

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-21/0964
of 13 July 2023

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

Pressure-equalizing insulating glass unit with pressure-
equalizing element SWISSPACER Air

Product family
to which the construction product belongs

Pressure-equalizing insulating glass unit

Manufacturer

Saint-Gobain Glassolutions
Isolierglas-Center GmbH
Am Börstig 5
96052 Bamberg
DEUTSCHLAND

Manufacturing plant

Plant 1 to 25

This European Technical Assessment
contains

12 pages including 4 annexes which form an integral part
of this assessment

This European Technical Assessment is
issued in accordance with Regulation (EU)
No 305/2011, on the basis of

EAD 300031-00-0404

The European Technical Assessment is issued by the Technical Assessment Body in its official language. Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and shall be identified as such.

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full. However, partial reproduction may only be made with the written consent of the issuing Technical Assessment Body. Any partial reproduction shall be identified as such.

This European Technical Assessment may be withdrawn by the issuing Technical Assessment Body, in particular pursuant to information by the Commission in accordance with Article 25(3) of Regulation (EU) No 305/2011.

Specific part

1 Technical description of the product

The product is an insulating glass unit (IGU) filled with air and produced in accordance with EN 1279-5:2018.

In the edge seal of the insulating glass unit a pressure-equalizing element called SWISSPACER Air is integrated to realize a pressure equalization between the insulating glass unit cavity and outside.

The pressure-equalizing element SWISSPACER Air consists of a cylindrical metal body with an inner plastic membrane.

Annex 1 shows the IGU and the pressure-equalizing element.

2 Specification of the intended use in accordance with the applicable European Assessment Document

The intended uses of the product are installations in windows, doors, and curtain wallings.

The performances given in Section 3 are only valid if the insulating glass unit with pressure-equalizing element SWISSPACER Air is used in compliance with the specifications and conditions.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the insulating glass unit with pressure-equalizing element SWISSPACER Air of at least 10 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

3.1 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	No performance assessed
Resistance to fire	No performance assessed
Façade fire performance	No performance assessed
External fire performance (for roof coverings only)	No performance assessed

3.2 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
Bullet resistance: Shatter properties and resistance to attack	No performance assessed
Explosion resistance: Impact behaviour and resistance to attack	No performance assessed
Burglar resistance: Shatter properties and resistance to attack	No performance assessed

Essential characteristic	Performance
Pendulum body impact resistance: Shatter properties(safe breakability) and resistance to impact	See Annex 3.1
Mechanical resistance: Resistance against sudden temperature changes and temperature differentials	See Annex 3.1
Mechanical resistance: Resistance against wind, snow, permanent and imposed load and/or imposed loads of the glass unit and edge seal	See Annex 3.2
Pressure equalization between the insulating glass unit cavity and outside	See Annex 3.2

3.3 Protection against noise (BWR 5)

Essential characteristic	Performance
Direct airborne sound reduction	See Annex 3.3

3.4 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Thermal properties: Emissivity	No performance assessed
Thermal properties: U-value	See Annex 3.4
Radiation properties: Light transmittance and reflectance	See Annex 3.4
Solar energy characteristics: Solar direct transmittance, solar direct reflectance and total solar energy transmittance	See Annex 3.5

3.5 Aspects of durability

Essential characteristic	Performance
Durability	No performance assessed

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with EAD No. 300031-00-0404 the applicable European legal act is: Decision 2000/245/EC amended by 2001/596/EC.

The system to be applied is: 3

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 13 July 2023 by Deutsches Institut für Bautechnik

Dr.-Ing. Lars Eckfeldt
Head of Section

beglaubigt:
Schult

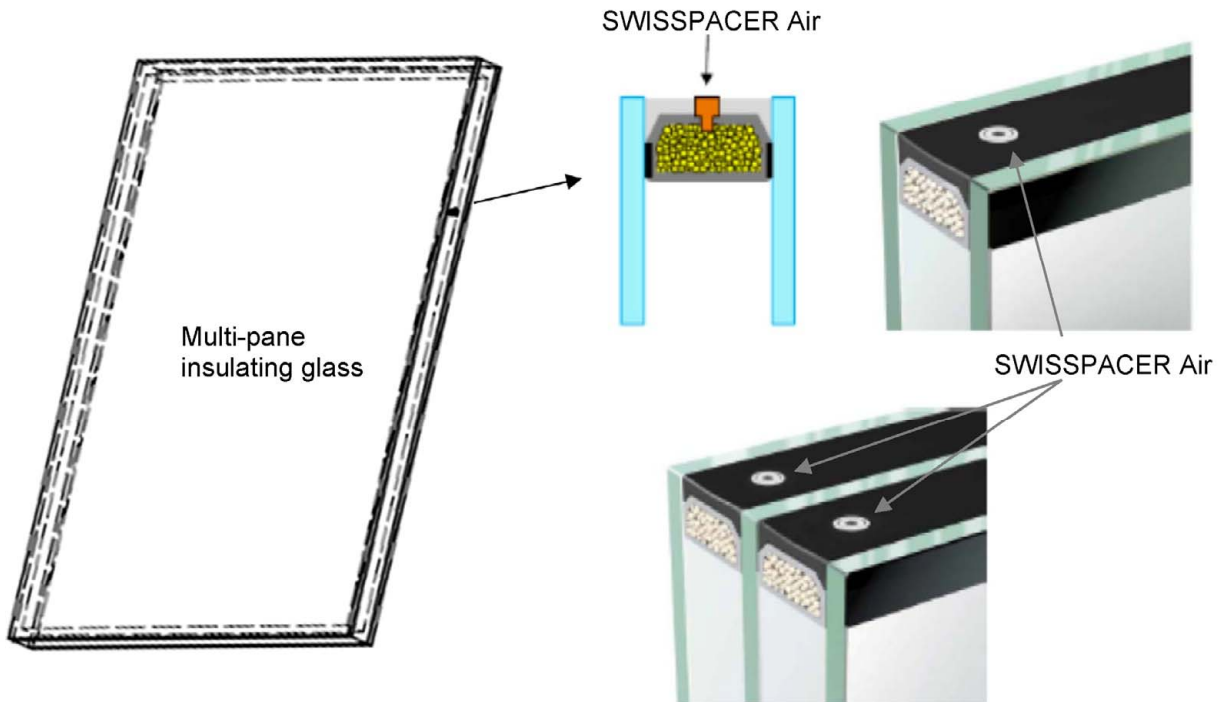


Abb. A1.1: Overview

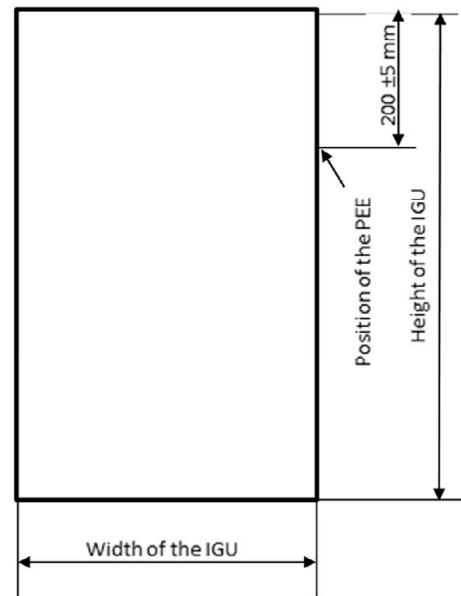
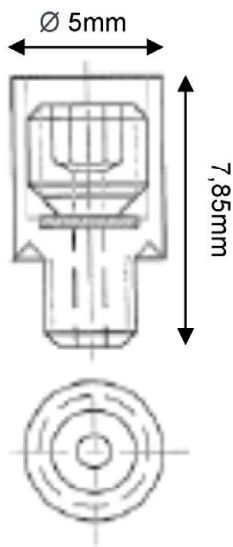


Abb. A1.2: SWISSPACER Air, installation position

Further data are deposited at Deutschen Institut für Bautechnik.

Pressure-equalizing insulating glass unit with pressure-equalizing element
SWISSPACER Air

Overview, SWISSPACER Air, installation position

Annex 1

A2 Structure of the multi-pane insulating glass for which performance values are determined in Annex 3

The multi-pane insulating glasses consist of the following glass products:

- Float glass (soda-lime silicate glass) according to EN 572-2:2012,
- ESG according to EN 12150-1:2015+A1:2019,
- coated glass (Planitherm XN) according to EN 1096-1:2012 made of float glass (soda-lime silicate glass) according to EN 572-2:2012 or
- Laminated safety glass (LSG) according to EN 14449:2005 made of float glass (soda-lime silicate glass) according to EN 572-2:2012 with polyvinyl butyral (PVB) interlayer.

Technical data on spacers and secondary sealants are deposited at DIBt.

The structure of the multi-pane insulating glass corresponds to Table T2. One pressure-equalizing element is installed in each space between the panes.

Table T2 Overview glass assemblies

	Glass pane 1 Glass type, thickness	Gas space	Glass pane 2 Glass type, thickness	Gas space	Glass pane 3 Glass type, thickness
	mm	mm	mm	mm	mm
1	Float 4	14	Float 4		
2	Float 4	16	Float 4		
3	Float 4	18	Float 4		
4	Float 4	20	Float 4		
5	Float 6	18	LSG 44.2		
6	Float 8	20	Float 4		
7	LSG 66.2	16	LSG 44.2		
8	ESG 8	16	Float 4		
9	Float 4	12	Float 4	12	Float 4
10	Float 4	14	Float 4	14	Float 4
11	Float 4	16	Float 4	16	Float 4
12	Float 4	18	Float 4	18	Float 4

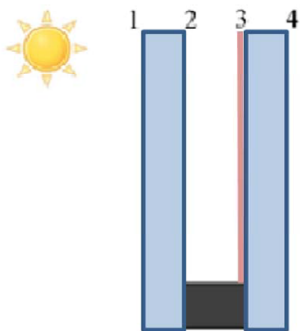


Abb. A2: Double insulating glass unit
Coating (Planitherm XN) on position 3

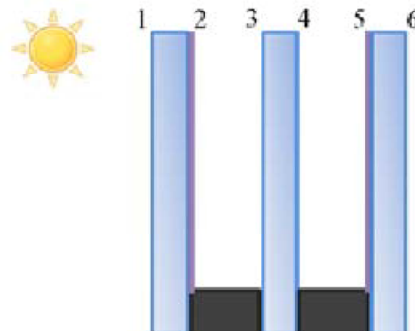


Abb. A3: Triple insulating glass unit
Coating (Planitherm XN) on position 3 and 5

Pressure-equalizing insulating glass unit with pressure-equalizing element
SWISSPACER Air

Structure of the multi-pane insulating glass for which performance values are determined

Annex 2

A3 Performance of the product

A3.1 Safety and accessibility in use (BWR 4)

A3.1.1 Pendulum body impact resistance: Shatter properties (safe breakability) and resistance to impact

Table T3.1.1.1: Pendulum body impact resistance

No. acc. to Table T2, Annex 2	glass assembly			Pendulum body impact resistance inside to outside
	Glass pane 1 Glass type, thickness mm	Gas space mm	Glass pane 2 Glass type, thickness mm	
5*	Float 6	18	VSG 44.2	1(B)1
7**	LSG 66.2	16	VSG 44.2	1(B)1 / 1(B)1
8***	ESG 8	16	Float 4	1(C)2

* The performance applies to load attack on pane 2

** The performance applies to load attack on pane 1 and also pane 2

*** The performance applies to load attack on pane 1

Performance of other assemblies can be determined according to EN 1279-5, 4.2.2.8.

A3.1.2 Mechanical resistance: Resistance against sudden temperature changes and temperature differentials

Table T3.1.2.1: Mechanical resistance: Resistance against sudden temperature changes and temperature differentials

No. acc. to Table T2, Annex 2	glass assembly					Resistance against sudden temperature changes and temperature differentials K
	Glass pane 1 Glass type, thickness mm	Gas space mm	Glass pane 2 Glass type, thickness mm	Gas space mm	Glass pane 3 Glass type, thickness mm	
1	Float 4	14	Float 4			40/40
2	Float 4	16	Float 4			40/40
3	Float 4	18	Float 4			40/40
4	Float 4	20	Float 4			40/40
5	Float 6	18	LSG 44.2			40/40
6	Float 8	20	Float 4			40/40
7	LSG 66.2	16	LSG 44.2			40/40
8	ESG 8	16	Float 4			200/40
9	Float 4	12	Float 4	12	Float 4	40/40/40
10	Float 4	14	Float 4	14	Float 4	40/40/40
11	Float 4	16	Float 4	16	Float 4	40/40/40
12	Float 4	18	Float 4	18	Float 4	40/40/40

Performance of other assemblies can be determined according to EN 1279-5, 4.2.2.9.

Pressure-equalizing insulating glass unit with pressure-equalizing element
SWISSPACER Air

Performance BWR 4

Annex 3.1

English translation prepared by DIBt

A3.1.3 Mechanical resistance: Resistance against wind, snow, permanent and imposed load and/or imposed loads of the glass unit

Table T3.1.3.1: Mechanical resistance: Resistance against wind, snow, permanent and imposed load and/or imposed loads of the glass unit

No. acc. to Table T2, Annex 2	Glass assembly					Resistance against wind, snow, permanent load and/or imposed loads of the glass unit N/mm ²
	Glass pane 1 Glass type, thickness mm	Gas space mm	Glass pane 2 Glass type, thickness mm	Gas space mm	Glass pane 3 Glass type, thickness mm	
1	Float 4	14	Float 4			45 - 45
2	Float 4	16	Float 4			45 - 45
3	Float 4	18	Float 4			45 - 45
4	Float 4	20	Float 4			45 - 45
5	Float 6	18	LSG 44.2			45 - 45/45
6	Float 8	20	Float 4			45 - 45
7	LSG 66.2	16	LSG 44.2			45/45 - 45/45
8	ESG 8	16	Float 4			120 - 45
9	Float 4	12	Float 4	12	Float 4	45 - 45 - 45
10	Float 4	14	Float 4	14	Float 4	45 - 45 - 45
11	Float 4	16	Float 4	16	Float 4	45 - 45 - 45
12	Float 4	18	Float 4	18	Float 4	45 - 45 - 45

Performance of other assemblies can be determined according to EN 1279-5, 4.2.2.10.

A3.1.4 Pressure equalization between the insulating glass unit cavity and outside

Tabelle T3.1.4.1: Time constant τ_{peq}

No. acc. to Table T2, Annex 2	Glass assembly					Time constant τ_{peq} in h bei Abmessung in m		
	Glass pane 1 Glass type, thickness mm	Gas space mm	Glass pane 2 Glass type, thickness mm	Gas space mm	Glass pane 3 Glass type, thickness mm	0,35x0,50	0,7x1,0	1,0x1,3
1	Float 4	14	Float 4			1	10	100
2	Float 4	16	Float 4			1	10	100
3	Float 4	18	Float 4			1	10	100
4	Float 4	20	Float 4			1	10	100
5	Float 6	18	LSG 44.2			1	10	100
6	Float 8	20	Float 4			1	10	100
7	LSG 66.2	16	LSG 44.2			1	10	100
8	ESG 8	16	Float 4			1	10	100
9	Float 4	12	Float 4	12	Float 4	1	10	100
10	Float 4	14	Float 4	14	Float 4	1	10	100
11	Float 4	16	Float 4	16	Float 4	1	10	100
12	Float 4	18	Float 4	18	Float 4	1	10	100

Performance of other assemblies can be determined according to EAD 300031-00-0404.

Pressure-equalizing insulating glass unit with pressure-equalizing element
SWISSPACER Air

Performance BWR 4

Annex 3.2

A3.2 Protection against noise (BWR 5)

A3.2.1 Direct airborne sound reduction

Table T3.2.1: Direct airborne sound reduction

No. acc. to Table T2, Annex 2	Glass assembly					Direct airborne sound reduction $R_w(C,C_{tr})$ dB
	Glass pane 1 Glass type, thickness mm	Gas space mm	Glass pane 2 Glass type, thickness mm	Gas space mm	Glass pane 3 Glass type, thickness mm	
2	Float 4	16	Float 4			31 (-1;-4)
5	Float 6	18	LSG 44.2*			38 (-2;-5)
6	Float 8	20	Float 4			36 (-2;-5)
7	LSG 66.2	16	LSG 44.2			41 (-1;-4)
12	Float 4	18	Float 4	18	Float 4	32 (-1;-5)

Performance of other assemblies can be determined according to EN 1279-5, 4.2.2.11.

Pressure-equalizing insulating glass unit with pressure-equalizing element SWISSPACER
Air

Performance BWR 5

Annex 3.3

A3.3 Energy economy and heat retention (BWR 6)

A3.3.1 Thermal properties: U-value

Table T3.3.1.1: Thermal properties: U-value

No. acc. to Table T2, Annex 2	Glas assembly					U-value W/(m ² K)
	Glass pane 1 Glass type, thickness mm	Gas space mm	Glass pane 2 Glass type, thickness mm	Gas space mm	Glass pane 3 Glass type, thickness mm	
1	Float 4	14	Float 4			1,5
2	Float 4	16	Float 4			1,4
3	Float 4	18	Float 4			1,4
4	Float 4	20	Float 4			1,4
5	Float 6	18	LSG 44.2*			1,4
6	Float 8	20	Float 4			1,4
7	LSG 66.2	16	LSG 44.2			1,3
8	ESG 8	16	Float 4			1,4
9	Float 4	12	Float 4	12	Float 4	0,9
10	Float 4	14	Float 4	14	Float 4	0,8
11	Float 4	16	Float 4	16	Float 4	0,8
12	Float 4	18	Float 4	18	Float 4	0,7

Performance of other assemblies can be determined according to EN 1279-5, 4.2.2.12.

A3.3.2 Radiation properties: Light transmittance and reflectance

Table T3.3.2.1: Light transmittance and reflectance

No. acc. to Table T2, Annex 2	Glas assembly					Lighttransmittance	Reflectance
	Glass pane 1 Glass type, thickness mm	Gas space mm	Glass pane 2 Glass type, thickness mm	Gas space mm	Glass pane 3 Glass type, thickness mm		
1	Float 4	14	Float 4			0,81	0,12
2	Float 4	16	Float 4			0,81	0,12
3	Float 4	18	Float 4			0,81	0,12
4	Float 4	20	Float 4			0,81	0,12
5	Float 6	18	LSG 44.2*			0,79	0,12
6	Float 8	20	Float 4			0,80	0,12
7	LSG 66.2	16	LSG 44.2			0,77	0,11
8	ESG 8	16	Float 4			0,80	0,12
9	Float 4	12	Float 4	12	Float 4	0,73	0,15
10	Float 4	14	Float 4	14	Float 4	0,73	0,15
11	Float 4	16	Float 4	16	Float 4	0,73	0,15
12	Float 4	18	Float 4	18	Float 4	0,73	0,15

Performance of other assemblies can be determined according to EN 1279-5, 4.2.2.13.

Pressure-equalizing insulating glass unit with pressure-equalizing element SWISSPACER Air

Performance BWR 6

Annex 3.4

A3.3.3 Solar energy characteristics: Solar direct transmittance, solar direct reflectance and total solar energy transmittance

Table T3.3.3: Solar direct transmittance, solar direct reflectance and total solar energy transmittance

No. acc. to Table T2, Annex 2	Glass assembly					Solar direct transmittance	Solar direct reflectance	Total solar energy transmittance
	Glass pane 1 Glass type, thickness	Gas space	Glass pane 2 Glass type, thickness	Gas space	Glass pane 3 Glass type, thickness			
	mm	mm	mm	mm	mm			
1	Float 4	14	Float 4			0,58	0,25	0,64
2	Float 4	16	Float 4			0,58	0,25	0,65
3	Float 4	18	Float 4			0,58	0,25	0,65
4	Float 4	20	Float 4			0,58	0,25	0,65
5	Float 6	18	LSG 44.2			0,51	0,23	0,62
6	Float 8	20	Float 4			0,55	0,22	0,61
7	LSG 66.2	16	LSG 44.2			0,47	0,16	0,55
8	ESG 8	16	Float 4			0,55	0,22	0,61
9	Float 4	12	Float 4	12	Float 4	0,47	0,3	0,54
10	Float 4	14	Float 4	14	Float 4	0,47	0,3	0,54
11	Float 4	16	Float 4	16	Float 4	0,47	0,3	0,54
12	Float 4	18	Float 4	18	Float 4	0,47	0,3	0,54

Performance of other assemblies can be determined according to EN 1279-5, 4.2.2.14.

Pressure-equalizing insulating glass unit with pressure-equalizing element SWISSPACER
Air

Performance BWR 6

Annex 3.5