How to ensure...

... that an IGU doesn´t break due to pressure differences during airplane transport

The ”SWS AIR Simulation” in CALUWIN enables a fast rating of whether SWISSPACER AIR will achieve the pressure equalisation needed to avoid damage during transport for a specific IGU.

SWS AIR Simulation is a calculation of specific realities in a model – but the results allow a good estimation for the real behaviour of the IGU, both based on the assumptions made as well as under ideal conditions. For IGU breakage, there are two boundary conditions that have influence on this risk: Besides the height difference you have, it is the method and the speed how you transport an IGU.

Within the SWS AIR Simulation tool, you can choose between 4 different transportation methods – each with some boundary conditions:

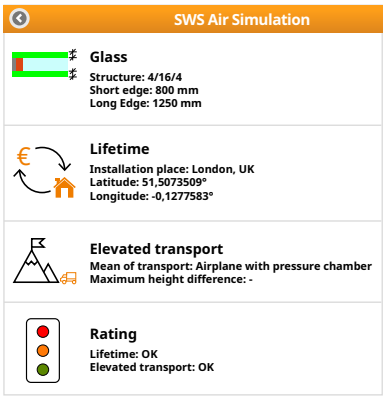
For an HGV, the calculation tool assumes a maximum ascent rate of 1.512 m/h.

If you have to transport the IGU in a cable car, the max. ascent rate should not exceed 3.2 m/s. This is the ascent rate of the famous cable car to the Zugspitze in Germany – which has been newly built in 2017 and is famous for its speed.

If a helicopter is used for transportation, the maximum ascent rate is defined with 5 m/s.

For an airplane, the maximum ascent rate is defined with 9.2 m/s. As an airplane is equipped with a pressure chamber, there is no need to specify an altitude difference because the pressure chamber sets an altitude difference equivalent of 2,400 m.

Following examples show the results of two simulations for a transport by airplane. For the IGU with short dimensions, the simulation evaluates this transport as “not OK” – means there is a risk of breakage for this IGU.



For a glazing unit of 800 mm to 1,250 mm, the simulation rates the transport with airplane „OK“ - there is probably no risk of breakage.
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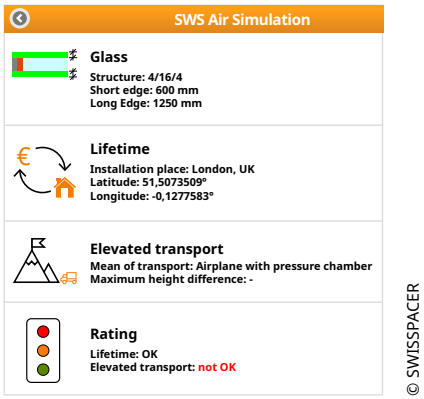

On the other hand, the simulation rates the airplane transport for a glazing unit with a shorter edge of 600 mm „not OK“ – safe transport by airplane is not any more ensured.
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Transport by airplane without a pressure chamber can be simulated on demand.
Please contact us if you need any further support on this topic (www.swisspacer.com).