SWISSPACER AIR

The solution for pressure-equalised insulating glazing units

SWISSPACER

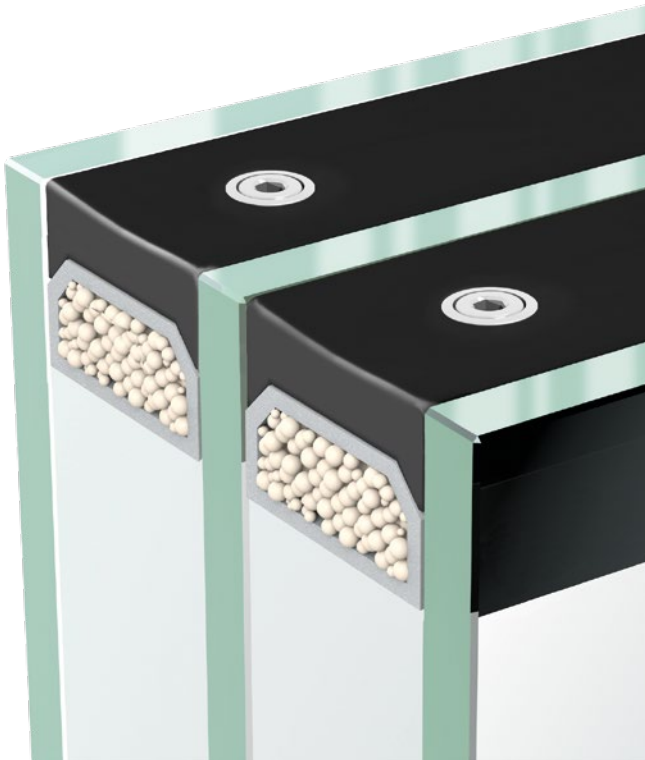
The edge of tomorrow.

SMALL COMPONENT
BIG IMPACT

CLIMATIC LOADS CAN RESULT IN DISTORTED OR CURVED PANES, AN INCREASED LOAD ON THE GLAZING EDGE, AND IN EXTREME CASES GLASS BREAKAGE. THE SWISSPACER AIR MINIMISES THESE RISKS BY BALANCING THE PRESSURE BETWEEN THE SURROUNDING AIR AND THE CAVITY BETWEEN THE PANES.

A standard insulating glass unit is a hermetically sealed system – the air mass enclosed in the cavity between the panes is retained during production. If the temperature or external air pressure changes, the system reacts with overpressure or underpressure. The can cause significant deformation of the glass, resulting in stresses on the glass and on the glazing edge.

In turn, these stresses can lead to shattered panes or – through expansion of the glazing edge – premature ageing. Installing SWISSPACER AIR creates a pressure-equalised insulating glass unit in which the loads mentioned above are minimised. That allows potential damage to be avoided. The component is installed in the glazing edge, meaning it is no longer visible following mounting of the glass unit in the frame.



PRESSURE BALANCING WITH SWISSPACER AIR

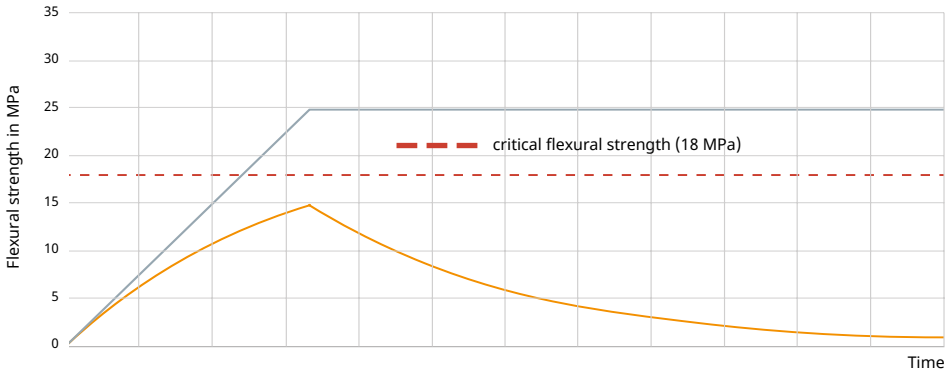
Height differences

SWISSPACER AIR balances the pressure between the surrounding air and the cavity between the panes and thus minimises, for example, the risk of breakage when transporting units over significant height differences.

Temperature differences

In the case of seasonal climatic loads, SWISSPACER AIR helps to ensure that the maximum permitted tensions in the glass are not exceeded. That reduces the concave or convex bulging of the insulating glass unit – and thus the visual distortions in windows and façades.

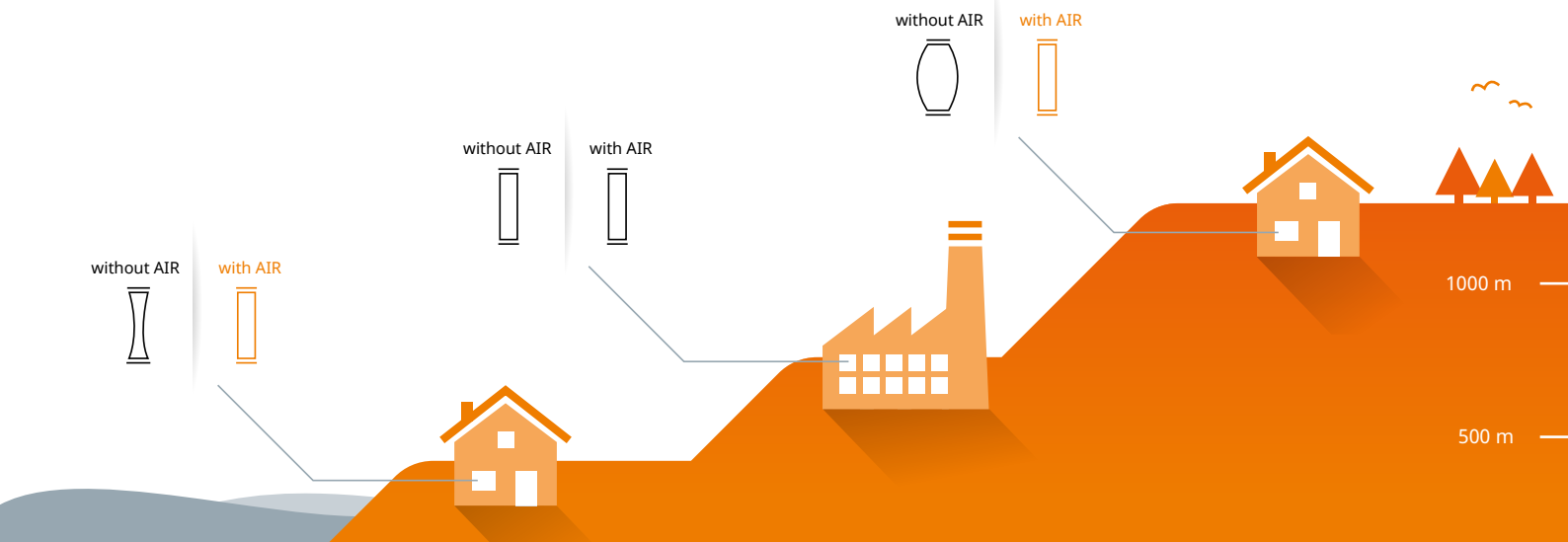
EXAMPLE OF TRANSPORT WITH A HEIGHT DIFFERENCE



Note: The graphic shows the behaviour of SWISSPACER AIR by way of example. The situation depends on further parameters such as, for example, the size of the insulating glass unit, the glass structure, the width of the spacer bar, etc. and must be considered in accordance with the specific issues.

without SWS AIR
During transport to a higher location, the flexural tensile stress increases constantly. Once there, the pressure and thus also the flexural tensile stress remain constant.

with SWS AIR
From a certain pressure difference, AIR ensures pressure equalisation, meaning that the flexural tensile stress then increases more slowly. AIR reduces the overpressure continuously, even after reaching the installation location.



FURTHER APPLICATION ADVANTAGES

Using SWISSPACER AIR also allows very large cavities to be achieved without the risk of damage caused by climatic loads. This gives rise to further possible applications.

Improved sound insulation

The wider cavities between the panes allow a reduction in the noise perceived inside the building – although the structure of the glass unit is otherwise the same. Corresponding test reports of ift Rosenheim prove that the use of SWISSPACER AIR enables, for example, triple glazing with an excellent sound insulation value of 54 dB.

Alternatively, the use of thinner panes is possible with the same sound and thermal insulation. This delivers lower weight, protects the window fittings and simplifies operation. In other cases, a costly sound-insulating interlayer in the laminated safety glass can be dispensed with.

Small panes

Insulating glass units with smaller dimensions and unfavourable side ratios are especially at risk from high climatic loads. For a safe design, thicker panes or even safety panes are frequently used. With the use of SWISSPACER AIR, standard panes can also be used for these applications.

For especially large cavities between the panes, for example in full-size house door units, the tried and tested Ultimate spacer bars with a width of 32 mm or 36 mm are also available.

PROOFS AND CERTIFICATES

Deutsches Institut für Bautechnik DIBt

SWISSPACER AIR is licensed for use with SWISSPACER spacer bars (approval number: Z-70.4-249).

TÜVRheinland CERTIFIED Quality Regular Product Surveillance www.tuv.com ID 0000065249

TÜV Rheinland confirms that the tested systems meet the requirements of EN 1279-2:2002 regarding the absorption of humidity.

ift ROSENHEIM Support with a service life analysis through simulations and measurements by ift Rosenheim

INSTALLATION

SWISSPACER AIR can be screwed quickly and easily into the SWISSPACER spacer bars. It can also be installed at a later time in the cured glazing edge to avoid impairing the production line's performance through downtimes and to avoid affecting the cycle times. The insulating glass unit fitted with SWISSPACER AIR is ready for transport, installation and use. It does not have to be sealed or reworked at a later date.

Compared to the manufacture of standard insulating glass units, pressure-equalised multi-pane insulating glass units are not filled with a noble gas, as the gas can escape through the component. However, various calculations prove that standard Ug values of 0.6 W/m²K can also be achieved with air-filled IGUs by making the cavity between the panes slightly larger.

FUNCTION

The SWISSPACER AIR is a metal sleeve with an integrated special membrane. Its special structure prevents water vapour from being able to accumulate in the cavity between the panes, which would otherwise lead to the formation of condensation or damage the metallic Low-E coatings. The insulating glass unit retains its function and quality over the long term through permanent pressure equalisation. A typical service life can thus be achieved – even in the presence of climatic loads.

SWISSPACER AIR must be installed 200 mm from the top edge of the insulating glass unit. In order to visualise the position of the SWISSPACER AIR for the next processing steps, an appropriate sticker can be used on the insulating glass unit. It must also be noted that the SWISSPACER AIR can only be used with spacer bars that have a minimum width of 10 mm.

DID
YOU KNOW?

DEFINE THE LIMITS OF USE REALLY EASILY WITH THE "SWS AIR SIMULATION"

The "SWS AIR Simulation" in our tried and tested tool CALUWIN lets you quickly and very easily check whether SWISSPACER AIR is the right technology to use for equalising the pressure of specific insulating glass units. The result of the simulation lets you gauge quickly and easily whether SWISSPACER AIR can balance out the climatic loads during transport over large height differences. The tool also calculates whether a service life of more than 15 years is achieved pursuant to EN 1279-2. The application lets you store projects as well as download the results for further documentation in PDF format.

More information at
en.swisspacer.com/caluwin

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