The incoming goods inspection must be conducted in accordance with the system manufacturer's directions.

3.2 Production sequence

Introduction and general notes:

- Make sure the surrounding area is clean for assembly.
- The use of force to join components creates a risk of deformation to the spacers, which can result in product failure.
- Make sure that no hanging parts are trapped.
- Carry out a visual inspection, making corrections if necessary.
- We recommend that all plug connections be sealed with butyl.
- Any printed circuit boards with connection contacts must not come into contact with butyl, as butyl is electrically conducting.
- Installation side: note the position of the drive unit with the connection contacts for the specific type.

3.3 Production

Always observe the system-specific processing / manufacturing criteria. General notes and instructions related to this are given in the following.

3.3.1 Preassembly of the system unit

Lay out the system unit with the associated spacers and connecting elements ready to hand. Fit any restraints, usually in the direction of the coating. Fill the spacers with desiccant (molecular filter). Connect the spacers using the connecting elements and attach the system unit.

Fill the spacers of fully preassembled systems through the designated openings with desiccant (molecular filter). After filling, seal the openings tight with a suitable plug or butyl.

3.3.2 Insulating glass assembly

Assemble the multiple-sheet insulating glass while taking into account the permissible manufacturing tolerances. The exertion of force on the spacer, e.g. by the weight of the system, can cause the frame to be distorted or bent inwards or outwards, leading to later functional defects. When manufacturing large insulating glass units, it may be advisable to support the system from underneath (to reduce possible bending or displacement). Suitable measures must be taken to ensure that the spacer is parallel to the glass edge.

Move the unit further over the line for pressing. Before sealing, protect the connection contacts or connecting cable, if this is required by the system. In the case of rigid built-in components, it must be ensured, depending on the type of installation, that suitable spacers (e.g. as with glazing bar systems) are fitted, which also provide an anti-rattle function.

Before sealing the insulating glass unit, always check that the spacer frame is parallel. Bear in mind that, depending on the format and system, the system's dead weight can cause shifts during the setting process. Suitable measures must be taken here to prevent this (e.g. setting in the horizontal position).

3.4. Final inspection

After the sealant has set, always carry out pressure equalization and take suitable measures to adjust the cavity to suit the local conditions at the installation location. After installation in the insulating glass and prior to delivery, a function check must be conducted, particularly on flexible systems.

3.5. Storage / packaging / transportation

Delivery of the multiple-sheet insulating glass and transportation may only be carried out in accordance with the manufacturer's directions and with the system protected against weather effects. If necessary, the system must be appropriately covered to protect it during transportation and storage.

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