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Trade name of the construction product

Designação comercial do produto de construção

Product family to which the construction product belongs

Família de produtos a que o produto de construção pertence

Manufacturer

Fabricante

Manufacturing plant(s)

Instalações de fabrico

This European Technical Assessment contains

A presente Avaliação Técnica Europeia contém

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

A presente Avaliação Técnica Europeia é emitida ao abrigo do Regulamento (UE) n.º 305/2011, com base no

LUXUS CRM SYSTEM

Kits composed by subframe and fixings for fastening cladding and external wall elements

Kit constituído por subestrutura, fixações para revestimentos de fachada e elementos exteriores de fachada

Luxus Fachadas Ventiladas, Lda.

Zona Industrial de Chaves, Lote 20-A

5400-570 Chaves

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<https://luxus-fachadas.pt/>

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22 pages including 5 annexes which form an integral part of this assessment

22 páginas, incluindo 5 anexos que fazem parte deste documento

European Assessment Document (EAD) No. 090034-00-0404

Kit composed by subframe and fixings for fastening cladding and external wall elements

Documento de Avaliação Europeu (EAD) No. 090034-00-0404 – Kit composto por subestrutura e fixações para revestimentos de fachada ventilada e elementos de fachada

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1 Technical description of the product

The “Luxus CRM System” kit is composed by subframe and fixings for fastening cladding and external wall elements, in accordance with the EAD for skin element fixing Type 1.

The respective components, that are factory produced by the ETA holder or different suppliers, are identified in TABLE 1 and have the geometrical characteristics defined in Annex 1 to Annex 5. The ETA holder is ultimately responsible for the kits.

TABLE 1
Identification and characteristics of the kit components

	Components	References	Material	Geometric Characteristics
Fixing devices	Support and fixing bracket	CRM.01-65	6060 T6, 6063 T6 or 6005 T6	Figure A1.1, Annex 1
	Support and fixing bracket	CRM.01-100	6060 T6, 6063 T6 or 6005 T6	Figure A1.2, Annex 1
	Support and fixing bracket	CRM.01-220	6060 T6, 6063 T6 or 6005 T6	Figure A1.3, Annex 1
	Double starter skin element fixing	CRM.03	Stainless Steel ANSI 304	Figure A2.1, Annex 2
	Single starter skin element fixing *	CRM.03A	Stainless Steel ANSI 304	Figure A2.2, Annex 2
	Double skin element fixing for regular zones	CRM.04	Stainless Steel ANSI 304	Figure A2.3, Annex 2
	Hidden double skin element fixing for regular zones	CRM.04-O	Stainless Steel ANSI 304	Figure A2.4, Annex 2
	Single skin element fixing for regular zones *	CRM.04A	Stainless Steel ANSI 304	Figure A2.5, Annex 2
	Flat-head self-tapping screw	A2 STAINLESS STEEL M4,2 × 13 mm	Stainless Steel A2	Figure A4.1, Annex 4
	Hex-head self-tapping screw (DIN 7504K) *	6.3 × 25 mm	Stainless Steel A2	Figure A4.2, Annex 4
	Plastic plug with Hex-Head metal screw *	10 × 100mm	Galvanized Steel	Figure A4.4, Annex 4
	Metal expansion plug with hex nut *	M8	Galvanized Steel	Figure A4.3, Annex 4
	Concrete screw *	8 mm	Galvanized Steel	Figure A4.5, Annex 4
Subframe	"T"-shaped vertical profiles	CRM.02	6060 T6, 6063 T6 or 6005 T6	Figure A3.1, Annex 3
	"L"-shaped vertical profiles	CRM.02A	6060 T6, 6063 T6 or 6005 T6	Figure A3.2, Annex 3

* System components that are not subject to the ETA

The brackets and vertical profiles are made from aluminium alloy 6060, 6063, or 6005, with T6 treatment (EN 573-3). The aluminium parts, produced by extrusion, comply with the EN 12020-2 standard. Typically, the aluminium components are used in their raw state, although the vertical profiles can be anodised or thermal coated. The clamps are manufactured from stainless steel ANSI 304 using coils. The screws used are made of stainless steel A2 and comply with the EN ISO 3506 standard.

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

The "Luxus CRM System" kit is designed and installed in accordance with the design and installation instructions provided by the ETA holder, available at LNEC.

The kit is designed for a horizontal distance between brackets not exceeding 1.20 m, although this may vary depending on project specifications. Vertically, additional brackets are applied every 1.20 m and are secured with a single screw. These brackets are affixed to the wall using metal, PVC, or chemical resin anchors. At least three intermediate brackets are used for fixing, though the number may vary based on the project. The vertical profiles are attached to the support brackets, and the clamps, mounted on the "T" or "L" profiles, secure the position of the cladding panels. The maximum dimensions for visible panels are 1.20 x 1.20 m, while concealed panels can measure up to 1.20 x 0.60 m.

The Luxus CRM System can be used as a subframe for cladding in ventilated façades when the design and installation criteria specified by the manufacturer are met.

The provisions made in this ETA are based on an assumed working life of 25 years, when installed, provided that the kit is subject to appropriate design, installation, use, maintenance and repair.

The product will be transported, stored and installed according to the manufacturer's instructions or (in absence of such instructions) according to the usual practice of the building professionals.

The indications given on the working life cannot be interpreted as a guarantee given by the producer but are to be regarded only as a means for choosing the right product in relation to the expected economically reasonable working life of the works.

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

3.1 General

Sampling, conditioning, testing and the assessment for the intended use of this kit according to the Basic Work Requirements (BWR) were carried out in compliance with the EAD 090034-00-0404 - *Kit composed by subframe and fixings for fastening cladding and external wall elements*.

3.2 Safety in case of fire (BWR 2)

a) Reaction to fire

The fire reaction of the Luxus CRM System was verified from the reaction to fire of their components.

The main components of the kits are made of aluminium and stainless steel. Therefore, the kits and all their main components comply with the requirements of class A1, in accordance with the EC Decision 96/603/EC (as amended) without the need for testing on the basis of the list in that decision.

According to clause 2.1 of TR 021, "Reaction to fire requirements for small components", edition June 2020, it can be assumed that a component with mass ≤ 50 g and size $\leq 50 \times 50$ mm is a small component and does not need to be tested and classified separately.

3.3 Safety and accessibility in use (BWR 4)

a) Wind load resistance

No performance assessed.

b) Resistance to vertical load of the whole assembled system

No performance assessed.

c) Resistance to vertical load of skin element fixings

The resistance to vertical load of skin element fixing has been tested according to Annex D of EAD for skin element fixing type 1. The test results are given in TABLE 2 for the double skin element fixing for regular zones (CRM.04), in TABLE 3 for the hidden double skin element fixing for regular zones (CRM.04-O), and in TABLE 4 for double starter skin element fixing (CRM.03).

TABLE 2

Resistance to vertical load of skin element fixings (weight): Double skin element fixing for regular zones (CRM.04)

	1 mm irreversible deformation F_i (N)	Rupture F_{iu} (N)	Rupture type
Mean (F_m)	1650	3537	Bending at flap (Figure A5.1, Annex 5)
Standard deviation (S)	110	318	
Characteristic force (F_c) ⁽¹⁾	1394	2796	

⁽¹⁾ Characteristic values giving 75% confidence that 95% of test results will be higher than this value.

TABLE 3

Resistance to vertical load of skin element fixings (weight): Hidden double skin element fixing for regular zones (CRM.04-O)

	1 mm irreversible deformation F_i (N)	Rupture F_{iu} (N)	Rupture type
Mean (F_m)	1325	2225	Bending at flap (Figure A5.2, Annex 5)
Standard deviation (S)	147	105	
Characteristic force (F_c) ⁽¹⁾	983	1979	

⁽¹⁾ Characteristic values giving 75% confidence that 95% of test results will be higher than this value.

TABLE 4

Resistance to vertical load of skin element fixings (weight): Double starter skin element fixing (CRM.03)

	1 mm irreversible deformation F_i (N)	Rupture F_{iu} (N)	Rupture type
Mean (F_m)	1131	1981	Bending at flap (Figure A5.3, Annex 5)
Standard deviation (S)	208	42	
Characteristic force (F_c) ⁽¹⁾	646	1883	

⁽¹⁾ Characteristic values giving 75% confidence that 95% of test results will be higher than this value.

d) Resistance to horizontal load of skin element fixings

The resistance to horizontal load of skin element fixing has been tested according to Annex D of EAD. The test results are given in TABLE 5 for the double skin element fixing for regular zones (CRM.04), in TABLE 6 for the hidden double skin element fixing for regular zones (CRM.04-O), and in TABLE 7 for double starter skin element fixing (CRM.03).

TABLE 5

Resistance to horizontal load of skin element fixings (wind): Double skin element fixing for regular zones (CRM.04)

	1 mm irreversible deformation F_i (N)	Rupture F_{iu} (N)	Rupture type
Mean (F_m)	330	2745	Rupture at base flap (Figure A5.4, Annex 5)
Standard deviation (S)	43	165	
Characteristic force (F_c) ⁽¹⁾	229	2360	

⁽¹⁾ Characteristic values giving 75% confidence that 95% of test results will be higher than this value.

TABLE 6

Resistance to horizontal load of skin element fixings (wind): Hidden double skin element fixing for regular zones (CRM.04-O)

	1 mm irreversible deformation F_i (N)	Rupture F_{iu} (N)	Rupture type
Mean (F_m)	392	2214	Rupture at base flap (Figure A5.5, Annex 5)
Standard deviation (S)	75	148	
Characteristic force (F_c) ⁽¹⁾	217	1869	

⁽¹⁾ Characteristic values giving 75% confidence that 95% of test results will be higher than this value.

TABLE 7

Resistance to horizontal load of skin element fixings (wind): Double skin element fixing for regular zones (CRM.03)

	1 mm irreversible deformation F_i (N)	Rupture F_{iu} (N)	Rupture type
Mean (F_m)	109	362	Rupture at base flap (Figure A5.6, Annex 5)
Standard deviation (S)	21	15	
Characteristic force (F_c) ⁽¹⁾	60	327	

⁽¹⁾ Characteristic values giving 75% confidence that 95% of test results will be higher than this value.

e) Resistance to pulsating load of skin element fixings

No performance assessed.

f) Pull-out resistance of fixings (from profile T)

The pull-out resistance of fixings from profile has been tested according to Annex G of EAD. The test results are presented in TABLE 8 for the screw with reference A2 STAINLESS STEEL M4.2 × 13 mm.

TABLE 8

Pull-out resistance of fixing from profile T with A2 STAINLESS STEEL M4.2 × 13 mm screw

	Rupture F_{iu} (N)	Rupture type
Mean (F_m)	2278	Rupture in the aluminium profile
Standard deviation (S)	228	
Characteristic force (F_c) ⁽¹⁾	1747	

⁽¹⁾ Characteristic values giving 75% confidence that 95% of test results will be higher than this value.

g) Pull-through resistance of fixings (from profile T)

The pull-through resistance of fixings from profile has been tested according to Annex G of EAD. The test results are presented in TABLE 9 for the screw with reference A2 STAINLESS STEEL M4.2 × 13 mm.

TABLE 9

Pull-through resistance of fixing from profile T with A2 STAINLESS STEEL M4.2 × 13 mm

	Rupture F_{iu} (N)	Rupture type
Mean (F_m)	4654	Rupture in the aluminium profile
Standard deviation (S)	79	
Characteristic force (F_c) ⁽¹⁾	4495	

⁽¹⁾ Characteristic values giving 75% confidence that 95% of test results will be higher than this value.

h) Inertia and resistance of profiles

The inertia and mechanical resistance properties of profiles are presented in TABLE 10.

TABLE 10
Inertia and mechanical resistance of profiles

Vertical profile	CRM.02A			CRM.02		
Section	Figure A3.2, Annex 3			Figure A3.1, Annex 3		
Inertia (cm ⁴)	$I_{xx} = 9.96 \text{ cm}^4$ $I_{yy} = 3.66 \text{ cm}^4$			$I_{xx} = 13.34 \text{ cm}^4$ $I_{yy} = 25.01 \text{ cm}^4$		
Maximum admissible deflection in accordance with the wind load resistance test (mm)	No performance assessed			No performance assessed		
Aluminium alloy	6060 T6	6063 T6	6005 T6	6060 T6	6063 T6	6005 T6
σ_{02} (MPa) ⁽¹⁾	150	170	215	150	170	215
σ_{Rupture} (MPa) ⁽¹⁾	190	215	255	190	215	255

⁽¹⁾ Values according to the EN 755-2 standard.

i) Resistance to vertical load of brackets

The resistance to vertical load of brackets has been tested according to Annex H of EAD. The test results are presented in TABLE 11 for the brackets with reference CRM.01-65, in TABLE 12 for the brackets with reference CRM.01-100, and in TABLE 13 for the brackets with reference CRM.01-220.

TABLE 11
Brackets resistance to vertical load: Bracket CRM.01-65

	Load at rupture F_s (N)
Mean (F_{mcs})	5860
Standard deviation (S)	601
Characteristic force (F_{mSC}) ⁽¹⁾	4460

⁽¹⁾ Characteristic values giving 75% confidence that 95% of test results will be higher than this value.

TABLE 12
Brackets resistance to vertical load: Bracket CRM.01-100

	Load at rupture F_s (N)
Mean (F_{mcs})	6535
Standard deviation (S)	434
Characteristic force (F_{mSC}) ⁽¹⁾	5523

⁽¹⁾ Characteristic values giving 75% confidence that 95% of test results will be higher than this value.

TABLE 13
Brackets resistance to vertical load: Bracket CRM.01-220

	Load at rupture F_s (N)
Mean (F_{mcs})	2056
Standard deviation (S)	385
Characteristic force (F_{mSC}) ⁽¹⁾	1160

⁽¹⁾ Characteristic values giving 75% confidence that 95% of test results will be higher than this value.

j) Resistance to horizontal load of brackets

The resistance to horizontal load of brackets has been tested according to Annex H of EAD. The test results are presented in TABLE 14 for the brackets with reference CRM.01-65, in TABLE 15 for the brackets with reference CRM.01-100, and in TABLE 16 for the brackets with reference CRM.01-220.

TABLE 14

Brackets resistance to horizontal load: Bracket CRM.01-65

	Load at rupture F_t (N)
Mean (F_{mcs})	4987
Standard deviation (S)	449
Characteristic force (F_{mcSC}) ⁽¹⁾	3942

⁽¹⁾ Characteristic values giving 75% confidence that 95% of test results will be higher than this value.

TABLE 15

Brackets resistance to horizontal load: Bracket CRM.01-100

	Load at rupture F_t (N)
Mean (F_{mcs})	5505
Standard deviation (S)	486
Characteristic force (F_{mcSC}) ⁽¹⁾	4371

⁽¹⁾ Characteristic values giving 75% confidence that 95% of test results will be higher than this value.

TABLE 16

Brackets resistance to horizontal load: Bracket CRM.01-65

	Load at rupture F_t (N)
Mean (F_{mcs})	4766
Standard deviation (S)	320
Characteristic force (F_{mcSC}) ⁽¹⁾	4020

⁽¹⁾ Characteristic values giving 75% confidence that 95% of test results will be higher than this value.

k) Corrosion

All components of the aluminium kits are protected by anodizing or lacquered coating, which comply with Qualanod or Qualicoat quality labels. This ensures that the coatings meet specific standards, with characteristics that depend on their intended use, including compliance with the required EN ISO 7599 standard for anodizing.

The screws are made from stainless steel class A2.

Therefore, the kits maybe used in the following external atmosphere exposure: rural, environment, moderate industrial/urban environment, but excluding industrial and marine environment. The kits may be used in other external atmospheric conditions exposure, if the components are protected as specified in the standard EN 1999.

l) Mechanical characteristics of subframe fixings

No performance assessed.

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

According to decision 1999/91/EC of the European Commission the system of assessment and verification of constancy of performance 2+ applies.

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

5.1 General

The ETA is issued on the basis of agreed data/information, deposited with LNEC, which identifies the kits that have been assessed and judged. It is the manufacturer's responsibility to make sure that all those who use the kits are appropriately informed of the specific conditions laid down in this ETA.

Changes to the kits or their application process should be notified to LNEC before the changes are introduced. LNEC will decide whether or not such changes affect the ETA and if so whether further assessment or alterations to the ETA shall be necessary.

5.2 Tasks for the manufacturer

Factory production control

The manufacturer shall exercise permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures, including records of results performed.

This production control system shall ensure that the kits are in conformity with this ETA.

The manufacturer may only use components stated in the technical documentation of this ETA. The incoming raw materials are subjected to verifications by the manufacturer before acceptance.

For the components of the kits which the manufacturer does not manufacture by himself, he shall make sure that the factory production control carried out by the other manufacturers gives the guarantee of the components compliance with the ETA.

The factory production control shall be in accordance with the Control Plan ¹, which is part of the Technical Documentation of this ETA. The control plan has been agreed between the manufacturer and the LNEC and is laid down in the context of the factory production control system operated by the manufacturer and deposited within LNEC. The results of factory production control shall be recorded and evaluated in accordance with the provisions of the control plan.

Other tasks for the manufacturer

The manufacturer shall, on the basis of a contract, involve a body (bodies) notified for the tasks referred to in section 4 in the field of the Luxus CRM System kit in order to undertake the actions laid down in this clause. For this purpose, the control plan shall be handed over by the manufacturer to the notified body (bodies) involved.

For assessing the product the results of the tests performed as part of the assessment for the ETA shall be used unless there are changes in the production line or plant. In such cases the necessary testing has to be agreed with LNEC.

The declaration of performance of the product to be drawn up by the manufacturer following the issuing of this ETA shall include its reference number and issuing date.

Changes to the kits, their production or their application process should be notified to LNEC before the changes are introduced. LNEC will decide whether or not such changes affect the ETA and if so whether further assessment or alterations to the ETA shall be necessary.

5.3 Tasks for the notified body (bodies)

Within the scope of the initial inspection of factory and of factory production control, the notified body (bodies) shall ascertain that, in accordance with the Control Plan, the factory (in particular the employees and the equipment) and the factory production control are suitable to ensure continuous and orderly manufacturing of the components according to the specifications mentioned in this ETA.

Within the scope of continuous surveillance, assessment and evaluation of factory production control, the notified body (bodies) shall visit the factory at least once a year for surveillance. It has to be verified that the factory production control is maintained in suitable conditions.

¹ The Control Plan is a confidential part of this European Technical Assessment and is only handed over to the notified body or bodies involved in the procedure of assessment and verification of constancy of performance. See section 5.3.

These tasks shall be performed in accordance with the provisions laid down in the Control Plan.

The notified body (bodies) shall retain the essential points of its (their) actions referred to above and state the results obtained and conclusions drawn in a written report.

The notified body(ies) involved by the manufacturer shall issue a certificate of conformity of the factory production control on the basis of the assessments and verifications carried out by that (those) body(ies).

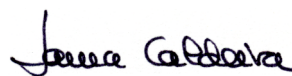
In cases where the provisions of the ETA and its control plan are no longer fulfilled, the notified body(ies) shall withdraw the certificate(s) issued and inform LNEC without delay.

Issued in Lisbon on 10/04/2025

By

Laboratório Nacional de Engenharia Civil (LNEC)

THE BOARD OF DIRECTORS

A handwritten signature in black ink, appearing to read 'Laura Caldeira', written in a cursive style.

Laura Caldeira
President

Annex 1

Brackets

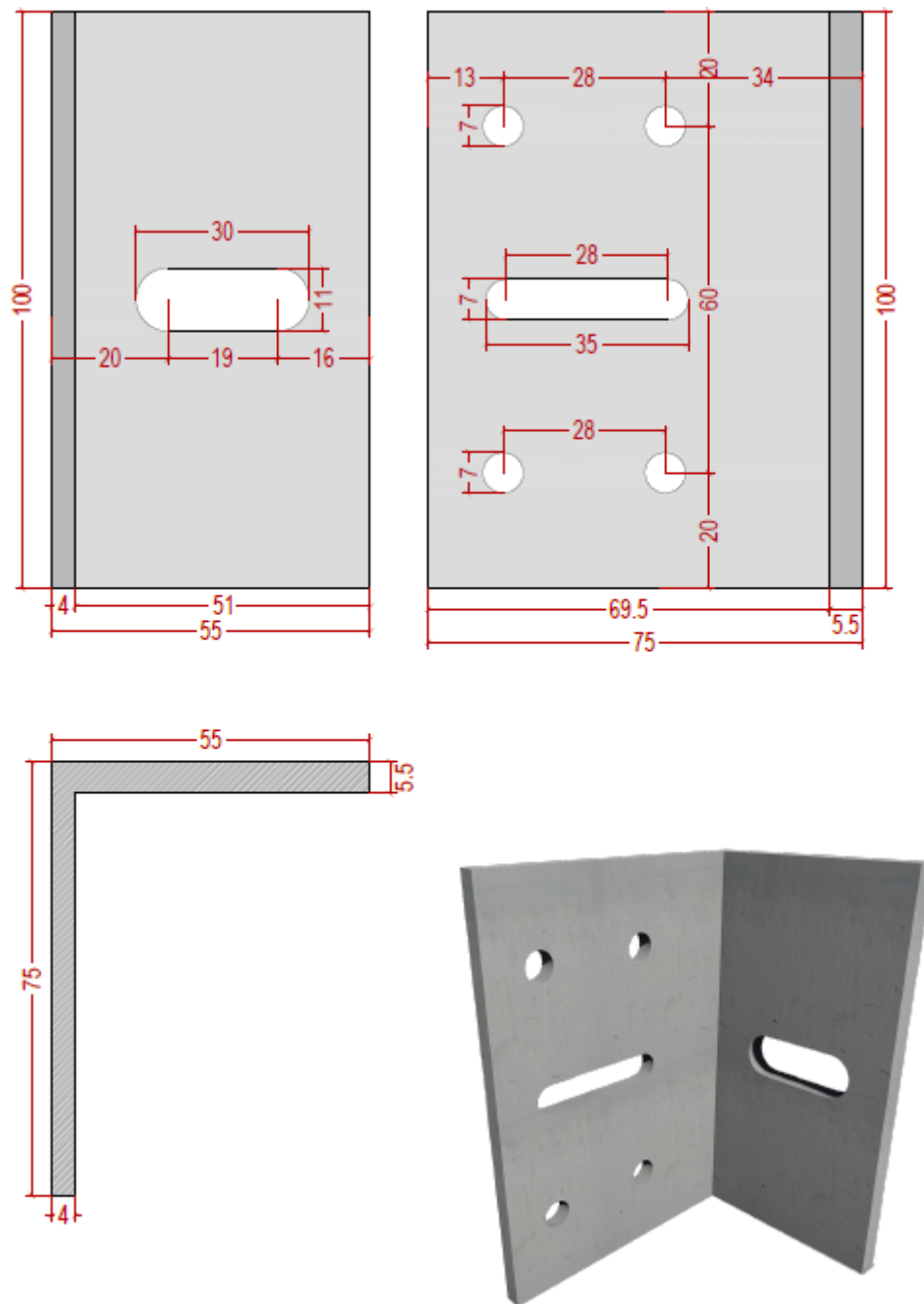


Figure A1.1 – Support and fixing bracket CRM.01 – 65 mm

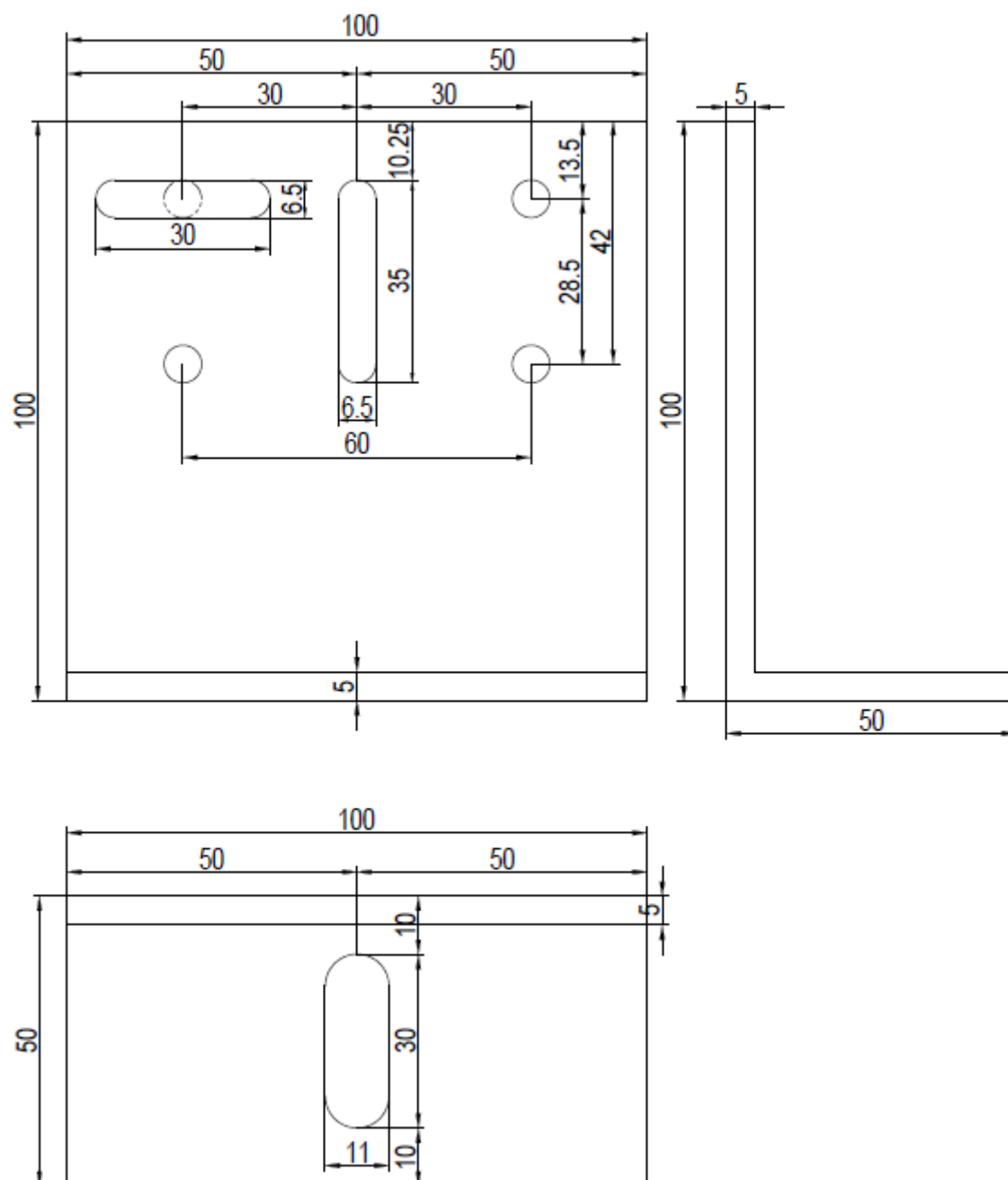


Figure A1.2 – Support and fixing bracket CRM.01 – 100 mm

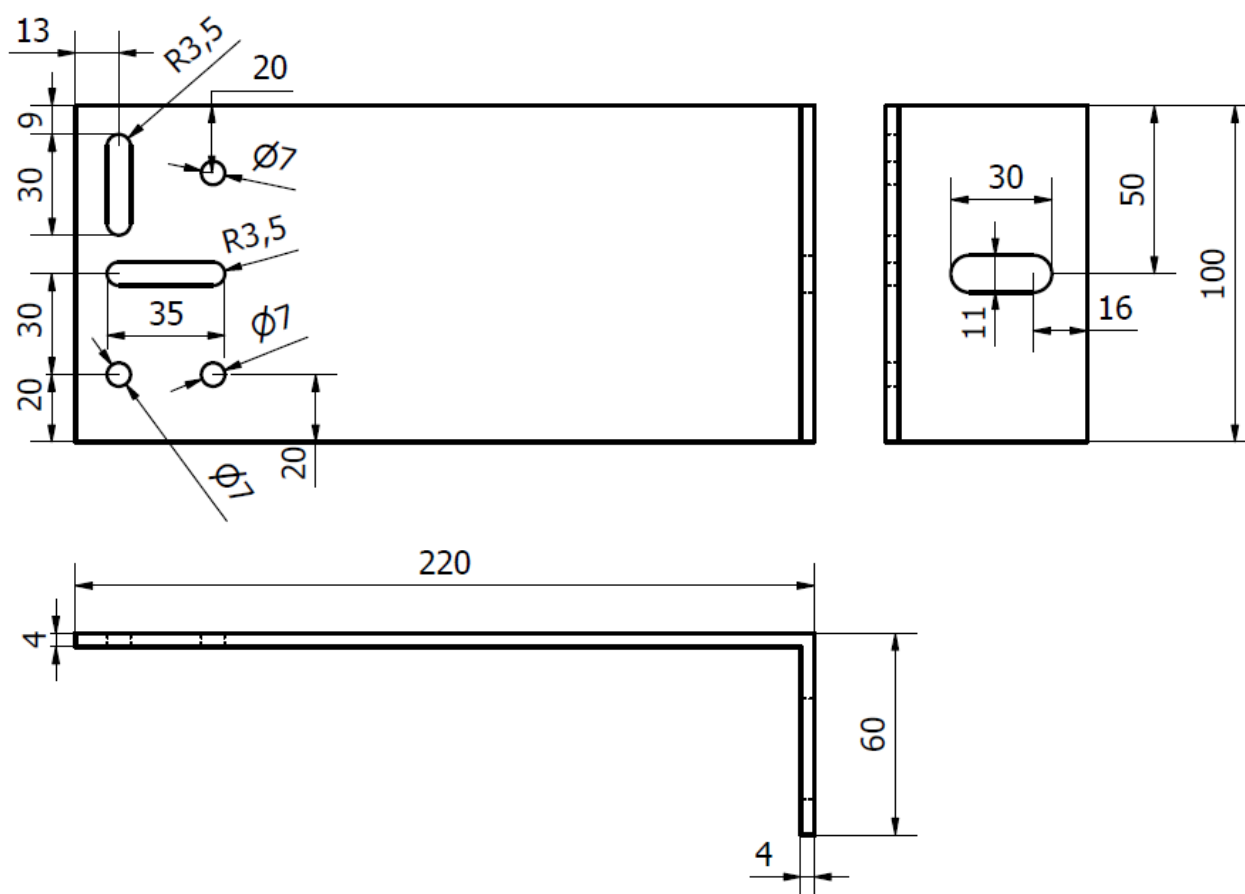


Figure A1.3 – Support and fixing bracket CRM.01 – 220 mm

Annex 2

Skin element fixings

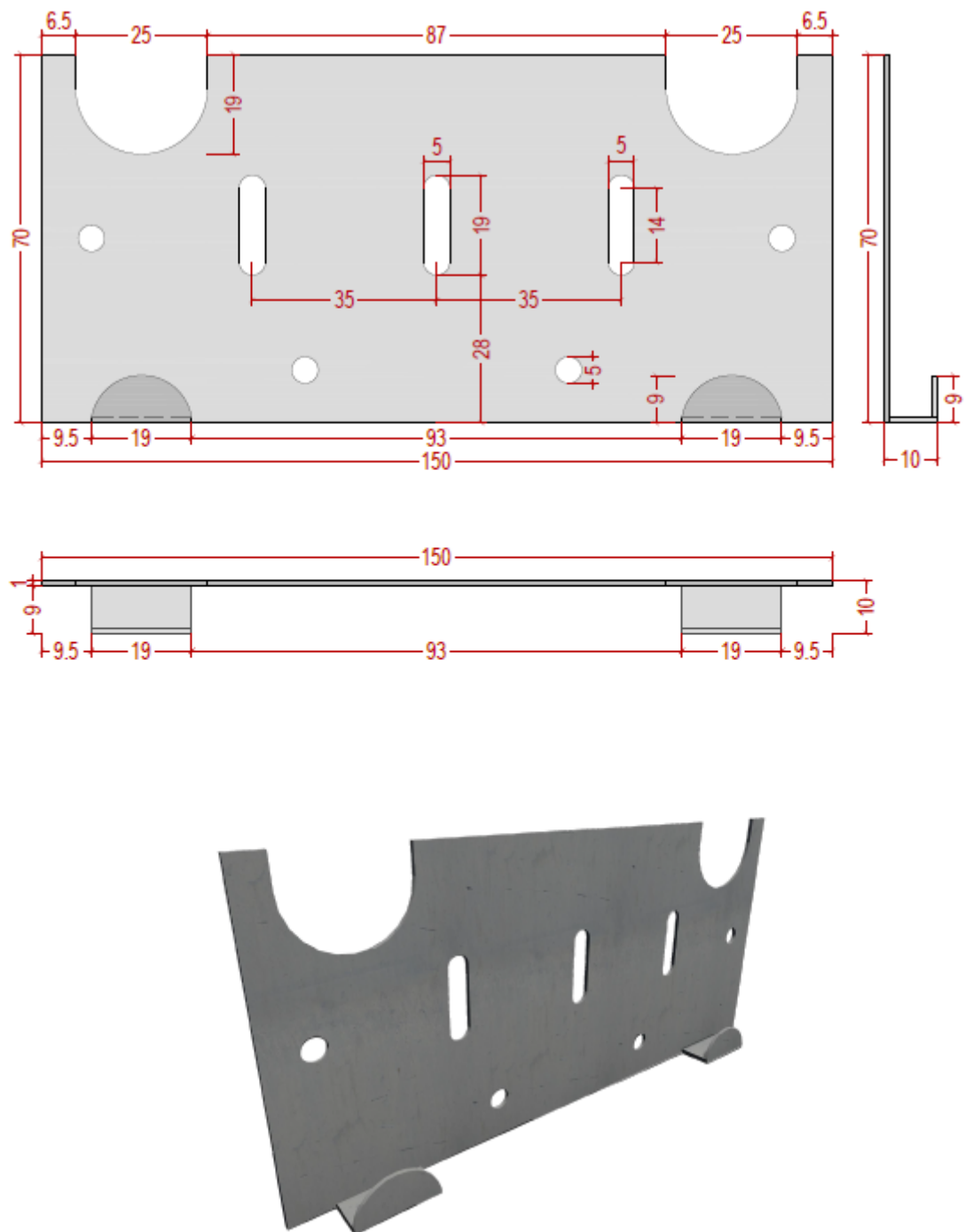


Figure A2.1 – Technical drawing of the skin element fixing CRM.03

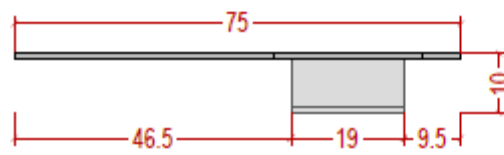
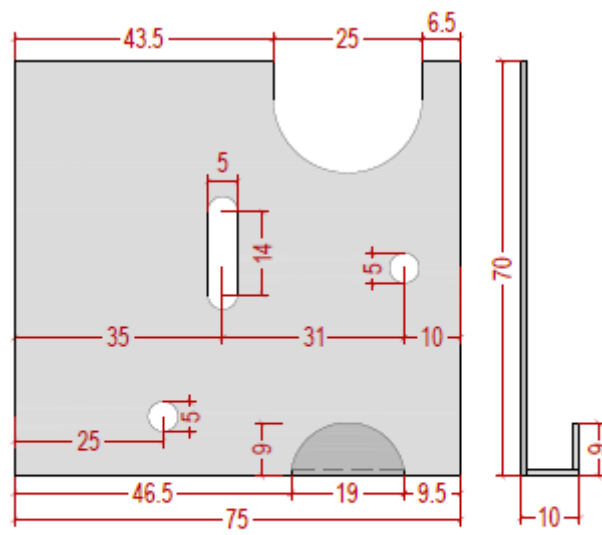


Figure A2.2 – Technical drawing of the skin element fixing CRM.03A

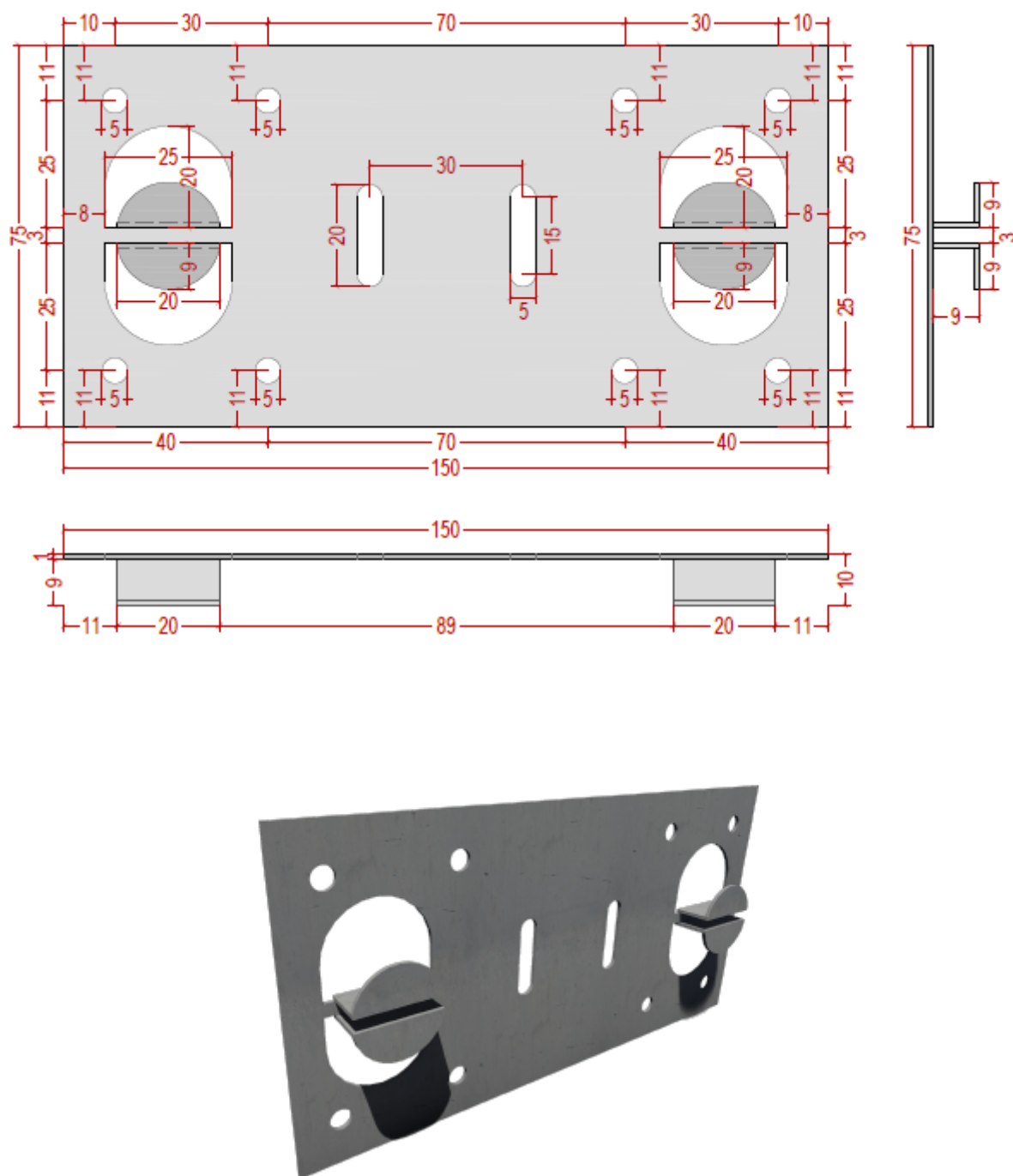


Figure A2.3 – Technical drawing of the skin element fixing CRM.04

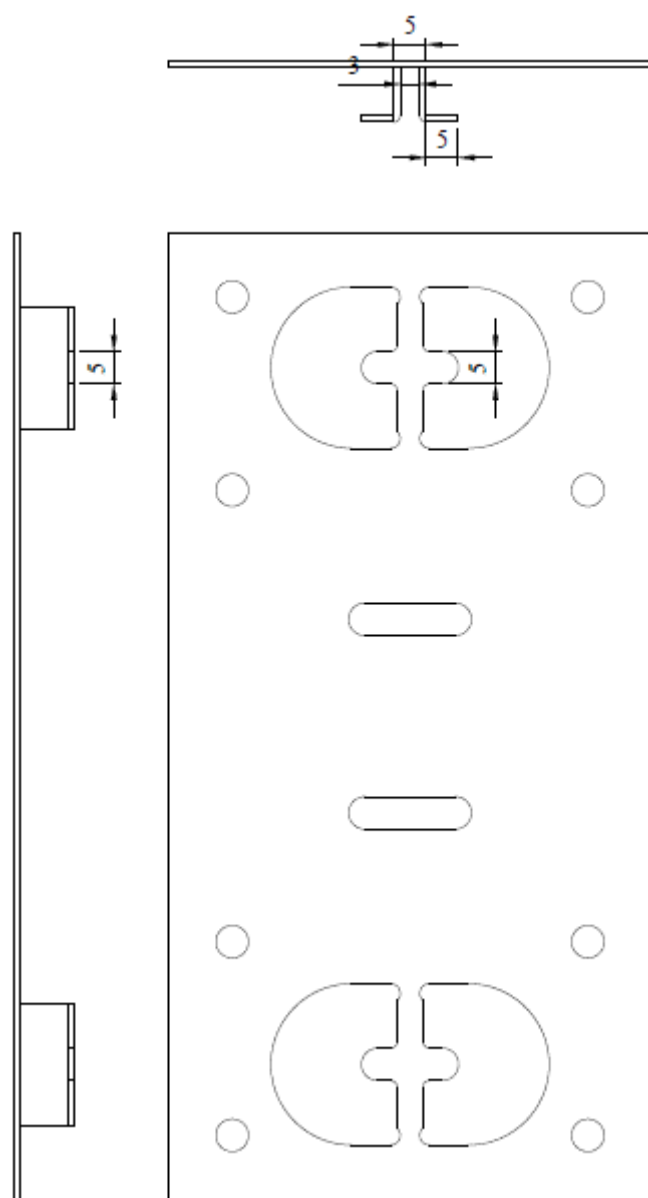


Figure A2.4 – Technical drawing of the skin element fixing CRM.04-O

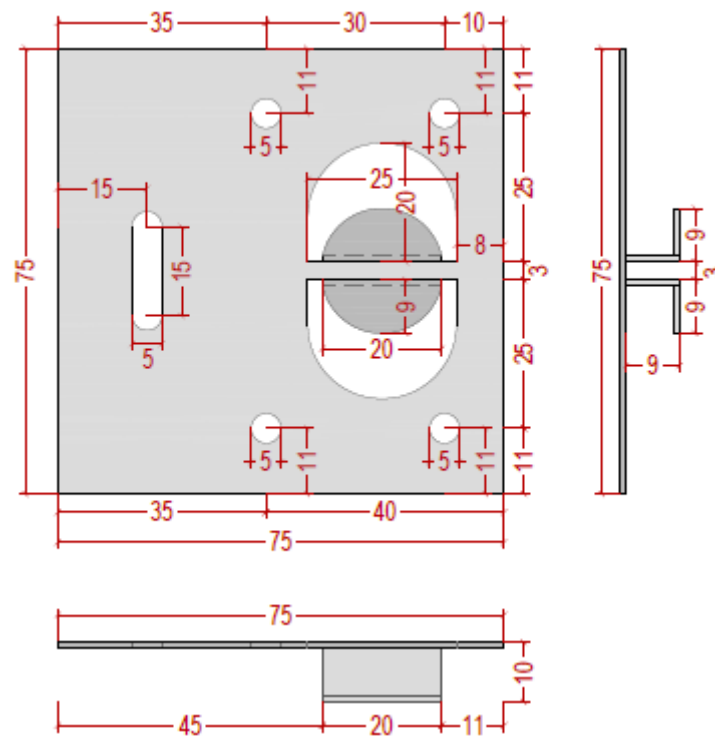


Figure A2.5 – Technical drawing of the skin element fixing CRM.04A

Annex 3

Vertical profiles

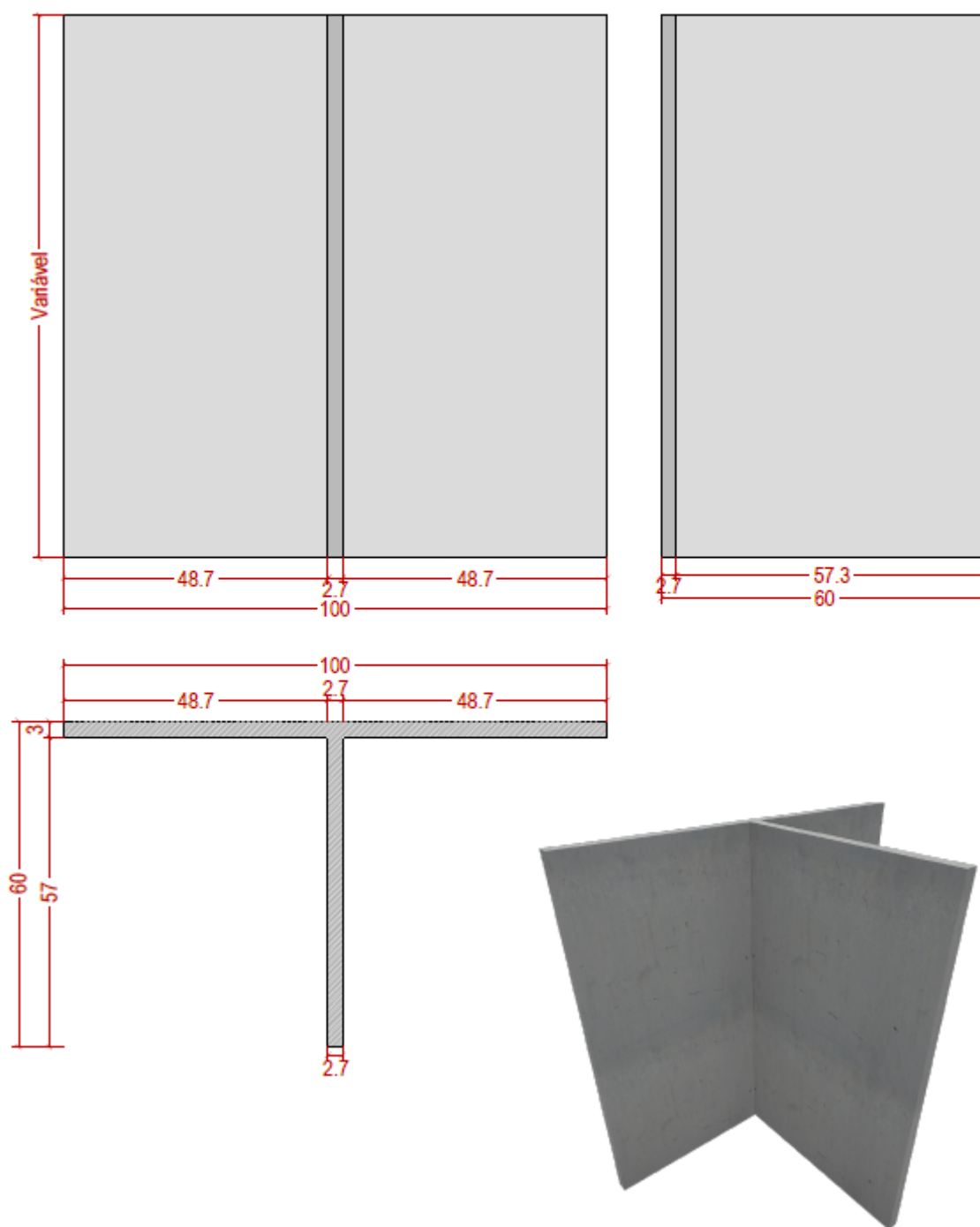


Figure A3.1 – Symmetrical vertical profiles in the shape of "T" (CRM.02)

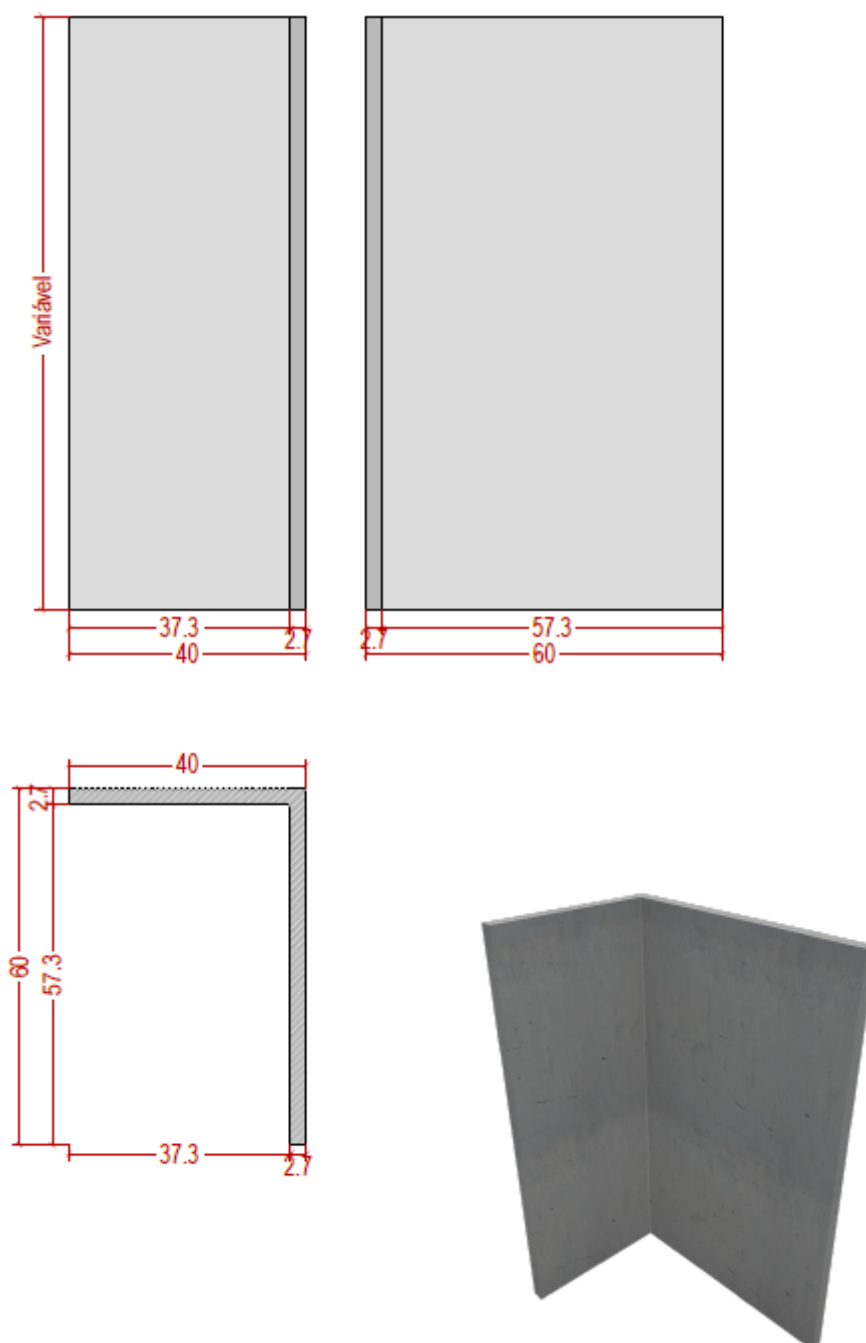


Figure A3.2 – Symmetrical vertical profiles in the shape of "L" (CRM.02A)

Annex 4

Screws



Figure A4.1 – Flat-head self-tapping screw A2 STAINLESS STEEL M4.2 × 13 mm



Figure A4.2 – Stainless steel A2 screw 6.3 × 25 mm



Figure A4.3 – M8 expansion plug



Figure A4.4 – 10 × 100mm screw with plastic plug



Figure A4.5 – Concrete screw

Annex 5

Types of rupture in skin element fixings testing



Figure A5.1 – Type of CRM.04 skin element fixing rupture – vertical load (weight)



Figure A5.2 – Type of CRM.04-O skin element fixing rupture – vertical load (weight)



Figure A5.3 – Type of CRM.03 skin element fixing rupture – vertical load (weight)

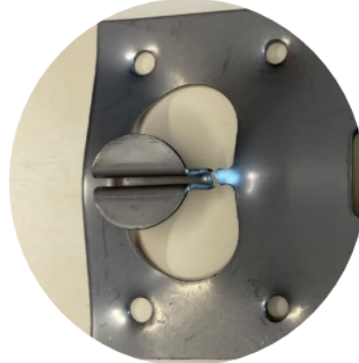


Figure A5.4 – Type of CRM.04 skin element fixing rupture – horizontal load (wind)



Figure A5.5 – Type of CRM.04-O skin element fixing rupture – horizontal load (wind)

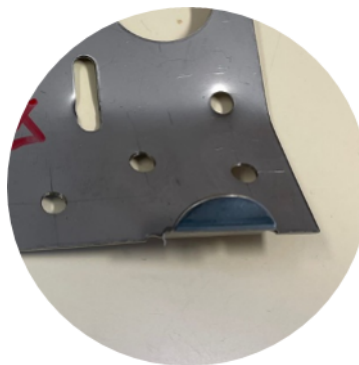


Figure A5.6 – Type of CRM.03 skin element fixing rupture – horizontal load (wind)

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Descritores: Fixação de elementos de construção / Parafuso / Perfil / Revestimento de paredes / Parede
fachada / Europa

