



European Technical Assessment

ETA 09/0229
of 27/04/2015

GENERAL PART

Technical Assessment Body issuing the ETE :

CSTB (Centre Scientifique et Technique du Bâtiment)

Trade name of the construction product

VEC TANAGRA

Product family to which the construction product belongs

Structural sealant glazing kits

Manufacturer

PROFILS SYSTEMES
10, rue Alfred Sauvy
34670 BAILLARGUES

Manufacturing plant(s)

PROFILS SYSTEMES
10, rue Alfred Sauvy
34670 BAILLARGUES

This European Technical Assessment contains

30 pages including 20 pages of Annexes which form an integral part of this assessment.

Annex(es) contain(s) confidential information and is/are not included in the European Technical Assessment when that assessment is publicly disseminated

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

ETAG 002, edition 2000, used as European Assessment Document (EAD)

This ETA replaces

ETA 09/0229, issued on 18/11/2009

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SPECIFIC PART

1. Technical description of the product

Structural sealant glazing frame on which the glazing units are bonded all along the perimeter with a structural sealant and which constitutes infills for facade or glazing roof.

The frames are presented in two configurations with or without an aluminium edge.

1.1. Components of the kit

1.1.1 Structural sealants

Table 1 – Properties and characteristics of the sealants (with reference to their specific ETA)

		Structural sealant type		Outer edge seal	
		DC 993	TREMCO SG 490 (VEC 90)	DC 3362	IG 25 HM
ETA N°		01/0005	05/0005	03/0003	05/0201
Design stress in tension	σ_{des} (MPa)	0,14	0,14	0,14	0,14
Design stress in dynamic shear	τ_{des} (MPa)	0,11	0,075	0,11	0,083
Design stress in static shear	τ_{∞} (MPa)	0,011	0,007	—	—
Elastic modulus in tension or compression tangential to the origin	E_0 (MPa)	1,4	1,51	2,4	2,58
Elastic modulus in shear tangential to the original	G_0 (MPa)	0,47	0,50	0,80	0,86
Working time (at 25 °C, 50 % RH)	(Minutes)	10 to 30	6 (*)	10	50
Skin over time (at 25 °C 50 % RH)	(Minutes)	—	6 (*)	—	—
Tack-free time (at 25 °C, 50 % RH)	(Minutes)	80 to 100	20 (*)	30 to 45	180 to 240
Time before transport: The minimum time before transport is normally	(Days)	10	10	—	3
Water vapour permeability (g/m ²)	—	—	—	30 g/m ² .d for 1,5 mm thickness	18,6 g/m ²
Gas leakage rate (EN 1279-3)	—	—	—	9,9 x 10 ⁻³ .a ⁻¹ (**)	0,38 – 0,54 %.a ⁻¹
* at 23 °C and 50 % R.H.					
** This value can only be determined on actual edge seal design and variable from edge seal design to edge seal design					

Suitable substrates for structural sealant bonding

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

- The float glass conform to EN 572 Glass in Building – Basic Products – Part 1, 2, 4, 5 and the thermally treated glass made from, conform to:
 - EN 1863 Glass in building – Heat strengthened glass.
 - EN 12150 Glass in building – Thermally toughened safety glass.
- The coated glass is possible if the coating complies with the requirements of the ETAG 002 § 5.2.3.3. If not, it must be totally removed from the structural adhesion surface.

The suitable coated glass substrates are identified in the relevant ETA for structural glazing sealants (see table 1), further coatings may be added when they have been shown to be suitable in SSG Kits, following the rules mentioned in the ETAG 002, 5.2.3.3 (coated glass).

Note: Opacified glass with resin must not be considered as suitable structural seal adhesion surface.

1.1.2 *Structural sealant support frame (figure 1 to 14)*

Framing profile: Glazing profiles.
 Fixed frame.
 Fixed outer frame.
 Opening light profile.

The structural sealant support frame is made aluminum alloy conform to 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	

Table 3 – Anodising characteristics of the structural sealant adhesion surface

Characteristics	Method	Criteria EOTA	Nominated value
Thickness	EOTA § 5.2.2.2.1.	Mean minimum thickness : 15 µm	15 µm
Sealing: Sealing degree Weight lost	EOTA § 5.2.2.2.2	EN 12373-6 : < 30 mg/dm ²	< 20 mg/dm ²
admittance à 1.000 Hz	EOTA § 5.2.2.2.2.	EN 12373-5 : < 20 µS	-
for a given thickness of 20 µm Stain test	EOTA § 5.2.2.2.2.	EN 12373-4 < 2 on Qualanod scale	≤1

The anodising of the structural adhesion surface profile ref. 017-330 is performed by the firm FRANCANO Industries SAS - Route de Pontaillier 21270 TALMAY (FRANCE).

The anodised aluminium profile has been assessed as suitable adhesion substitute for the bonding.

1.1.3 *Insulating glass unit*

The TANAGRA system is designed in such way that the IGU outer edge seal is not a structural edge seal.

The IGU is manufactured in accordance with EN 1279.

The structural outer edge seal is a silicone sealant conform to ETAG 002. The calculation of the section of the structural edge seal is performed in accordance with ETAG 002 annex 2.

For each project, the IGU-s manufacturer shall deliver a technical file to his client as described in ETAG 002 § 8.3.2.4. or a proof of recognized certification delivered by a third party and based on the same technical rules.

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

1.1.4 *Cleaning product*

The cleaning product that has to be used to clean the facade is the product EXTRAN 02 – MERK dilution 2% in volume (chemically compatible with the structural sealants).

Other products may be used provided they are assessed for conformity to ETAG 002 § 5.1.4.2.4.

1.1.5 *Retaining devices*

The retaining device are made of aluminium as per table 2: reference 007-578, 007-605, 007-609, 007-606, 007-607, 007-644, 007-651, 007-683.

Retaining devices are means of retaining the glass to reduce danger in the event of bonding failure.

The necessity of these accessories is to evaluate in function of the security specifications, of the situation of the building and of its working condition and the national regulation.

Those devices are calculable according to the standardised loading using conventional calculations based upon the strength of material.

1.1.6 Mechanical self-weight support

Support of the glass relies on the use of setting blocks, which transfer the glass dead load to the mechanical self-weight support.

The mechanical self-weight support devices are: reference 007-574, 007-624, 007-628, 007-631, 007-640, 007-654, 007-661, 007-684.

Those devices are designed to fulfilled the maximum deflection requirement of 0,5 mm (see § 5.1.4.3.1. ETAG 002).

Tableau 4 – Length of the mechanical self-weight devices – maximum load capacity

Dispositif mécanique de support de poids propre	Largeur (mm)	Longueur (mm)	Reprise de poids maximale (kg)
007-574	69,9	100	31
007-624	43	100	102
007-628	47	100	84
007-631	50	100	70
007-640	59	100	43
007-654	43	100	98
007-661	50	100	68
007-684	67,4	100	30

1.1.7 Accessories

- Internal finishing sealant

A silicone sealant is used for the internal finishing seal.

- Gasket

The gaskets are used to ensure the air and water tightness between edge glass and frame: reference 017.500, 017.501, 027.501.

Material: PVC.

- Adhesive spacer

Adhesive foam bead (or specific gasket) is used as backer rod to the structural sealant. It sets the limits of the structural seal and holds the glazing in place on the structural sealant support frame while injection and polymerisation of the structural sealant takes place.

Spacers
Norton V2100 origin TREMCO PROSYTEC Norton V2200 origin TREMCO PROSYTEC

- Setting and location blocks

The glazing dead load is transferred setting blocks: 007-557, 007-558, 007-559, by DATWYLER.

Characteristics of the setting block:

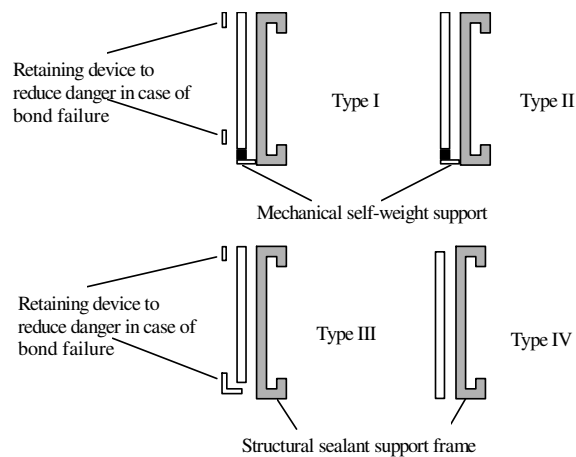
Material: EPDM hardness SHORE 65 length to be adapted as a function of load.

Thickness: 2 mm.

2. Intended use

Structural sealant glazing kit (SSGK) for use as infill for facade or glazing roof. The structural sealant support frame is anchored to the facade structure in order to form a curtain walling or glazing roof respectively. The facade structure is not a part of the present ETA.

The TANAGRA structural glazing system is type I or II as per ETAG 002 SSGK (see below).



The system is intended to be used in curtain walling or glazing roof for which essential requirements BWR2 Safety in case of fire, BWR3 Hygiene, health and environment, BWR4 Safety in use, BWR5 Protection against noise, BWR6 Energy economy and heat retention shall be fulfilled, and failure of the structural bond would cause risk to human life and/or considerable economic consequences.

The provisions made in this European Technical Approval are based on the assumed working life of the SSGK 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.

3. Methods of verification

The assessment of the fitness for use of the structural sealant for the intended use in relation to the requirements for safety in case of fire, safety in use, hygiene, health and environment, 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 Sealant Glazing Systems, the ETAG 002.

Except the characteristics of the bonding itself, most of the performances cannot be determined as they are not applicable to the only glazing frame. However the performance of the assembled facade shall be determined according to EN 13830 or EN 14351 for the opening parts.

3.1. Mechanical resistance and stability (BWR 1)

Not relevant.

3.2. Safety in case of fire (BWR 2)

Reaction to fire: (No performance determined). Structural sealant glazing system: Class F product according EC decision 2000/147/CE.

3.3. Hygiene, health and the environment (BWR 3)

Dangerous substances:

The manufacturer made a declaration of conformity to the Council Directive 76/769/EEC and its amendments.

In addition to the specific clauses relating to dangerous substances contained in this ETA, there may be other requirements applicable to the sealants (e.g. transposed European legislation and national laws, regulations and administrative provisions).

In order to meet the provisions of the EU Construction Product Directive, these requirements need also to be complied with, when and where they apply.

3.4. Safety and accessibility in use (BWR 4)

Sill height: The sill height can be adapted to any required height.

Wind resistance: Not applicable to the only glazing frame. For example sample frame H = 4950 mm x L = 4136 mm can resist a wind of increased pressure of 1800 Pa according to EN 13830.

3.5. Protection against noise (BWR 5)

Not relevant.

3.6. Energy economy and heat retention (BWR 6)

Determination of thermal insulation and susceptibility of condensation: by calculus method.

The calculation can be performed according to EN ISO 10077. As a function of the design and the glazing chosen for the SSGS kits, thermal modelling can be undertaken with various computer software packages. To use the results of these programs, it is necessary to ensure that they are at least two-dimensional and cover all the required parameters.

The commonly used values of the thermal conductivity (λ -value) of the materials used in the present SSGS kit are given in table 5 below.

Table 5 – Thermal conductivity (λ -value) of the components

Materials	λ -value (W/m.K)	Materials	λ -value (W/m.K)
Stainless steel	17	Silicone	0,35
Glass	1	Spacer PUR foam	0,078
EPDM	0,25	Aluminium	160

3.7. Sustainable use of natural resources (BWR 7)

For sustainable use of natural resources no performance was investigated for this product.

3.8. Durability

Durability of fitness for use of TANAGRA system is covered in the previous chapters, concretely in the section BWR 4 Safety and accessibility in use according to EN 13830.

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

According to Decision 96/580/EC (Decision of the Commission of 24 July 1996) published in the JOCE 254 of 8 October 1996 et modified by Decision 2001/596/EC (Decision of the Commission of 8 January 2001, L 209 of 2.8.2001, p. 33)¹, the systems of AVCP given in the following table apply :

Product	Intended use	System
Kit VEC	Kit Types II and IV	1
	Kit Types I and III	2+

The system has been described in the Regulation 305/2011 Annex V.

Tasks and responsibilities are described in annex 1.

¹ Decisions are published in the *Official Journal of the European Union (OJEU)*, see www.new.eur-lex.europa.eu/oj/direct-access.html.

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 at the CSTB.

The control plan is given in Annex 2.

Issued in Marne-la-Vallée

The original French version is signed by
Charles BALOCHE, Technical Manager of the CSTB

Responsibilities

In the framework of this ETA for the structural sealant glazing frame, the facade makers are identified as being facade makers type B or type C as defined in the document GNB-CPD SG05 "Route to CE-marking" August 2003. Two or three manufacturing actors are involved:

- **The kit designer:** responsible for the design of the kit and its components. He is the ETA-holder.
- **Facade 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 facade makers put products on the market and have to obtain an EC certificate of conformity. The facade makers produce the metal frames, using the profiles supplied by the kit designer.

The facade 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 is involved in the manufacturing process: the bonding workshop.

- **The bonding workshops (structural sealant appliers):** subcontractors of the facade makers performing the bonding works. The bonding workshop's FPC system is an important part of the FPC system that is under the responsibility of the EC Certificate holder (the facade makers). The bonding workshop cannot be EC certificate holder by itself. To make the obtention of the EC certificate by the facade maker easier, the bonding workshops can obtain a specific certificate of the conformity of their FPC systems with ETAG 002 § 8.3.2.4. from a notified body.

STRUCTURAL SEALANT	ANNEX 1 (1/4) of ETA-09/0229
Tasks and responsibilities	

1. Tasks of the manufacturer

The ETA holder of the kit is responsible for setting up suitable rules and instructions for facade makers and the bonding workshops (quality manual for kit assembling 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.

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

The manufacturer (ETA holder, facade 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.

1.1. Tasks of the ETA holder

The controls performed by the ETA holder include at least:

- Check on 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 sealants claimed in the ETA.

1.2. Tasks of the façade maker

The controls performed by the facade maker include at least :

- Check on incoming materials (framing profiles, glass products with control file from IGU supplier, sealants, gaskets, hardware).
- Control of the production in accordance to the ETA specification and the kit designer instructions.

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

1.3. Task of the bonding workshop

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

2. Task of the ETA holder or the approved body: Initial Type Testing

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 between the Centre Scientifique et Technique du Bâtiment and the notified body involved.

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

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

STRUCTURAL SEALANT	ANNEX 1 (2/4) of ETA-09/0229
Tasks and responsibilities	

3. Tasks of the approved body

3.1. Identifying the manufacturing routes and the manufacturing plans

The notified body shall verify and assess that:

- All the manufacturing actors in page 10 are identified for each manufacturing steps.
- Their respective responsibilities are determined in the required contractual links.
- The identification allows the traceability of all 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. 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. This assessment is based on an initial inspection and/or on analysis of the relevant document of the different manufacturing actors' plants (Kit designer; facadier (-s) and bonding workshops).

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

3.3. Certification

The approved body will issue Certificate(s) of Conformity of the product (for System 1) and Certificate (-s) of the Factory Production Control System (for System 2+).

STRUCTURAL SEALANT	ANNEX 1 (3/4) of ETA-09/0229
Tasks and responsibilities	

4. CE marking

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 facadier and manufacturing plant.
- The last two digits of the year in which the CE marking was affixed.
- “ETAG 002 Structural sealant glazing system”.
- Number of European Technical Approval.
- Number of the EC certificate of conformity.
- Indication of the type

STRUCTURAL SEALANT	ANNEX 1 (4/4) of ETA-02/0229
Tasks and responsibilities	

1. Manufacturing

1.1. Structural sealant support frames

The structural sealant support frame is manufactured by the façade makers according to the ETA designer rules and instructions.

The profiles are assembled by corners to screw and/or to crimp to form the structural sealant support frame:

- The dimensional tolerances on the structural sealant support frame are ± 1 mm.
- Principal operations:
 - Assembling of the structural sealant support frame profile.
 - Drilling and punching of the holes for ironwork, drainage and ventilation.
 - Setting the ironwork.

The fixed part are realised with the profile: 017-506, 017-508, 017-524, 017-531, 017-540, 017-556.

The opening lights are realised with the frame profile: 017-601, 017-681, 017-687, 418-246, 418-247.

1.2. Bonding of the glazing

This work is performed in a workshop heated and maintained free from dust.

The maximum storage duration of the sealants are:

- DC 3362, DC 993: 12 months after the fabrication date in its original unopened packaging, when stored below 30° C.
- TREMCO SG 490 (VEC 90): 18 months.
- IG 25 HM, 580: No information.

Principal stage of assembling:

- Cleaning of the structural sealant adhesion surfaces with the relevant cleaning agent and eventual application of primer as determined by the structural sealant manufacturer.
- Setting in place of the spacers.
- Setting in place of the glazing.
- Setting in place of the setting blocks.
- Extrusion of the structural sealant.

STRUCTURAL SEALANT	
Assumptions under which the fitness of the product(s) for the intended use was favourably assessed	ANNEX 2 (1/3) of ETA-09/0229

- Smoothing the sealants beads.
- Setting of the mechanical self-weight support (probably).
-

The frame is immediately set on a rack. The sealant curing is then allowed without any movement between the glass and the structural support frame during the time prescribed § 2.1.1.1.

2. Installation and design rules

2.1. Design rules

2.1.1. Structural seals design

The structural seal is to be calculated as per annex 2 of the ETAG 002 and according to national design rules with the design value given in the chapter 2.1.1 respecting the following conditions the minimum dimensions of the structural seal are $e \geq 6 \text{ mm}$, $hc \geq 6 \text{ mm}$, $r \geq 6 \text{ mm}$.

For the definition of e , hc , r , see ETAG 002 SSGS.

2.1.2. Drainage and ventilation

The drainage of the rabbet is performed by 2 holes $\varnothing 8 \text{ mm}$ in the low horizontal part of the structural sealant support frame.

The drainage of the rebate principle is shown in figure 9 in ANNEX 3 (9/14).

2.1.3. Weather sealing

The weather sealing is achieved with gasket.

2.1.4. Maximum dimensions

Maximum dimensions are determined as following:

- The bearing capacity of each hook for the fixed frames.
- The air and water tightness and wind performance of the structural glazing system, determined case by case following relevant standards.
- The results of tests following regulations of the opened structural sealant support frames according relevant standards.

2.1.5. Installation – Specifications on the façade structure

The facade structure shall comply with the specifications of EN 13830 and national set up rules.

STRUCTURAL SEALANT	ANNEX 2 (2/3) of ETA-09/0229
Assumptions under which the fitness of the product(s) for the intended use was favourably assessed	

2.1.6. Maintenance and repair

2.1.6.1. Repair

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

- dismantling of the structural sealant support frame,
- replacement by a new unit in reserve or,
- repair of the damaged unit in workshop following the procedure described in § 1.2 after removing of the structural sealant.

2.1.6.2. Maintenance

Current maintenance: cleaning up the glazing with clear water.

When necessary, the cleaning product EXTRAN 02 MERK diluted to 2 % in water can be used.

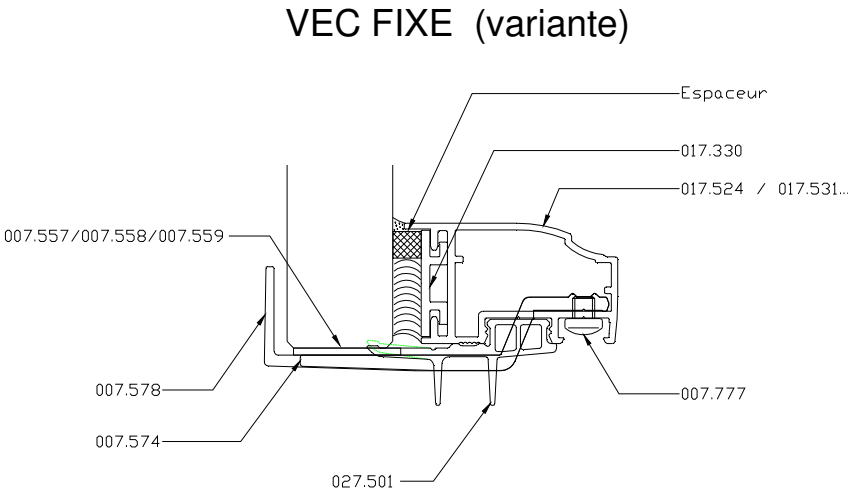
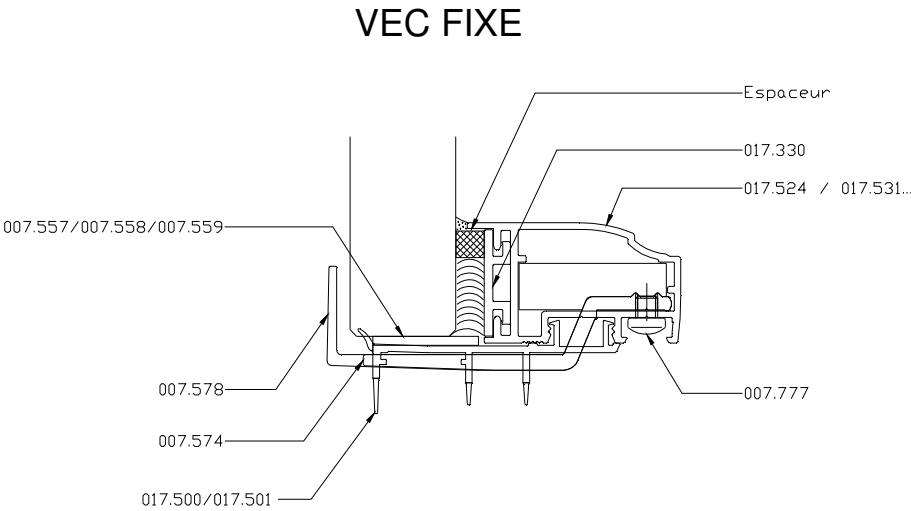
For any other cleaning product, the compatibility with the kit shall be assessed as required by the ETAG 002.

2.1.6.3. Responsibilities

It is the responsibility of the facade maker to conform to the here above-mentioned requirements and to affix the CE marking on their production.

STRUCTURAL SEALANT		ANNEX 2 (3/3) of ETA-09/0229
Assumptions under which the fitness of the product(s) for the intended use was favourably assessed		

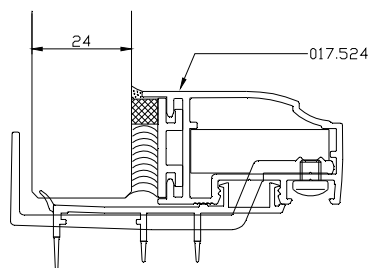
Figure 1



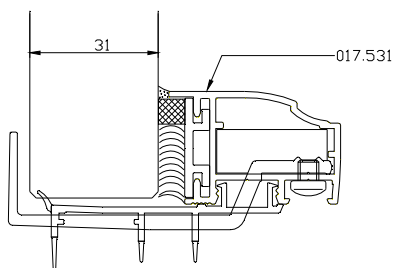
VEC TANAGRA

Fixed frame: vertical cross-section

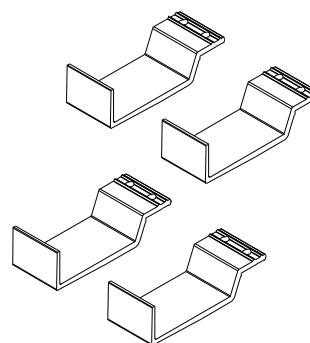
ANNEX 3 (1/14)
de l'ATE-09/0229



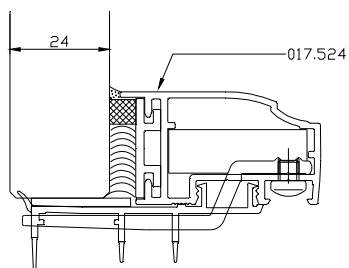
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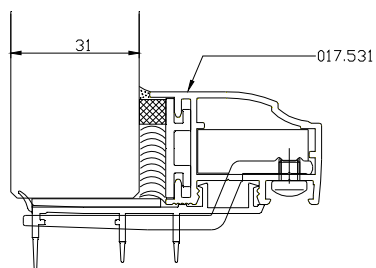
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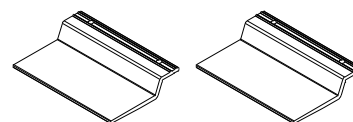
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PROFILE DE BASE 017-502
SUPPORT DE CALE 007-574



PROFILE DE BASE 017-502
SUPPORT DE CALE 007-574



SUPPORT DE CALE 007-574

Figure 2

VEC FIXE

VEC TANAGRA

Fixed frame: profiles, retaining devices and mechanical self-weight support (I)

ANNEX 3 (2/14)
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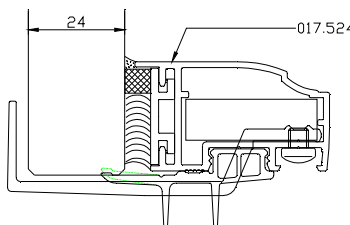
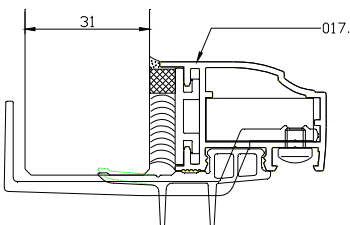
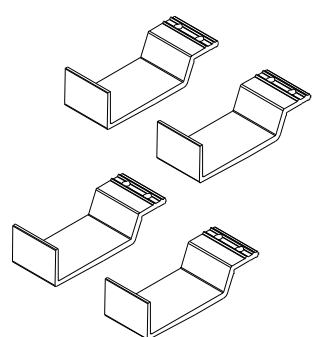
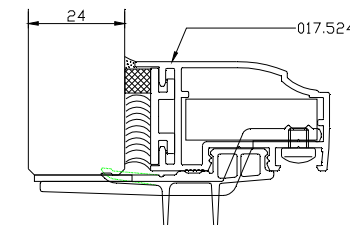
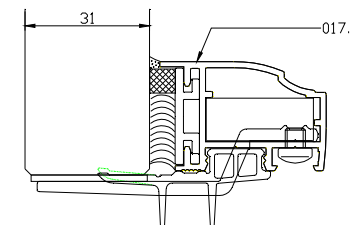
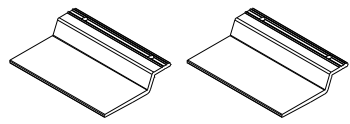
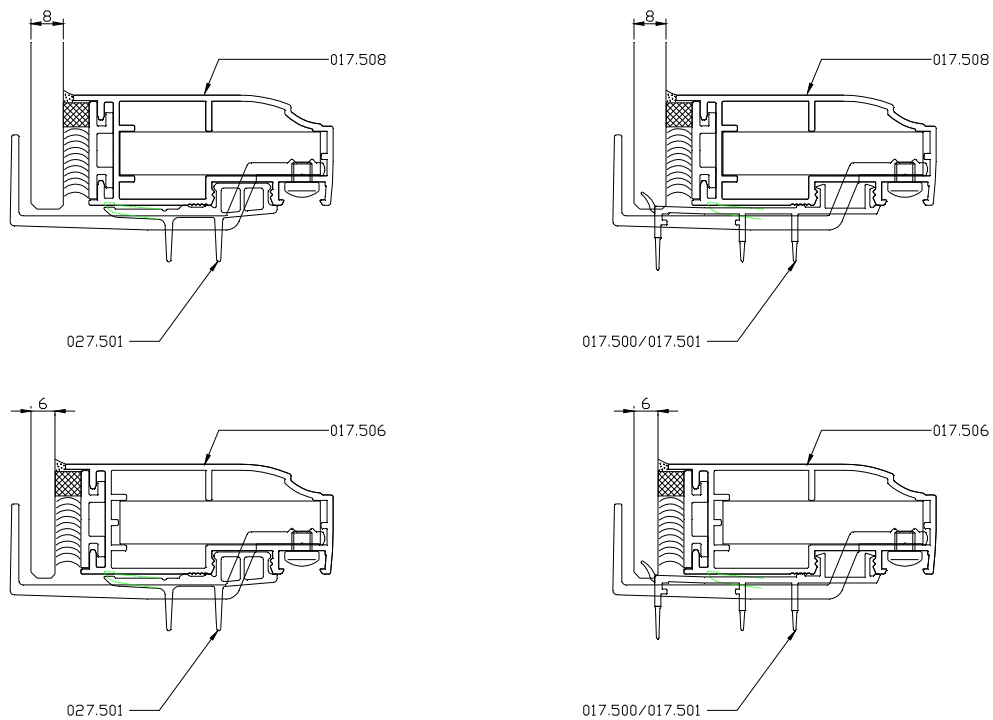
<div data-bbox="255 302 1404 1097"> <p style="text-align: right;">Figure 3</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>PROFILE DE BASE 017-578 ENS PIECE DE SECU 007-578</p> </div> <div style="text-align: center;">  <p>PROFILE DE BASE 017-578 ENS PIECE DE SECU 007-578</p> </div> </div> <div style="display: flex; justify-content: center; margin-top: 20px;">  <p style="margin-top: 10px;">ENS PIECE DE SECU 007-578</p> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;">  <p>PROFILE DE BASE 017-502 SUPPORT DE CALE 007-574</p> </div> <div style="text-align: center;">  <p>PROFILE DE BASE 017-502 SUPPORT DE CALE 007-574</p> </div> </div> <div style="display: flex; justify-content: center; margin-top: 20px;">  <p style="margin-top: 10px;">SUPPORT DE CALE 007-574</p> </div> <p style="text-align: right; margin-top: 20px;">VEC FIXE (variante)</p> </div>	
<p>VEC TANAGRA</p>	<p>ANNEX 3 (3/14) de l'ATE-09/0229</p>
<p>Fixed frame: profiles, retaining devices and mechanical self-weight support (II)</p>	

Figure 4



VEC FIXE

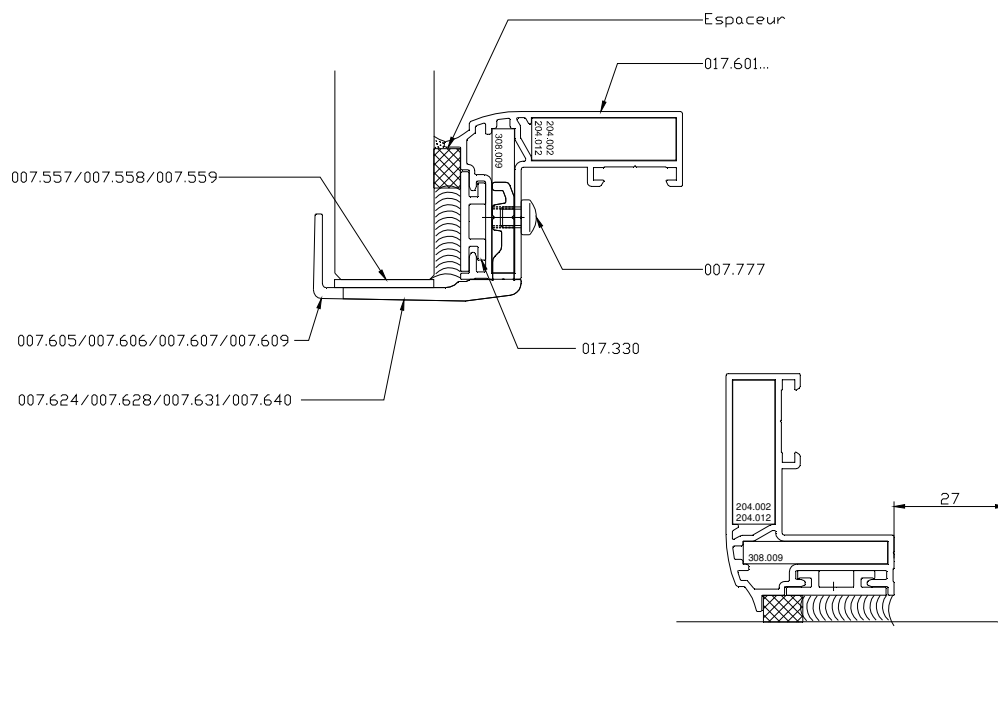
VEC TANAGRA

ANNEX 3 (4/14)
de l'ATE-09/0229

Fixed frame: bonding profiles for monolithic glass

ITALIENNE VEC GRILLE & TRAME HORIZONTALE

Figure 5



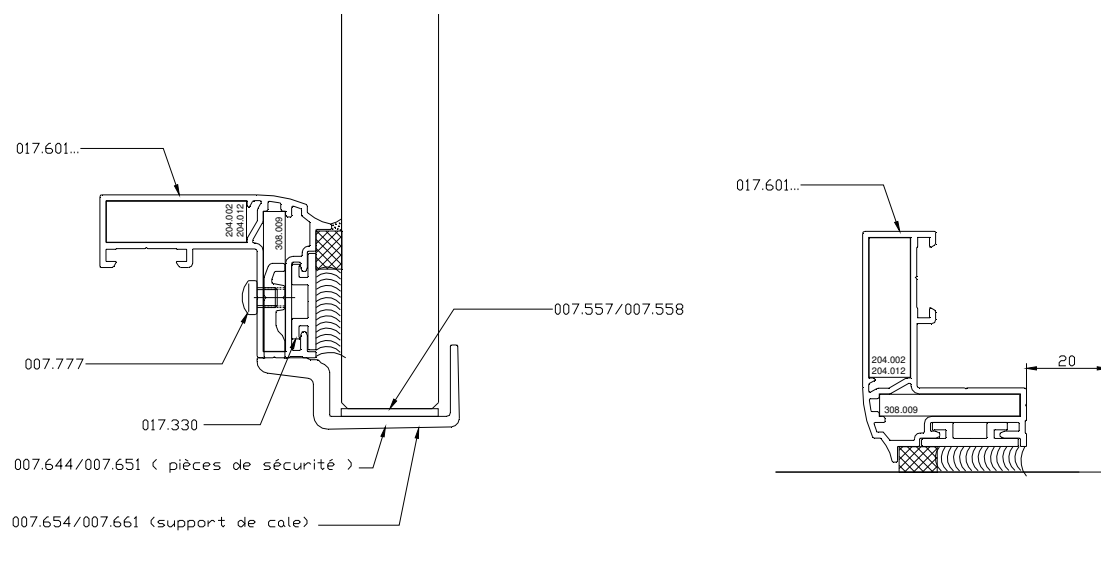
VEC TANAGRA

Awning window (I)

ANNEX 3 (5/14)
de l'ATE-09/0229

ITALIENNE VEC

Figure 6



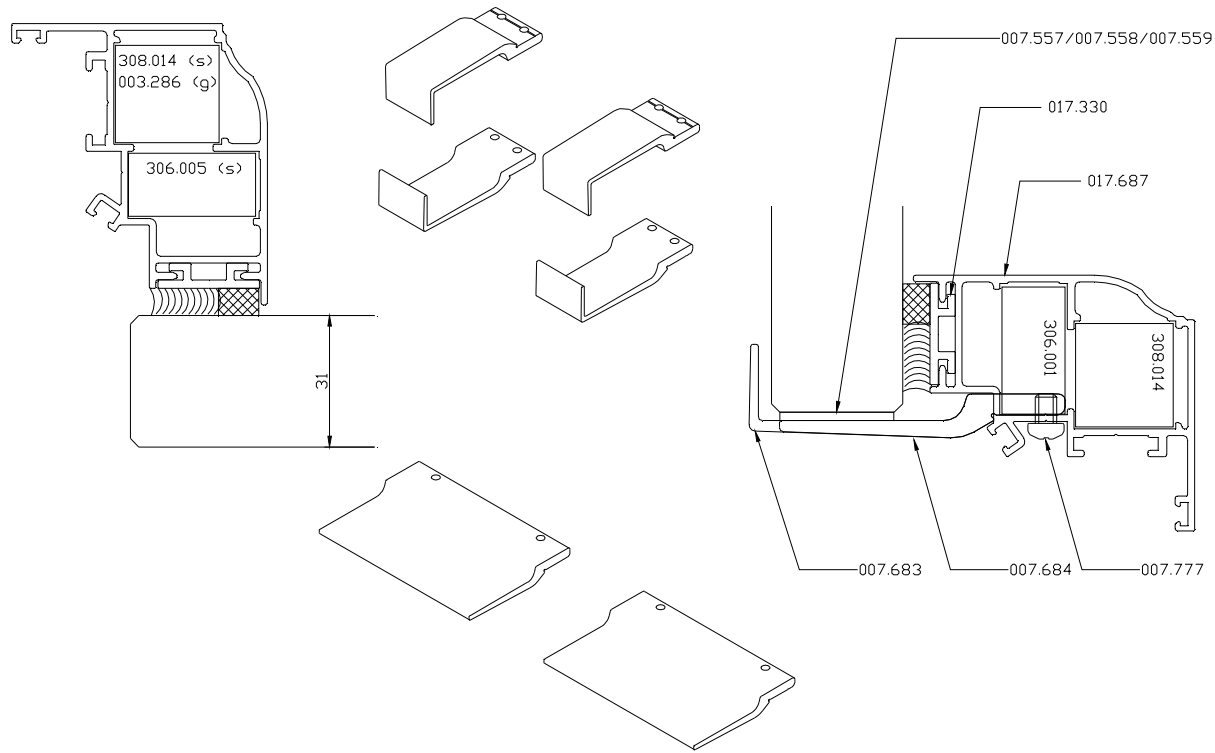
VEC TANAGRA

Awning window (II)

**ANNEX 3 (6/14)
de l'ATE-09/0229**

OUVRANT A LA FRANCAISE / OSCILLO BATTANT
GRILLE & TRAME HORIZONTALE

Figure 7



VEC TANAGRA

ANNEX 3 (7/14)

de l'ATE-09/0229

Casement window / tilt-and-turn window (I)

Figure 8

CHASSIS RAPPORTE : OUV. A LA FRANCAISE / OSCILLO BATTANT
GRILLE & TRAME HORIZONTALE

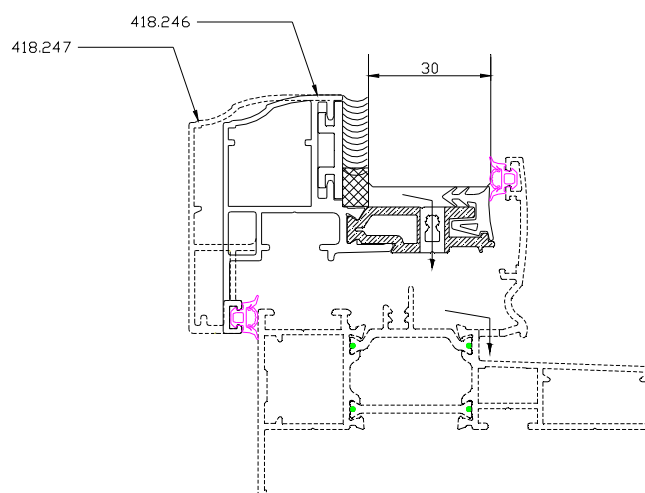
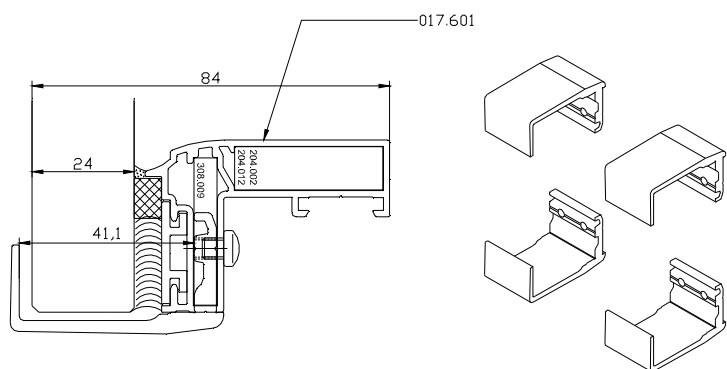


Figure 9

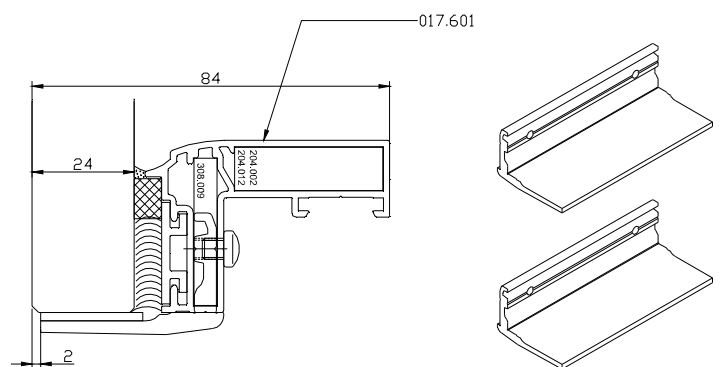
VEC TANAGRA	ANNEX 3 (9/14)
Reported profile: casement window / tilt-and-turn window	de l'ATE-09/0229

Figure 10



PROFILE DE BASE 017-624
ENS PIECE DE SECU 007-605

ENS PIECE DE SECU 007-605



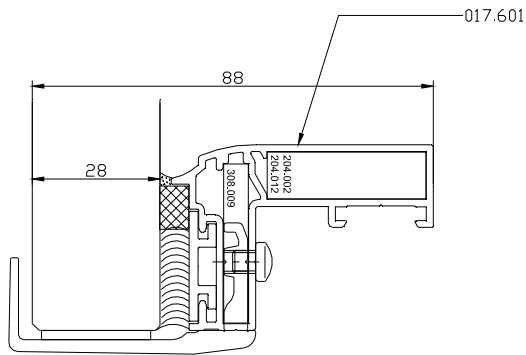
PROFILE DE BASE 017-604
SUPPORT DE CALE 007-624

SUPPORT DE CALE 007-624

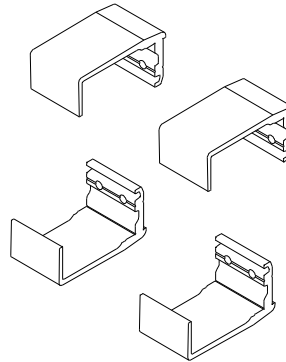
ITALIENNE

VEC TANAGRA	ANNEX 3 (10/14) de l'ATE-09/0229
Awning window: retaining devices and mechanical self-weight support (I)	

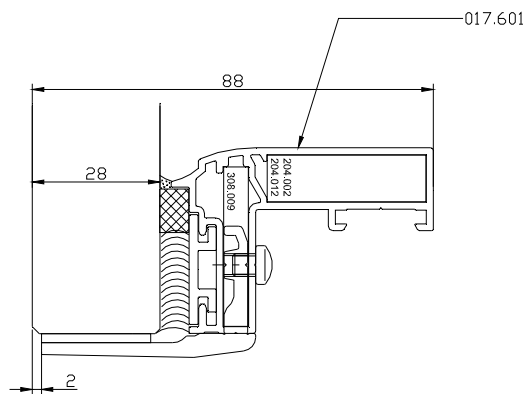
Figure 11



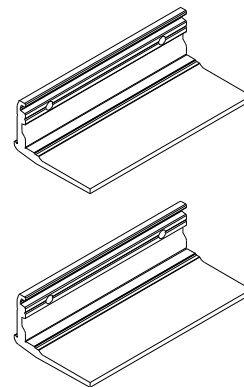
PROFILE DE BASE 017-628
ENS PIECE DE SECU 007-609



ENS PIECE DE SECU 007-609



PROFILE DE BASE 017-604
SUPPORT DE CALE 007-628

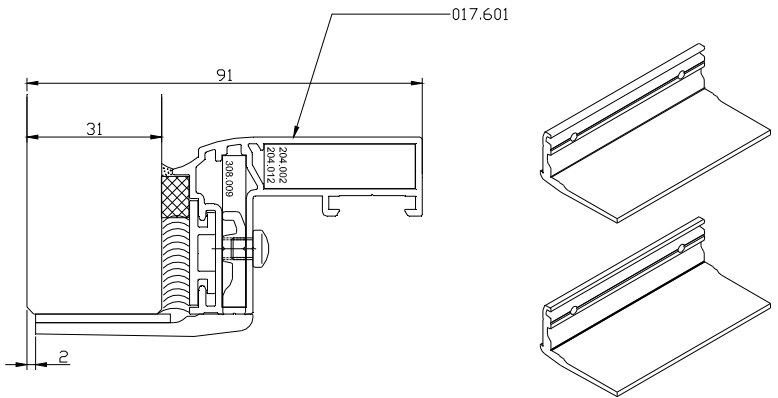
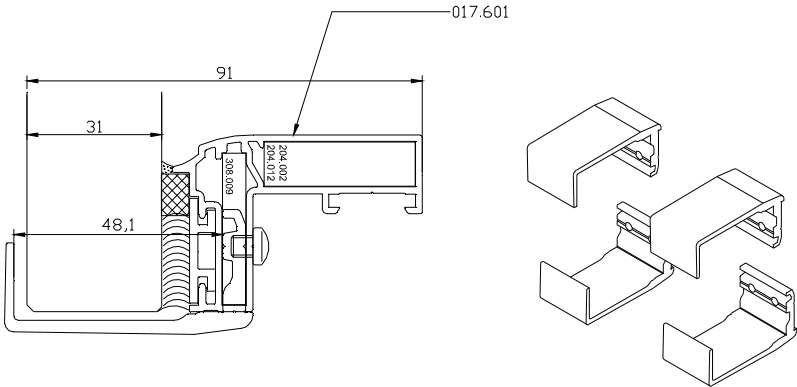


SUPPORT DE CALE 007-628

ITALIENNE

VEC TANAGRA	ANNEX 3 (11/14)
Awning window: retaining devices and mechanical self-weight support (II)	de l'ATE-09/0229

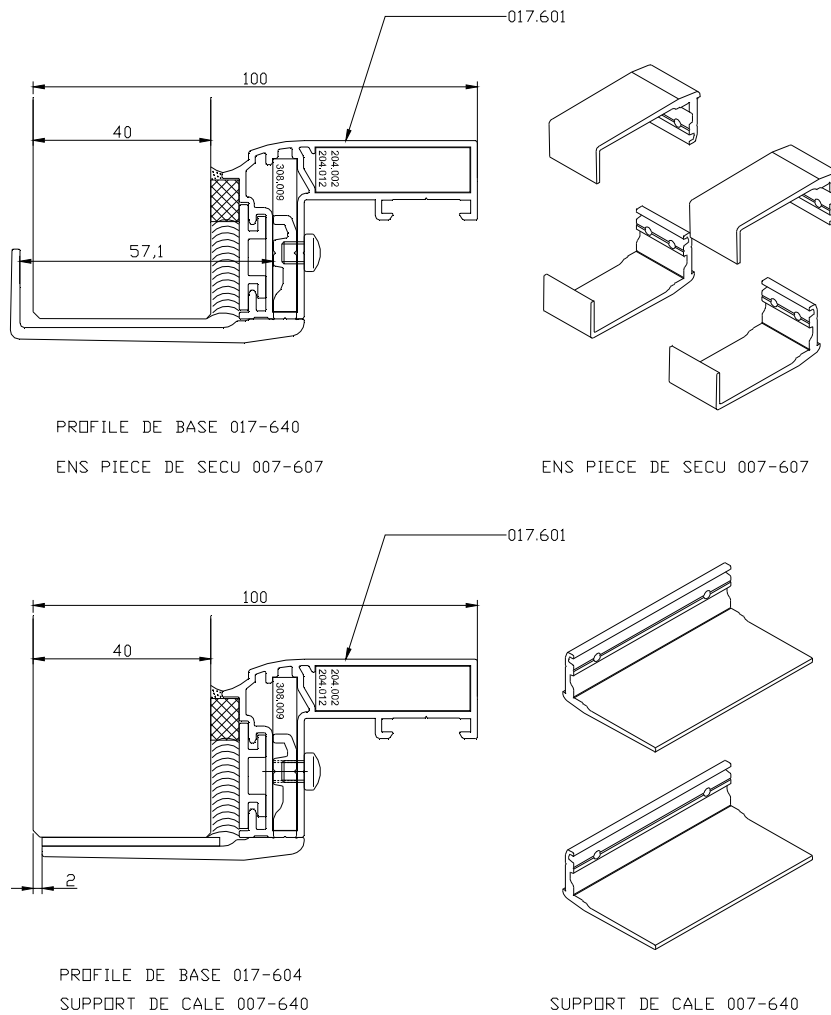
Figure 12



ITALIENNE

VEC TANAGRA	ANNEX 3 (12/14)
Awning window: retaining devices and mechanical self-weight support (III)	de l'ATE-09/0229

Figure 13



ITALIENNE

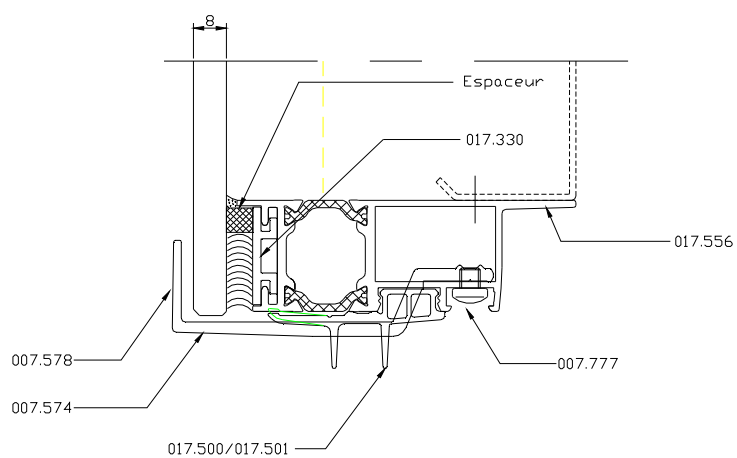
VEC TANAGRA

Awning window: retaining devices and mechanical self-weight support (VI)

**ANNEX 3 (13/14)
de l'ATE-09/0229**

VEC PARTIE OPAQUE

Figure 14



VEC TANAGRA

Fixed frame: shadow-box

**ANNEX 3 (14/14)
de l'ATE-09/0229**