UBAtc
Union belge pour l'Agrément technique de la construction
member of EOTA and UEAtc

European Technical Approval ETA 06/0208

Trade name:	**CW 50-SC**
Holder of the approval:	**REYNAERS INTERNATIONAL N.V. Oude Liersebaan 266, B 2570 DUFFEL Belgium**
Website:	**http://www.reynaers.com**
Generic type and use of construction product(s):	**Structural sealant glazing kit for use in curtain walling**
Validity from:	**2012-09-04**
to:	**2017-09-03**
Manufacturing plant(s):	**REYNAERS INTERNATIONAL N.V. Oude Liersebaan 266, B 2570 DUFFEL Belgium**
This version replaces	**ETA 06/0208 valid from 2011-09-05 until 2012-09-04**
This European Technical Approval contains:	**38 pages, including 1 annex which forms an integral part of the document**

European Organisation for Technical Approvals
Organisation Européenne pour l'Agrément Technique
Europäische Organisation für Technische Zulassungen

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I LEGAL BASES AND GENERAL CONDITIONS

1. This European Technical Approval is issued by UBAtc 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 products[1], modified by Council Directive 93/68/EEC[2] and Regulation (EC) N° 1882/2003 of the European Parliament and of the Council[3];
   - Belgian law of 25 March 1996 concerning the adaptation of legislative and administrative provisions of Member States to the Construction Products Directive (89/106/EEC) for construction products[4] and Belgian Royal Decree of 18 August 1998 concerning construction products[5]
   - ETA-Guideline 002 "Structural Sealant Glazing System", edition November 1999 amended 2001, Part 1
   - Common Procedural Rules for Requesting, Preparing and the Granting of European Technical Approvals set out in the Annex to Commission Decision 94/23/EC[6];
   - SCC decision CONSTRUCT 00/427 concerning structural sealants as component of kit covered by existing ETAG

2. 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.

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 laid down in the context of this European Technical Approval.

4. This European Technical Approval may be withdrawn by UBAtc, in particular pursuant to information by the Commission according to Article 5(1) of Council Directive 89/106/EEC.

5. Reproduction of this European Technical Approval including transmission by electronic means shall be in full. However, partial reproduction can be made with the written consent of UBAtc. In this case partial reproduction has to be designated as such. Texts and drawings of advertising brochures shall not contradict or misuse the European Technical Approval.

6. Subject to the application introduced, the European Technical Approval is issued by the approval body in its official languages. These versions correspond fully to the English version circulated in EOTA. Translations into other languages have to be designated as such.

7. Compared with the previous version, this ETA comprises additional sealants from several suppliers.

[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 Union N° L 284, 31.10.2003, p. 1
[4] Belgian Law Gazette, 21.05.1996
[5] Belgian Law Gazette, 11.09.1998
[6] Official Journal of the European Communities N° L 17, 20.1.1994, p. 34

II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

1. Definition and scope of the product and intended use

1.1. Scope

Structural sealant glazing kit (SSGS) in which the glazing infills are bonded all along the perimeter with a structural sealant to a metallic structural sealant support frame.
The CW 50-SC kit is of the type I or II as per ETAG 002 SSGS table 1.

1.2. Intended use

Structural sealant glazing kit (SSGS) for use as a façade or parts thereof. The kit is consisting in fixed part or opening light anchored to the façade structure by means of screwed clamps in order to form a curtain walling. The façade structure is not a part of the present ETA.

The essential requirements ER2 Safety in case of fire, ER3 Hygiene, health and environment, ER4 Safety in use, ER 5 Protection against noise, ER6 Energy economy and heat retention shall be fulfilled. Failure of the structural bond might cause risk to human life and/or have considerable economic consequences.

The provisions made in this European Technical Approval are based on the assumed working life of the SSGS of 25 years[7].

[7] The indications given as to the working life of the products cannot be interpreted as a guarantee given by the ETA-holder or the approval body. It should only be regarded as a means for specifiers to choose the appropriate criteria for this product in relation to the expected, economically reasonable working life of the works.

2. Characteristics of the product and method of verification

2.1. Characteristics of the products

2.1.1. General

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

2.1.2. Components of the kits

2.1.2.1. Structural sealants

Fitness for use		
Glass on anodised aluminium		
Dow Corning	DC 993	ETA 01/0005
	DC 895	ETA 01/0005
Kömmerling	Ködiglaze S	ETA 08/0286
Sika	SG 500	ETA 03/0038
	SG 20	ETA 06/0090
Tremco	Proglaze II	ETA 05/0006
	VEC 90	ETA 05/0005
	VEC 99	ETA 05/0005
Outer structural edge seal of the insulating glass unit		
Dow Corning	DC 3362	ETA 03/0003
Kömmerling	GD 920	ETA 08/0004
Sika	IG 25	ETA 05/0068

Table 1 – structural sealants

2.1.2.2. Suitable substrates for structural sealants bonding

2.1.2.2.1. The generic types of suitable substrates

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
- EN ISO 12543-2 Laminated safety Glass
- The coated glass if evidence is available that 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.

2.1.2.2.2. The specific types of suitable substrates

ETA's referred to in **Table** 1 can also be consulted for additional coated glass specific substrates already assessed.

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

2.1.2.3. Structural sealant support frame

Framing profile Fig. 1, Fig. 2 and Fig. 3:

Fixed frame:

- 034.0127.XX + adaptor 034.1116.17;
- 034.0128.XX + adaptor 034.1116.17
- 034.0131.XX + adaptor 034.1116.17

Opening light

- Fixed frame for opening part: 034.0118.XX;
- 034.1121.XX; 034.0155.XX,
- Opening light profile: 034.0119; 034.1122.XX; 034.1113.XX; 034.0156.XX + adaptor 034.1116.17.

The structural sealant support frame is made of an aluminium alloy conform to **Table 2**.

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

Table 2 – Aluminium alloy characteristics

The anodising of the structural adhesion surface adaptor profile 034.1116.17 is performed by the firm Alural (Be), Alcan (Fr), Effector (Pl) and Final (Pl)

Geometrical and weight characteristics:

Wall thickness of the profiles: 1,6 to 2 mm, tolerances conforming to EN 12020 –1 and- 2
External dimensions of the profiles: (cf. fig. 1): tolerances: EN 12020 –1 and- 2

Nominal linear mass (tolerances: + 10 %; - 10 %)

Inertia: axes: xx parallel to the glazing, yy perpendicular to the glazing.

Profiles	I_{xx} (mm⁴)	I_{yy} (mm⁴)	Linear mass. Kg/m.
034.0127.XX	9110	25320	0,57
034.0128.XX	11750	26130	0,589
034.0131.XX	6170	24910	0,54
034.0118.XX	151270	62010	0,958
034.0119.XX	254880	86140	1,377
034.1121.XX	351350	108590	1,281
034.1122.XX	108310	55980	1,033
034.1113.XX	119310	56880	1,093
034.0155.XX	587970	112870	1,455
034.0156.XX	289200	70840	1,331

Table 3 – Geometrical and weight characteristics

2.1.2.4. Aluminium accessories

2.1.2.4.1. Mechanical self-weight support fig. 4

Support of the glass relies on the use of setting blocks, which transfer the glass dead load to the mechanical self-weight support.
Those devices are calculable according to the standardised loading using conventional calculations based upon the strength of material. Taking into account of a safety factor on aluminium γ_m = 1,1; the bearing capacity of the devices is given on § 4.3.1.5.

Mechanical self-weight support: length 100 mm, fixed by 2 screws ref 051.5282, DIN 916 M4x8.

Articles	application
073.7290.39	opening part
073.7291.39	opening part
073.7292.39	opening part
073.7293.39	Fixed part
073.8209.00	fixed part
073.8212.00	fixed part
073.7180.39	opening part
073.7182.39	opening part

Table 4 – Geometrical and weight characteristics

2.1.2.4.2. Retaining devices fig. 5

The retaining devices are made of aluminium AlMgSi 0,5 F22 .

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

The necessity of these accessories is to be evaluated in function of the safety specifications, of the situation of the building and of its working condition.

Those devices are calculable according to the standardised loading using conventional calculations based upon the strength of material. Taking into account of a safety factor on aluminium γ_m = 1,1 and of a maximum pressure on glass of 1 MPa, the bearing capacity of the devices is given on § 4.3.1.5.

Retaining device

- Punctual ring: 073.8204.39 fixed with a screw Φ6,3 mm according ISO 3506
- Article: 073.7278.39; 073.7280.39; 073.7282.39; 073.7284.39; 073.7184.39; 073.7186.39

2.1.2.4.3. Anchorage of the structural sealant support frame on the façade structure fig. 6

The anchorage is composed of mill finished aluminium Al Mg Si0,5 F22 cotters:

034.0130.00; 034.0138.00; 034.0143.00; 034.0146.00; 034.0144.00; 034.0147.00; 034.0145.00; 034.0148.00; 034.0173.00; 034.0174.00; 034.0175.00; 034.0176.00; 034.0177; 034.0178.00 screwed with article n° 053.5461 – ISO 3506 Φ6,3 mm length 22 mm with hexagonal hollow head in stainless steel

In case of dilatation, anchorage 034.0175.00 and 034.0176.00 are used instead of 034.0130.00 and 034.0138.00

The bearing capacity of the anchorage is given in § 4.3.1.5

2.1.2.4.4. Other devices fig. 7

- Corner to crimp for the structural sealant support frame (fixed glazing) : 068.8051.00
- Corner to crimp for the structural sealant support frame (vent of the opening part): 068.7301.00; 068.7571.00; 068.7561.00
- Corner to crimp (frame of the opening part): 068.7300.00; 068.7562.00; 068.7560.00, the corner pieces 068.7563.00 and the corner rebate reinforcement 060.7722.—

2.1.2.5. Insulating glass unit

The kit CW 50-SC is designed in such way that the IGU outer edge seal is a structural edge seal. The outer seal must be performed with the structural sealant mentioned in **Table** 1 with a minimum bite of 6 mm.

IGU's must conform to the ETAG 002, § 5.0.

For each project, the IGU's manufacturer shall deliver to the façadier a technical dossier as described in ETAG 002, § 8.3.2.4 (vi).

Dimensional tolerances on the IGU: ± 2 mm on the glass pane, special care shall be taken that the glass is always in contact with the settings blocks.

2.1.2.6. Cleaning product

The cleaning product that has to be used to clean the façade is mentioned in the structural sealant ETA's.
Other products may be used provided they are assessed for conformity to ETAG § 5.2.3.3.

2.1.3. Accessories

2.1.3.1. Gasket fig. 8

2.1.3.1.1. Gaskets support between glazing units

The ABS gaskets supports 034.0124.04, 034.1180.04, 034.1181.04, 034.0182.04, 034.0183.04, 034.0184.04 are clipped on the cotter or on the CW 50 frame profiles.

2.1.3.1.2. EPDM gaskets

The gaskets are used to ensure the air and water tightness between the frame and the opening light and between the frame and the façade structure.

080.9360.04; 080.9820.04; 080.9821.04; 080.9825.04; 080.9826.04; 080.9871.04; 080.9876.04 - EPDM Glazing gaskets

080.9937.04; 080.9938.04 - EPDM gasket to be used between 2 structural sealant support frames to ensure the air and water tightness.

080.9300.04; 080.9303.04 - EPDM gasket to be used as spacer on opening light profile for structural seal

080.9444.04 - EPDM gasket to insure air and water tightness between fixed profile and opening light profiles

080.9307.04; 080.9308.04 – EPDM gasket to insure water tightness between the fixed panels and opening light

080.9805.04 - EPDM end gasket

080.9514.04 - EPDM gasket for angle glazing

080.9515.04 - EPDM gasket for angle glazing

2.1.3.2. Backer rod

PE-foam from the firm Castelein Sealants

2.1.3.3. Sealant

In function of the structural glazing sealants chosen for the projects, the corresponding compatible weather sealants of the same sealant supplier shall be applied when the products are in contact. The compatible sealants tested are Dow Corning - DC 791, Sika - 605, Tremco - Proglaze LMA and Kömmerling - GD 826N.

2.1.3.4. Iron work

Friction stays Top hung moving part:
TH1: Reynaers 021.5640- 021.5650 - 021.5660: manufactured by Bezault Italinox 400R – 500R – 600R and Reynaers 060.8370.-- manufactured by Securistyle SPT26 with adjustment piece S7280.
TH2 with vent profile 034.1122.XX: Reynaers 021.5640- 021.5650 - 021.5660: manufactured by Bezault Italinox 400R – 500R – 600R
TH2 with vent profile 034.0156.XX: Reynaers 021.5640- 021.5650 - 021.5660: manufactured by Bezault Italinox 400R – 500R – 600R and Reynaers 060.8370.-- manufactured by Securistyle SPT26 with adjustment piece S7280.
For the Parallel Opening window the following friction stays are used:
POW: Reynaers 060.8360.--; 060.8361.--; 060.8362.--; 060.8363.--; 060.8364.--; 060.8365.-- manufactured by Securistyle PX 0450 RH; PX 0450 LH; PX 0670 RH; PX 0670 LH; PX 0950 RH; PX 0950 LH.

2.1.3.5. Adhesive spacer

Adhesive foam bead PUR NORTON V2100 is used as backer rod to the structural sealant for fixed part. 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.

2.1.3.6. Setting and location blocks

The glazing dead load is transferred via the setting blocks.
Characteristics of the setting block:

Material: Silicone hardness SHORE D: 60 to 65, reference Coly-Pro, length to be adapted as a function of load

2.2. Method 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; energy economy and heat retention; in the sense of the Essential Requirements 2, to 6, has been made in accordance with the "Guideline for European Technical Approval for Structural Sealant Glazing Systems (ETAG 002).

Where the guideline allows for classifications and/or choice, the following selection has been made:

ER2 Safety in case of fire

- Reaction to fire : (no test performed) : Structural sealant glazing system : Class F product according EC decision 94/611/EC
- Resistance to fire : no resistance to fire claimed

ER3 Hygiene, health and environment

- Air permeability ETAG 5.1.3.1.2

Type of opening	ETAG 002 § 5.1.3.1.2 EN 12152 – EN 12207
Fixed part	Class A4
Top Hung window TH1 - TH2	Class 4
Parallel opening window - POW	Class 4

Table 5 – Air permeability

- Water tightness: ETAG 5.1.3.1.2

Type of opening	ETAG 002 § 5.1.3.1.2 EN 12154 – EN 12208
Fixed part	RE 1050
Top Hung window - TH1	E 1200
Top Hung window - TH2	Class 9A
Parallel opening window - POW	E 900

Table 6 – Water tightness

- Regulated substances

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.

ER4 Safety in use

- Impact test :

Prototype equipped with laminated glass 44.2.

- Fixed elements - laminated glass 44.2 Performance according to EN 14019: E5/ I5,
- Top hung window TH1, and parallel opening windows: NPD
- Top hung window TH2 – IGU 44.2-12-44.2 Class 3 internal impact according to EN 13049

- Racking (EN 14609), torsion (EN 14608) and operating forces (EN 12046-1)

Type of opening	EN 13115	
	Racking - Torsion	Operating forces
Top Hung window - TH1	Class 3	Class 1
Top Hung window - TH2	Class 3	Class 1
Parallel opening window - POW	Class 4	Class 1

Table 7 – Racking & torsion and operating forces

Sill height: transom and mullion mechanical T coupling. The sill height can be adapted to any required height.

- Wind resistance:

Type of frame	ETAG 002 § 5.1.4.9
Fixed part	EN 13116 : Design load : 1600 Pa (SLS) Wind load safety : 2400 Pa (ULS)
Top Hung window TH1	EN 12210 : C4
Top Hung window TH2	EN 12210 : C4
Parallel opening window - POW	EN 12210 : C5

Table 8 – Wind resistance

ER5 Protection against noise

Description	Fixed part	Opening part TH1	Opening part TH1	opening part TH1
Dimensions (lg x h) (m)	(2x1,96)x (2x1,21)	1,23 x 1,48	1,23x 1,48	1,23x 1,48
Mullion	035.1505	034.1502	035.1502	035.1502
Transom	034.1524	034.1522	034.1522	034.1522
Fixed frame profile	-	034.0118	035.0118	035.0118
Opening light profile	-	034.0119	034.0119	034.0119
Structural sealant support frame	034.0131 + 34.1116.39			
glass / infill	Sandwich panel *	6/15/6	44.2/14/66.2 STRATOPHONE	55.2/18/6
Tightness	Gaskets	Gaskets	Gaskets	Gaskets
Ironwork		8 locking points (2 each sides) + 2 friction stays	8 locking points (2 each sides) + 2 friction stays	8 locking points (2 each sides) + 2 friction stays
R_w (C; C_{tr})	56(-1;-5)	36(-2;-5)	44(-2;-5)	42(-2;-5)
Sandwich panel *: Glass 6mm + Air gap 22,7 mm + steel: 1,5mm + min wool: 20 mm 135 kg/m³ + steel: 1,5mm + Air gap 13 mm+ min wool: 60 mm 80 kg/m³ + min wool: 60 mm 50 kg/m³ + steel: 1,5mm + Gypsum board: 12,5 mm.				

Table 9 – Acoustic performances

ER6 Energy economy and heat retention:

Determination of thermal insulation and susceptibility to condensation

Aggregate test method

No performance determined by test

Calculation method

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

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

Table 10 – Thermal conductivity (λ-value) of the components

Some situation has been calculated as per EN ISO 10077-2 based on the assumption of the EN 13947 § 6.2. The total width of the joint is 190 mm, considering an infill panel of 1,4 W/m²K or single glass

Joint between	U-value (W/m² K)	ψ (W/mK)	Infill panel U_g (W/m²K)
Fixed element + fixed element	6,5	1,23	Single glass
Opening part TH1 (insulating glass + fixed element (single glass)	5,8	1,10	Single glass
Opening part TH1 (IGU) + Opening part TH1 (IGU)	4,2	0,80	IGU 1,4
Opening part POW (insulating glass + fixed element (IGU glass)	5,43 to 6,05	1,03 to 1,15	IGU 1,1
Opening part TH2 (insulating glass + fixed element (IGU glass)	5,49 to 6,07	1,04 to 1,15	IGU 1,1

Table 11 – U-value of typical joints

Durability

The durability of the fitness for use has been demonstrated as follows: All the specific aspects of durability have been covered under the headings above, more particularly ER4 Safety in use.

3. Evaluation of conformity and CE marking

3.1. Attestation of conformity system

The systems of attestation of conformity specified by the European Commission detailed in EC Decision 96/582/EC[8] are as follows:

- System 1 (without audit testing of samples) for SSG kits Type II;
- System 2+ (first possibility, including certification of the factory production control (FPC) by an approved body on the basis of its continuous surveillance, assessment and approval) for SSG kits Type I

[The systems being as described in Council Directive 89/106 EEC Annex 111.2.(i) and (ii) respectively].

System 1

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

System 2+

- tasks for the manufacturer
  - initial type testing of the product;
  - factory production control.
- 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

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 appliers) 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.

[8] Commission decision of 24/06/96, published in the EC Official Journal L254 of 08/10/96

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.

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)
Control of the production in accordance with the ETA specification and the kit designer instructions
The facade 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 Union belge pour l'Agrément technique de la construction (UBAtc) 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; facadier (-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 facadier 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 of CE-marking

CE	*"CE"-symbol*
xxxx	*Number of Notified Body*
REYNAERS INTERNATIONAL N.V. Oude Liersebaan 266, B 2570 DUFFEL Belgium	*Name and address of the manufacturer or his representative established in the EEA and of the plant where the product was manufactured*
xx	*Two last digits of year of affixing CE Marking*
xxxx-CPD-xxxx	*Number of EC certificate of conformity (where relevant)*
ETA N° 06/0208	*ETA Number*
ETAG 002 Structural Sealant Glazing kit type I and II CW 50-SC	*ETA-Guideline* *Relevant performance characteristics and/or designation code*

Example of CE marking and accompanying information

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

4.1. Manufacturing directives

The European technical approval is issued for the kit on the basis of agreed data / information deposited with Union belge pour l'Agrément technique de la construction (UBAtc) 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. UBAtc decides whether such changes affect the ETA and consequently the validity of the CE marking on the basis of the ETA and if so whether further assessment/alterations to the ETA, shall be necessary.

4.2. Design rules

4.2.1. Storage of the anodised Glazing profile adaptor 034.1116.17.

The storage of the glazing profile adaptor has to be performed in a protected and maintained location with a maximum relative humidity of 60%. At those conditions, they can be used for projects up to 6 months after the anodising. After 6 months storage, the adaptor shall be re-evaluated according ETAG 002.

4.2.1.1. Structural sealant support frames fig. 9

The structural sealant support frames are manufactured by the façadiers according to the ETA designer rules and instructions
The structural sealant support frame profiles are made of extruded aluminium.
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 seal support frame profile,
- Drilling and punching of the holes for ironwork, drainage and ventilation
- Setting the ironwork.

4.2.2. Bonding of the glazing

4.2.2.1. Combination sealant/anodising fit for use

The following combinations of anodizing/sealant has been assessed fit for use

Sealants	Anodizing	Cleaner/Primer
DC 993	Alural	Cleaner DC 40
	Effector	Cleaner DC 40
	Final	Cleaner DC 40
	Alcan	Cleaner DC 40
DC 895	Alcan	Cleaner DC 40
	Alural	Cleaner DC 40
SG500	Alural	-
	Alcan	-
SG20	Alural	-
	Alcan	-
VEC 99	Alcan	Primer 10073
	Alural	Primer 10073
VEC 90	Alcan	Primer 10073
	Alural	Primer 10073
Proglaze II	Alcan	Primer 10
	Alural	Primer 10
Kodiglaze	Alural	Korasolv GL/ Korabond HG 78

Table 12 – Sealant-anodizing combinations

4.2.2.2. Application of the sealants

This work is performed in a workshop heated and maintained free from dust. Instructions given in the ETA for structural sealant are to be respected.

Principal stage of assembling

- Preparation of the structural sealant adhesion surfaces as prescribed by the ETA on the structural sealant(s) used,
- Setting in place of the spacers,
- Setting in place of the glazing,
- Setting of setting blocks in place,
- Extrusion of the sealant,
- Pressing and smoothing the sealants beads,
- Setting of the mechanical self-weight support

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 in the structural sealant ETA.

4.3. Installation and design rules

4.3.1. Design rules

4.3.1.1. Structural seals design

The structural seal is to be calculated as per annex 2 of the ETAG 002 with the design value given in the chapter 2.1.1 respecting the minimum dimensions of the structural seal are e≥6 mm, h_c≥6 mm
For the definition of e, h_c, r, see ETAG 002 SSGS.

4.3.1.2. Drainage and ventilation fig. 10

- Drainage of the fixed parts is performed by cutting away the lips of the pressure gasket (080.9937.04 or 080.9938.04) over the length of the glass support.
- Drainage of the opening parts TH1: the lips of the profiles 034.0182.04 or 034.0183.04 are cut out over the length of the glass supports.
- Drainage of the opening parts TH2 and POW is performed by cutting away the lips of the sealing gasket (080.9307.04 or 080.9308.04) over the length of the glass supports.
- Ventilation of the fixed parts is performed by 2 holes of Ø6 mm in the upper part of the 2 vertical structural sealant support frame profiles.

4.3.1.3. Weather sealing

The weather sealing is achieved as follow

– Fixed parts: The weather sealing is achieved with a horizontal or vertical glazing gasket between the CW 50 structure and the sealant support frame, and a pressure gasket 080.9937.04 or 080.9938.04 in between the glass panels.
– Opening parts: The weather sealing is achieved with 2 seal gaskets 080.9444.04 in between the frame and vent. The pressure gaskets 080.9937.04 and 080.9307.04 or 080.9938.04 or 080.9308.04 are used in between glass panels.

4.3.1.4. Maximum dimensions

Opening lights: The maximum dimensions of the opening part have been determined as a result of the test on façade prototype.

Type of opening	Maximum dimensions wxh [m]
Top Hung window TH1	1,75 m x 1,75 m
Top Hung window TH2	1,35 m x 2,5 m
Parallel opening window POW	1,283 m x 2,083 m

Table 13 – Maximum dimensions

Fixed parts: The fixed parts are to be calculated according the technical data of the anchorages and frame profile given in the ETA

Anchorage of the structural sealant support frame: the fixed frames are designed taking into consideration the following rules:

– The structural sealant cross-section must be calculated as per annex 2 of the ETAG 002 SSGS under ultimate limit state loads combinations (ULS).
– The bearing capacity of an anchorage of the structural support frame on the façade structure is F_{des}= 630 N partial factor of 2 included
– The maximum deflection of structural sealant support frame profile between 2 anchorage's is 1/300.

Special care shall be taken to the blocking of the glazing to structural sealant support frame profiles and to the blocking of the structural support frame on the transom of the façade structure

4.3.1.5. Transfer of the infill loading on the building structure

4.3.1.5.1. Transfer of the dead load of the infill panel to façade structure (for fixed part and opening light)

The mechanical self-weight support devices are given in § 2.1.2.4.1

Retaining device	Maximum bearing capacity N
073.7290.39, length 100 mm (IGU)	1500
073.7291.39, length 100 mm (IGU)	1200
073.7292.39, length 100 mm (IGU)	900
073.7293.39, length 100 mm (single glass)	3500
073.7180.39, length 100 mm (stepped IGU)	1000
073.7182.39, length 100 mm (stepped IGU)	1000

Table 14 – Mechanical self-weight supports - maximum bearing capacity

While installing the structural sealant support frame on site, special care is to be taken to block the structural sealant support frame on the façade structure in order to transfer correctly the dead load.

4.3.1.5.2. Transfer of the wind load to the façade structure

The wind load is transmitted to the façade structure via aluminium cotters mentioned in § 2.1.2.4.3 screwed with M6 screws length 22 mm with hexagonal hollow head in stainless steel

The number of screws is determined taking into account of the following rules:

- the maximum distance between two screws is 150 mm
- the maximum deflection of the profile between two anchorage's is 1/200
- the structural sealant support frames are equipped with at least four anchorage's
- taken into account a safety factor of 2, the bearing capacity of a single anchorage is F_{des} = 630 N (ETAG 5.1.4.3.2 Method II)

4.3.1.6. Retaining devices

See § 2.1.2.4.2

The maximum bearing capacity of the retaining device is given here after

Retaining devices length 100 mm	Bearing capacity F_{des} (N)
073.7278.39	440
073.7280.39	440
073.7184.39	400
073.7282.39	440
073.7284.39	440
073.7186.39	400

Table 15 - Retaining device - maximum bearing capacity

Calculation of the length must be done project per project in function of the wind and the infill panel dimensions.

4.3.1.7. Ironwork - fig. 11

As a function of the glazed element size, the number of locks of the ironwork is given on Ironwork - fig. 11

4.3.2. Installation - Specifications related to the façade structure

The maximum permissible deflection of the mullion and transom under the designed load is 1/200 (SLS)
The coupling between mullions and transoms is performed by mechanical T -connection.

The façade structure shall be electrically earthed.
The façade structure shall be equipped with expansion joints and movement joints in function of those of the building structure.
In the façade design, movement in the joint must not be thwarted and care shall be taken no to shortcut any façade structure joint with structural sealant support frames.
The structural sealant support frames are placed in the façade structure element per element.
The elements are then equipped with the gaskets.
Care shall be taken to allow drainage and ventilation.

4.3.3. Maintenance and repair

4.3.3.1. Repair

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

- Dismantling of the structural sealant support frame
- Replacement by a new unit in reserve
- Repair of the damaged unit in workshop following the procedure described in § 4.2 after removing of the structural sealant.

4.3.3.2. Maintenance

Current maintenance: cleaning up the glazing with clear water.
When necessary, the cleaning product mentioned in the structural sealants ETA's referred in **Table** 1 can be used.
For any other cleaning product, the compatibility with the kit shall be assessed as required by the ETAG 002.

4.3.3.3. Responsibilities

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

Annex 1: Figures

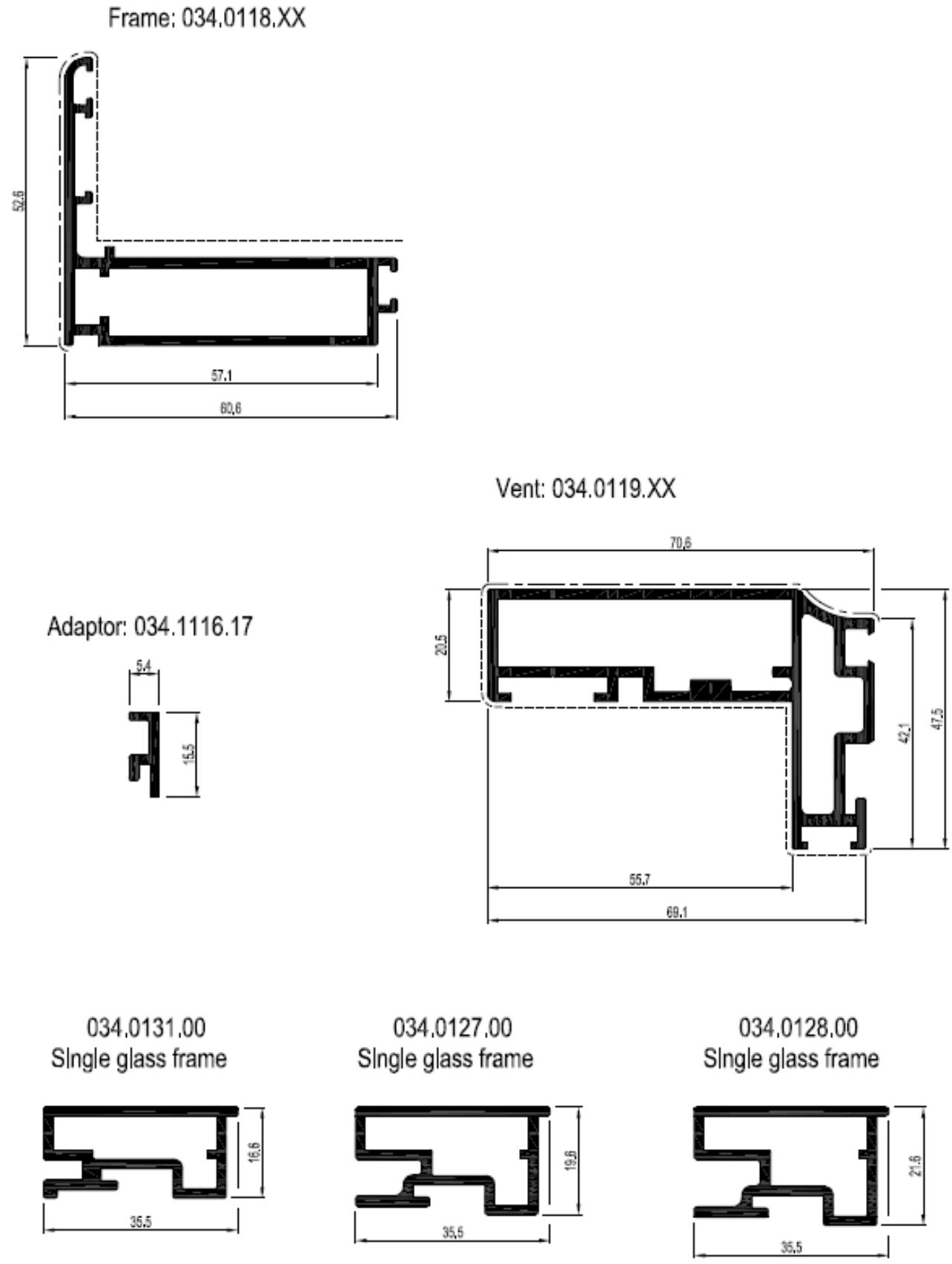
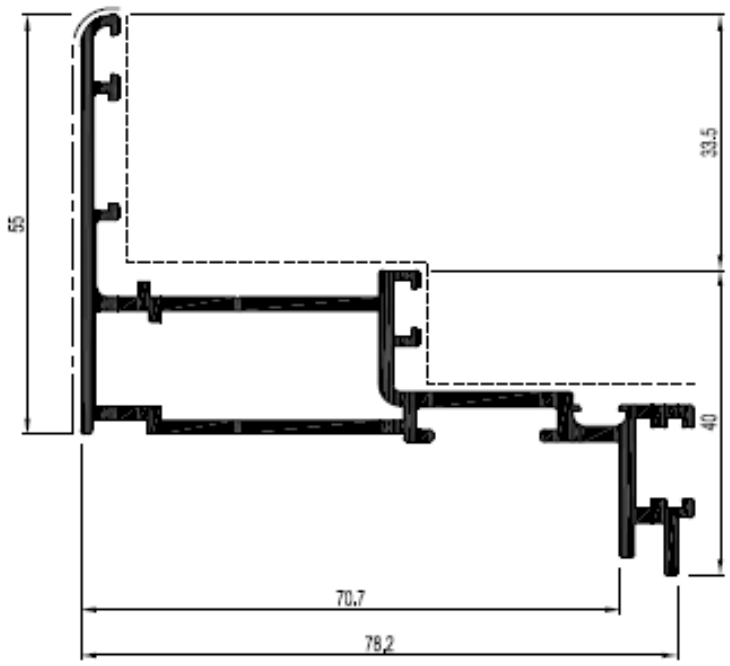
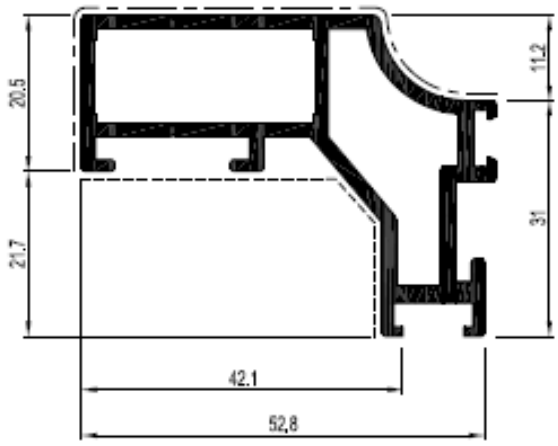


Figure 1

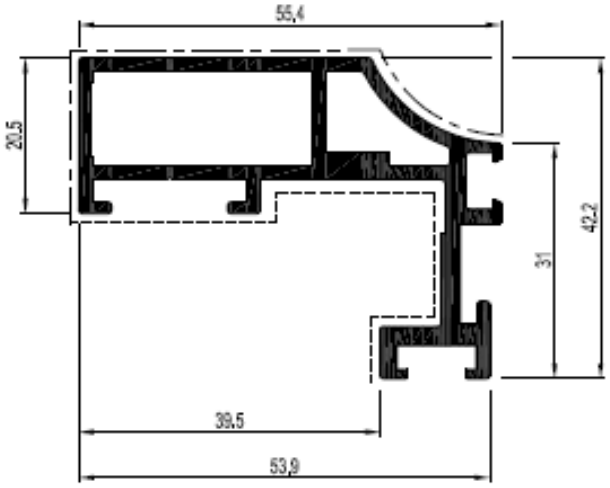
Frame: 034.1121.XX



Vent: 034.1122.XX



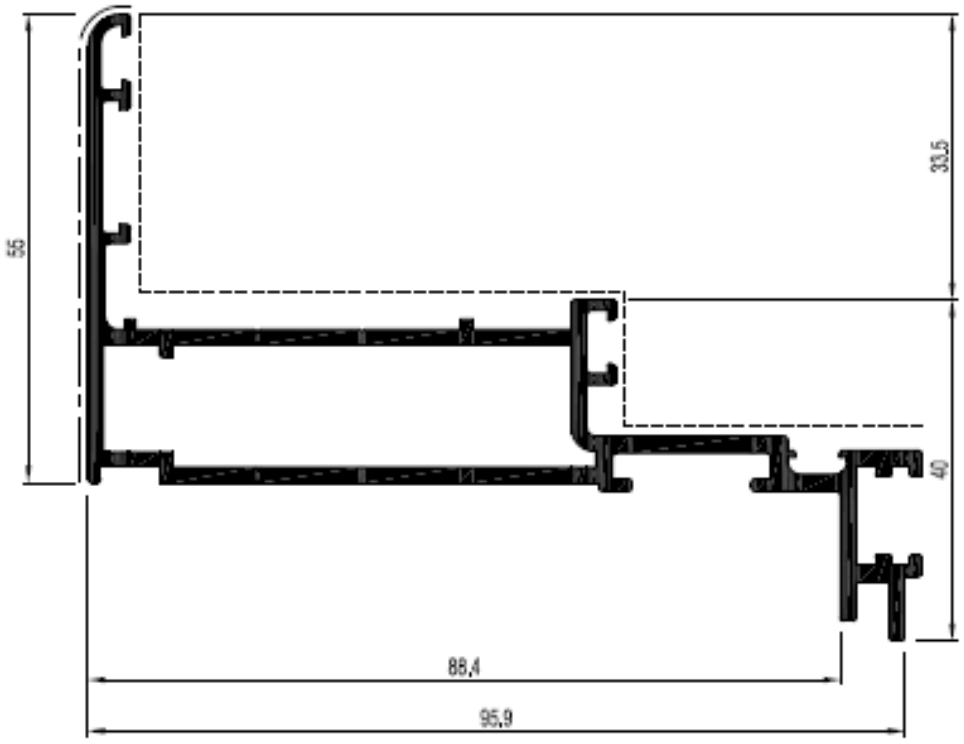
Vent: 034.1113.XX



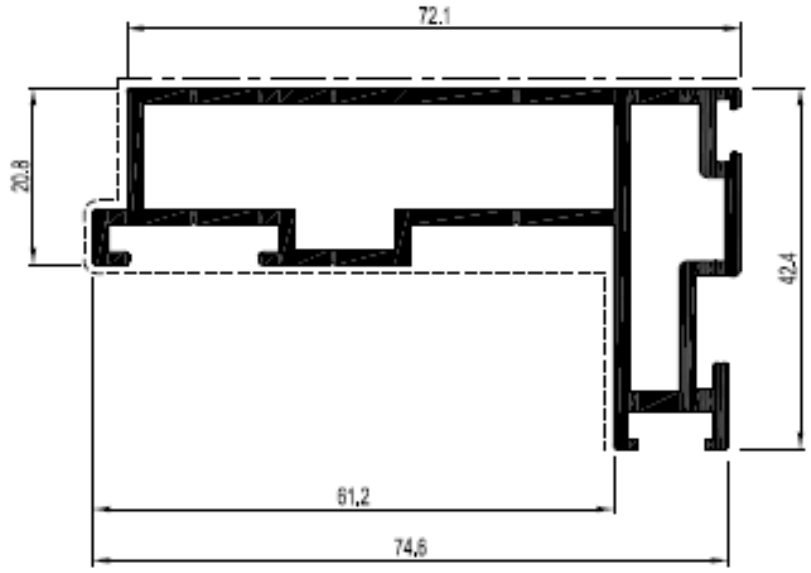
Adaptor: 034.1116.17

Figure 2

Frame: 034.0155.XX



Vent: 034.0156.XX



Adaptor: 034.1116.17

Figure 3

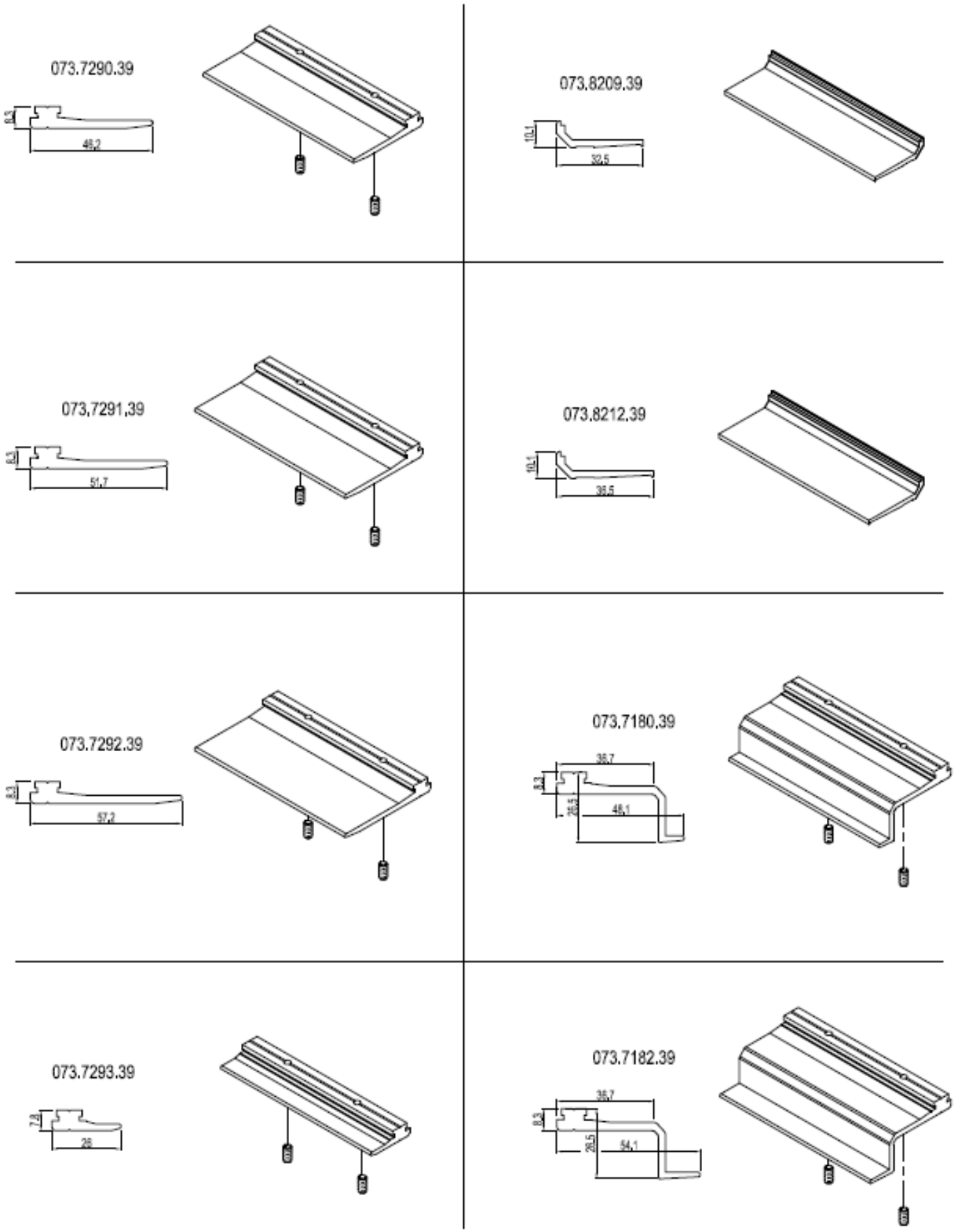

073.7290.39
8,3
46,2
073.8209.39
10,1
32,5
073,7291,39
8,3
51,7
073.8212.39
10,1
36,5
073.7292.39
8,3
57,2
073.7180.39
35,7
8,3
26,5
48,1
073.7293.39
7,8
28
073.7182.39
35,7
8,3
26,5
54,1

Figure 4

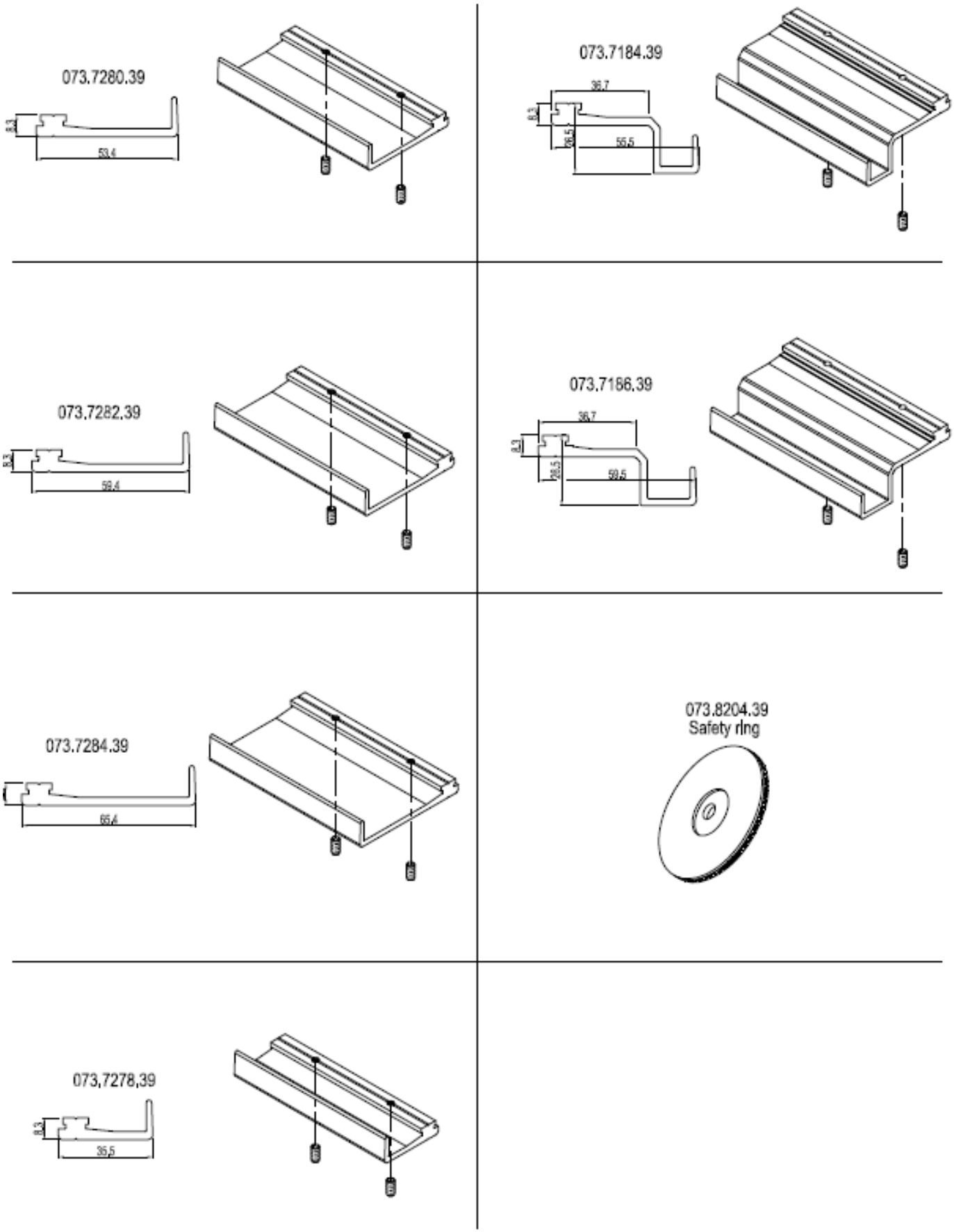
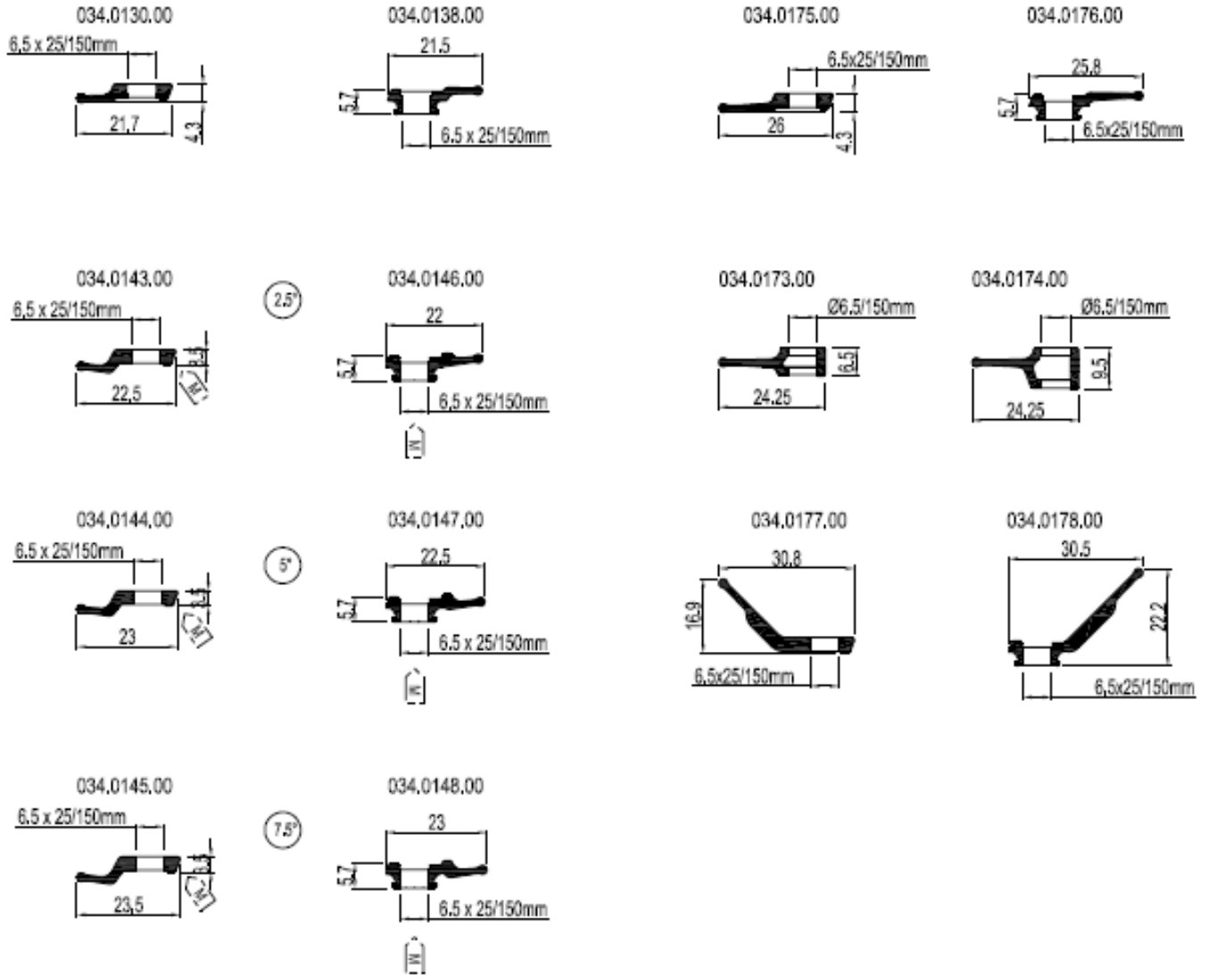

073.7280.39
8,3
53,4
073.7184.39
36,7
8,3
26,5
55,5
073.7282.39
8,3
58,4
073.7186.39
36,7
8,3
26,5
59,5
073.7284.39
65,4
073.8204.39
Safety ring
073,7278,39
8,3
35,5

Figure 5


034.0130.00
6,5 x 25/150mm
21,7
4,3
034.0138.00
21,5
5,7
6,5 x 25/150mm
034.0175.00
6,5x25/150mm
26
4,3
034.0176.00
25,8
5,7
6,5x25/150mm
034.0143.00
6,5 x 25/150mm
22,5
2,5°
034.0146.00
22
5,7
6,5 x 25/150mm
034.0173.00
Ø6,5/150mm
6,5
24,25
034.0174.00
Ø6,5/150mm
9,5
24,25
034.0144.00
6,5 x 25/150mm
23
5°
034.0147.00
22,5
5,7
6,5 x 25/150mm
034.0177.00
30,8
16,9
6,5x25/150mm
034.0178.00
30,5
22,2
6,5x25/150mm
034.0145.00
6,5 x 25/150mm
23,5
7,5°
034.0148.00
23
5,7
6,5 x 25/150mm

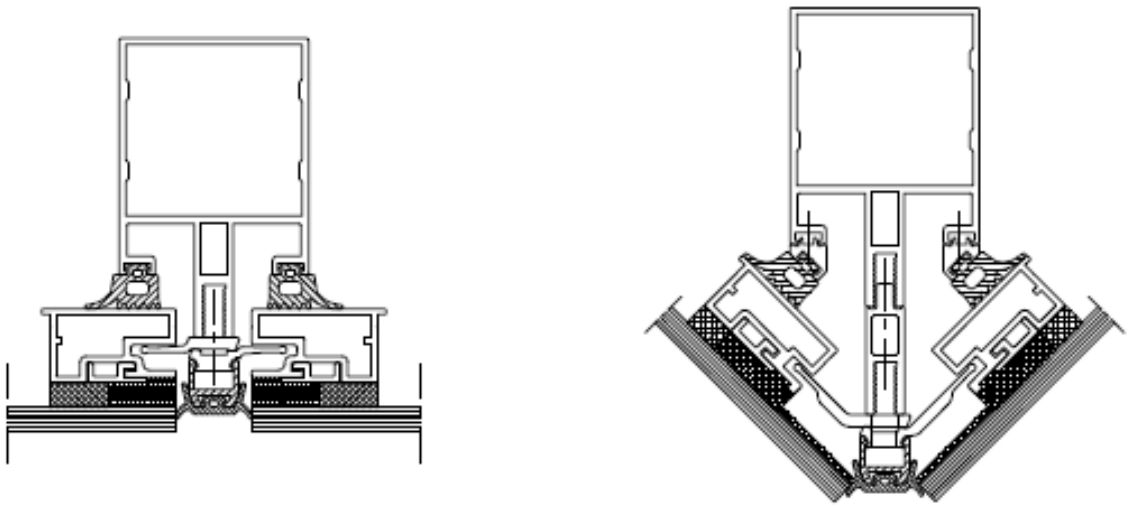
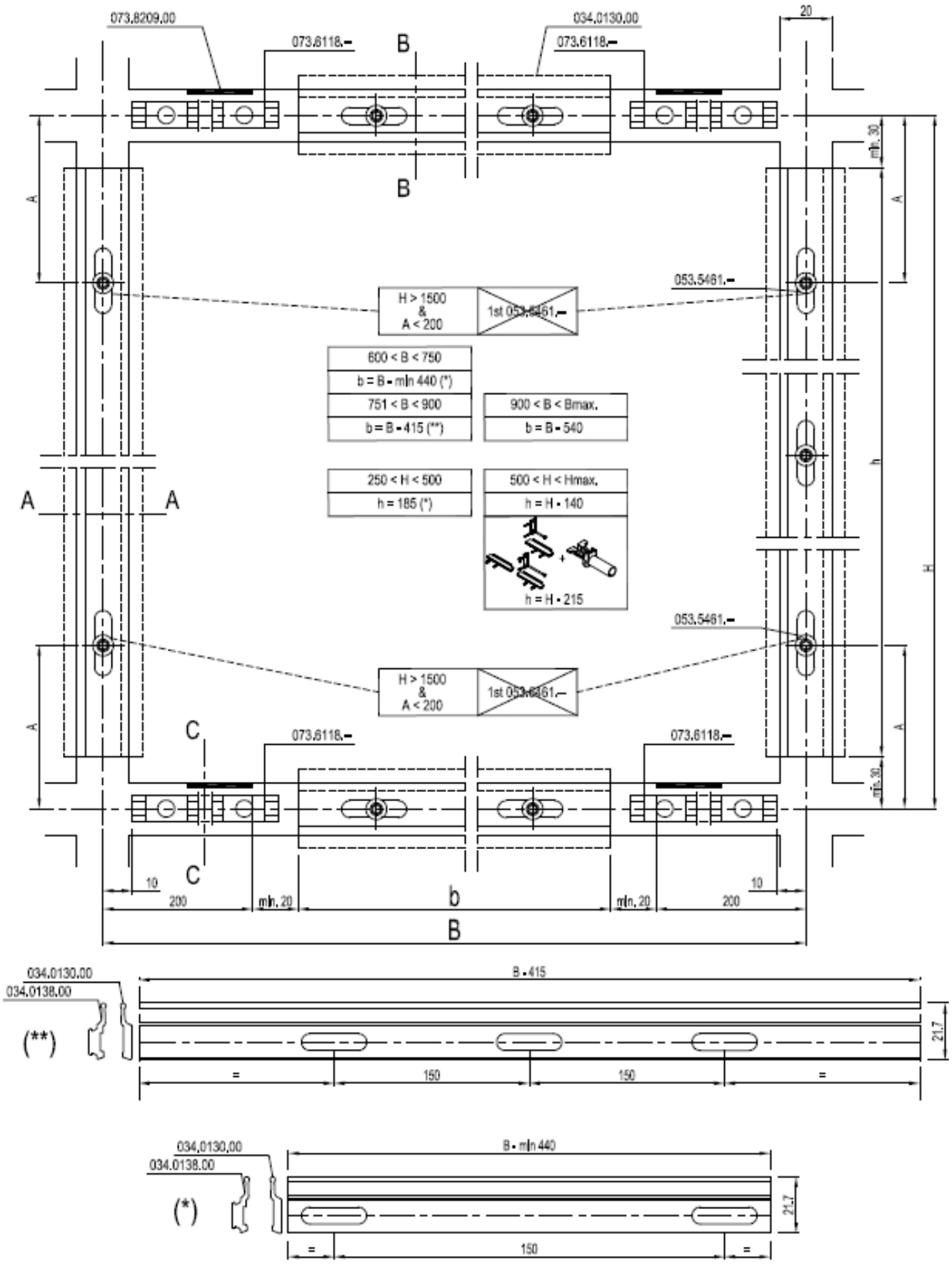


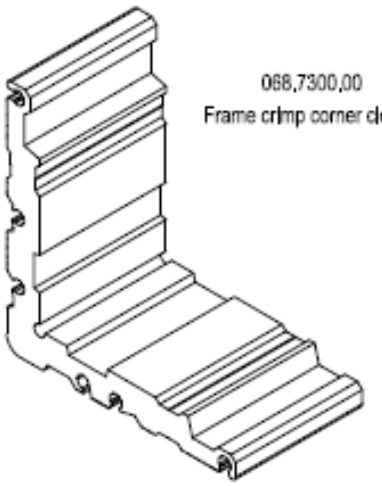
Figure 6a


073.8209.00
073.6118.–
B
034.0130.00
073.6118.–
20
min. 30
A
B
053.5461.–
H > 1500
&
A < 200
1st 053.5461.–
600 < B < 750
b = B - min 440 (*)
751 < B < 900
b = B - 415 (**)
900 < B < Bmax.
b = B - 540
250 < H < 500
h = 185 (*)
500 < H < Hmax.
h = H - 140
h = H - 215
h
H
A
C
10
200
min. 20
b
B

034.0130.00
034.0138.00
(**)
B - 415
21.7
=
150
150
=

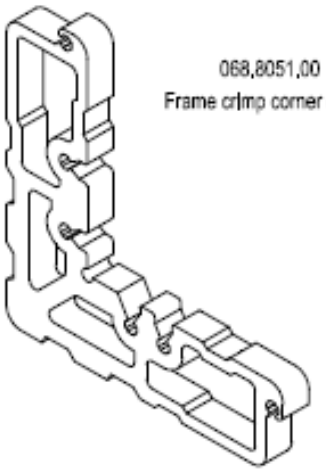
034.0130.00
034.0138.00
(*)
B - min 440
21.7
=
150
=

Figure 6b

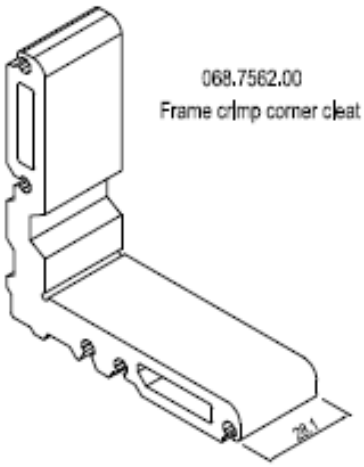


068.7300.00
Frame crimp corner cleat

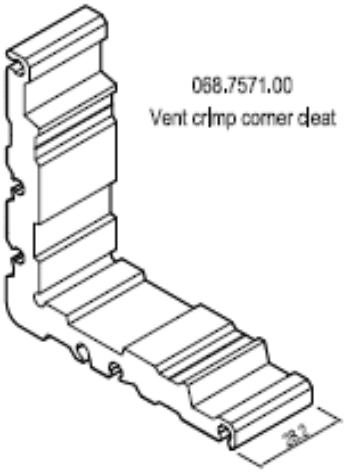
068.7301.00
Vent crimp corner cleat



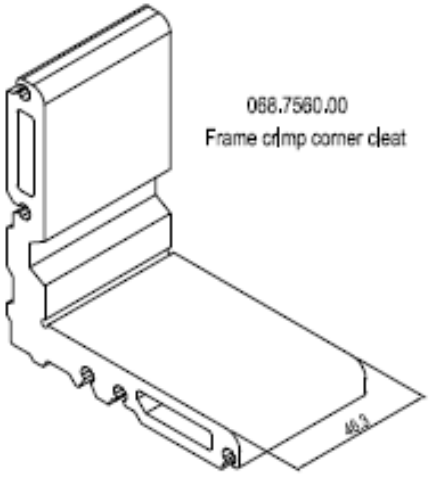
068.8051.00
Frame crimp corner cleat



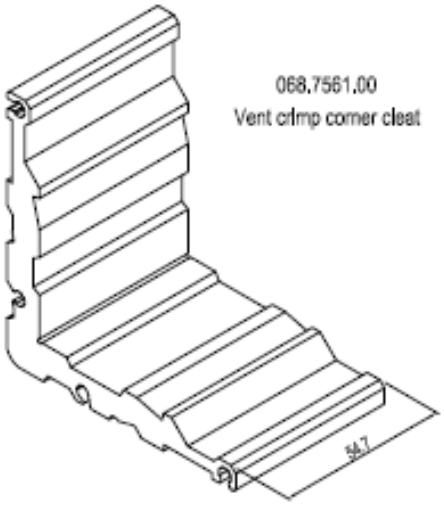
068.7562.00
Frame crimp corner cleat



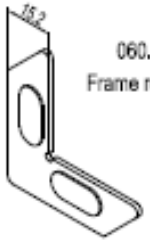
068.7571.00
Vent crimp corner cleat



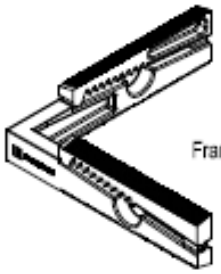
068.7560.00
Frame crimp corner cleat



068.7561.00
Vent crimp corner cleat



060.7722.–
Frame rebate support



068.7563.00
Frame corner piece

Figure 7a

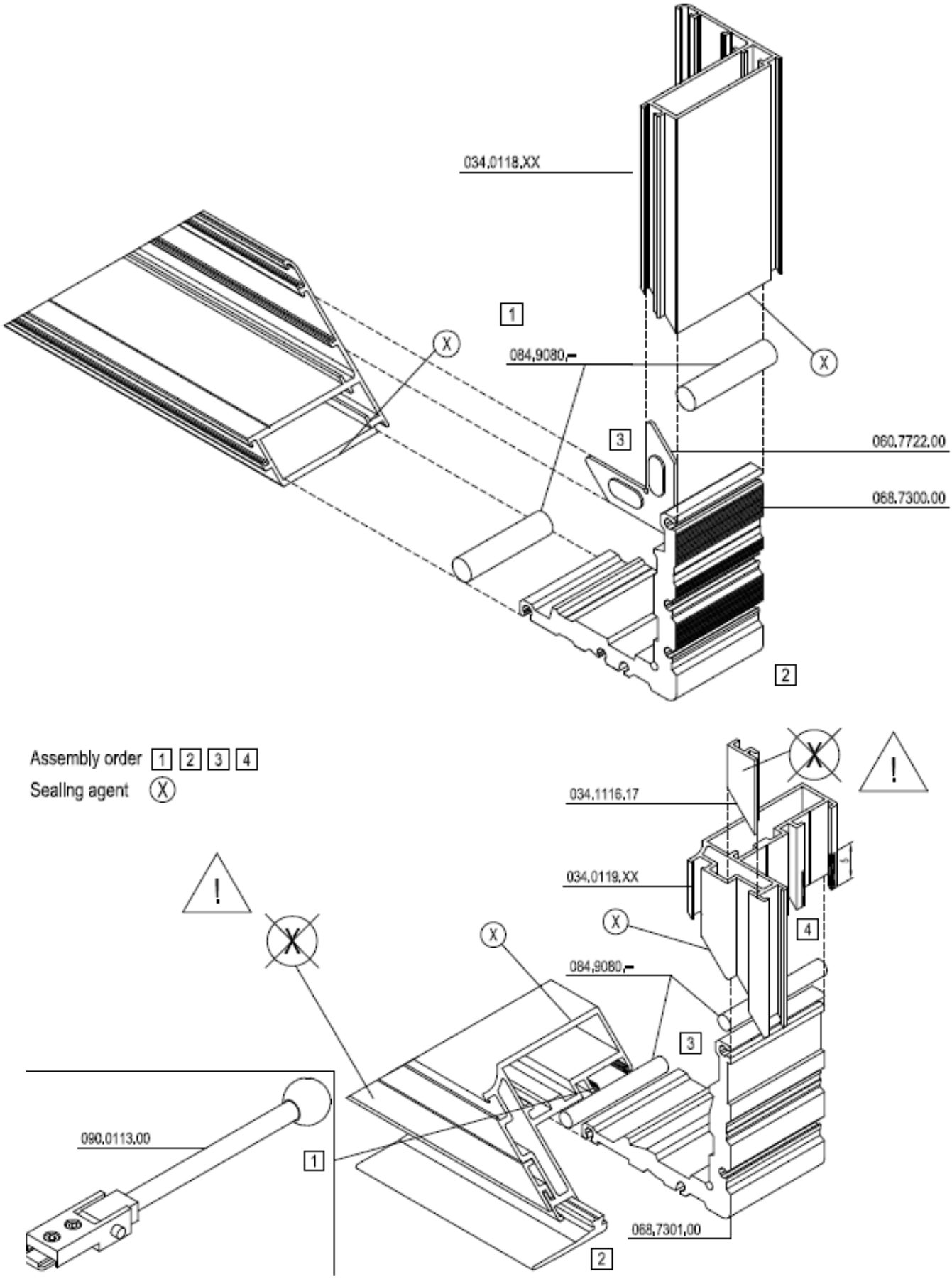

034.0118.XX
1
X
084,9080,–
X
3
060.7722.00
068.7300.00
2
Assembly order 1 2 3 4
Sealing agent X
034.1116.17
!
X
034.0119.XX
X
X
4
084,9080,–
3
090.0113.00
1
068,7301,00
2

Figure 7b

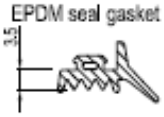
080.9820.04
EPDM seal gasket

080.9821.04
EPDM seal gasket

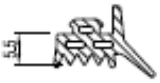
080.9871.04
EPDM seal gasket

080.9514.04
EPDM seal gasket

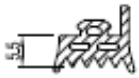
080.9825.04
EPDM seal gasket



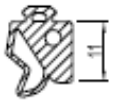
080.9826.04
EPDM seal gasket



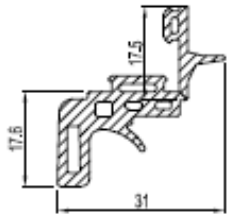
080.9876.04
EPDM seal gasket



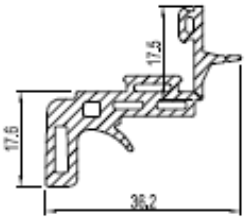
080.9515.04
EPDM seal gasket



080.9307.04
EPDM weather seal gasket

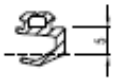


080.9308.04
EPDM weather seal gasket



080.9360.04
EPDM seal gasket

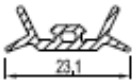
080.9444.04
EPDM weather seal gasket



080.9300.04
EPDM gasket (spacer)

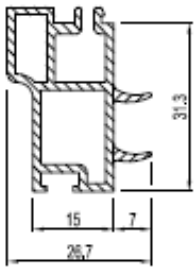
080.9303.04
EPDM gasket (spacer)

080.9937.04
EPDM weather seal gasket

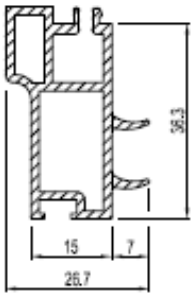


080.9938.04
EPDM weather seal gasket

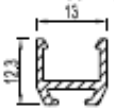
034.0182.04
Gasket support profile



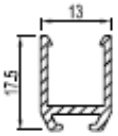
034.0183.04
Gasket support profile



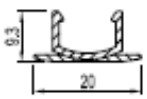
034.1180.04
Gasket support profile



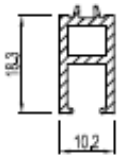
034.1181.04
Gasket support profile



034.0184.04
Clip profile



034.0124.04
Gasket support profile



080.9805.04
EPDM seal gasket

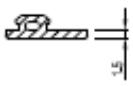


Figure 8

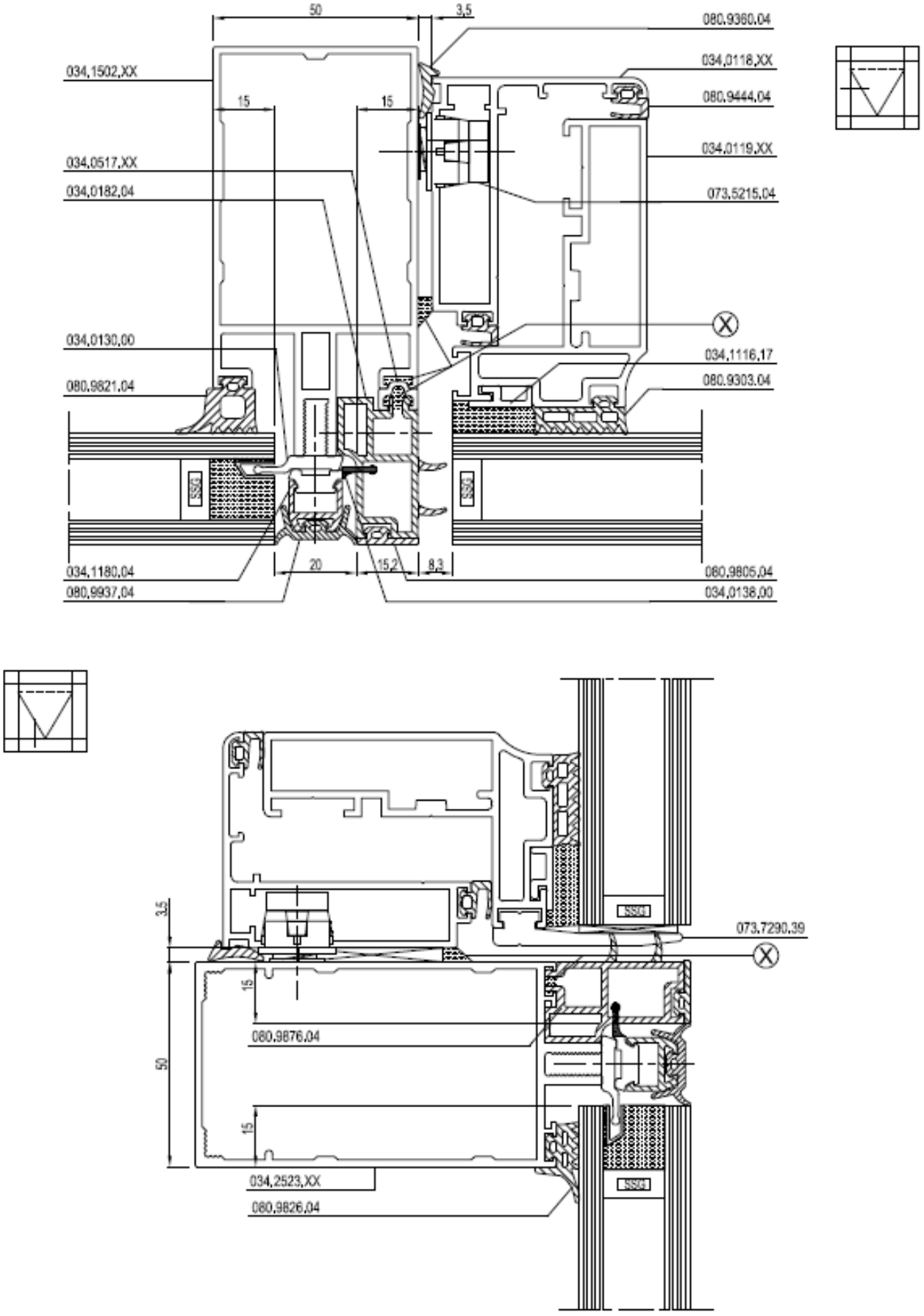

50
3,5
080.9360.04
034,1502,XX
034,0118,XX
15
15
080.9444,04
034,0119,XX
034,0517,XX
034,0182,04
073.5215.04
034,0130,00
034,1116,17
080.9821,04
080.9303.04
SSG
SSG
20
15,2
8,3
034,1180,04
080,9937,04
080.9805,04
034,0138,00
3,5
073.7290.39
SSG
15
080.9876,04
50
15
034,2523,XX
080.9826,04
SSG

Figure 9a

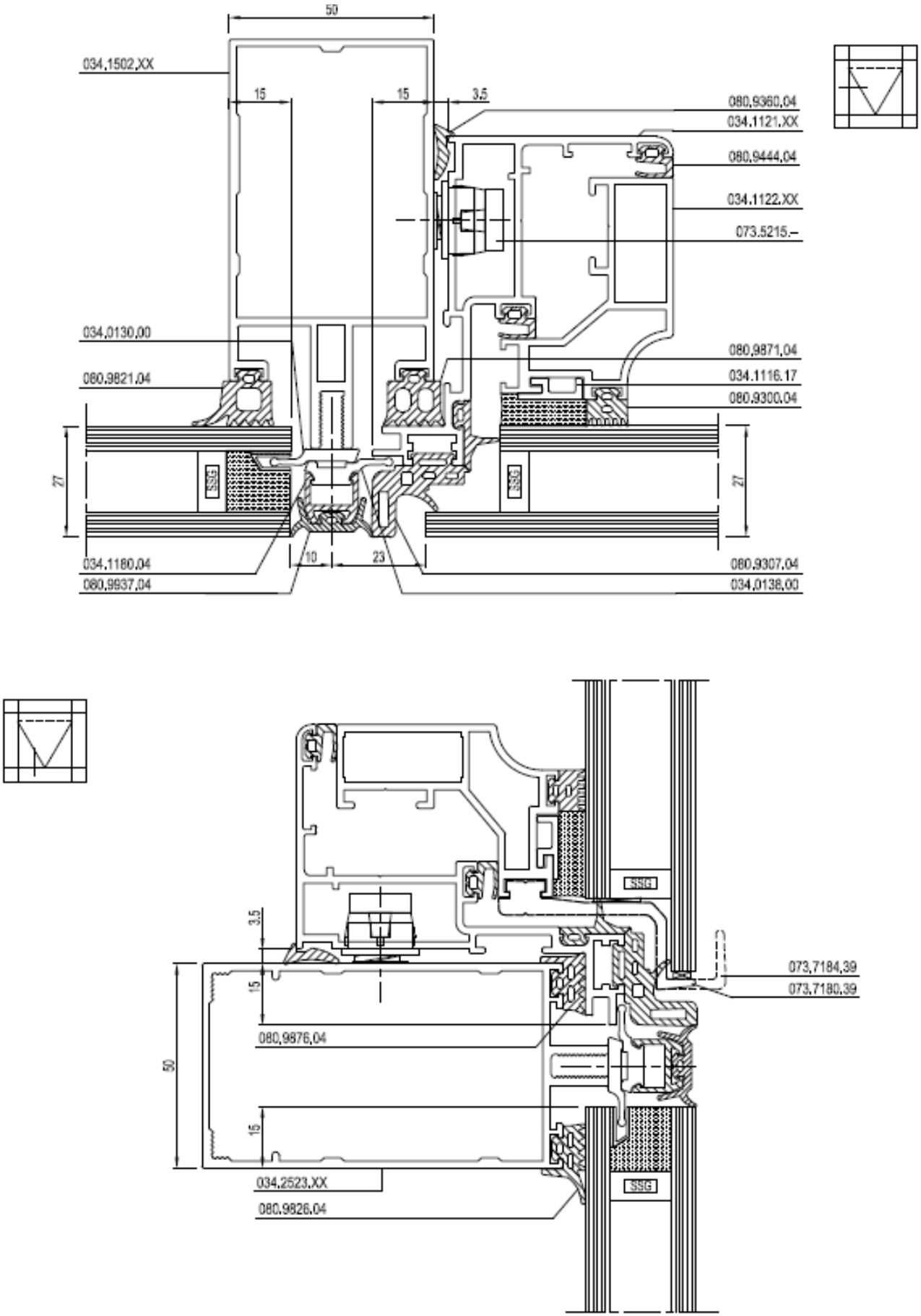

50
034.1502.XX
15
15
3.5
080.9360.04
034.1121.XX
080.9444.04
034.1122.XX
073.5215.–
034.0130.00
080.9821.04
080.9871.04
034.1116.17
080.9300.04
27
SSG
SSG
27
034.1180.04
080.9937.04
10
23
080.9307.04
034.0138.00
3.5
15
15
50
080.9876.04
034.2523.XX
080.9826.04
073.7184.39
073.7180.39
SSG
SSG

Figure 9b

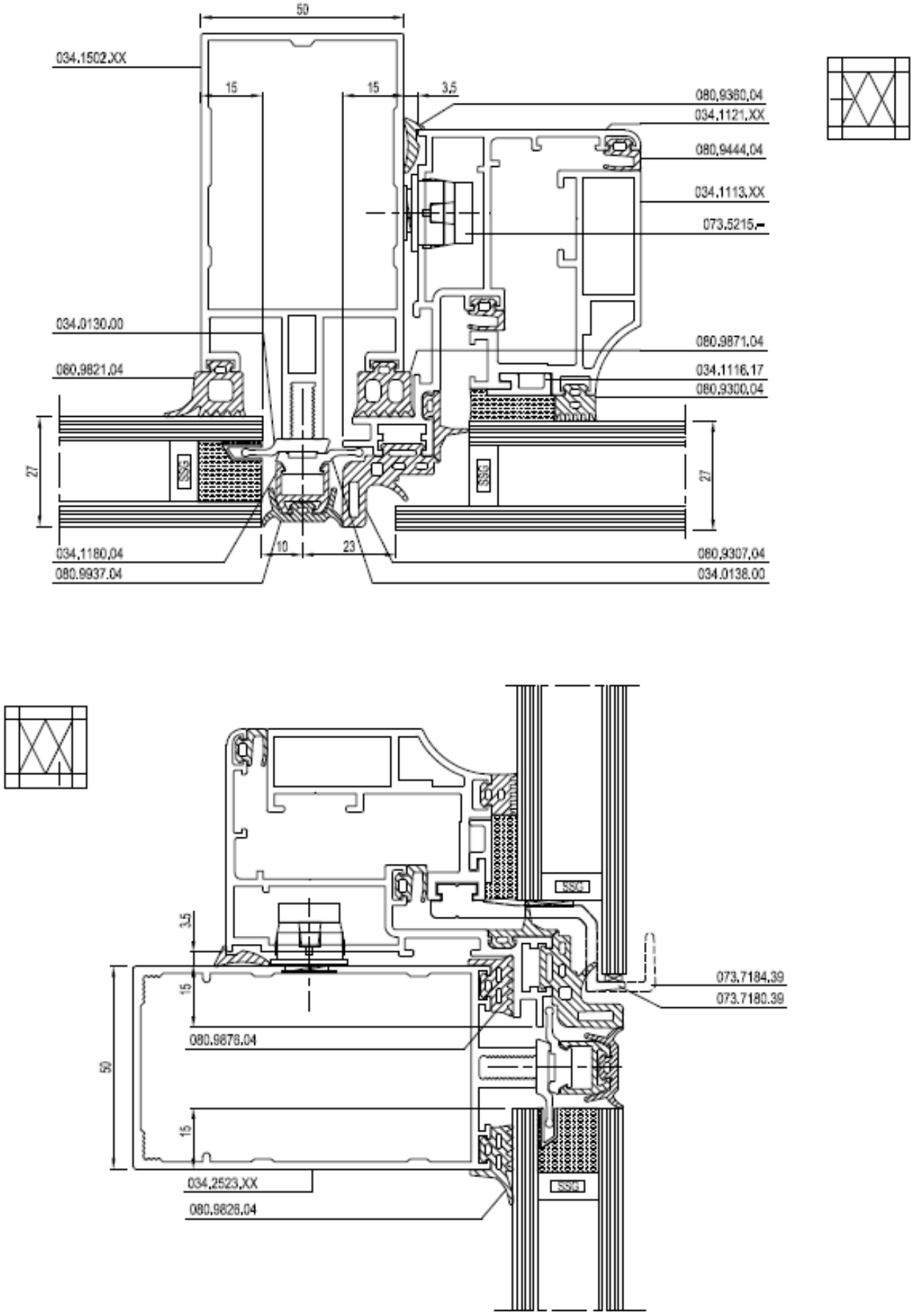

50
034.1502.XX
15
15
3,5
080.9360.04
034.1121.XX
080.9444.04
034.1113.XX
073.5215.-
034.0130.00
080.9871.04
080.9821.04
034.1116.17
080.9300.04
27
SS5
SS5
27
034.1180.04
080.9937.04
10
23
080.9307.04
034.0138.00
3,5
15
15
50
080.9876.04
073.7184.39
073.7180.39
SS04
SS5
034.2523.XX
080.9626.04

Figure 9c

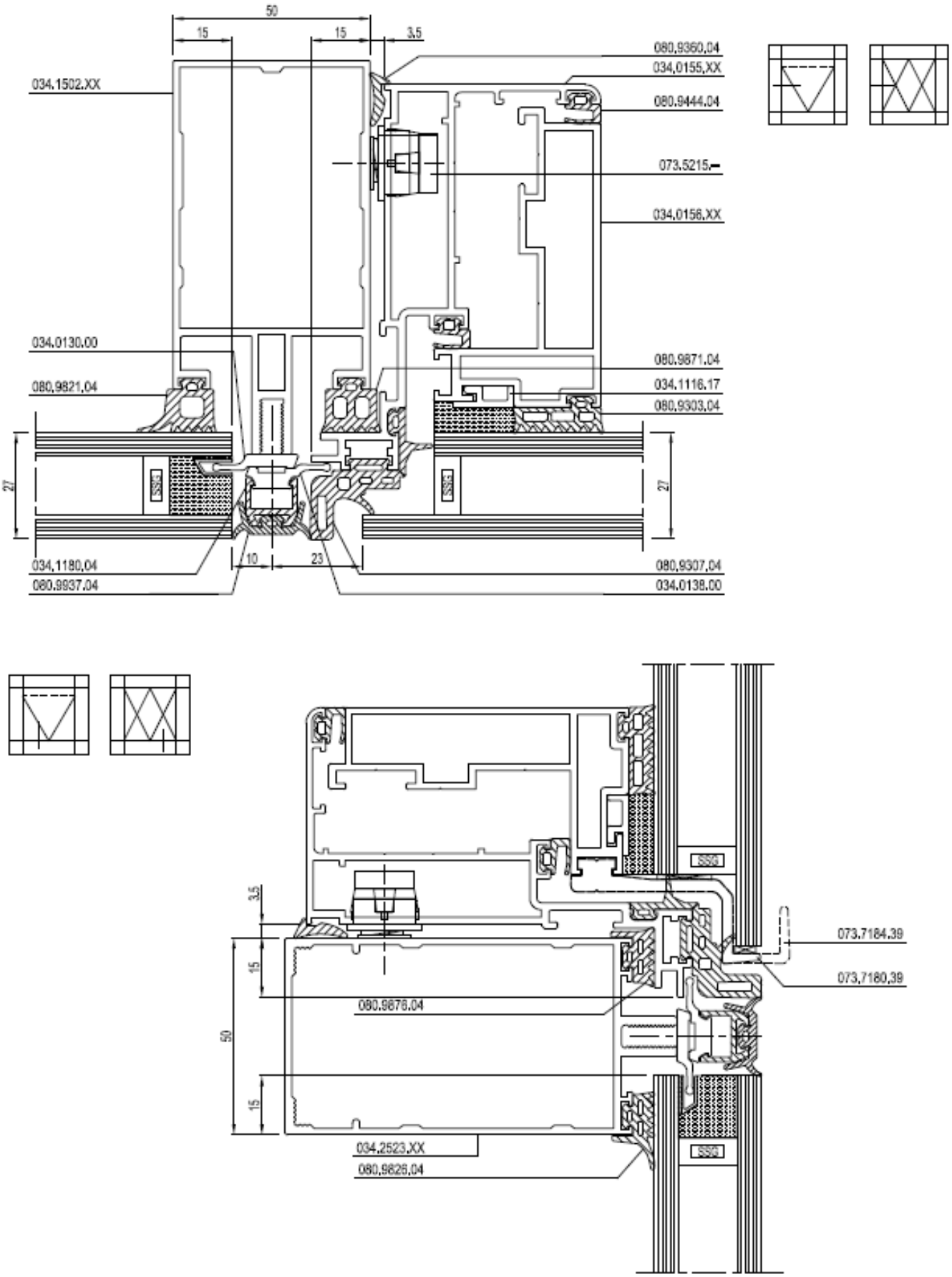

50
15
15
3.5
034.1502.XX
080.9360.04
034.0155.XX
080.9444.04
073.5215.-
034.0156.XX
034.0130.00
080.9821.04
080.9871.04
034.1116.17
080.9303.04
27
27
034.1180.04
080.9937.04
10
23
080.9307.04
034.0138.00
3.5
15
50
15
080.9876.04
034.2523.XX
080.9826.04
073.7184.39
073.7180.39

Figure 9d

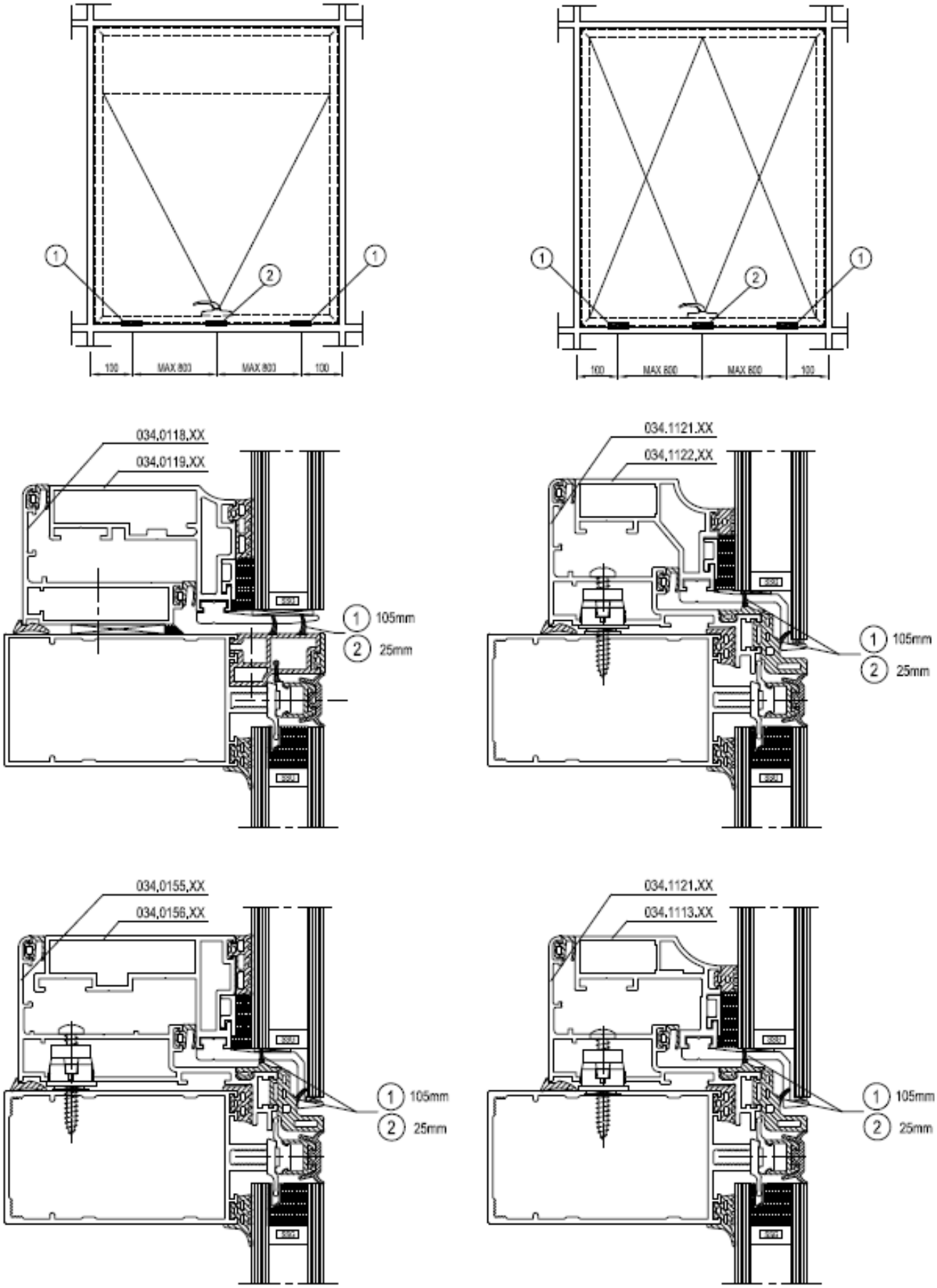

1
2
100
MAX 800
MAX 800
100
034.0118.XX
034.0119.XX
105mm
25mm
034.1121.XX
034.1122.XX
034.0155.XX
034.0156.XX
034.1121.XX
034.1113.XX

Figure 10a

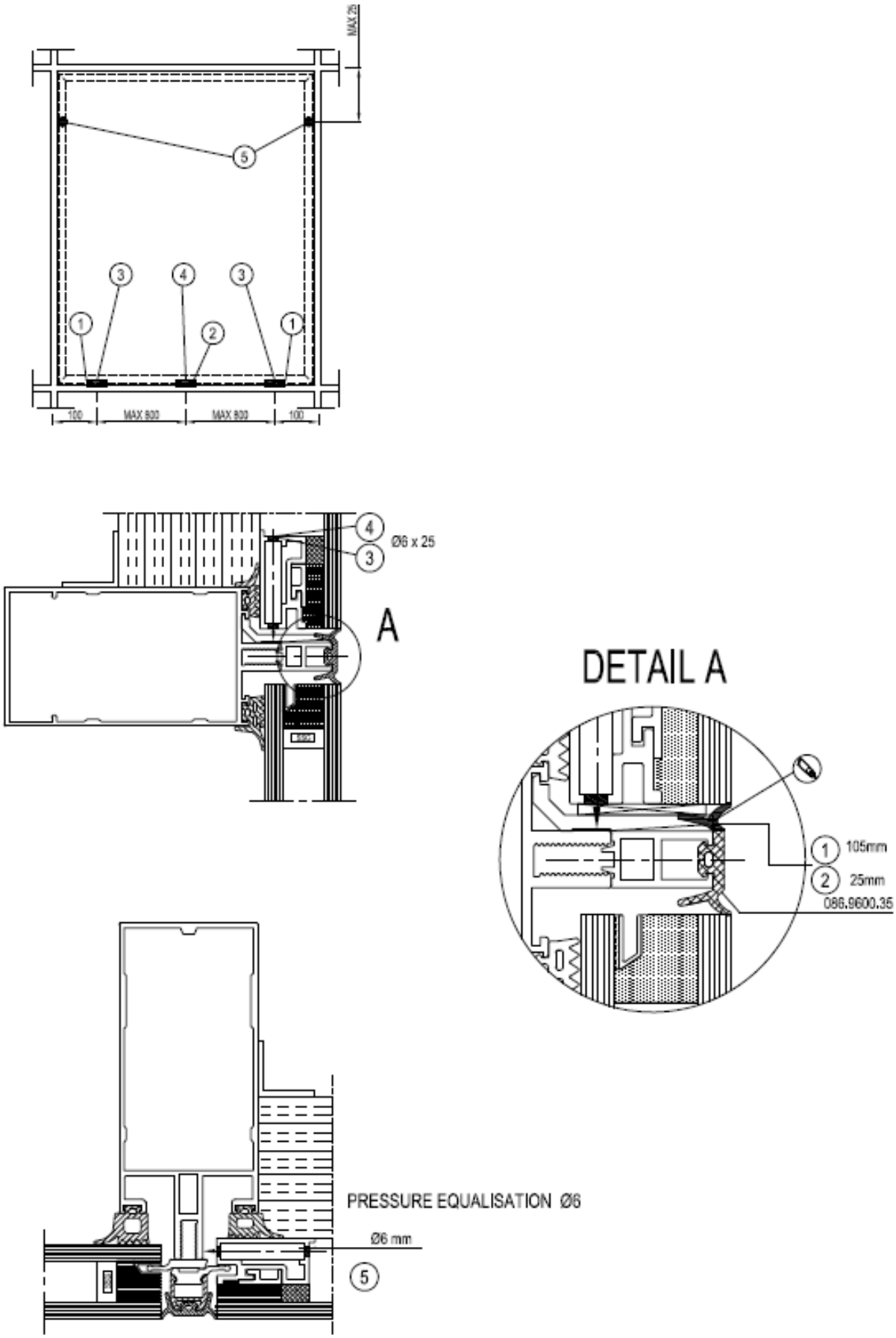
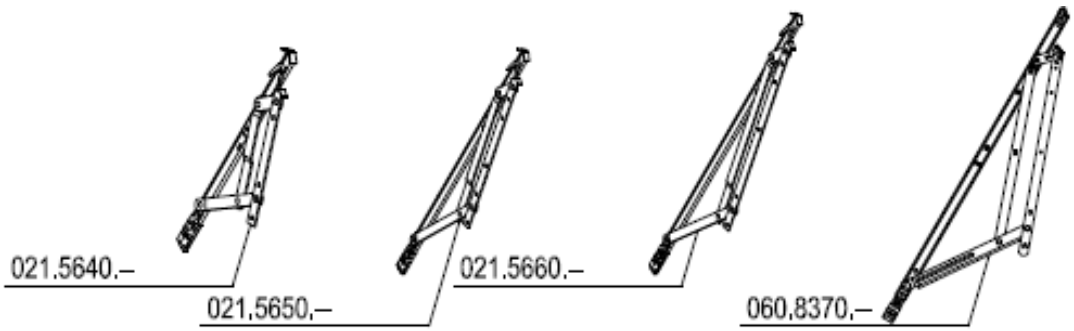

MAX 25
5
3
4
3
1
2
1
100
MAX 800
MAX 800
100
4
Ø6 x 25
3
A
DETAIL A
1
105mm
2
25mm
086.9600.35
PRESSURE EQUALISATION Ø6
Ø6 mm
5

Figure 10b


021.5640.–
021.5650.–
021.5660.–
060.8370.–

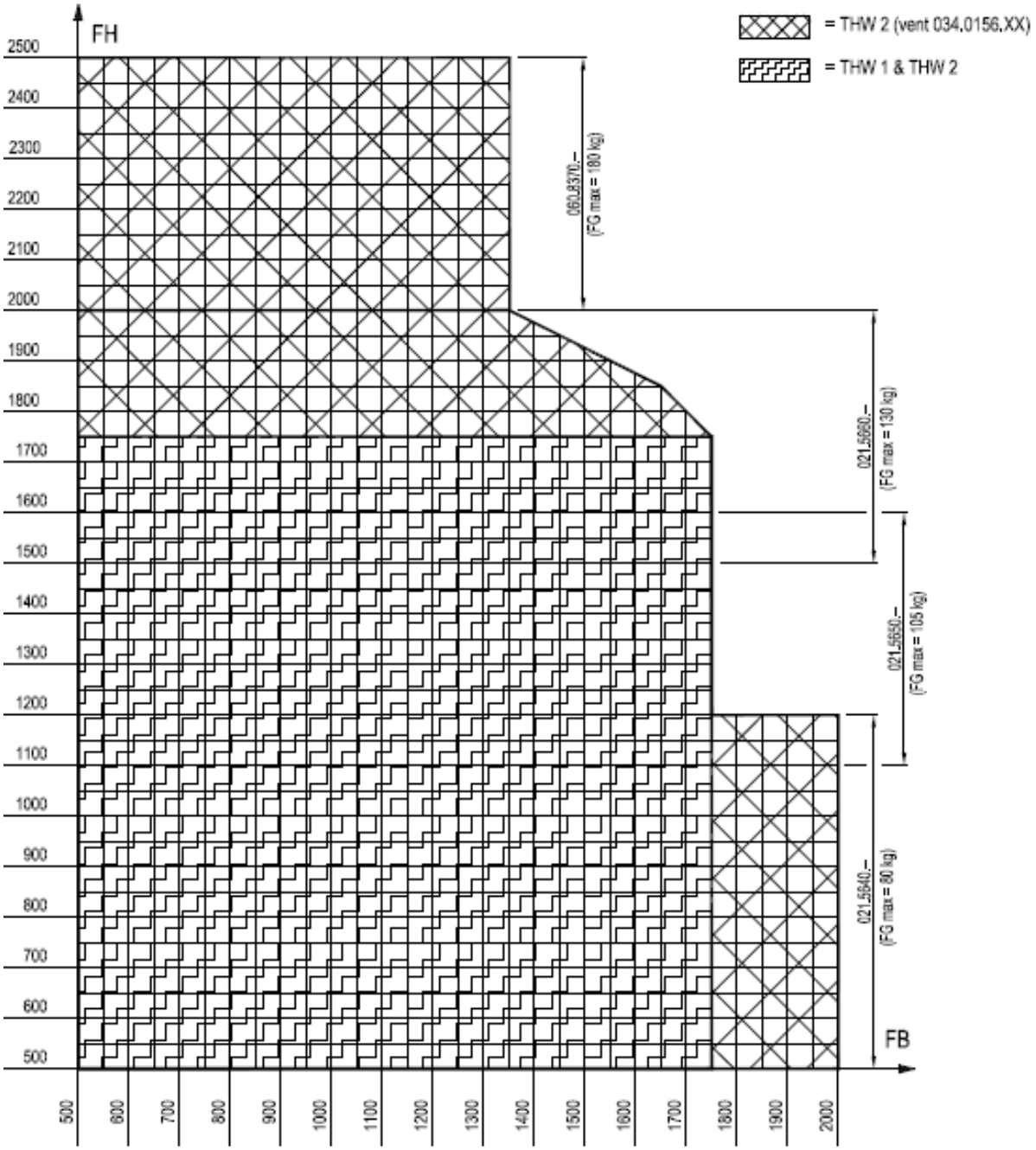

= THW 2 (vent 034.0156.XX)
= THW 1 & THW 2
FH
FB
2500
2400
2300
2200
2100
2000
1900
1800
1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
060.8370.–
(FG max = 180 kg)
021.5660.–
(FG max = 130 kg)
021.5650.–
(FG max = 105 kg)
021.5640.–
(FG max = 80 kg)

Figure 11a

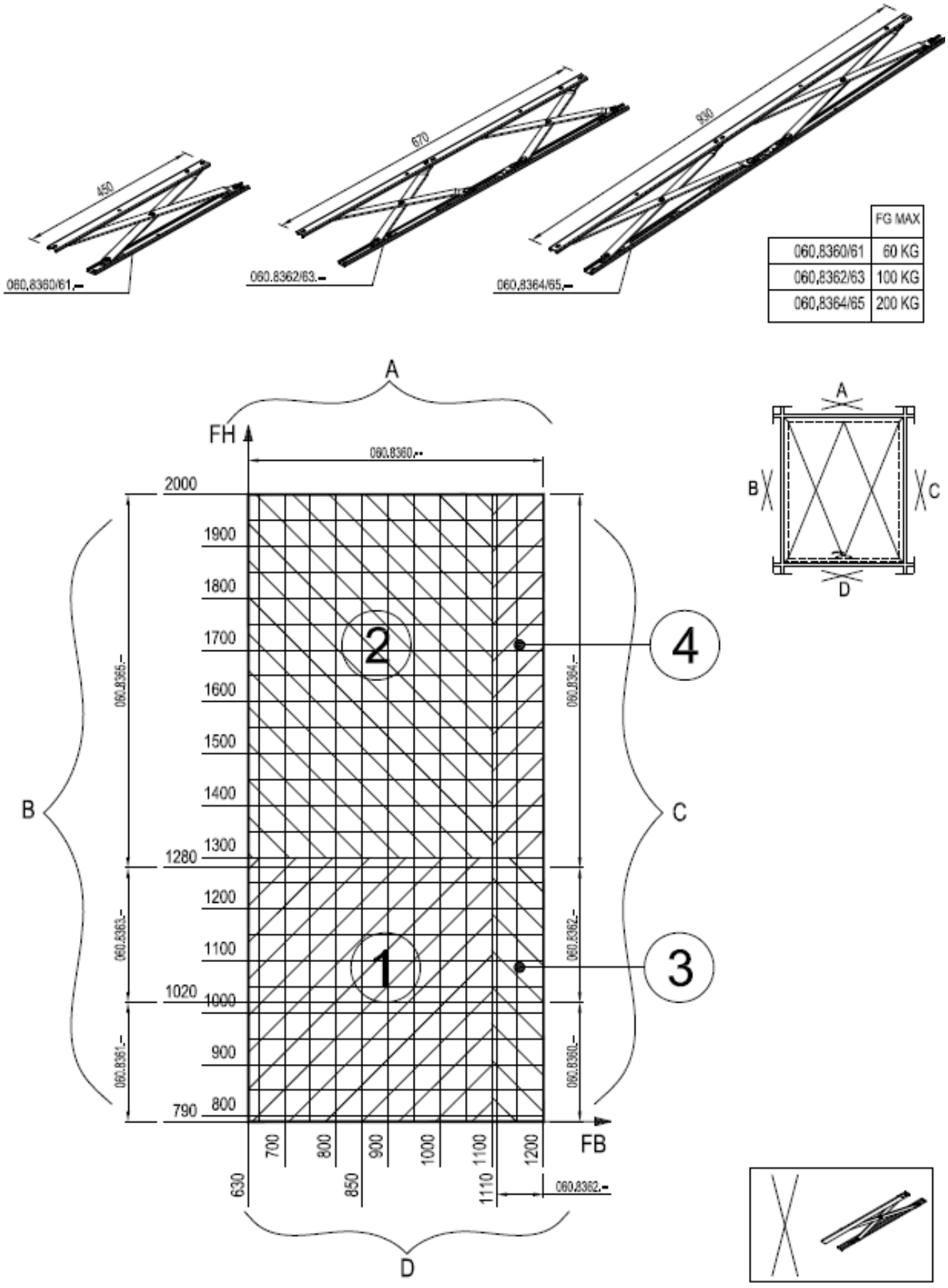

450
060.8360/61.-
670
060.8362/63.-
930
060.8364/65.-
FG MAX
060.8360/61 60 KG
060.8362/63 100 KG
060.8364/65 200 KG
A
FH
060.8360.-
2000
1900
1800
1700
1600
1500
1400
1300
1280
1200
1100
1020
1000
900
800
790
B
C
D
FB
060.8365.-
060.8363.-
060.8361.-
060.8364.-
060.8362.-
060.8360.-
2
1
4
3
700
800
900
1000
1100
1200
630
850
1110
060.8362.-

Figure 11b

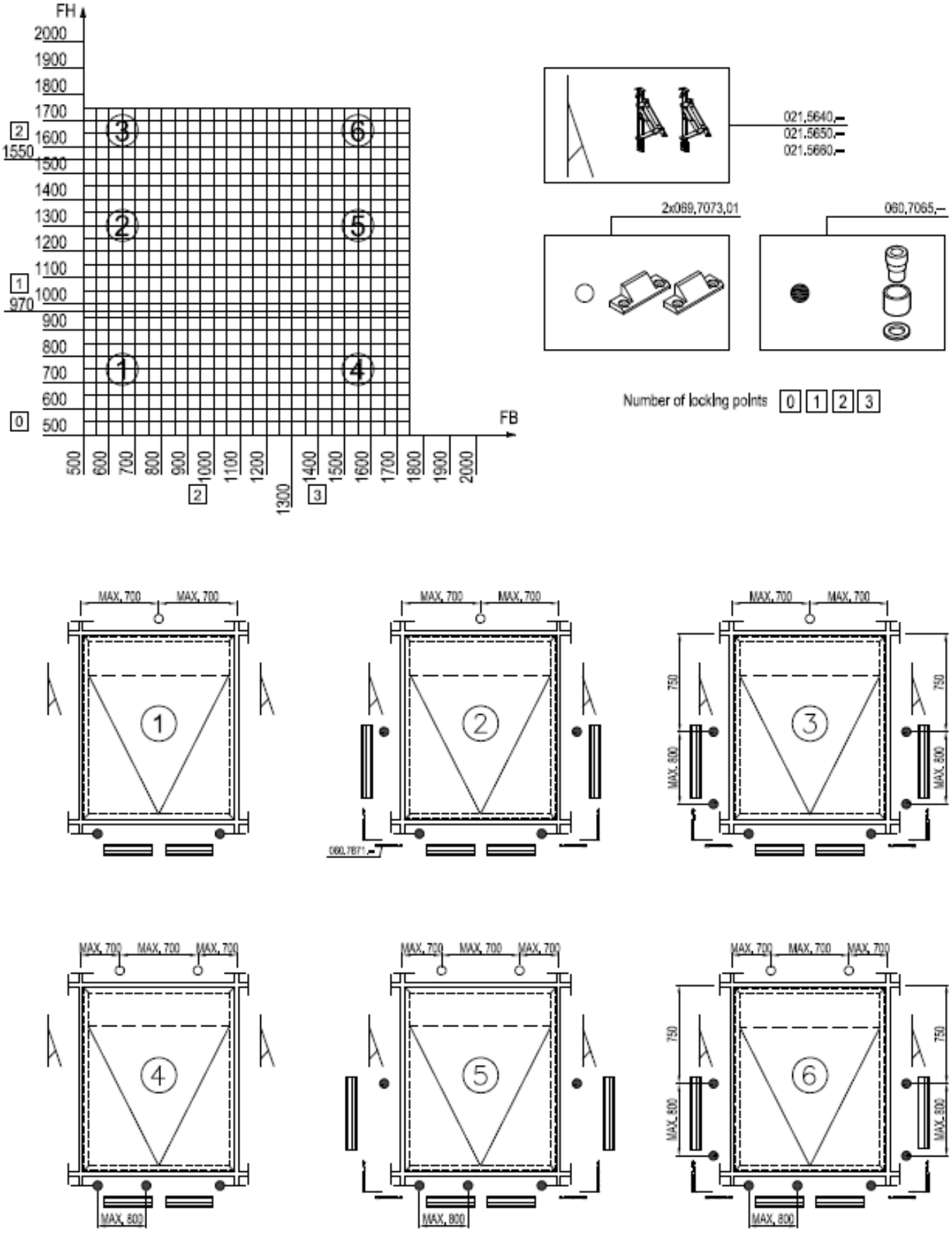

FH
2000
1900
1800
1700
1600
1550
1500
1400
1300
1200
1100
1000
970
900
800
700
600
500
FB
500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000
021,5640,–
021,5650,–
021,5660,–
2x069,7073,01
060,7065,–
Number of locking points 0 1 2 3
MAX. 700
MAX. 800
750
060,7871,–

Figure 11c

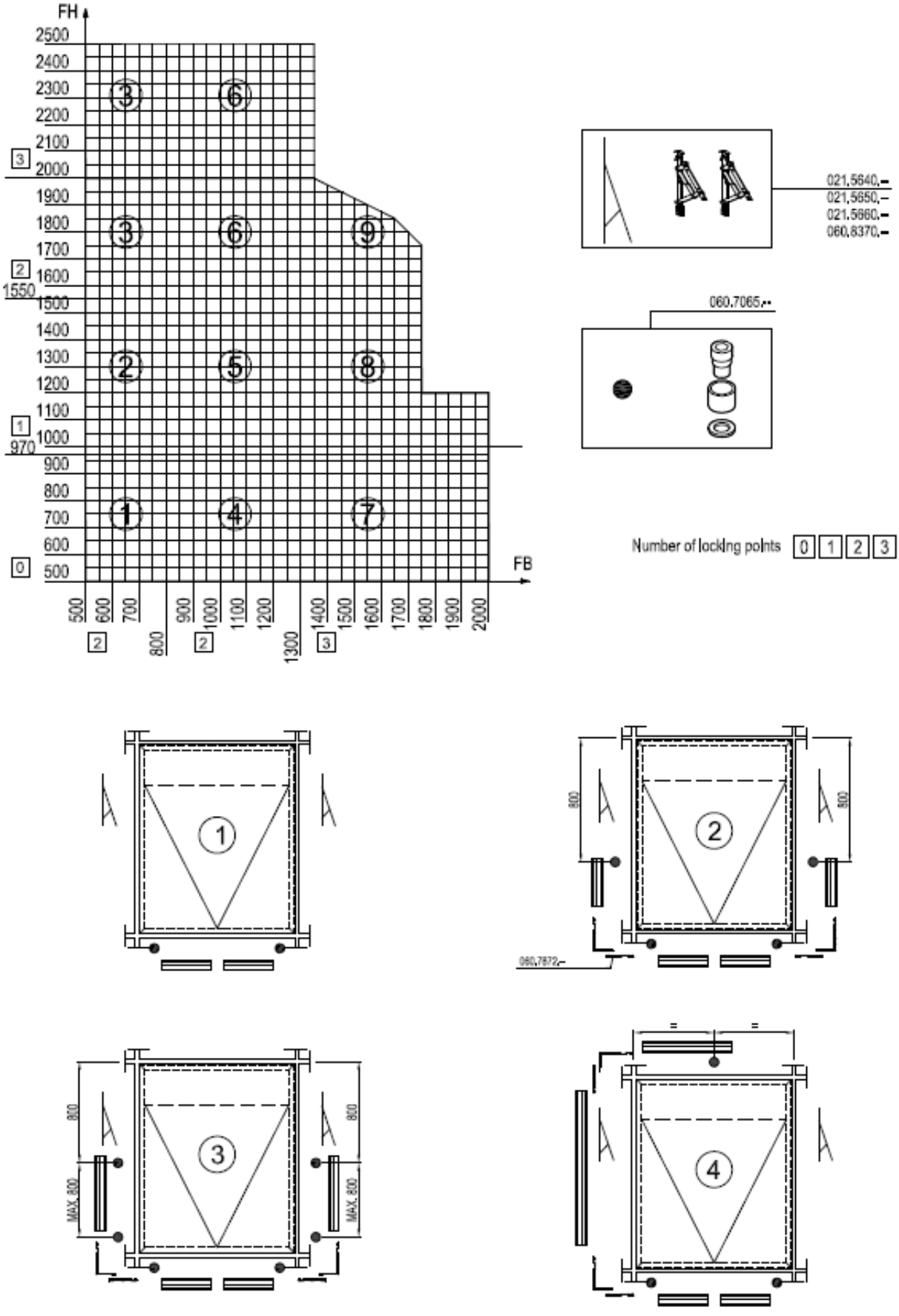
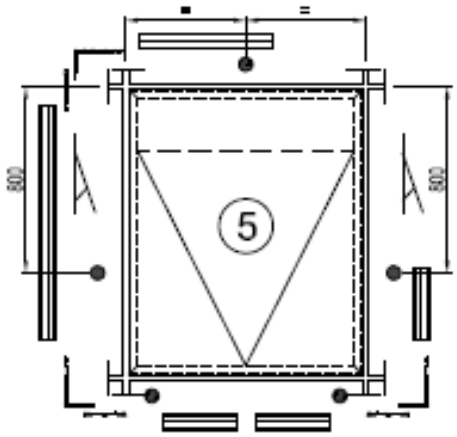
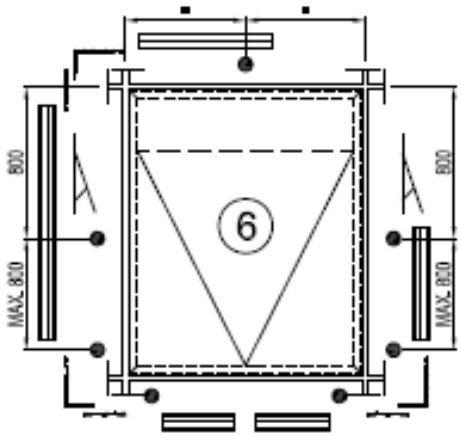
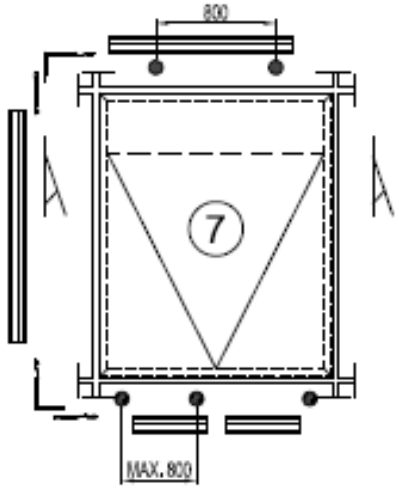
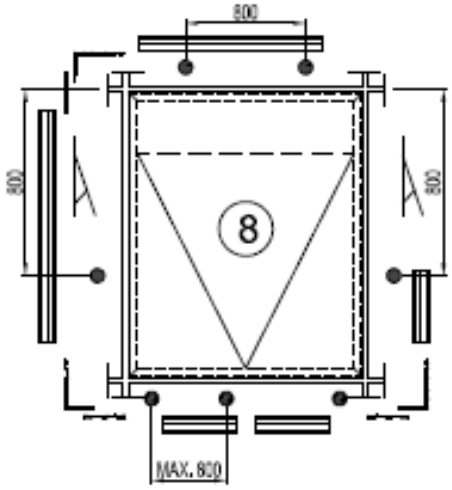

FH
FB
021,5640,–
021,5650,–
021,5660,–
060,8370,–
060,7065,–
Number of locking points 0 1 2 3
060,7872,–
MAX. 800

Figure 11d


800
800
5


800
800
MAX. 800
MAX. 800
6


800
7
MAX. 800


800
800
800
8
MAX. 800

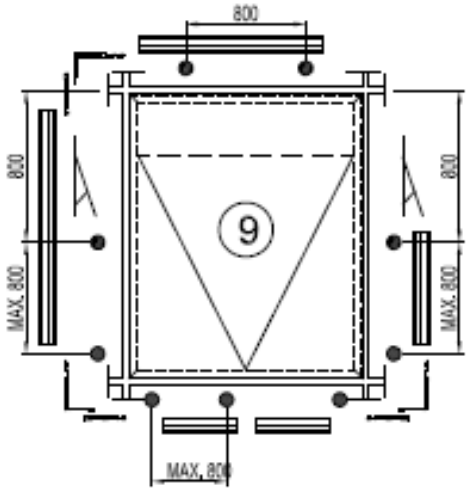
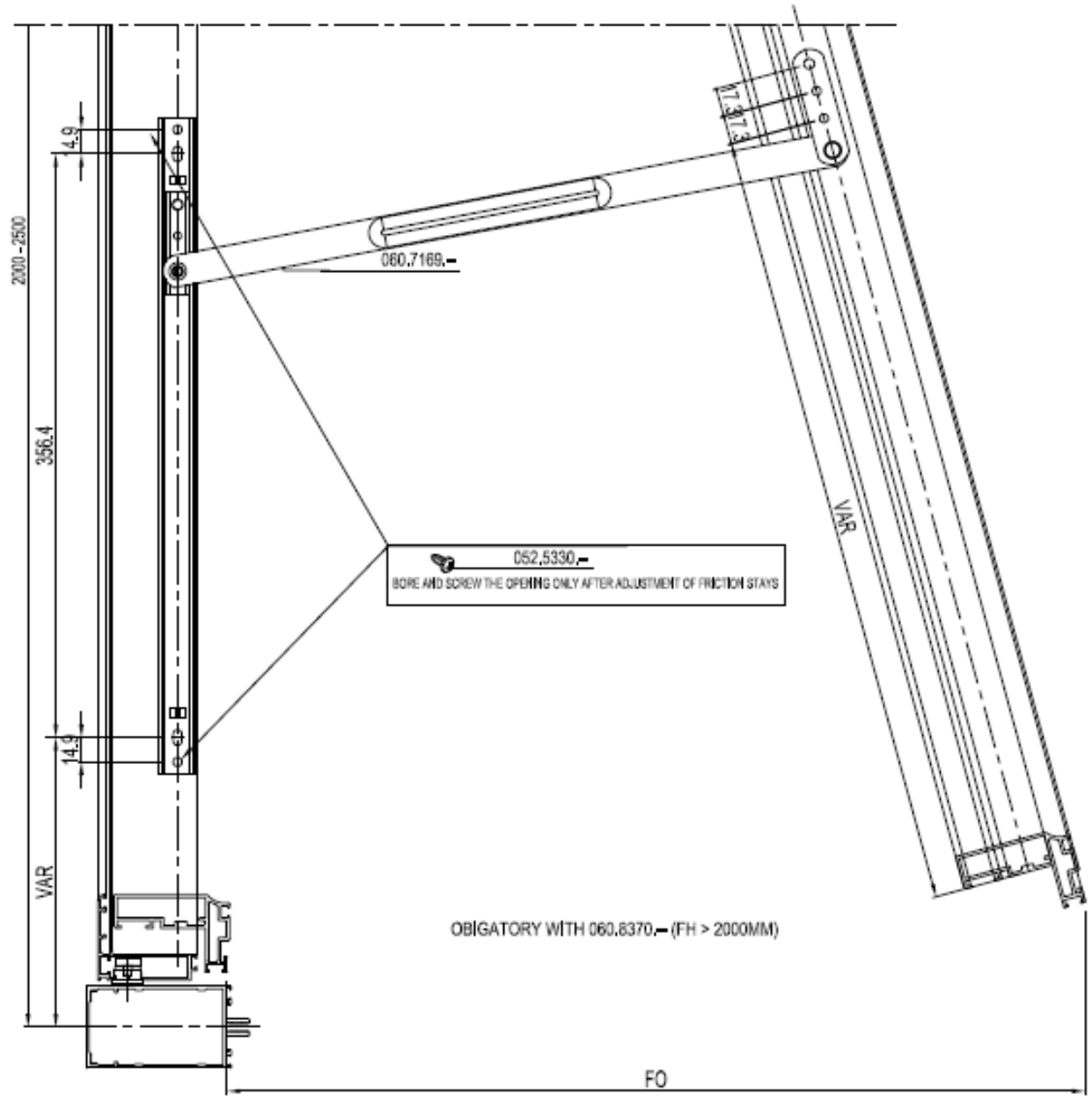
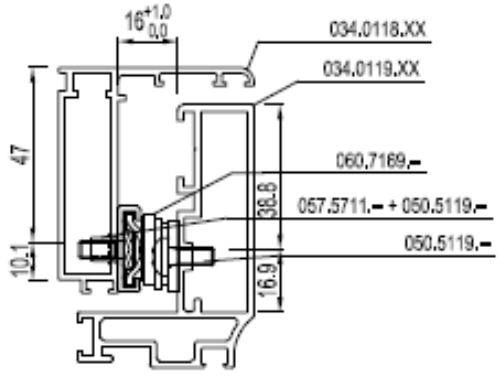

800
800
800
MAX. 800
MAX. 800
9

Figure 11e


2000 - 2500
14.9
356.4
14.9
VAR
060.7169.–
052.5330.–
BORE AND SCREW THE OPENING ONLY AFTER ADJUSTMENT OF FRICTION STAYS
VAR
OBIGATORY WITH 060.8370.– (FH > 2000MM)
FO


034.0118.XX
034.0119.XX
060.7169.–
057.5711.– + 050.5119.–
050.5119.–
47
10.1
36.8
16.9

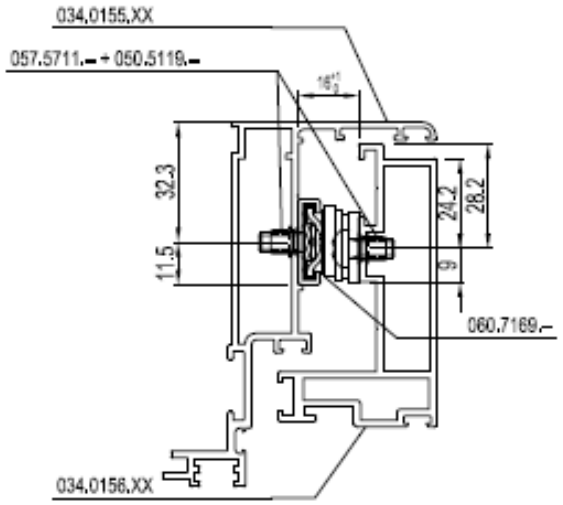
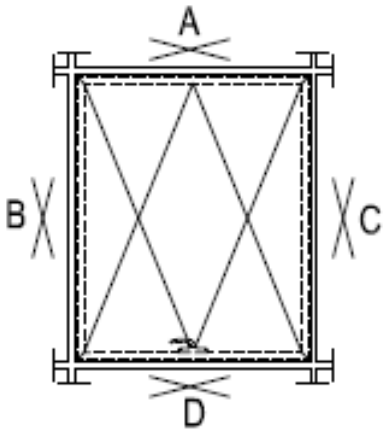

034.0155.XX
057.5711.– + 050.5119.–
32.3
11.5
24.2
28.2
9
060.7169.–
034.0156.XX

Figure 11f


A
B
C
D

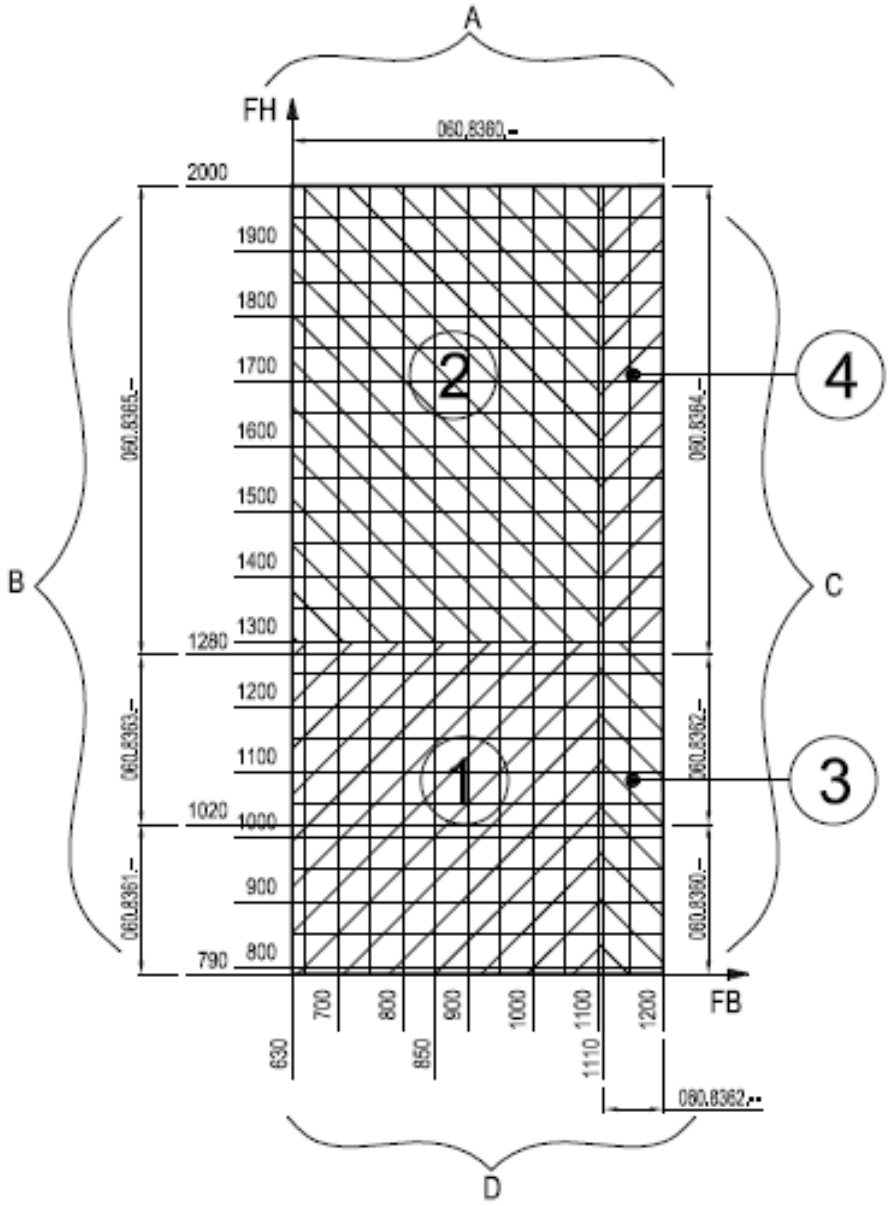

A
FH
060.8363.-
2000
1900
1800
1700
1600
1500
1400
1300
1280
1200
1100
1020
1000
900
800
790
060.8365.-
060.8363.-
060.8361.-
060.8364.-
060.8362.-
060.8360.-
B
C
1
2
3
4
700
800
850
900
1000
1100
1110
1200
630
FB
060.8362.-
D

Figure 11g

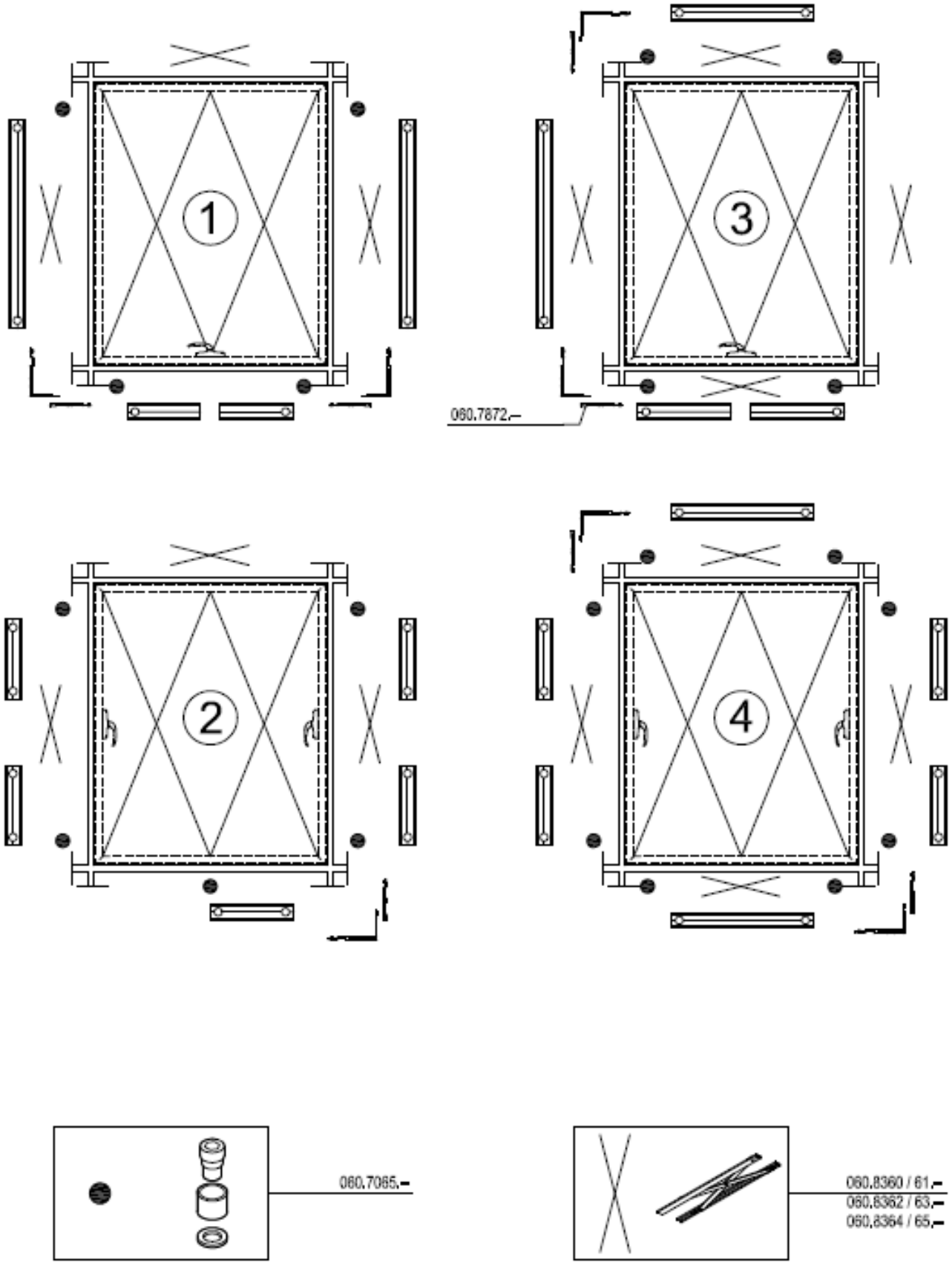


Figure 11h