

European Technical Approval ETA-08/0099

English translation prepared by DIBt - Original version in German language

Handelsbezeichnung <i>Trade name</i>	SG Steindl
Zulassungsinhaber <i>Holder of approval</i>	STEINDL GLAS GMBH Brixentaler Straße 1 6305 ITTER ÖSTERREICH
Zulassungsgegenstand und Verwendungszweck <i>Generic type and use of construction product</i>	SG-Fassade Geklebte Glaskonstruktionen vom Typ I und II <i>SG-facade Structural Sealant Glazing System - Type I and II</i>
Geltungsdauer: <i>Validity:</i>	vom <i>from</i> 13 May 2013 bis <i>to</i> 13 May 2018
Herstellwerk <i>Manufacturing plant</i>	STEINDL GLAS GMBH Brixentaler Straße 1 6305 ITTER ÖSTERREICH

Diese Zulassung umfasst
This Approval contains

24 Seiten einschließlich 11 Anhänge
24 pages including 11 annexes

Diese Zulassung ersetzt
This Approval replaces

ETA-08/0099 mit Geltungsdauer vom 13.05.2008 bis 12.05.2013
ETA-08/0099 with validity from 13.05.2008 to 12.05.2013

I LEGAL BASES AND GENERAL CONDITIONS

- 1 This European technical approval is issued by Deutsches Institut für Bautechnik in accordance with:
 - Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products¹, modified by Council Directive 93/68/EEC² and Regulation (EC) N° 1882/2003 of the European Parliament and of the Council³;
 - *Gesetz über das In-Verkehr-Bringen von und den freien Warenverkehr mit Bauprodukten zur Umsetzung der Richtlinie 89/106/EWG des Rates vom 21. Dezember 1988 zur Angleichung der Rechts- und Verwaltungsvorschriften der Mitgliedstaaten über Bauprodukte und anderer Rechtsakte der Europäischen Gemeinschaften (Bauproduktengesetz - BauPG) vom 28. April 1998⁴, as amended by Article 2 of the law of 8 November 2011⁵;*
 - Common Procedural Rules for Requesting, Preparing and the Granting of European technical approvals set out in the Annex to Commission Decision 94/23/EC⁶;
 - Guideline for European technical approval of "Structural sealant glazing systems - Part 1: Supported and unsupported systems", ETAG 002-01.
- 2 Deutsches Institut für Bautechnik is authorized to check whether the provisions of this European technical approval are met. Checking may take place in the manufacturing plant. Nevertheless, the responsibility for the conformity of the products to the European technical approval and for their fitness for the intended use remains with the holder of the European technical approval.
- 3 This European technical approval is not to be transferred to manufacturers or agents of manufacturers other than those indicated on page 1, or manufacturing plants other than those indicated on page 1 of this European technical approval.
- 4 This European technical approval may be withdrawn by Deutsches Institut für Bautechnik, in particular pursuant to information by the Commission according to Article 5(1) of Council Directive 89/106/EEC.
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- 6 The European technical approval is issued by the approval body in its official language. This version corresponds fully to the version circulated within EOTA. Translations into other languages have to be designated as such.

¹ Official Journal of the European Communities L 40, 11 February 1989, p. 12
² Official Journal of the European Communities L 220, 30 August 1993, p. 1
³ Official Journal of the European Union L 284, 31 October 2003, p. 25
⁴ *Bundesgesetzblatt Teil I 1998*, p. 812
⁵ *Bundesgesetzblatt Teil I 2011*, p. 2178
⁶ Official Journal of the European Communities L 17, 20 January 1994, p. 34

II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

1 Definition of the product and intended use

1.1 Definition of the construction product

The certified object is the structural sealant glazing system SG Steindl manufactured by the company Steindl Glas GmbH, Itter (Austria)

The structural sealant glazing system consists of insulating glass, single glass or non-transparent thermally insulated panel with a surrounding frame. The glass panes are bonded in the factory on all edges four sided with an aluminium frame to elements, which are mechanically fastened to the substructure on site. The non transparent panels themselves (structure and material) as well as the substructure are not subjects of this approval.

The elements are bonded with a structural silicone sealant to the support frame (Annex 1). In the case of the insulating glass and panel, the edge seal of these elements is also load bearing.

The elements are manufactured in the factory of the Steindl Glas in Itter, Austria.

At the construction site, the elements are mechanically fastened to the structure with clamps and the joint closed with backer rod and weather sealing.

The glass dead load is supported.

The elements can be used without and with retaining devices to reduce danger in case of bond failure (ETAG 002, Type I and II). The national provisions shall be observed.

The size of an element is limited due to the methods of verification according to section 2.2.4.

1.2 Intended use

The SG Steindl elements are installed in external walls. The angle of inclination to vertical may not be more than 10° to the substructure (i.e. stress due to the pressure on the sealant). An inclination towards the outside (i.e. tensile stress on the sealant) is not permissible.

The elements may be installed as horizontal respectively overhead glazing at inclinations with respect to the horizontal ranging from 7° to 90°. The structural sealant is to be positioned in such a way that it is not constantly subjected to tensile forces. The lower pane of the insulating glass units in the case of overhead glazing is to be of laminated safety glass. Further requirements of the respective Member State shall be observed in individual cases (Annex B).

The elements cannot be used to stiffen other components or as safety elements to prevent from falling.

Due to the intended use the essential requirements shall be fulfilled for the structural sealant elements SG-Steindl: Safety in case of fire (Essential Requirement 2, abbreviated: ER 2), Hygiene, health and the environment (ER 3), Safety in use (ER 4) and Energy economy and heat retention (ER 6).

The use of the certified object and the choice of types in accordance with ETAG 002-1 shall occur in accordance with the rules of the relevant Member State.

The following types, in accordance with ETAG 002-1, have been examined as part of the approval procedure:

- Type I: Mechanical transfer of the self-weight of the facade element to the sealant-support frame and thence to the structure. The structural sealant transfers all other actions. Devices are used to reduce danger in the event of bond failure.
- Type II: Mechanical transfer of the self-weight of the facade element to the sealant-support frames and thence to the structure. The structural sealant transfers all other actions and no devices are used to reduce danger in the event of bond failure.

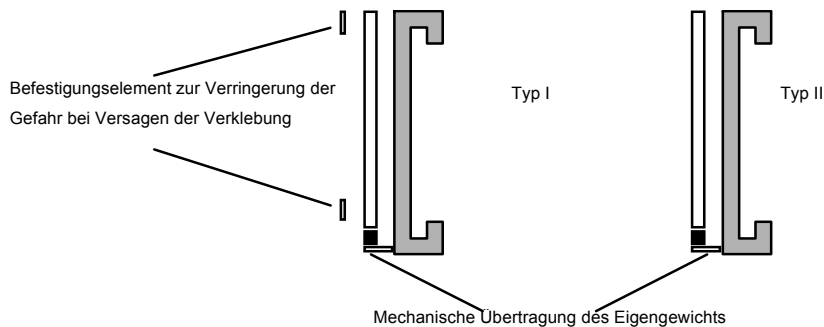


Figure 1: Schematic examples of types I and II

The provisions made in this European technical approval are based on an assumed working life of the elements of 25 years, provided that the conditions laid down in sections 4.2 / 5.1 / 5.2 / 5.3 for the packaging / transport / storage / installation / use / maintenance / repair are met. 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.

2 Characteristics of the product and methods of verification

2.1 Characteristics of the product

2.1.1 Float glass of soda lime silicate glass

The basic glass to be used for the manufacture of the glass products is a float glass of soda lime silicate glass according to Annex B, section 1; in the following referred to as float glass.

2.1.2 Coated glass

The use of coated glass according to Annex A is permissible. Where coated glasses not listed in Annex A are intended to be used, all panel edges designed to accept structural sealants shall be uncoated or the coating shall be completely removed mechanically from the edge to be sealed, prior to sealing. The glass shall not be damaged. The glass substrate shall be cleaned and dried directly before application of the structural sealant.

2.1.3 Thermally toughened soda lime silicate safety glass (ESG)

Thermally toughened soda lime silicate safety glass shall be manufactured by using float glass according to section 2.1.1 in compliance with the provisions of the Member States according to Annex B, section 2.

2.1.4 Heat soaked thermally toughened soda lime silicate safety glass (ESG-H)

Heat soaked thermally toughened soda lime silicate safety glass shall be manufactured by using

thermally toughened soda lime silicate safety glass according to section 2.1.3 in compliance with the provisions of the Member States according to Annex B, section 3.

2.1.5 Heat strengthened soda lime silicate glass (TVG)

Heat strengthened soda lime silicate glass shall be manufactured by using float glass according to section 2.1.1 in compliance with the provisions of the Member States according to Annex B, section 4

2.1.6 Laminated safety glass with PVB-interlayer (VSG)

Laminated safety glass shall be manufactured by using two panes of glass according to section 2.1.1, 2.1.3 or 2.1.5 with PVB-interlayer. The provisions of the Member States in accordance with Annex B, section 5 shall be observed.

2.1.7 Insulating glass units

For the insulating glass units the requirements listed in Annex B, section 6, apply.

In the case of applying the safety devices MSR 40 according section 2.1.9 the exterior pane of the insulating glass unit shall be laminated safety glass with PVB-interlayer according to section 2.1.6 made of thermally toughened soda lime silicate safety glass according to section 2.1.3 or heat soaked thermally toughened soda lime silicate safety glass according to section 2.1.4. In the case of applying the safety devices MSR SG-K according 2.1.10 the exterior pane of the insulating glass unit shall always be heat soaked thermally toughened soda lime silicate safety glass. If single glazing is planned in front of the insulating panel in the parapet element, it shall be made of heat soaked thermally toughened soda lime silicate safety glass according to section 2.1.4.

In the insulated glass unit the butyl sealing strip "BU-S" of Fa. Kömmerling Chemische Fabrik GmbH is used. The compatibility between the named butyl and DC 3362 is verified.

2.1.8 Structural sealant support frame and anchorage to the substructure

The structural sealant support frame consist of the aluminium alloy EN AW-6060 according to EN 573-3:2003-07, state T66 according to EN 515:1993-12 and mechanical properties according to EN 755-2:1997-08. The structural sealant support frame is 19 mm wide and 18 mm respectively 21 mm high (Annex 4). The anodic oxidation of the structural sealant support frame is carried out by the company Piesslinger GmbH, Molln, Austria, for the anodic oxidised surfaces, colouring C35 black and natural colour A6/C0. The requirements for anodic oxidation are deposited with the Deutsche Institut für Bautechnik. The ranges of values in Table 1 shall be observed for anodic oxidation.

Table 1: Range of values of anodic oxidation

Method according to ETAG 002-1	Property	Criterion according to ETAG 002-1	Value black colour C35	Value natural colour A6/C0	Standard
5.2.2.2.1	thickness	$\geq 15 \mu\text{m}$	24 μm	24-26 μm	ISO 2360
5.2.2.2.2	Admittance test at 1000 Hz	$< 20 \mu\text{S}$	—	6,6-9,4 μS	ISO 2931
5.2.2.2.3	Maximum weight loss	$< 30 \text{ mg/dm}^2$	15-25 mg/dm^2	—	ISO 3210

In the factory the glass panes and the structural sealant support frame are bonded to elements which are connected to the substructure with clamps (Annex 2).

The clamps are made of stainless steel, Material No. 1.4301, in accordance with EN 10088⁷, strength class S235. The tensile force per clamp (design value for structural resistance) with the geometrical data according to Annex 3 is $F_d = 0.35$ kN.

The clamps are connected to the substructure with bolts. A centric load transfer has to be assured. The fastening of the clamp to the substructure has to be within the centre of gravity of the sealant. Aluminium, steel or wood profiles may be used as a substructure (Annex 2). The bolts and the substructure are not subjects of this ETA.

2.1.9 Steel wire structure MSR 40

To safeguard the glazing in case of failure of the structural bond, safety devices in the form of a spring steel wire with a diameter of 1.5 mm is inserted in quadrant shaped grooves both in the exterior ESG or ESG-H panel and in the structural sealant support frame. The spring steel wire consists of stainless steel, Material No. 1.4310, in accordance with EN 10270-3⁸, corrosion resistance class "moderate"⁹. This safety element engages in the countersink of all four corners of the exterior panel (ESG or ESG-H) (Annex 3). The countersink is bored before the prestressing. The surface of the countersink shall not be sharp-edged, the quality must correspond to a roughly ground surface. The contact between glass and wire is prevented by a silicone intermediate layer DC 791 or DC 797. For the countersink it is necessary that the outer pane is made of ESG or ESG-H with a minimum thickness of 8 mm.

The steel wire structure may be used for monolithic panes, for double insulated glazing as well as for triplex insulated glazing.

2.1.10 Mechanical safety devices MSR SG-K

Alternatively to the steel wire structure according to section 2.1.9 safety-clamps to be used in case of failure of the structural bond are applied according to Annex 5 to 7. The safety-clamp with a length of 150 mm consists of a U-shaped powder-coated aluminium sheet jointing the exterior pane mechanically with the adapter profile. The side length of the safety clamp shall be adapted to the actual thickness of the element. There is a grinding along the whole glass edge of the exterior pane to insert the safety-clamps. The thickness of the exterior pane is at least 8 mm. The exterior pane is made of heat soaked thermally toughened soda lime silicate safety glass according to section 2.1.4. Further particulars to the material of the safety clamps, their geometrical data and to the manufacturing of the grinding are deposited with Deutsches Institut für Bautechnik.

2.1.11 Distance profile and weather sealing

A distance profile Thermalbond V2100 of the company Norton / St. Gobain is to be placed between the interior glass pane of the insulating glazing and the structural sealant support frame.

The weather sealing consists of the closed-cell polyethylene (PE) "climafill standard" of the company NMC sa. as backer rod and DC 797 as sealing material. The joint width is 14 mm.

The grooved seam in the base and eaves point of the facade is ventilated externally.

2.1.12 Structural sealant

For the structural sealant of the glass panes with the structural sealant support frame, the two-component silicone sealant DC 993 of the company Dow Corning is to be used (ETA-01/0005).

⁷ EN 10088-2:2005-09 Stainless steels - Part 2: Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for general purposes
⁸ EN 10270-3:2011 Steel wire for mechanical springs - Part 3: Stainless spring steel wire
⁹ National technical approval of DIBt Z-30.3-6 for components and fasteners made of stainless steel

The base and catalyst are to be mixed in a weight ratio of 10:1 or volume ratio of 7:1.

The silicone sealant DC 3362 (ETA-03/0003) is used for the structural sealing of the edge seal of the insulating glazing and of the non transparent panel.

2.1.13 Mechanical self-weight support

The self-weight of the glass panes shall be supported mechanically. It depends on the substructure and the glass weight which kind of mechanical self-weight support is used and inserted in the screw channel of the transom and screwed or welded together (Annex 1). The mechanical self-weight supports of the respective substructure system suppliers (façade makers) shall be verified. 2/3 of the thickness of the exterior glass pane must be supported. Setting blocks are used to prevent contact between steel and glass. For this the standard setting block made of polypropylene of the company Gluske BKV GmbH is used.

2.1.14 Requirement for the preparation of the adhesion surfaces

The processing instructions by the system supplier, Steindl-Glas GmbH, and the information by the adhesive manufacturer concerning the pre-treatment of contact surfaces and the processing of the adhesive according to section 2.1.12 shall be observed.

2.2 Methods of verification

2.2.1 General

The fitness of the elements for the intended use in relation to the essential requirements about safety in case of fire (ER 2), hygiene, health and the environment (ER 3), safety in use (ER 4) and energy economy and heat retention (ER 6) has been assessed in accordance with the "Guideline for the European Technical Approval for Structural Sealant Glazing Systems" (ETAG 002).

2.2.2 Safety in case of fire (ER 2)

According to Commission Decision 96/603/EC glass will be classified in category A1 and the adhesive according to section 2.1.12 in category F.

Resistance to fire can be evaluated only for the complete facade structure and shall be verified separately.

Note: A European reference fire scenario for facades has not been laid down. In some Member States, the classification of the structural sealant glazing system SG Steindl according to EN 13501-1¹⁰ might not be sufficient for the use in facades. An additional assessment of the structural sealant glazing system SG Steindl according to national provisions (e.g. on the basis of a large scale test) might be necessary to comply with Member State regulations, until the existing European classification system has been completed.

2.2.3 Hygiene, health and the environment (ER 3)

For the air permeability and water tightness "no performance was determined".

Relating to the "Dangerous substances", the manufacturer of the elements has made a declaration of compliance with Council Directive 76/769/EEC of 27 July 1976 published with amendments in the EC Official Journal.

Note: In addition to the specific clauses relating to dangerous substances contained in this European technical approval, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Directive, these requirements need also to be complied with, when and where they apply.

¹⁰ EN 13501-1:2007+A1:2009 Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests

2.2.4 Safety in use (ER 4)

2.2.4.1 General

For the stability of the elements and their anchorage to the structure a structural design calculation is needed. Particular consideration shall be given to:

- self-weight,
- wind,
- temperature and
- climatic conditions.

In the context of issuing this ETA no impact test was performed.

The regulations of the respective Member State in which the structural sealant glazing system is used shall be observed.

2.2.4.2 Verification of the structural bond

It shall be verified that the structural bond, under the actions given in section 2.2.4.1, is not exposed to any stress exceeding the specifications of ETA-01/0005 or ETA 03/0003 respectively.

The design of the structural bonds – between the infill element and the structural sealant support frame and the structural edge seal – has to be carried out in accordance with the regulations in the Member State in which the elements will be used (Annex B, section 7). The Member State may refer to design recommendations of ETAG 002.

2.2.4.3 Verification of the glass panes

The verification of the stability of the panes shall be done in accordance with chapter 2.2.4.1 and 2.2.4.2 in conformity with the rules of the respective Member State.

The stability of the exterior pane, where it is born exclusively by the wire structure, i.e. in the event of complete bond failure, and no load coupling between the exterior and interior pane, shall be demonstrated (safety factor 1,1). In particular for the safety devices MSR SG-K the verification shall demonstrate that the chord shortening of the exterior pane does not lead to slippage of the facade element under the wind suction load.

2.2.4.4 Verification of the mechanical safeguard due to the steel wire structure MSR 40

In the case of bond failure, the steel wire structure in accordance with Annex 3 shall be capable of temporarily guaranteeing the stability of the system elements and, in particular, of bearing the wind suction forces. The panes are held in the corners by a total of 4 safety elements (wire structures). The load capacity of one element is 1.1 kN. This allows for a 1.1-fold safety level. The maximum loadable actions from wind suction for one pane amounts to 4.4 kN.

2.2.4.5 Verification of the mechanical safeguard due to the safety devices MSR SG-K

The line shaped safety clamps according to Annex 5 to 7 shall be capable in the case of bond failure of temporarily guaranteeing the stability of the system elements and, in particular, of bearing the wind suction forces. The load capacity of each safety clamp is 1.1 kN. This allows for a 1.1-fold safety level. The number of safety clamps as well as the distance between the safety clamps shall be determined from the wind suction load. The distance between the safety clamps shall not exceed 600 mm. The distance to the corner of the glass pane shall be 300 mm (Annex 5 to 7).

According to the outcome of the calculations the safety clamps are situated normally at the long edges of the pane, in case of small panes at all four edges.

2.2.4.6 Deflection

The deflection of the frame profiles in the range of the pane edge shall not exceed 1/300 of the relevant pane edge length, but for pane edges of the insulating glass it shall not exceed 15 mm. The deflection in the centre of the glass pane may not exceed 1/100 of the smallest span of the pane in the case of service load.

2.2.4.7 Fixing

The number of clamps for fastening the elements to the supporting structure shall be calculated. The bolts are not the subject of this ETA.

2.2.5 Protection against noise (ER 5)

In the context of issuing of this ETA the verification of performance capacities of the protection against noise was not performed. For structure verification regarding the protection against noise, the regulations of the Member States apply.

2.2.6 Energy economy and heat retention (ER 6)

The verification of heat retention of the complete facade comprising the elements and transom/mullion structure or substructure shall be carried out on an individual case basis. The regulations of the Member States apply.

3 Evaluation and attestation of conformity and CE marking

3.1 System of attestation of conformity

According to the Commission decision of 24/06/96, published in the EC Official Journal No. L 254 of 08/10/96, the system 2+ of attestation of conformity shall apply to structural sealant glazing systems according to Type I of ETAG 002-1 and the system 1 of attestation of conformity shall apply to systems according to Type II of ETAG 002-1. Both systems are described in the following.

System 1: Certification of conformity of the product by an approved certification body on the basis of:

- (a) Tasks for the manufacturer:
 - (1) factory production control;
 - (2) further testing of samples taken at the factory by the manufacturer in accordance with a prescribed test plan.
- (b) Tasks for the approved body:
 - (3) initial type-testing of the product;
 - (4) initial inspection of the factory and of factory production control,
 - (5) continuous surveillance, assessment and approval of factory production control.

System 2+: Declaration of conformity of the product by the manufacturer on the basis of:

- (a) Tasks for the manufacturer:
 - (1) initial type-testing of the product;
 - (2) factory production control;
 - (3) testing of samples taken at the factory in accordance with a prescribed test plan.
- (b) Tasks for the approved body:
 - (4) certification of factory production control on the basis of:
 - initial inspection of factory and of factory production control;
 - continuous surveillance, assessment and approval of factory production control.

3.2 Responsibilities

3.2.1 Manufacturer

The company Steindl Glas GmbH is ETA-holder and manufacturer of the infill elements. The bonding of the infill elements to the structural sealant support frame takes place in the manufacturing plant of the company Steindl Glas GmbH. The bonding works of the structural outer edge seal of the insulating glass unit take also place in the manufacturing plant of the company Steindl Glas GmbH.

3.2.2 Approved body (notified body)

Steindl Glas GmbH informs the Deutsches Institut für Bautechnik (DIBt) about the approved body, who is involved according to the control plan.

3.2.3 Tasks for attestation of conformity

Tasks for attestation of conformity for system 1

	Tasks	Contents
Manufacturer	Factory production control	The manufacturer shall exercise permanent internal control of production in conformity with tasks laid down in the control plan ¹¹ .
	Testing of samples taken at the factory	Further testing of samples taken at the factory by the manufacturer in accordance with the control plan.
Approved body	Initial type-testing of the construction product	The approved body shall perform the tasks laid down in the control plan and state the results in a written report.
	Initial inspection of the factory and of factory production control	The approved body shall make sure that the production plant and in particular the personnel and the equipment as well as the factory production control are suited to ensure the continuous and proper manufacture of the product by applying the provisions given in clause 2.1 and in the Annexes of the European technical approval.
	Continuous surveillance, assessment and approval of factory production control	The approved body shall carry out an inspection in the production plant at least twice a year. It shall be verified that the factory production control is maintained by taking account of the agreed control plan.
	EC certificate of conformity	The approved body shall issue the EC certificate of conformity for the product.

¹¹ The control plan is a confidential part of the European technical approval and only handed over to the approved body involved in the procedure of attestation of conformity.

Tasks for attestation of conformity for system 2+

	Tasks	Contents
Manufacturer	Initial type-testing of the construction product	The manufacturer shall perform the tasks laid down in the control plan and state the results in a written report.
	Factory production control	The manufacturer shall exercise permanent internal control of production in conformity with tasks laid down in the control plan ¹¹ . The manufacturer shall, on the basis of a contract, involve a body which is approved for the tasks in the field of structural sealant glazing systems in order to undertake the actions laid down in the control plan.
	Testing of samples taken at the factory	Further testing of samples taken at the factory by the manufacturer in accordance with the control plan.
Approved body	Initial inspection of the factory and of factory production control	The approved body shall make sure that the production plant and in particular the personnel and the equipment as well as the factory production control are suited to ensure the continuous and proper manufacture of the product by applying the provisions given in clause 2.1 and in the Annexes of the European technical approval.
	Continuous surveillance, assessment and approval of factory production control	The approved body shall carry out an inspection in the production plant at least twice a year. It shall be verified that the factory production control is maintained by taking account of the agreed control plan.
	EC certificate of conformity	The approved body shall issue the EC certificate of conformity for the production control.

The results of product certification, certification of the factory production control and the continuous surveillance shall be submitted by the certification and inspection body respectively to the Deutsche Institut für Bautechnik upon request.

If the provisions of the European technical approval and of the agreed control plan are no longer complied with, the certificate of conformity shall be cancelled and the Deutsche Institut für Bautechnik shall be informed.

3.3 CE marking

The CE marking shall be affixed on the product. The letters "CE" shall be followed by the identification number of the approved certification body and be accompanied by the following additional information:

- the name and the address of the manufacturer (legal entity responsible for the manufacture),
- the last two digits of the year in which the CE marking was affixed,
- the number of the EC certificate of conformity for the product (system 1)

- the number of the EC certificate of conformity for the factory production control (system 2+),
- the number of the European technical approval,
- the number of the guideline for European technical approval
- identification of the product: SG Steindl

4 Assumptions under which the fitness of the product for the intended use was favourably assessed

4.1 Manufacture

The European technical approval is issued for the product on the basis of agreed data/information, deposited with the Deutsche Institut für Bautechnik, which identifies the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data/information being incorrect, shall be notified to the Deutsche Institut für Bautechnik before the changes are introduced. The Deutsche Institut für Bautechnik will decide whether or not such changes affect the approval and consequently the validity of the CE marking on the basis of the approval and if so whether further assessment or alterations to the approval shall be necessary.

The elements shall be manufactured and bonded only in the manufacturing plant of the company Steindl-Glas GmbH in Itter, Austria. There the factory production control according to chapter 3.2 is implemented.

The adhesion surfaces shall be treated according to the instruction (see section 2.1.14). In particular the sealing of the panes with the structural sealant support frame shall be carried out in the same plant. The joint in the space between the glass and the aluminium profile shall be completely filled. The minimum thickness of the joint between the glass plate and the frame profile shall be 6 mm. The width is at least 12 mm. The precise dimensions are to be determined by calculation. Bubbles, holes or inclusions are not permissible.

4.2 Installation

The elements are to be bonded in compliance with the workshop manual of the company Steindl Glas GmbH in a way that no restraints in the elements can occur. The fastening of the clamps to the substructure shall be within the centre of gravity of the sealant. The installation shall only be performed by experts who have been trained for these works by the company Steindl Glas GmbH.

The applicant has to draw up a complete list, indicating the installation place and installation date of the certified object. On request the list shall be presented to the Deutsche Institut für Bautechnik.

5 Indications to the manufacturer

5.1 General

It is in the responsibility of the manufacturer to ensure that the information on the specific conditions according to European technical approval is given to those who are concerned.

5.2 Packing, transport and storage

The manufacturer shall take suitable precautions during packing, transport and storage to ensure that glazed sealant support frames are protected against damage by, e.g. breakage, scratching, splitting or contamination.

Suitable arrangements have to be made to prevent the application of loading to the structural seal, for example the provision of suitable racks. The structural sealant shall be protected by covers against exposure to water, solar radiation or significant changes of temperature.

5.3 Use, maintenance, repair

Cleaning of the facade shall be carried out only with water adding a maximum of 1% of surfactants, without other chemical additives or straining cleaning methods (e.g. steam pressure rays).

In the case of replacing a damaged or destroyed element only components in accordance with the provisions of this ETA shall be used. The installation shall be in compliance with this ETA.

Uwe Bender
Head of Department

beglaubigt:
Herr

Annex A

Coated glass products, suitable for structural sealant Dow Corning DC 993 without removing the coating from the panel edges

Manufacturer	Name of the product
Ferro AG, Frankfurt a.M., Deutschland	Glaskeramische Farbe, Kollektion 34
	Glaskeramische Farbe, Kollektion 140
Glas Trösch AG, Schweiz	SILVERSTAR Sunstop T Silber 20
	SILVERSTAR Sunstop T Silber 20 mit Siebdruck *)
	SILVERSTAR Sunstop T Blau 30
	SILVERSTAR Sunstop T Blau 50
	SILVERSTAR Sunstop T Neutral 50
Glaverbel, Belgien	Stopsol Supersilver klar
Guardian, Europe S.A.R.L.	SunGuard Solar Light Blue 52
	SunGuard Solar HP Neutral 41/33 *
	SunGuard Solar HP Neutral 52/41 *
	SunGuard Solar HP Neutral 61/42 *
	SunGuard Solar Light Blue 62/52 *
	SunGuard Solar HP Silver 43/31 *
	SunGuard Solar HP Royal Blue 38/31 *
	SunGuard Solar Neutral 67
	SunGuard Solar Silver Grey 32
	SunGuard Solar Silver 20
	SunGuard Solar Royal Blue 20 *
	SunGuard Solar Silver 08
Saint Gobain Glas, Belgien	Cool-Lite ST 108
	Cool-Lite ST 120
	Cool-Lite ST 150
	Cool-Lite SS 108
	Cool-Lite STB 120
	Antelio clear
	Antelio silver

* These coatings may be enamelled by Ferro, collection 140. It doesn't apply for the colour transparent and metallic of collection 140.

National provisions for glass products

Annex B

1. Provisions for the production of float glass (soda lime silicate glass)*

Class	Member States	Technical rule	Additional provisions
A	Germany	DIN EN 572-9 and <i>Bauregelliste</i> ('Construction Products List') A Part 1, serial No 11.10	Indication of the bending tensile strength

2. Provisions for the production of thermally toughened soda lime silicate safety glass (ESG)*

Class	Member States	Technical rule	Additional provisions
A	Germany	DIN EN 12150-2 and <i>Bauregelliste</i> ('Construction Products List') A Part 1, serial No 11.12	Indication of the bending tensile strength

3. Provisions for the production of heat-soaked soda lime silicate safety glass (ESG-H)*

Class	Member States	Technical rule
A	Germany	Provisions for the production of heat-soaked thermally toughened soda lime silicate safety glass (ESG-H), see <i>Bauregelliste</i> ('Construction Products List') A Part 1, serial No 11.13

4. Provisions for the production of heat strengthened soda lime silicate glass (TVG)*

Class	Member States	Technical rule	Additional provisions
A	Germany	DIN EN 1863-2 and <i>allgemeine bauaufsichtliche Zulassung</i> ('National technical approval') for heat strengthened soda lime silicate glass (TVG)	Indication of the bending tensile strength

5. Provisions for the production of laminated safety glass with PVB foil (VSG)*

Class	Member States	Technical rule
A	Germany	Provisions for the production of laminated safety glass with PVB foil, see <i>Bauregelliste</i> ('Construction Products List') A Part 1, serial No 11.14

6. Provisions for the production of insulating glass units*

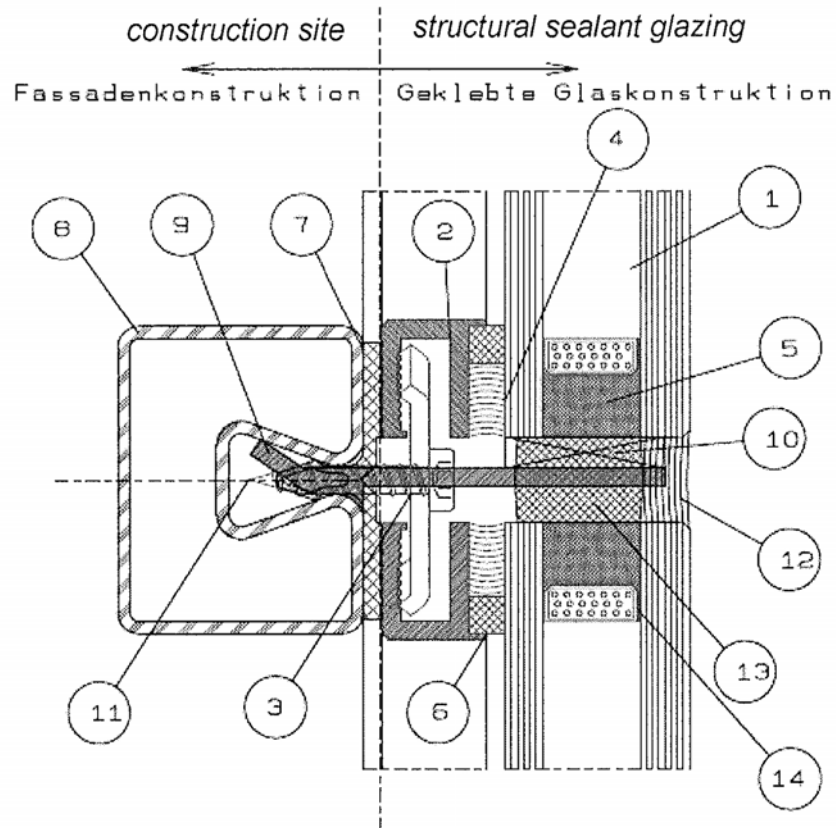
Class	Member States	Technical rule	Additional provisions
A	Germany	DIN EN 1279-5 and <i>Bauregelliste</i> ('Construction Products List') A Part I, serial No 11.16	Indication of the bending tensile strength

* The national provisions of the Member States, not listed in this column, shall be taken into account.

7. Requirements for overhead glazing

Class	Member States	Technical rule	Additional provisions
A	Germany	Technische Regeln für die Verwendung von linienförmig gelagerten Verglasungen (TRLV) * Nachweis der resttragfähigkeit	Section 3.2.1 and 3.2.6 of TRLV; bearing on four sides only

* TRLV: <https://www.dibt.de/de/Geschaeftsfelder/GF-BRL-TB.html>



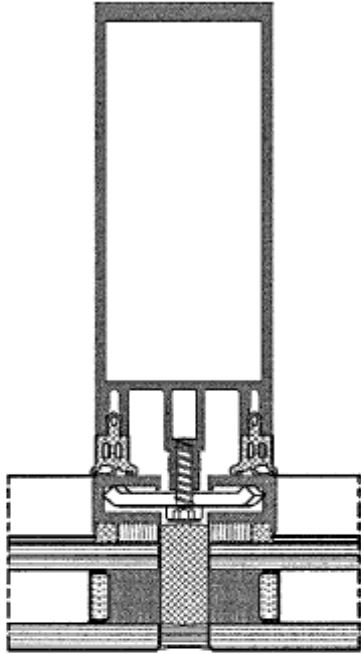
1. insulating glass
2. structural sealant support frame
3. clamp
4. structural silicone sealant DC 993
5. structural silicone sealant DC 3362
6. structural glazing spacer Thermalbond V 2100
7. gasket
8. substructure
9. mechanical self-weight support
10. standard-setting block of polypropylene
11. bolt
12. weather sealing DC 797
13. backer rod (PE) „climafill standard“
14. butyl strip „BU-S“

SG Steindl

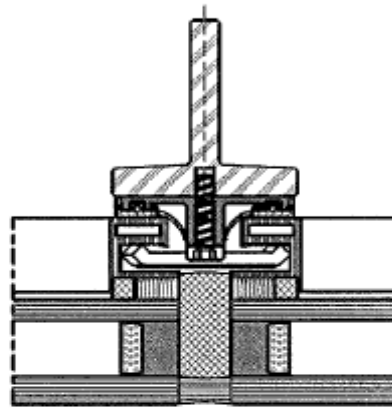
Definition of the system

Annex 1

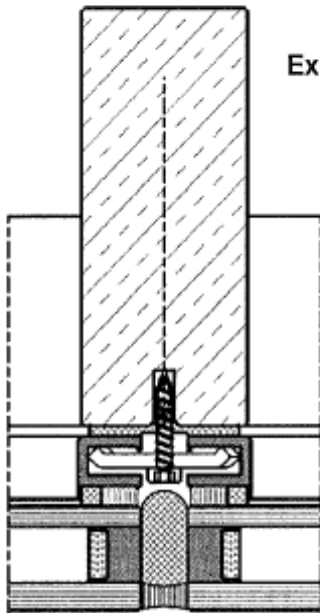
Example with substructure in
aluminium system



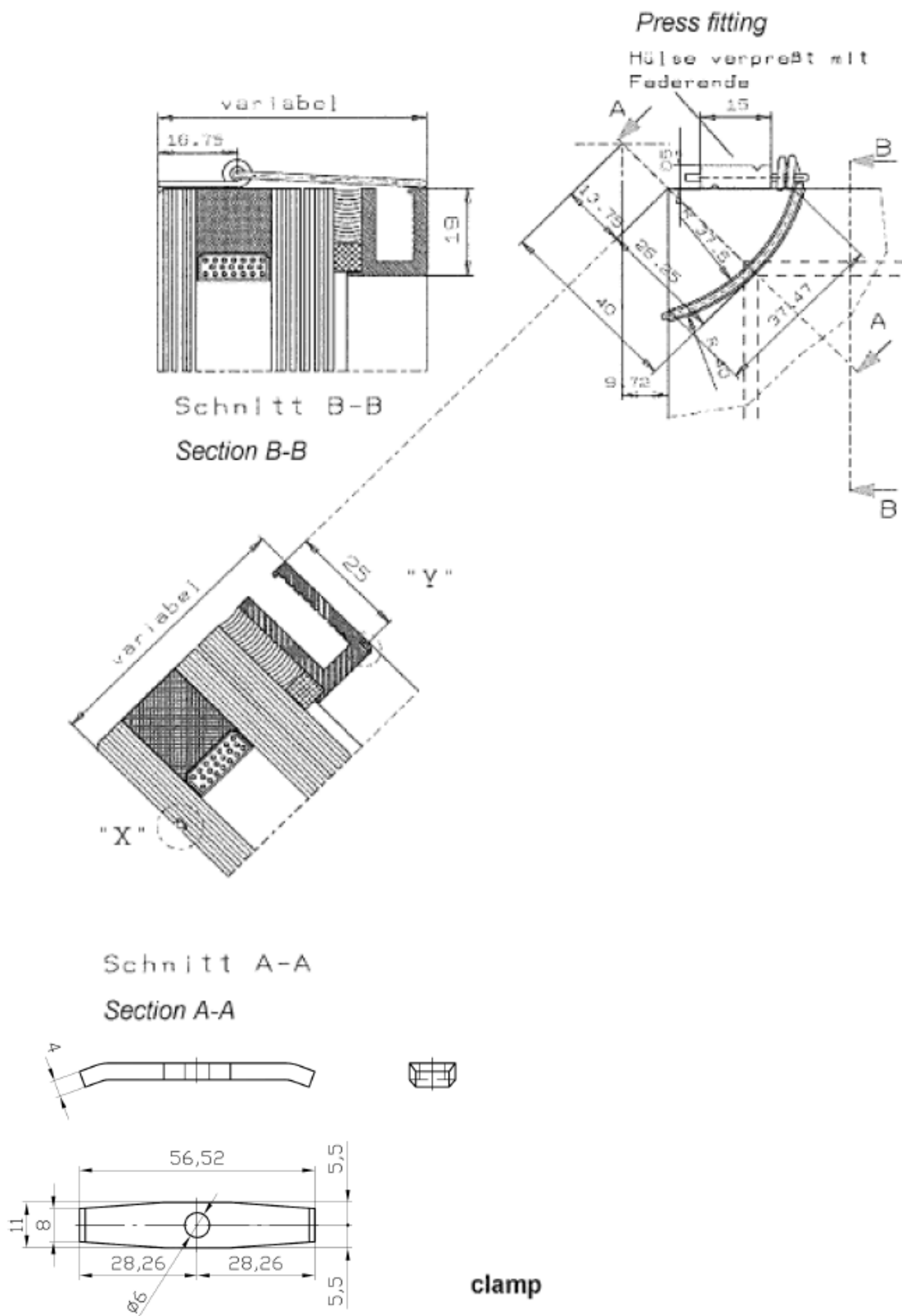
Example with substructure in
steel combined with screw
channel profil in aluminium



Example with substructure in
wood



Steel wire structure as safety element



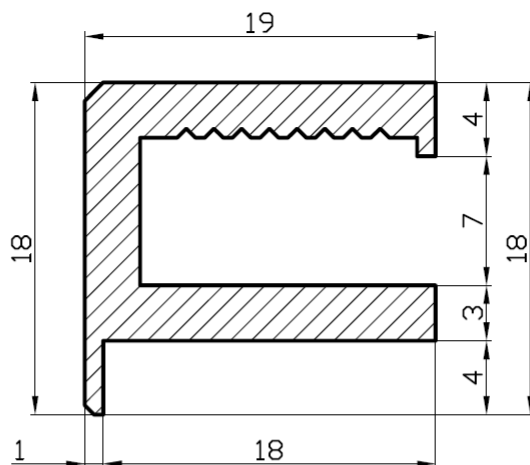
Electronic copy of the ETA by DIBt: ETA-08/0099

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Retaining devices

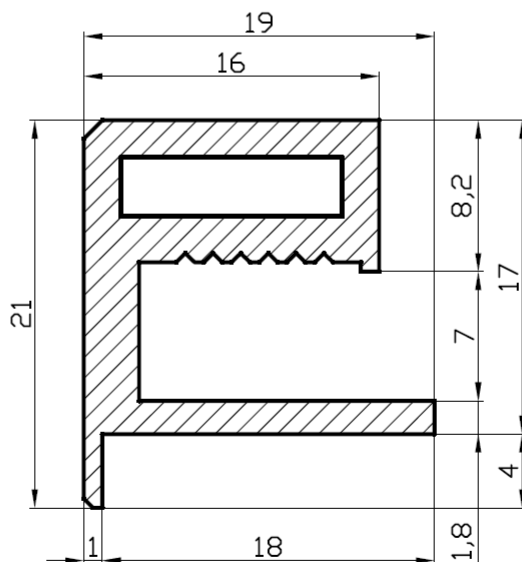
Annex 3

Support Frame AR1:



Material: AlMgSi 0,5 F22 - EN AW6060T66
Surface: Anodised
Colour: A6C35 (black) oder A6C0 (silver)

Support Frame AR2:

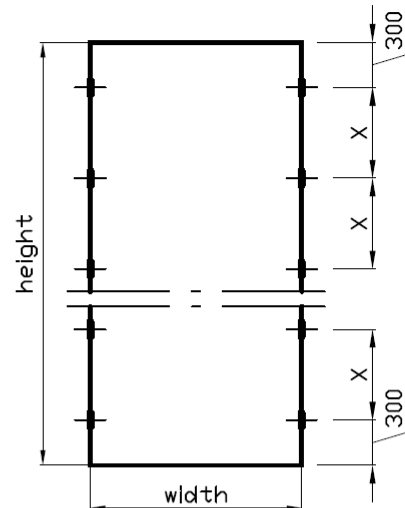
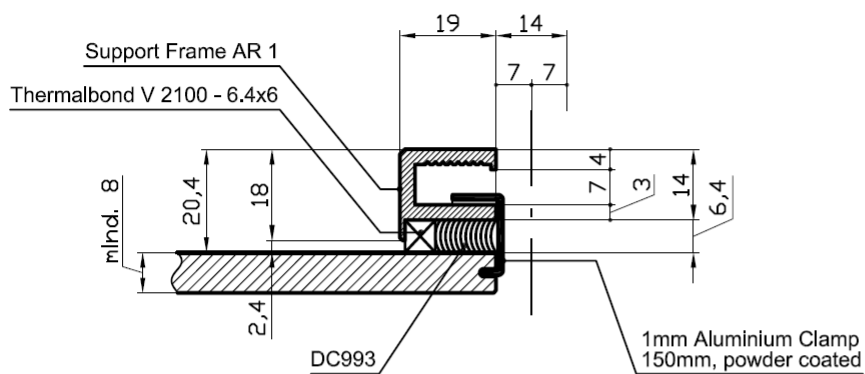


Material: AlMgSi 0,5 F22 - EN AW6060T66
Surface: Anodised
Colour: A6C35 (black) oder A6C0 (silver)
SG Steindl

Cross section support frame

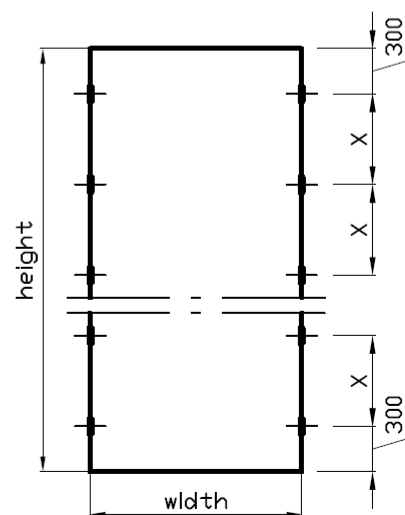
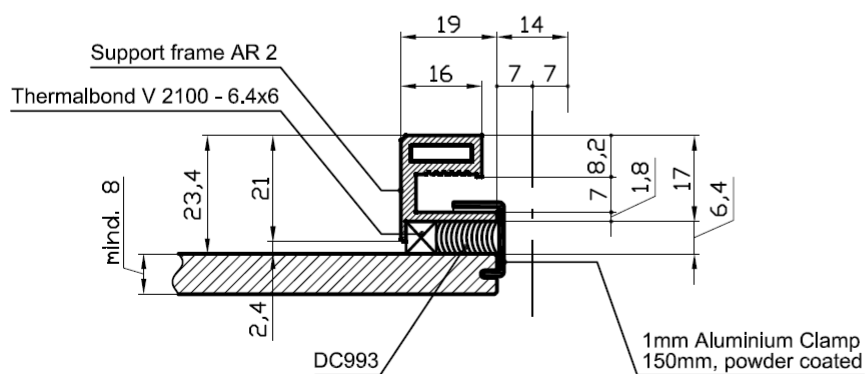
Annex 4

Support Frame AR1:



x = calculative detamination

Support Frame AR2:



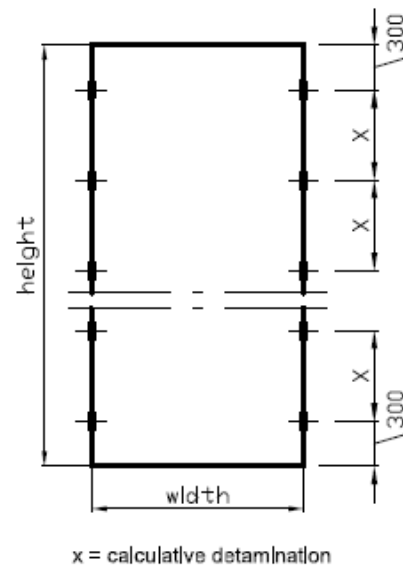
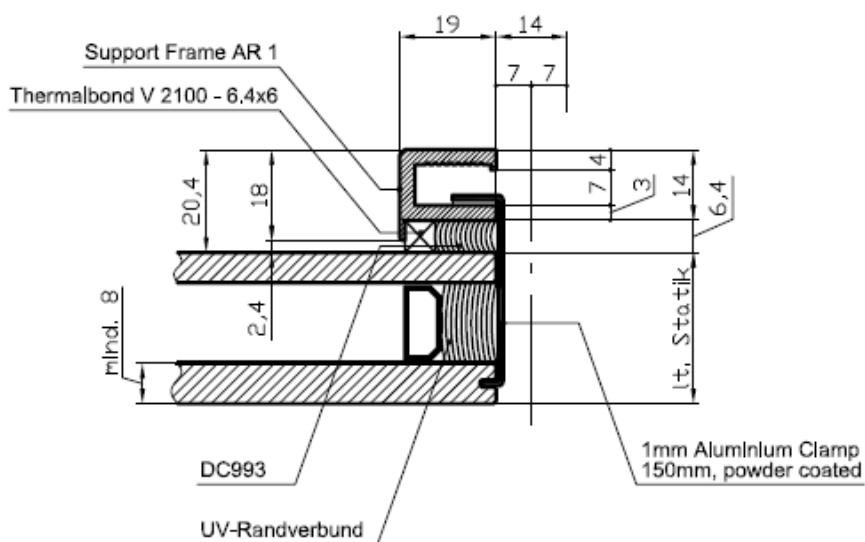
x = calculative detamination

SG Steindl

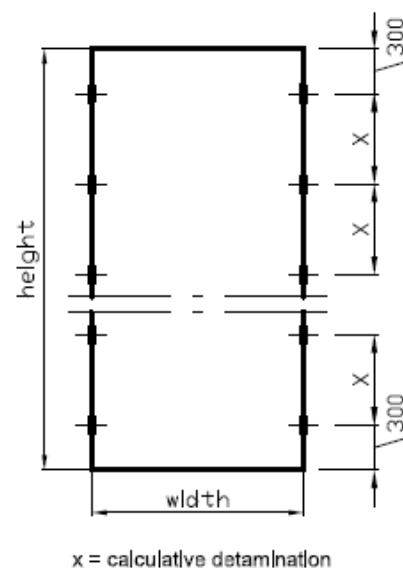
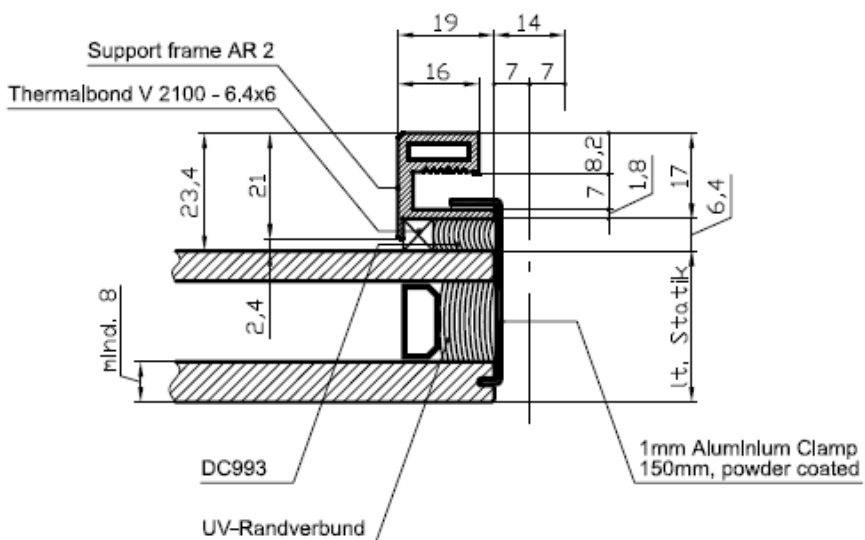
Support frames AR 1 and AR 2 with retaining devices MSR SG-K
Monolithic glazing

Annex 5

Support Frame AR1:



Support Frame AR2:

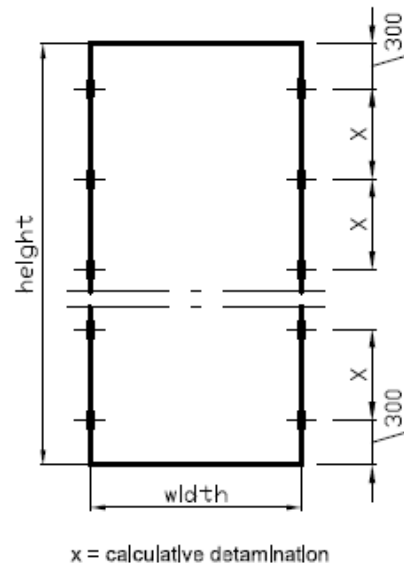
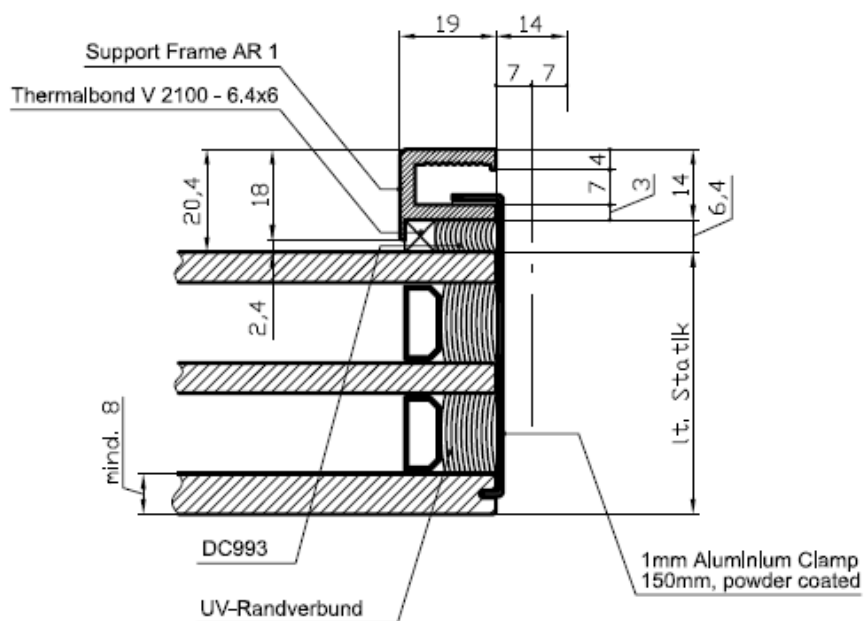


SG Steindl

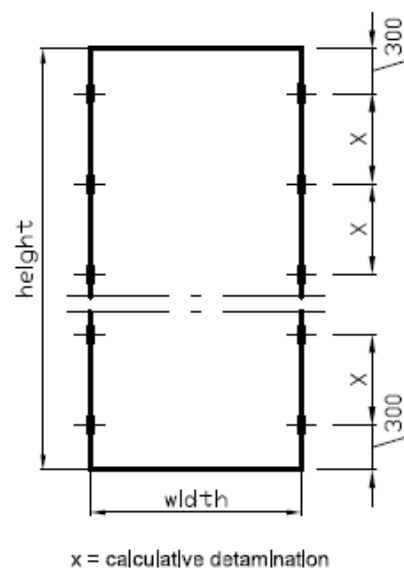
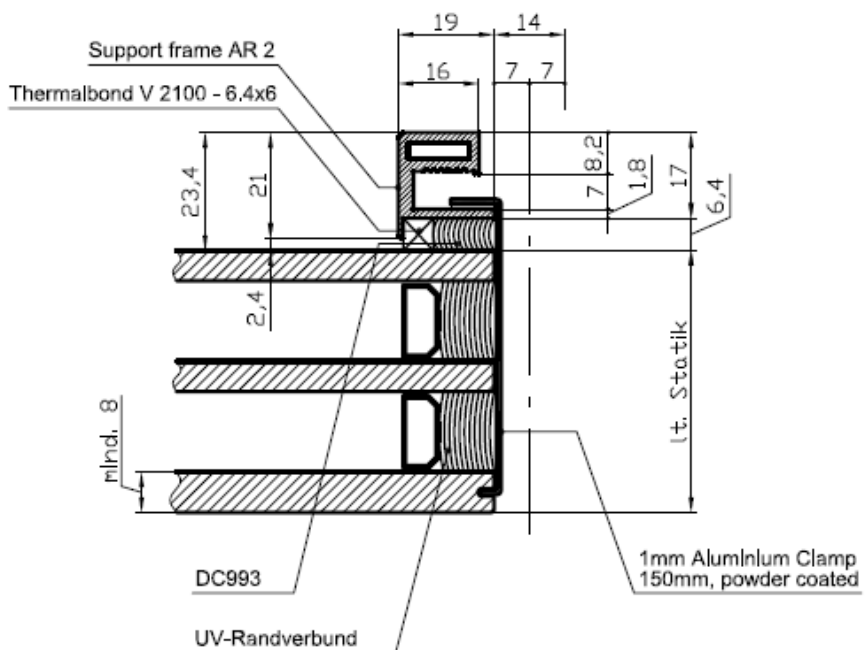
Support frames AR 1 and AR 2 with retaining devices MSR SG-K
Double glazed insulating unit

Annex 6

Support Frame AR1:



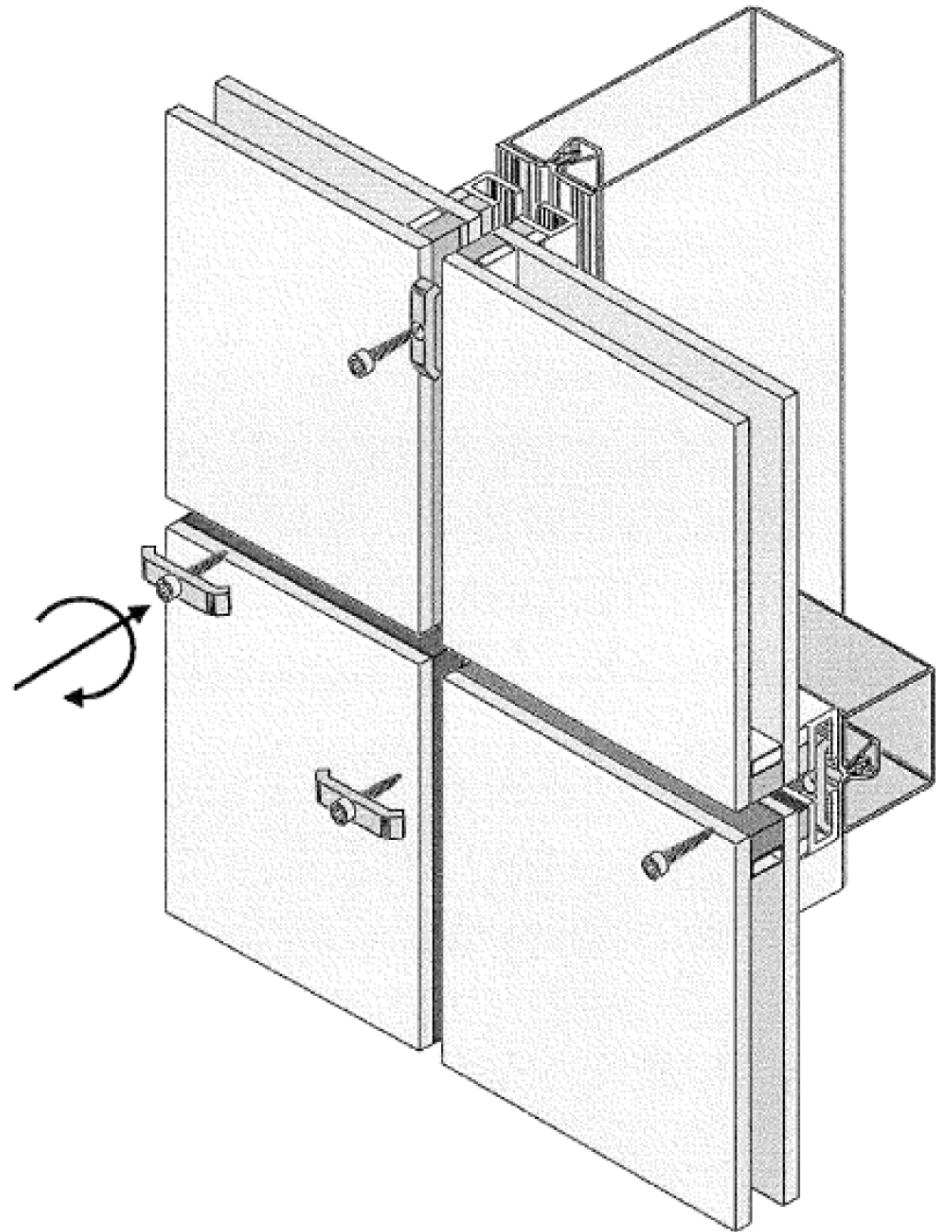
Support Frame AR2:



SG Steindl

Support frames AR 1 and AR 2 with retaining devices MSR SG-K
Triple glazed insulating unit

Annex 7



Installation:

1. Substructure shall be prepared with gasket support and glass support.
2. Setting blocks shall be placed
3. Infill elements shall be mounted with clamps. Maximum distance of the clamps 300 mm and/or according to the requirements of the stability verification. Maximum edge distance of the clamps 150 mm.
4. Placing of the backer rod.
5. Weather sealaning.

SG Steindl

Installation

Annex 8