

European Technical Approval**ETA-11/0042**

Trade name:	WICTEC 50SG, WICLINE 90SG
Holder of the approval:	Hydro Building Systems GmbH Söflinger Strasse 70 89077 Ulm Germany
Website:	www.hydro.com
Generic type and use of construction product(s):	Structural sealant glazing kit for use in curtain walling
Validity from:	2011-06-29
to:	2016-04-18
Manufacturing plant(s):	Hydro Building Systems GmbH Söflinger Strasse 70 89077 Ulm Germany
This European Technical Approval contains:	26 pages, including 13 figures in annex
This ETA replaces	ETA 11/0042, issued on 2011-04-19



European Organisation for Technical Approvals

Organisation Européenne pour l'Agrément Technique

Europäische Organisation für Technische Zulassungen

I LEGAL BASES AND GENERAL CONDITIONS

This European Technical Approval is issued by UBAtc in accordance with:

1. 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 the Council Directive 93/68/EEC of 22 July 1993²;
2. Royal Decree regarding construction products of 18 august 1998;
3. Common Procedural Rules for Requesting, Preparing and the Granting of European Technical Approvals set out in the Annex of Commission Decision 94/23/EC³;
4. Guideline for European Technical Approval of "Structural Sealant Glazing System" ETAG 002, edition November 99 amended on October 2001, Part 1.

The UBAtc is authorized to check whether the provisions of this European Technical Approval are met. Checking may take place in the manufacturing plant(s). 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.

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Compared with the version issued on 2011-04-19, an editorial error on page 4, regarding the dimensional tolerances on the IGU was corrected.

¹ Official Journal of the European Communities N° L 40, 11.2.1989, p 12

² Official Journal of the European Communities N° L 220, 30.8.1993, p 1

³ Official Journal of the European Communities N° L 17, 20.1.1994, p 34

II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

1. Definition of the product and intended use

1.1. Definition of product

The WICTEC 50SG and WICLINE 90SG kit is a structural sealant glazing kit (SSGS) in which the glazing infills are bonded along the perimeter with a structural sealant to a metallic structural sealant support frame.

Both WICTEC 50SG and WICLINE 90SG share much of their detailing. They differ in that WICLINE 50SG offers an "all-glass" outer face (albeit with the possibility of visible transom or mullion cover caps) where as WICLINE 90SG offers opening parts.

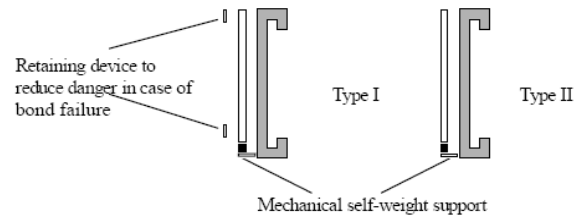
In the case of fixed fields and for those edges not retained by a transom or mullion cover cap, the support frame consists of U-shaped aluminium structural sealant retaining profiles, inserted between both glass panes of the insulating glazing unit. The U-profile is affixed to the inner glass pane of the insulating glazing unit using an adhesive spacer; the outer glass pane is bonded to the inner glass pane and to the U-profile using a structural sealant.

Note: for those facades where WICTEC 50SG uses no transom or mullion cover caps, all four edges of the fixed infills are provided with these U-shaped aluminium structural sealant retaining profiles.

In all other cases only two opposing edges of the four edges of the fixed infills are provided with these U-shaped aluminium structural sealant retaining profiles. The infill edges under the cover caps are regular structural sealant glazing kits. These edges are clamped onto the facade structure.

In the case of opening parts, the insulating glass unit is bonded to a structural sealant support frame using a structural sealant.

The WICTEC 50SG / WICLINE 90SG kit is of the type I or II as per ETAG 002 SSGS table 1



The infill elements shall not exceed 2,00 m × 3,50 m

1.2. Intended use

Structural sealant glazing kit (SSGS) for use as infill for curtain walling ranging from a vertical position to 80° from the vertical ($0^\circ \leq \theta < 80^\circ$), onto the building facade. An inclination is only allowed towards the inside of the building, as tensile stress of the structural sealant resulting of the self weight is not allowed.

The infill elements may only be used for installation heights that are admissible by regulations of the respective member states. The infill may also be used in overhead area.

The inner pane of the insulating glass unit placed overhead shall be laminated glass which consists of two panes of polished plate glass and a PVB foil as interlayer.

The façade structure is not part of the present ETA.

The infill elements shall not be used for the stiffening of other components.

The restrictive provisions of the various member states with regard to the application have to be taken into consideration.

Due to national requirements in some countries retaining devices may be used.

The system is intended to be used in curtain walling for which requirements ER2 safety in case of fire, ER3 Hygiene, Health and Environment, ER4 Safety in use, ER5 Protection against noise and ER6 Energy economy and heat retention shall be fulfilled. The failure of the structural bond would cause risk to human life and/or considerable economic consequences.

The provisions made in the European Technical Approval are based on the assumed working life of the SSGS of 25 years. The assumed working life of a system cannot be taken as a guarantee given by the producer, but are to be used as a means for selecting the appropriate product 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. Components of the kit

2.1.1.1. Structural sealants

The following structural sealant types can be used:

- Silicone DC 993 or Sikasil SG-500 to seal the glazing on anodised aluminium structural sealant support frame
- Silicone DC 993, DC 3362, Sikasil SG-500, IG-25 or IG-25 HM to seal the outer structural edge seal of the insulating glass unit

Identification and detailed mechanical characteristics are given in the respective ETA's:

Table 1: applicable silicones

Silicone	ETA
DC 993	ETA 01/0005
DC 3362	ETA 03/0003
SG-500	ETA 03/0038
IG-25	ETA 05/0068
IG-25 HM	ETA 05/0201

2.1.1.2. Suitable substrates for structural sealant bonding

The generic types of suitable substrates for adhesion to the structural sealant are:

- Float glass of soda lime silicate

The float glass should conform to the following standards: EN 572 Glass in Building – Basic Products – Part 1, 2, 4, 5.

- Coated float glass

The suitable coated glass substrates are identified in the relevant ETA for structural glazing sealants; some other suitable coated glass products for the structural adhesion may be extrapolated following the rules mentioned in the ETAG 002 § 5.2.3.3 (coated glass) without further testing for coatings classified as A, S and B according to EN 1096-1.

For other types of coated float glass the coating must be totally removed from the structural adhesion surface.

- Laminated safety glass

Laminated safety glass should conform to the following standard: EN ISO 12543-2: Glass in building – Laminated glass and laminated safety glass

- Thermally treated glass

Thermally treated glass shall conform to the following standards:

- EN 1863 Glass in building – Heat strengthened soda lime silicate glass
- EN 12150 Glass in building – Thermally toughened soda lime silicate safety glass

For special applications, the heat strengthened should in addition conform to

- EN 14179 Glass in building - Heat soaked thermally toughened soda lime silicate safety glass.

Heat soaked thermally toughened safety glass shall be produced by using float glass according to above section on float glass with provisions of the member states according to annex A, section 2, being complied with.

2.1.1.3. Insulated glass unit

The kit of WICTEC 50SG/WICLINE 90SG is designed in such a way that the IGU outer edge seal is a structural edge seal.

The Insulated Glass Unit (IGU) is manufactured in accordance with EN 1279 series. Only Insulated glass units made of two panes are covered in this ETA.

The structural outer edge seal is a silicone sealant conform to ETAG 002 identified in table 1

For each project the IGU's manufacturer shall deliver a technical dossier to his client as described in ETAG 002 § 8.3.2.4.2 – VI (Checks on incoming material, insulating glass units).

Dimensional tolerances on the IGU: ± 2 mm on the glass pane.

2.1.1.4. Structural sealant retaining profile and structural sealant support frame

As stated in the definition of the product, fixed parts contain a U-shaped aluminium structural sealant retaining profiles, inserted between both glass panes of the insulating glazing unit. Opening parts are affixed to a structural sealant support frame.

Note: not all four sides of a fixed part need to contain the aforementioned U-profile: see chapter 1.1.

All profiles and frames for structural sealant application are made of an aluminium alloy as described in table 2.

Table 2: aluminium alloy – characteristics

Alloy	Metallurgic state	Mechanical characteristics
Designation		
EN 573-3	EN 515	EN 755-2
EN AW - 6060	T5/T66/T6	
EN AW - 6063	T6/T66	

Table 3: anodising characteristics of the structural sealant adhesion surface

Characteristics	Method	EOTA Criteria	Nominal value
Thickness	ETAG § 5.2.2.2.1	Mean minimum thickness 15 µm	15 < th < 25
Sealing degree weight loss	ETAG § 5.2.2.2.2	EN 12373-6: < 30 mg/dm³	< 30mg
Admittance at 1.000 Hz for a given thickness of 20µm	ETAG § 5.2.2.2.3	EN 12373-5: < 20µS	
Stain test	ETAG § 5.2.2.2.2	EN 12373-4: < 2 on Qualanod scale	< 2

- The U-profile which is to be inserted between the glass panes of the IGU is identified as profile 3030097.
- The profile for bonding a single glazing which is thus not a part of an insulating glass unit is identified as profile 3030114.
- The insert profile for bonding an insulating glass unit for the creation of opening parts is identified as profile 3091000.

The anodising of the structural adhesion surface profiles (3030097, 3030114 and 3091000) is performed by the following companies:

1. BWG Altenheim AG, CH-9423 Altenheim
2. Piesslinger, im Gstadt 1, A-4591 Molln
3. Eloxal Gerhard Gotta, Max-Planck-Str.12, D-63322 Rödermark

The anodised aluminium profiles have been assessed as suitable adhesion substrates for the bonding.

Compatibility of the structural sealant and the materials which come in contact with it (VMQ silicone setting block part 4020566, HTV silicone rubber gasket 169-5, silicone joint profile 4010071, VMQ silicone adhesive spacer profile 190232, closed-pore polyethylene copolymer foam adhesive spacer tape 4090082, joint sealant) have been positively evaluated.

2.1.1.5. Mechanical self weight support

Mechanical self weight supports must be used, at a rate of two for every infill. They each support a setting block which supports both glass panes of the insulating glass units.

Examples of these self weight supports are given in annexes 8 and 13. The self weight supports shall be 100 mm wide and of an aluminium alloy according to table 2.

The mechanical self weight supports are identified as parts

- For WICTEC 50SG: 4080251, 4080252, 4080253, 4080254, 4080255, 197265 (meter ware: 135147), 197266 (meter ware: 135148), 197279
- For WICLINE 90SG: 4080281, 4080282, 4080283, 4080284, 4080285, 4080286, 4080287, 4080288, 4080289

The load bearing capacity of the following parts has been verified:

- 4080252 (longest non-reinforced mechanical self weight support for fixed parts): 2851 N (with a safety factor of 1,25)

- 4080255 (longest reinforced mechanical self weight support for fixed parts): 1957 N (with a safety factor of 1,25)
- 4080284 (longest non-reinforced mechanical self weight support for sashes): 989 N (with a safety factor of 1,25)
- 4080294 (longest reinforced mechanical self weight support for sashes): 919 N (with a safety factor of 1,25)

2.1.1.6. Retaining device

Retaining devices are means of retaining the glass to reduce danger in the event of structural sealant bond failure.

The necessity of these accessories is to be evaluated in function of the security specifications, of the situation of the building and of its working condition and also according to country demands.

Two types of retaining devices are used: circular retaining devices for fixed parts (part number 4080316, see annexe 7) and rectangular retaining devices for opening parts (part number 4080290, 4080291, 4080292, 4080293, 4080294, 4080295, 4080296, 4080297, 4080298, 4080299; see annexe 12). They shall be of an aluminium alloy according to table 2.

The load bearing capacity of the following parts has been verified:

- 4080316 (infill retainer for fixed elements): 1673 N (with a safety factor of 2,21)
- 4080293 (infill retainer for opening elements): 1758 N (with a safety factor of 2,08)

2.1.1.7. Glass holders

The glass holder is a device used to fix the fixed infill assemblies onto the support structure, thus allowing the factory-assembled infill elements to be rapidly mounted on-site. In isometric drawing of the glass holder is depicted in annex 8.

The glass holder (part number 4080312) is composed of two parts: a metallic part made of ZnAl4Cu3 (ZL0430) according to EN 12844 and a bottom part of PA-66GF25. The metallic part is automatically turned into the aluminium U-profile 3030097 by an appropriate self-tapping countersunk screw according to DIN 7982.

The load bearing capacity of the following parts has been verified:

- 4080312 (glass holder): 1900 N (with a safety factor greater than 2).

2.1.1.8. Joint sealing

After assembly, the joints between infill elements are to be sealed with one of the sealants below:

- DC 791 (Dow Corning)
- DC 797 (Dow Corning)
- Sikasil WS-605 S (Sika AG)

2.1.1.9. Accessories

Aluminium profiles

- Fixed sash profile (profile 3030095)
- Opening sash profile for attachment of insert 3091000 (profile 3030096)

Aluminium crimping parts

- Sash corner connector (part 4050480, 4050481)
- Mullion cap (profile 135071, 135072, 135073, 135074, 135191, 135226, 135268, 135296, 135318, 133222, 133333, 927604, 927614)
- Mullion cap baseplate (profile 135193, 135069)

Gaskets

- Sealant rank gasket (profile 190472)
- High thermal insulation sealant rank gasket (profile 4090083)
- Mullion gasket (profile 190280, 190281, 190282)
- High thermal insulation mullion gasket (profile 190283, 190284, 190285)
- Transom gaskets (profile 190286, 190287, 190288)
- High thermal insulation transom gaskets (profile 190289, 190290, 190291)
- Glazing gasket (profile 4010442)
- Outer sash gasket (profile 4020563, 4020564, 4020565)
- First centre sash gasket (profile 4020558, 4020559)
- Second centre sash gasket (profile 4020560, 4020561)
- Inner stop sash gasket (profile 4010045)
- Compensating gasket (profile 4010412, 4010413, 4010414, 4010415, 4010416, 4010417, 4010437)

Thermal break profile

- Capped transom/mullion thermal break (profile 196059)
- Capped mullion/transom thermal break (profile 196061, 196062)
- Compensation mullion/transom thermal break (profile 196066, 196068, 196069)
- Gasket support profile (profile 4030213, 4030228)

- Profile for junction to structure (profile 4030247)

Transom cavity drainage

- Drainage part (part 192225, 192244, 192268)
- Drainage part for capped transoms (part 192241, 192242, 192245)

Adhesive spacer

When applying a structural sealant to a single glass pane which is thus not a part of an insulating glass unit, an adhesive spacer (silicone profile 190232) is used to prohibit the flux of sealant outside the foreseen structural adhesion surface.

Adhesive spacer tape

When affixing the U-profile to the insulating glass unit, a closed-pore polyethylene copolymer foam adhesive spacer tape (profile 4090082) is used to temporarily keep the profile in place when inserting the structural sealant silicone kit. This tape also prohibits direct contact between the aluminium and glass surfaces.

Iron work

- Parallel outward opening sash: brand Securistyle, type Parallel Plus-PX, maximum vent weight 55 kg per hinge cross (vertical mounted)
- Top hung sash with friction stays: brand Securistyle, type SPT 10, maximum vent weight 40 kg
- Top hung sash with friction stays: brand Securistyle, type SPT 12, maximum vent weight 50 kg
- Top hung sash with friction stays: brand Securistyle, type SPT H16, maximum vent weight 100 kg
- Top hung sash with friction stays: brand Securistyle, type SPT 22, maximum vent weight 100 kg
- Top hung sash with friction stays: brand Securistyle, type SPT 22W, maximum vent weight 100 kg
- Top hung sash with friction stays: brand Securistyle, type SPT 26, maximum vent weight 180 kg
- Top hung sash with friction stays: brand WICONA; type SK1-40, maximum vent weight 40 kg
- Top hung sash with friction stays: brand WICONA; type SK2-50, maximum vent weight 50 kg

- Top hung sash with friction stays: brand WICONA; type SK3-65, maximum vent weight 65 kg
- Top hung sash with friction stays: brand WICONA; type SK3-100, maximum vent weight 100 kg
- Top hung sash with friction stays: brand WICONA; type SK3-150, maximum vent weight 150 kg
- Top hung sash with friction stays: brand WICONA; type SK4-100, maximum vent weight 100 kg
- Top hung sash with friction stays: brand WICONA; type SK5-180, maximum vent weight 180 kg

Setting blocks

The glazing dead load is transferred by setting blocks with suitable hardness and compatible with the sealants in table 1.

The setting blocks are identified as parts 4020566 and 4020567.

2.1.1.10. Cleaning products for the adhesive surface

The cleaning products used for cleaning of the adhesive surface, should be those recommended by the sealant suppliers. The processing instructions of the adhesive suppliers must also be respected. This information can be found in the applicable ETA enumerated in table 1.

2.2. Methods of verification

2.2.1. General

The assessment of the fitness for use of the structural sealant for the intended use in relation to the requirement for safety in case of fire, hygiene, health and environmental safety in use, protection against noise, energy economy and heat retention, in the sense of Essential Requirements 2 to 6 has been made in accordance with the "Guideline for European Technical Approval for Structural Glazing Kits, the ETAG 002.

Except the characteristics of the bonding itself, most of the performances cannot be determined as they are applicable not only to the glazing frame alone. However, the performances of the assembled façade shall be determined according to EN 13830.

2.2.2. Safety in case of fire (ER2)

Reaction to fire: (No tests performed) Structural sealant glazing system: Class F product according EC decision 94/611/EC

Resistance to fire: no resistance to fire claimed

2.2.3. Hygiene, Health and the environment (ER3)

Air permeability: Class AE according to EN 12152

Water tightness: Class RE 750 according to EN 12154

No dampness due to water penetration or due to condensation appears at any position not designed to be subjected to the prolonged effects of liquid water.

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

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 EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

2.2.4. Safety in use (ER4)

2.2.4.1. General

Stability of the elements and their anchorage on the structure is demonstrated. The following aspects have been particularly considered:

- Self-weight
- Wind
- Temperature
- Climatic conditions.

2.2.4.2. Verification of 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 stresses exceeding $0,14 \text{ N/mm}^2$ perpendicular to the adhesion surface. Compared to a continuous load, the internal forces and moments in the structural bond are to be multiplied by a factor $\gamma_{\text{sys}} = 3.0$. The shear deformation of the seam due to temperature differences of $\Delta T = 35 \text{ K}$ shall be smaller than 23.4 %.

Design of the structural bond has to be carried out in accordance with the regulations of the Member States, in which the infill will be used. The Member State may thereby refer to the design recommendations in ETAG 002.

2.2.4.3. Verification of the double insulating glass

The verification of the stability of the panels shall be made under the actions mentioned in section 2.2.4.1 according to the rules of the responsible member state.

2.2.4.4. Verification of support

The support according to Annex 8 is designed for a permissible self-weight loading of the fixed field infill element of up to 2851 N with a safety factor of 1,25 or greater.

The support according to Annex 13 is designed for a permissible self-weight loading of the sash infill element of up to 919 N with a safety factor of 1,25 or greater.

2.2.4.5. Deflection of the frames

The deflection of the framing profiles supporting the glass pane shall not exceed – in the area of the pane edge – $1/300$ of the concerned edge length, additionally for insulating glass unit glass pane edges the deflection shall not exceed 12 mm. The deflection of the glass panel in the centre of the pane in case of service load shall not exceed $1/100$ of the smallest support edge of the glass pane.

2.2.4.6. Verification of retaining device (fixing)

The retaining device shall be locked into the infill elements retaining profile at a distance from the infill corner of not more than 225 mm and with a distance between retaining devices of not more than 500 mm.

The admissible load bearing capacity of a retaining device with anchoring bolt according to (see annex 8) is determined to be 1900 N with a safety factor greater than 2.

2.2.4.7. Sill heights

Sill heights can be adapted to any required height.

The regulations in the Member States, in which the structural sealant glazing kit is used, shall be observed.

2.2.4.8. Impact resistance

In the context of issuing this ETA, the verification of impact of the structure was performed and classified to I5/E5 according to EN 14019.

The regulations concerning barrier against falling through in the Member States, in which the structural sealant glazing kit is used, shall be observed.

2.2.4.9. Wind resistance

The design load (Service Limit State characteristic wind load for serviceability, EN 13116) is 2000 N/m² (positive and negative loads) for the facade construction. The wind load safety (Ultimate Limit State, EN 13116) is 3000 N/m² (positive and negative loads) for the facade construction.

Opening parts are classified as C4 (EN 12210).

The regulations in the Member States, in which the structural sealant glazing kit is used, shall be observed.

2.2.4.10. Behaviour in fire

No behaviour in fire performance claimed

The regulations in the Member States, in which the structural sealant glazing kit is used, shall be observed.

2.2.4.11. Flexural tensile strength

No characteristic value of the flexural tensile strength of the multi-pane insulating glass is claimed.

The regulations in the Member States, in which the structural sealant glazing kit is used, shall be observed.

2.2.5. Protection against noise (ER5)

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

2.2.6. Energy economy and heat retention (ER6)

The U_f values are calculated according to EN ISO 10077-2.

Table 4: U_f values of typical sections

	U_f W/(m ² × K)
fixed element (135002) + standard sealing joint backer (190472)	2,3
fixed element (135002) + high insulation sealing joint backer (4090083)	1,5
fixed element (135002) + opening part (4010071) + standard sealing joint backer (190472)	2,0
fixed element (135002) + opening part (4010071) + high insulation sealing joint backer (4090083)	1,6

For the structure verification regarding energy economy and heat retention, the regulations of the Members States apply.

3. Evaluation and attestation of conformity and CE marking

3.1. Systems of attestation of conformity

System 1 (**without audit** testing of samples) for SSG kits types II and IV

System 2+ for SSG kits types I and III

3.1.1. System 1 (for type II)

a) Tasks for the manufacturer

- factory production control
- testing of samples taken at the factory by the manufacturer in accordance with a prescribed test plan

b) Tasks for the approved body

- initial type testing of the product
- initial inspection of the factory and of factory production control
- continuous surveillance, assessment and approval of the factory production control

3.1.2. System 2+ (for type I)

a) Tasks for the manufacturer

- initial type testing of the product
- factory production control
- testing of samples taken at the factory by the manufacturer in accordance with a prescribed test plan

b) Tasks for the approved body

- initial inspection of the factory and factory production control
- continuous surveillance, assessment and approval of the factory production control.

3.2. Responsibilities

The reference document is the NB-CPD/SG05/03/007 position paper of the sector group 5, approved in November 2003 by the Advisory Group.

3.2.1. Route to CE Marking

In the framework of this ETA for the Structural Sealant Glazing frame, the façade makers are identified as being façade makers type B or type C (see below). Two or three manufacturing actors are involved:

- **The kit designer** is responsible for the design of the kit and its components. He is the ETA-holder.
- **Façade makers:** Several manufacturers who are responsible for assembling the kit components produced by one or more suppliers (generally the kit designer, but possibly others (glass, sealant, etc.)) in accordance with the specifications of the kit designer. The façade makers put products on the market and have to obtain a European Commission (EC) certificate of conformity. The façade makers produce the metal frames, using the profiles supplied by the kit designer.
 - The **façade makers type B** have bonding equipment to perform the bonding work between the glazing product and the structural sealant support frame.
 - The **façade maker type C** has no bonding facilities. A third actor involved in the manufacturing process: the bonding workshop.
- The **bonding workshops** (structural sealant applicators) are subcontractors of the façade makers. The bonding workshops perform the bonding works. The bonding workshop's factory production control (FPC) system is an important part of the FPC system that is under the responsibility of the EC Certificate holder (the façade makers). The bonding workshop cannot be EC certificate holder by itself. The bonding workshop, prior to proceeding with bonding activities in the framework of CE-marking the kit, shall fulfil the requirements of the NB-CPD/SG05/03/007 position paper.

Bonding workshops are permitted to proceed with bonding activities in the framework of CE-marking the kit if they meet the requirements set out in NB-CPD/SG05/03/007 (§ 3.2 in particular), as documented in an assessment report, issued by an Approval body or a notified body.

3.2.2. Tasks for the manufacturer

The ETA holder is responsible for setting up suitable rules and instructions for façade makers and the bonding workshops (quality manual for kit assembly and bonding). The different actors are bound via contractual links with the ETA holder to respect the kit holder rules and instructions, which are an integral part of the FPC system.

The contractual links and their contents are described in the document GNB-CPD SG05 "Route to CE marking" (August 2003)

The manufacturers (ETA holder, façade maker and bonding workshop) have a factory production control system in their plant and exercise permanent internal control of production. All the elements and provisions adopted by the manufacturer are documented in a systematic manner in the form of written policies and procedures. The production control systems ensure that the product is in conformity with the ETA.

3.2.2.1. Tasks for the ETA holder

The controls performed by the ETA holder should include at least:

Check incoming materials:

Control of the profiles and accessories with the specifications,

Control of the suitability of each batch of anodised support profile with all the structural sealant claimed in the ETA.

Determination of the characteristic value of the flexural tensile strength of the multi-pane insulating glass, if such indication is required by regulations in the Member State.

3.2.2.2. Tasks for the façade maker

The controls performed by the façade maker should include at least:

Check incoming materials (framing profiles, glass products with control file from IGU supplier, sealants, gaskets, hardware) and their CE marking where applicable

Control of the production in accordance with the ETA specification and the kit designer instructions

The faced maker gives all necessary information to the bonding workshop.

3.2.2.3. Tasks for the bonding workshop

The factory production control includes at least the controls defined in table 10 – ETAG 002

3.2.3. Initial Type Testing (ITT): Tasks for the ETA holder or the approved body

For initial type testing, the results of the tests performed as part of the assessment for the European Technical Approval shall be used unless there are changes in the production line or plant. In such cases, the necessary initial type testing has to be agreed upon between the Belgian Building and Research Institute (BBRI) and the notified body involved.

For system 1, this work is validated, for purposes of Certificate of Conformity by the approved body.

For System 2+, the ETA holder should take over the work for purposes of Declaration of Conformity.

3.2.4. Tasks for the approved body

3.2.4.1. Identifying the manufacturing routes and the manufacturing plans

The notified body shall verify and assess that:

- All the manufacturing actors in question in 3.2.1 are identified for each manufacturing steps.
- The respective responsibilities are determined in the required contractual links.
- The identification allows the possibility to trace of productions covered by the present ETA.

The Certificate holder is responsible for enabling the notified body to keep its information up to date.

3.2.4.2. Assessment of the factory production control system: Initial inspection only or initial inspection and continuous surveillance.

Assessment of the FPC is the responsibility of an approved body.

An assessment must be carried out on the required manufacturing steps of each manufacturing plant to demonstrate that the factory production control is in conformity with the ETA and any subsidiary information. The assessment is based on an initial inspection and/or on analysis of the relevant document of the different manufacturing actor's plants (Kit designer; façadier(-s) and bonding workshops.)

Subsequently, continuous surveillance of the factory production control is necessary to ensure continuing conformity with the ETA. This continuous surveillance is to be in conformity with ETAG 002 SSG chapter 8.3 Documentation at each identified manufacturing plant.

3.2.4.3. Certification

The approved body will issue:

Certificate of Conformity of the product for **system 1**

Certificate of Factory Production Control for **system 2+**


3.3. CE Marking

3.3.1. General

The CE marking shall be affixed on each structural seal support frame or on accompanying document. The symbol "CE" shall be accompanied by the following information:

- Identification number of the certification body
- Name of identifying mark of the façadier and manufacturing plant
- The last two digits of the year in which the CE marking was affixed.
- "ETAG 002 Structural Sealant Glazing Kit"
- Number of the European Technical Approval
- Number of the EC certificate of conformity
- Identification of the product (name of product)

3.3.2. Example

 XXXX	"CE" - Symbol Number of Notified Body
Any Company Any address 11 XXXX-CPD-YYY	Name and address of the manufacturer of his representative established in the EEA and of the plant where the product was manufactured Two last digits of the year of affixing CE Marking Number of EC certificate of conformity (where relevant)
ETA N° 11/0042 ETAG 002 Structural Sealant Glazing Kit Type I & II	ETA Number ETAG Reference Relevant performance characteristics and / or designation code

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

4.1. Manufacturing

The European technical approval is issued for the kit on the basis of agreed data / information deposited with Belgian Building and Research Institute (BBRI) 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 should be notified to Belgian Building and Research Institute before the changes are introduced. BBRI decides whether such changes do or do not affect the ETA and consequently the validity of the CE marking on the basis of the ETA and decides whether further assessment or alterations to the ETA shall be necessary.

The infill elements may only be manufactured in plants that are authorised by Hydro Building Systems for producing such infill units.

The surfaces to be sealed may only be prepared in conformity with the manufacturing directives (see section 2.1.1.10 Cleaning products for the adhesive surface).

The structural bond in the space between the glass and the aluminium u-profile shall be completely filled all around. Bubbles, voids or inclusions in the structural sealant are not permissible.

4.2. Installation and design rules

4.2.1. Structural seals design

The structural sealant is to be calculated as per annex 2 of ETAG 002 and according to national design rules with the design values given in section 2.1.8 respecting the following conditions:

Minimum dimensions of structural seal are $e \geq 6$ mm, $h_c \geq 6$ mm, $r \geq 6$ mm (ETAG 002, amended 2001, annex 2, figure A2)

4.2.2. Design rules for the frames

The frames are design following the specifications of EN 13830 and national provisions

4.2.3. Installation – Specification on the façade structure

The elements are to be bonded with respect to the provisions in the workshop manual of the company Hydro Building Systems GmbH, in a way that no restraints in the elements can occur. The installation shall be performed by trained personnel only, who have been trained for these works by the company Hydro Building Systems GmbH.

The applicant has to compile a complete list, indicating the installation place and installation date of the certified object. On request the list shall be presented to the Belgian Building and Research Institute.

4.2.4. Use, maintenance and repair

4.2.4.1. Repair

All damages noticed on the structural sealant system must be repaired as follows:

- Dismantling of the structural sealant unit
- Replacement by a new unit or
- Repair of the damaged unit in the workshop

4.2.4.2. Maintenance

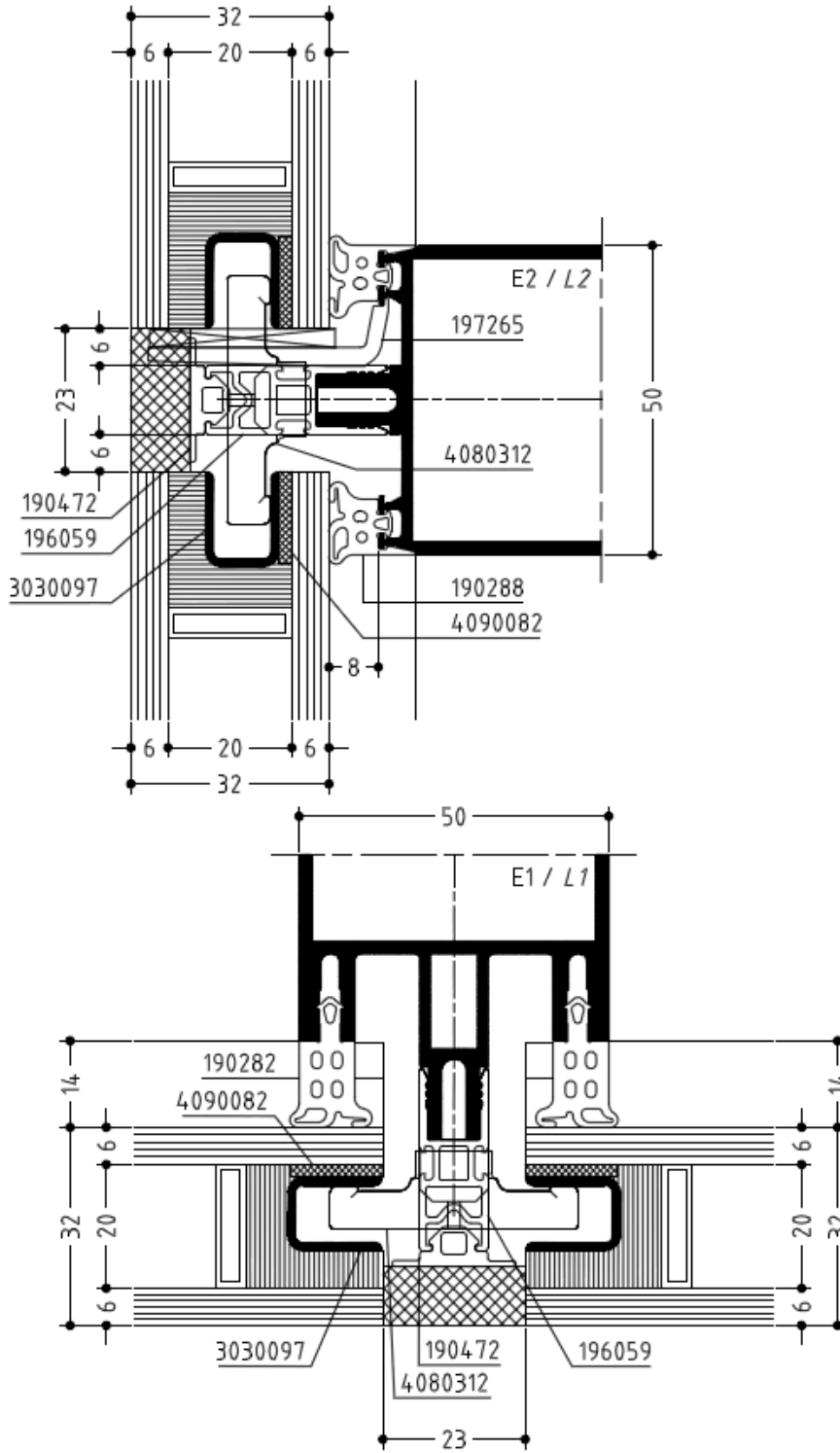
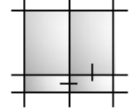
The cleaning of the façade shall be carried out only with water adding a maximum of 1% of surfactants without other chemical additions or other cleaning methods (e.g. steam pressure rays).

Other products may be used provided they are assessed for conformity to ETAG § 5.1.4.2.4 (façade cleaning products).

WICTEC 50SG

Festverglasung
Fixed glazing

Konstruktionsschnitt
Construction section



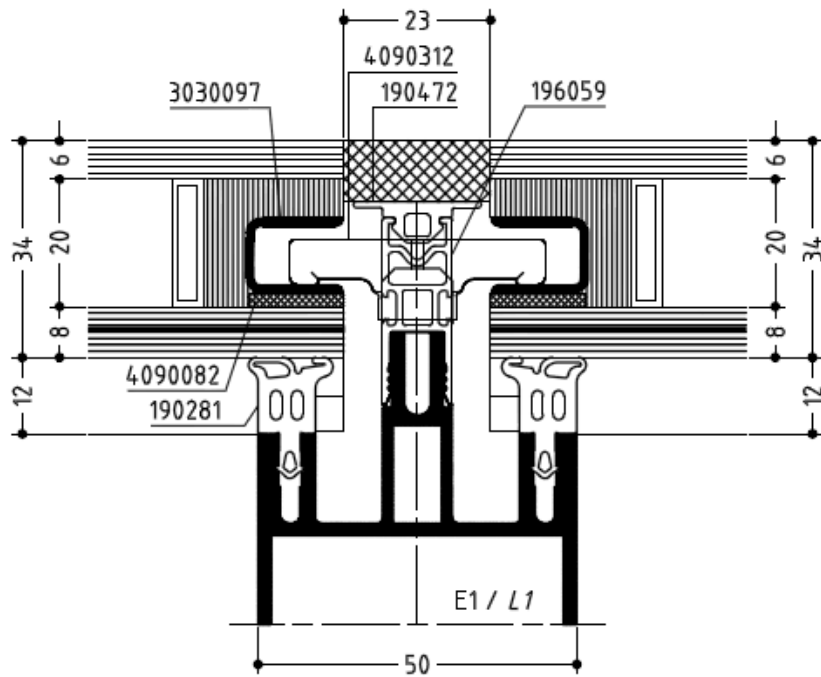
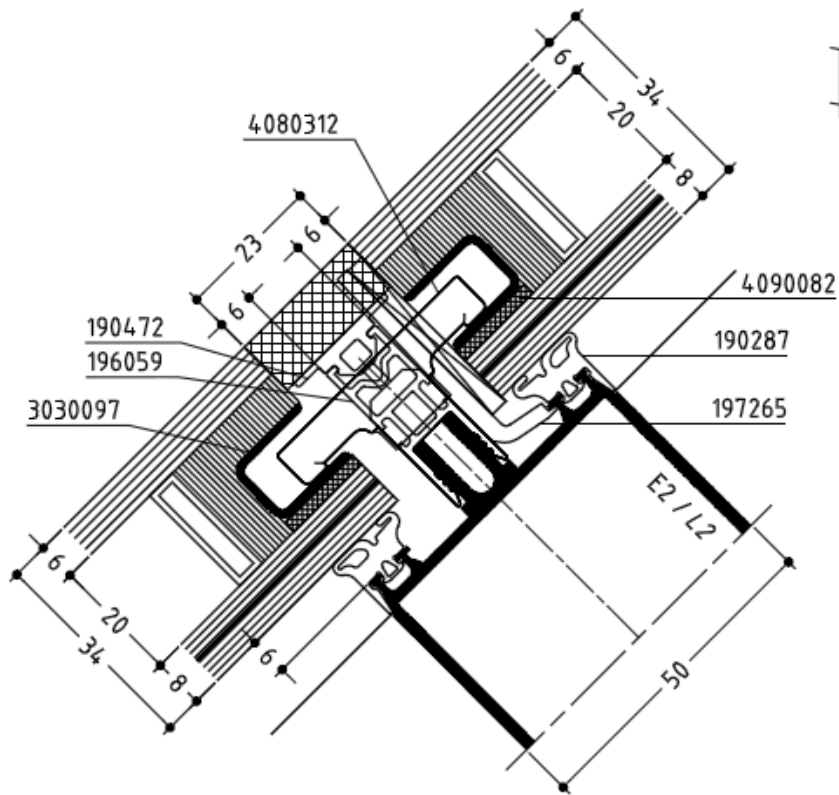
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DOC-0000704845

Annex 1

WICTEC 50SG

Dachschräge
Roof pitch

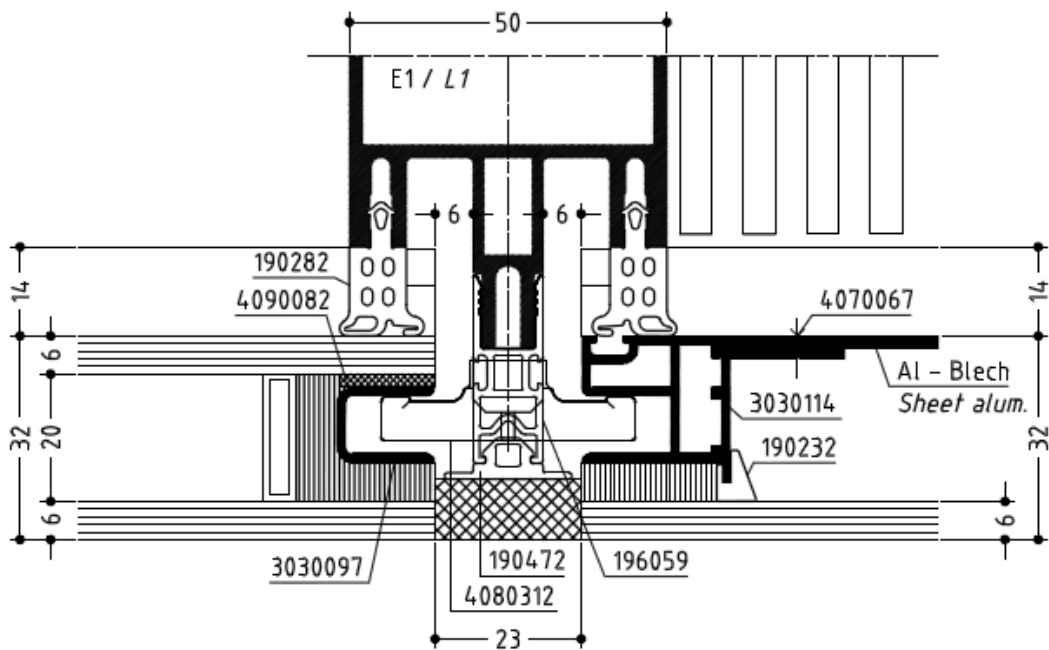
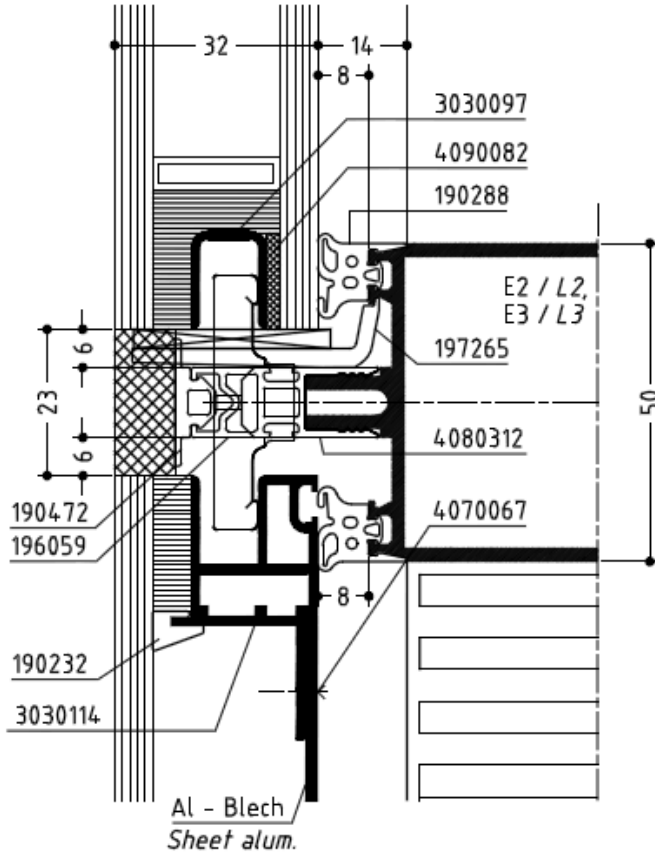
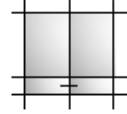
Konstruktionsschnitt
Construction section



WICTEC 50SG

Glaspaneel
Glass panel

Konstruktionsschnitt
Construction section



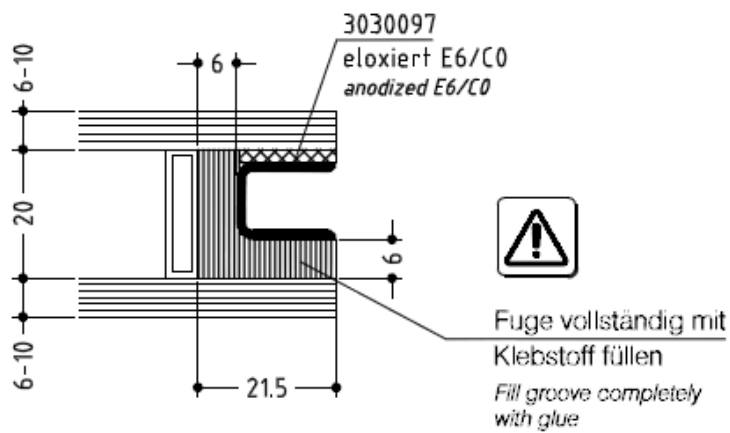
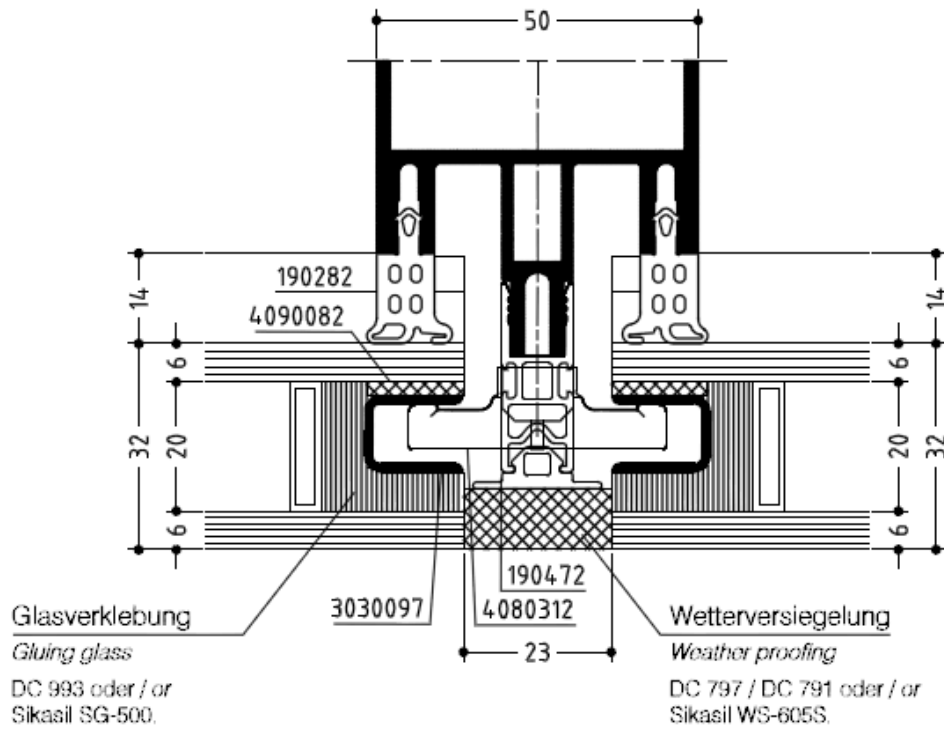
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DOC-0000704855

Annex 3

WICTEC 50SG

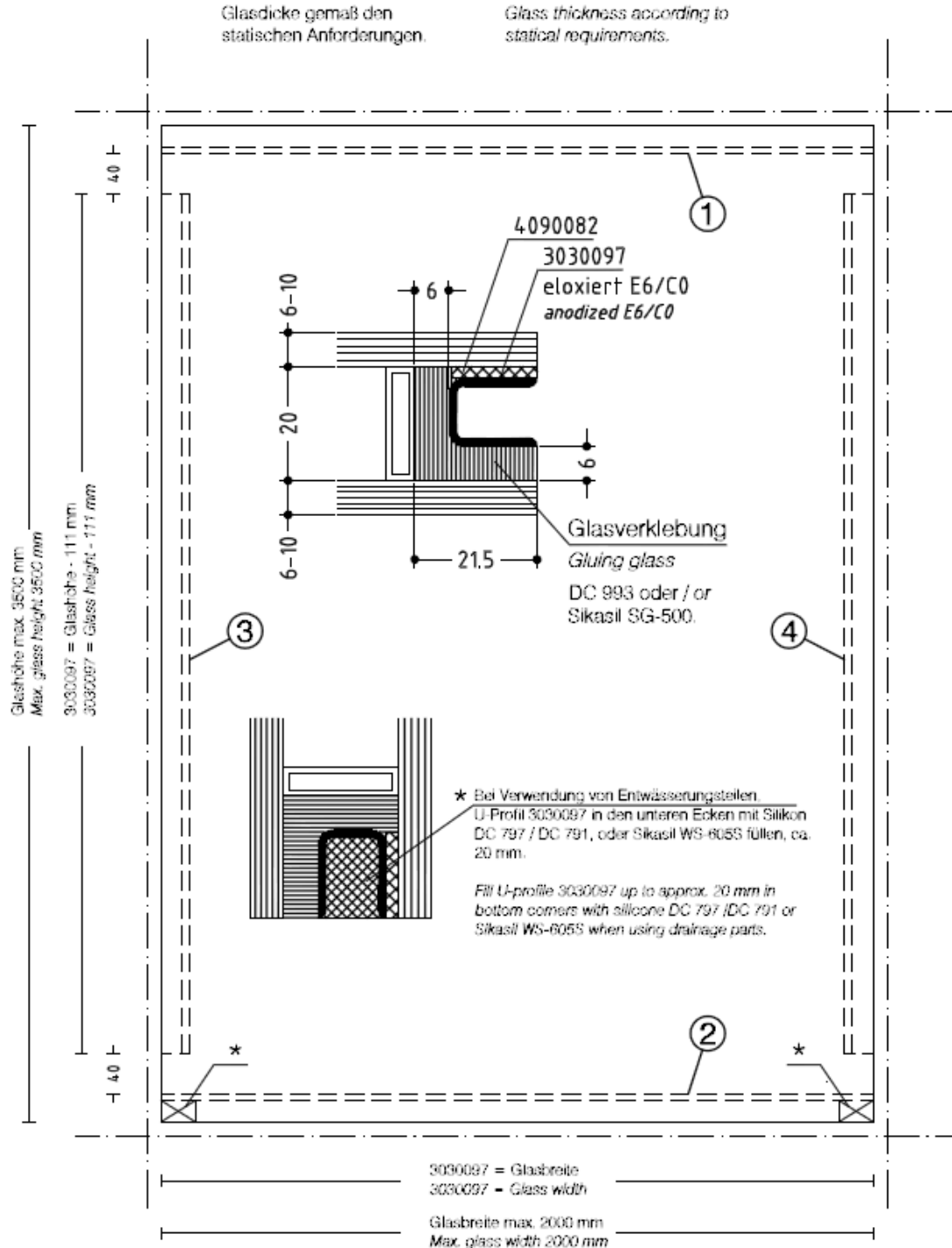
Verklebung
Gluing

Glaselement
Glass unit



WICTEC 50SG

Glaselement
Glass unit



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DOC-0000705374

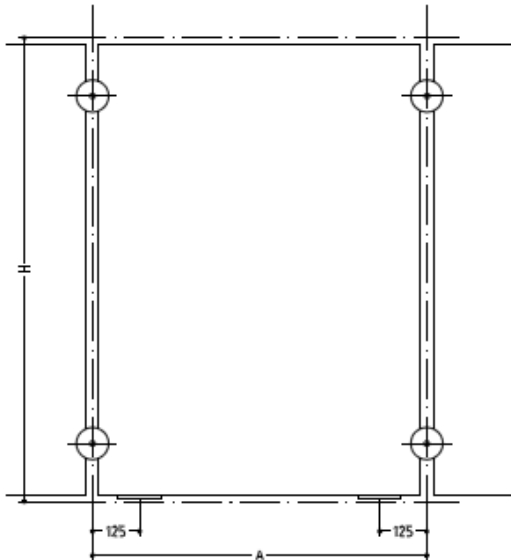
Annex 6

WICTEC 50SG = 1, 2, 3, 4
WICTEC 50SG = 1, 2
Semi-Fassade vertical
WICTEC 50SG = 3, 4
Semi-Fassade horizontal

WICTEC 50SG

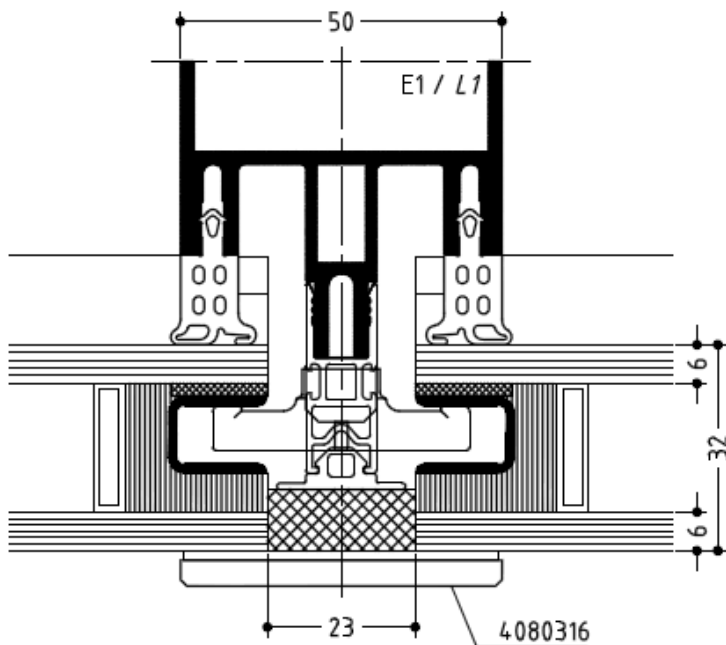
Glassicherung
Glassafeguard

Technische Information
Technical Information



Anzahl der Glassicherung
entsprechend den Anforderungen
 $F_{zul.} = 1600 \text{ N/Glassicherung}$

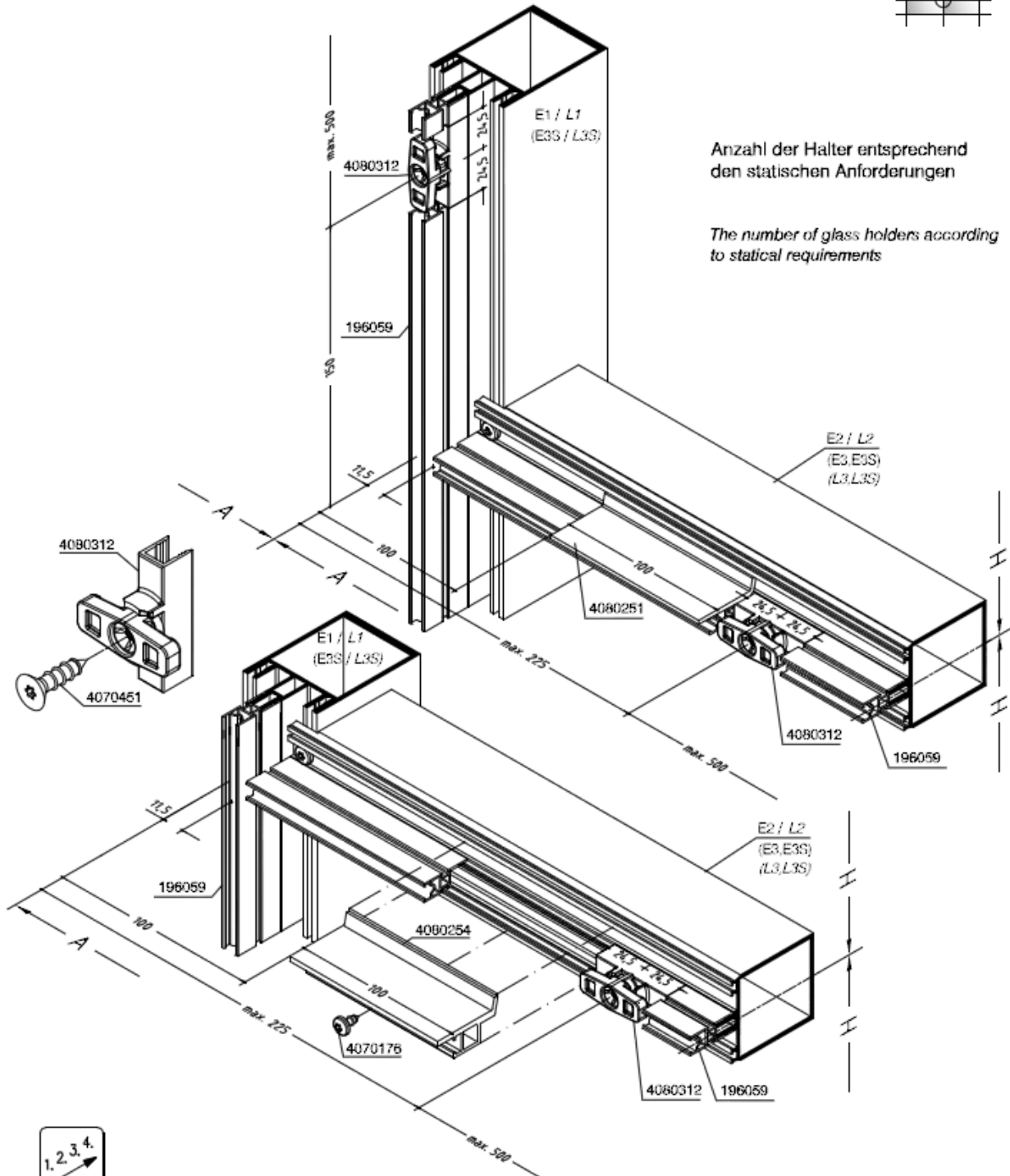
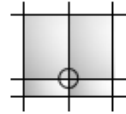
*The number of glass safeguards
according to requirements
 $F_{adm.} = 1600 \text{ N/ per safeguard}$*



WICTEC 50SG

Einbau Vorklotz und Glashalter
Assembly of glazing shim and glass holder

Konstruktionspunkt
Construction point



Anzahl der Halter entsprechend
 den statischen Anforderungen

*The number of glass holders according
 to static requirements*



- Montage Halter 4080312.
- Zuschnitt Dämmleiste 196059.
- Montage Vorklotz 4080251.
- *Mounting glass holder 4080312.*
- *Cutting thermal break profile 196059.*
- *Mounting glazing shim 4080251.*

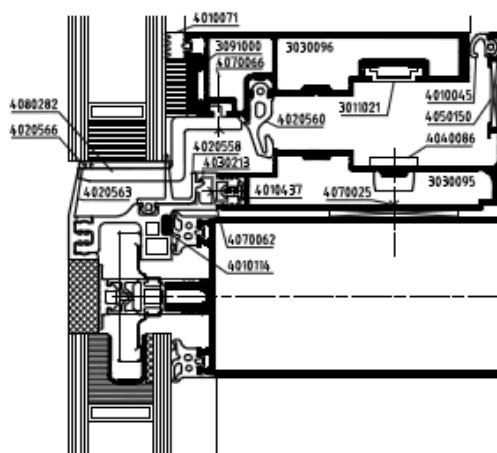
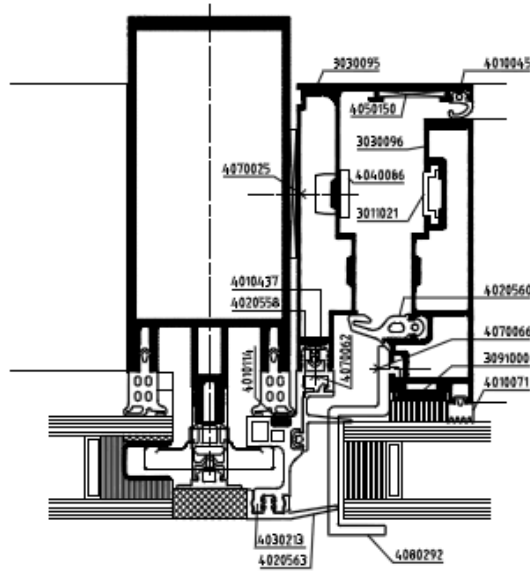
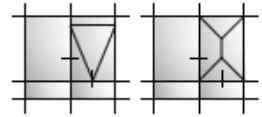
WICONA® SEC-000036782 REV. A 25.05.2010
 DOC-0000705321

Annex 8

WICLINE 90SG

in WICTEC 50SG
in WICTEC 50SG

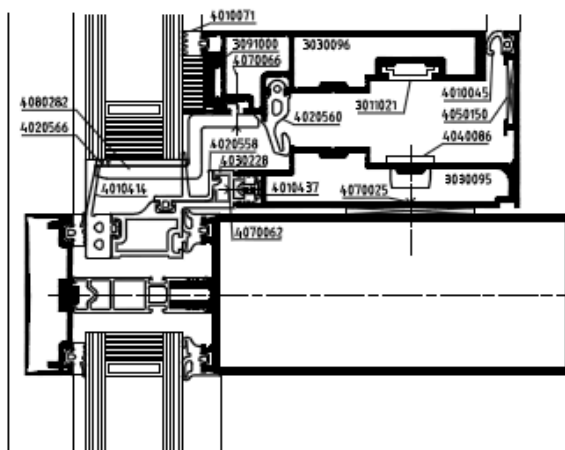
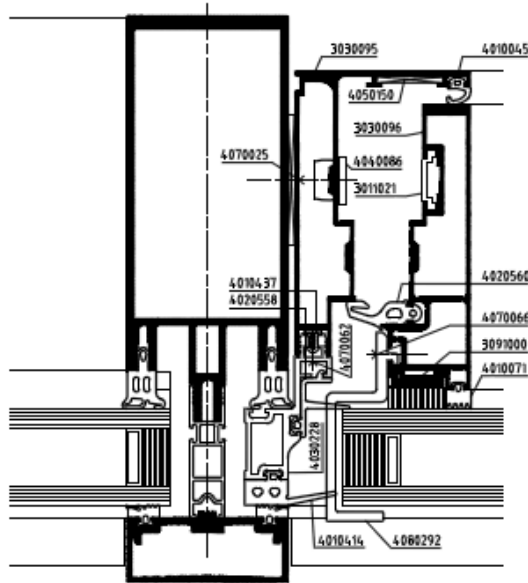
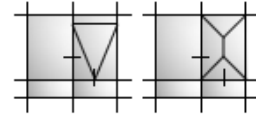
Konstruktionsschnitt
Construction section



WICLINE 90SG

in WICTEC 50
in WICTEC 50

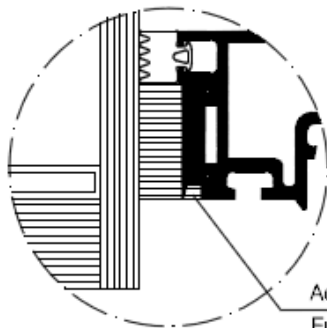
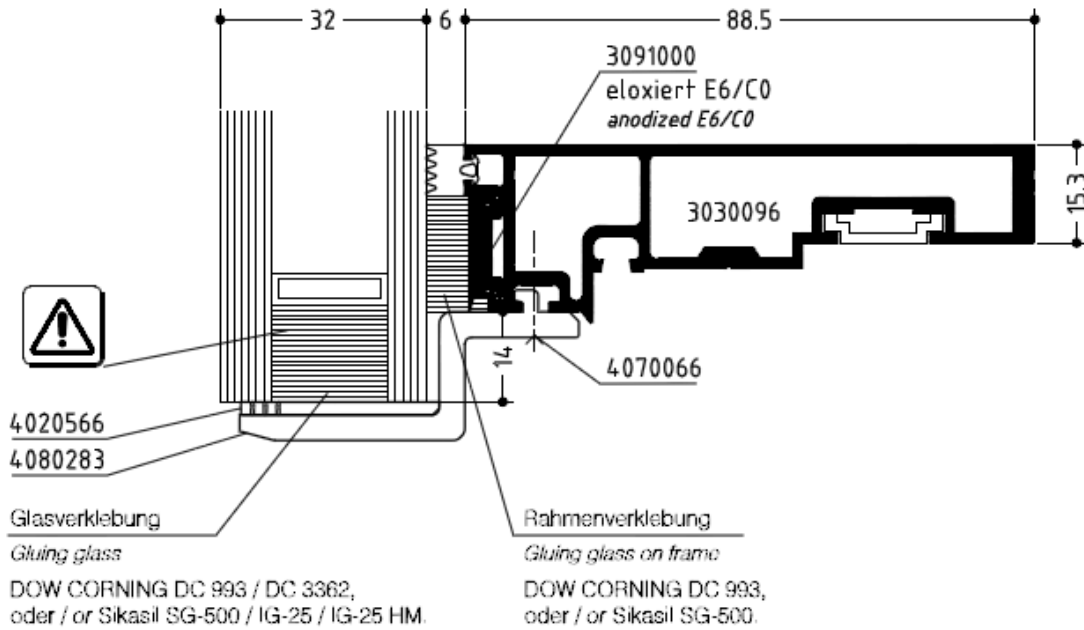
Konstruktionsschnitt
Construction section



WICLINE 90SG

Verklebung / Gluing

Glaselement
Glass unit

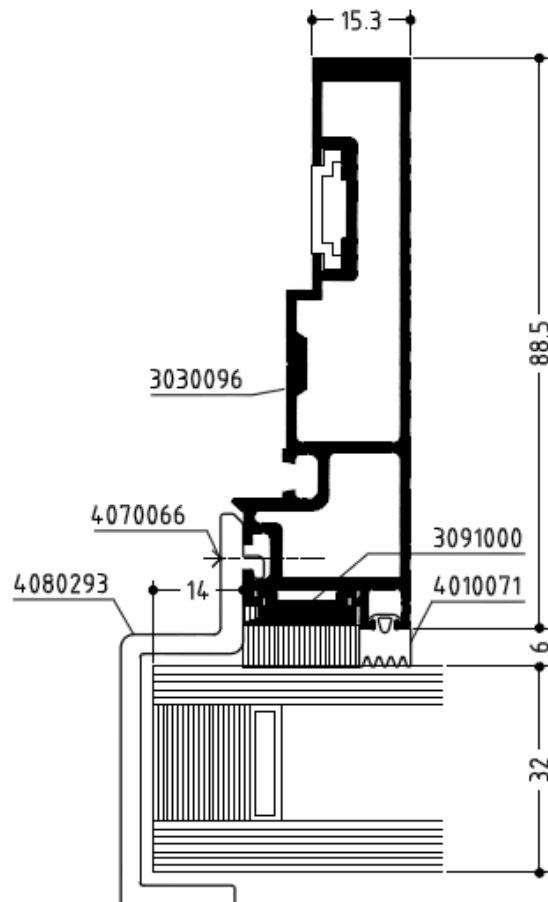


Achtung!
Fuge versiegeln
Attention!
Seal groove

Vorklotz und Sicherungshalter nach dem Verkleben sofort wieder einbauen!
Mount glazing shim and safety glass holder immediately after gluing!



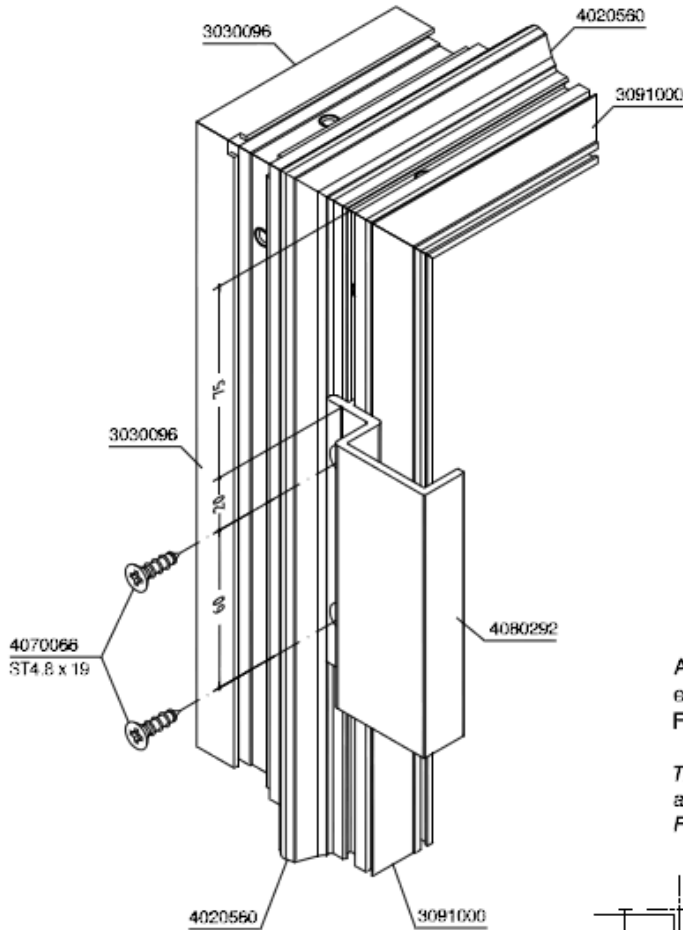
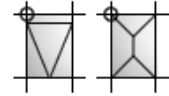
Die Fugendimensionierung erfolgt durch den Isolierglashersteller.
The dimensioning of groove is done by the insulation glass manufacturer.



WICLINE 90SG

Glassicherung / Glassafeguard

Konstruktionspunkt
Construction point



Bohren
24.2 mm
Drilling

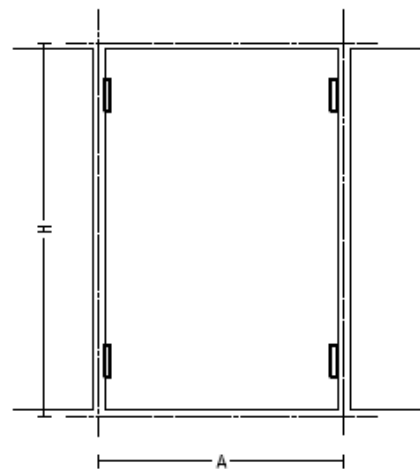


Anzahl der Glassicherung
entsprechend den Anforderungen
Fzul. in z Richtung = 1200 N

*The number of glass safeguards
according to requirements
Fadm. in z direction = 1200 N*

Blendrahmendichtung, im Bereich
der Glassicherung einschneiden.

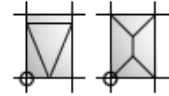
*Cut frame gasket, in the
area of glass safeguard.*



WICLINE 90SG

Montage Vorklotz / *Mounting glazing shim*

Konstruktionspunkt
Construction point



Bohren
Ø4,2 mm
Drilling



Vor montieren des Vorklotzes,
Silikonvorklotz 4020566 auf-
kleben und auf entsprechendes
Maß kürzen.

*Glue silicone shim 4020566
on aluminum glazing shim
and shorten to the appropriate
dimension prior to mounting.*

