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DE LA CONSTRUCCIÓN
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European Technical Assessment

**ETA 25 / 0550
of 24/07/2025**

English translation prepared by IETcc. Original version in Spanish language

General Part

**Technical Assessment Body issuing
the ETA:**

Instituto de Ciencias de la Construcción Eduardo
Torroja (IETcc)

**Trade name of the construction
product:**

STACBOND® FR and STACBOND® A2

**Product family to which the
construction product belongs:**

Thin metal composite sheets

Manufacturer:

ECO BIERZO COMPOSITE S.L.
Polígono Industrial La Rozada
C/ Isaac Prado Bodelón s/n, parcela 2. 24516
Parandones, Toral de los Vados (León). Spain
www.stacbond.com

Manufacturing plant(s):

ECO BIERZO COMPOSITE S.L.
Polígono Industrial La Rozada
C/ Isaac Prado Bodelón s/n, parcela 2. 24516
Parandones, Toral de los Vados (León). Spain

**This European Technical Assessment
contains:**

13 pages including 2 Annexes which form an
integral part of the assessment. Annex B contains
confidential information and is not included in the
ETA when is publicly available.

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

European Assessment Document (EAD)
210046-00-1201. Ed. November 2018. Thin metal
composite sheets

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and shall be identified as such.

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SPECIFIC PARTS

1. Technical description of the product

The objective of this European Technical Assessment (ETA) are thin metal composite sheets (from now on TMCS) STACBOND® A2 and STACBOND® FR. These TMCS consist of two thin aluminum sheets, which form a sandwich with a core in a process of continuous coextrusion. The external layer of the aluminum sheet is always pre-treated or pre-lacquered and the bonding of the two sheets is done by an adhesive that is applied to both faces of the core. The bonding is accomplished by temperature and pressure under controlled conditions. The TMCS are composed of:

- Visible faces made of aluminum alloy according to EN 485-2 or EN 573-3m with a treated surface (lacquered according to EN 1396).
- Solid core made of polymers with a $\geq 90\%$ of mineral load (STACBOND®A2) or a $\geq 70\%$ mineral load (STACBOND®FR).
- Adhesive layer that bonds hidden faces to the core on a continuous industrial process.

The product is cut in a standardized range of lengths that goes from 3200 mm to 6000 mm (-0 / +3 mm) and in standardized range of widths of 1000, 1250, 1500, 1600 and 2000 mm (-0 / +2 mm), being able to be cut in other lengths, once consulted the ETA-holder, with a limit of 14000 mm. These ranges allow to modulate the façade vertically or horizontally.

This ETA assesses only the TMCS STACBOND® FR and STACBOND® A2, any other component that is necessary for the installation, such as fixations, profiles, etc. are outside of the scope of this ETA.

A film is placed to protect the lacquered face of the TMCS of possible impacts or scratches until the panel is installed. The protective film should not be removed under temperatures of -10°C . Arrows in the film indicate the lamination direction, which must be respected during installation. TMCS are identified by an inkjet printing on the hidden face that codifies the panel with manufacturing date and time, batch, color and other information. Technical specifications of the TMCS are indicated in tables 1.1 and 1.2

Table 1.1 Declared physical data of the TMCS

TMCS	Material	Specifications		Value
STACBOND® FR Thickness: 4 (-0.15 / +0.1) mm	Protective film	Aspect:		Blue and white
		Thickness (µm):		70
	Lacquering of the visible skins of aluminum	PVDF bilayer	Paint thickness (µm):	27-30
		PVDF trilayer	Paint thickness (µm):	43-51
		FEVE bilayer	Paint thickness (µm):	27-30
		FEVE trilayer	Paint thickness (µm):	36-46
		HDPE bilayer	Paint thickness (µm):	25-40
		HDPE trilayer	Paint thickness (µm):	35-55
		PE single layer	Paint thickness (µm):	20
		PE bilayer	Paint thickness (µm):	25-30
		PU single layer	Paint thickness (µm):	20
		Mirror (PVDF)	Paint thickness (µm):	2.5
	External skins of lacquered aluminum alloy EN AW 5005/3005/3105/1050/1080	H42	Thickness (mm):	0.48 ± 0.02
		H44	Linear expansion coefficient (K ⁻¹):	24 x 10 ⁻⁶
		H46		
	Adhesive		Thickness (mm):	0.085
			Color:	Transparent white
	Core with mineral load	FR	Aspect:	Gray
			Thickness (mm):	3
			Composition:	Confidential (Annex B)
			Density (kg/m³)	1600±10%
	Adhesive		Thickness (mm):	0.085
			Color:	Transparent white
	Internal skins of lacquered aluminum alloy EN AW 5005/3005/3105	H42	Thickness (mm):	0.48±0.02
		H44	Linear expansion coefficient (K ⁻¹):	24x10 ⁻⁶
H46				



Table 1.1 Declared physical data of the TMCS

TMCS	Material	Specifications		Value
	Lacquering of the hidden skins of aluminum	PE	Paint thickness (μm):	6
STACBOND® A2 Thickness: 4 (-0.15 / +0.1) mm	Protective film	Aspect: Thickness (μm):		Blue and white 70
	Lacquering of the visible-skins of aluminum	PVDF bilayer	Paint thickness (μm):	27-30
		PVDF trilayer	Paint thickness (μm):	43-51
		FEVE bilayer	Paint thickness (μm):	27-30
		FEVE trilayer	Paint thickness (μm):	36-46
		HDPE bilayer	Paint thickness (μm):	25-40
		HDPE trilayer	Paint thickness (μm):	35-55
		PE single layer	Paint thickness (μm):	20
		PE bilayer	Paint thickness (μm):	25-30
		PU single layer	Paint thickness (μm):	20
	Mirror (PVDF)	Paint thickness (μm):	2.5	
	Externa-skins of lacquered aluminum alloy EN AW 5005/3005/3105/1050/1080	H42	Thickness (mm):	0.48±0.02
		H44	Linear expansion coefficient (K ⁻¹):	24x10 ⁻⁶
		H46		
	Adhesive		Thickness (mm):	0.085
			Color:	Transparent white
	Mineral core	A2	Aspect:	Clear gray
			Thickness (mm):	3
			Composition:	Confidential (Annex B)
			Density:	2100±10%
			Adhesive	
			Color:	Transparent white
Internal skins of lacquered aluminum alloy EN AW 5005/3005/3105	H42	Thickness (mm):	0.48±0.02	
	H44	Linear expansion coefficient (K ⁻¹):	24x10 ⁻⁶	
	H46			
Lacquering of hidden skins of aluminum	PE	Paint thickness (μm):	6	

Table 1.2: Declared mechanical specifications of the materials

TMCS	Material	Specifications		Value
STACBOND® FR STACBOND® A2 Thickness: 4 (-0.15 / +0.1) mm	External skins of lacquered aluminum alloy EN AW 5005/3005/3105/1050/1080	Elasticity module E (GPa):		70
		Tensile resistance R _m (MPa) ^{1,2}	H42	≥125-≥145
			H44	≥145-≥170
			H46	≥175
			EN AW 1050/1080	≥120
		Elastic limit R _{p0,2} (MPa) ^{1,2}	H42	≥80-≥140
			H44	≥110-≥130
			H46	≥150
			EN AW 1050/1080	≥90
		Elongation A ₅₀ ^{1,2} (%)	H42	≥4-≥6
			H44	≥3-≥4
			H46	≥3
			EN AW 1050/1080	≥1
	Internal-skins of lacquered aluminum alloy EN AW 5005/3005/3105	Elasticity module E (GPa):		70
		Tensile resistance R _m (MPa) ^{1,2}	H42	≥125-≥145
			H44	≥145-≥170
			H46	≥175
		Elastic limit R _{p0,2} (MPa) ^{1,2}	H42	≥80-≥140
			H44	≥110-≥130
			H46	≥150
		Elongation A ₅₀ ^{1,2} (%)	H42	≥4-≥6
			H44	≥3-≥4
			H46	≥3

¹ UNE-EN 485-2:2017: Aluminum and aluminum alloys – Sheet, strip and plate – Part 2: Mechanical Properties

² UNE-EN 1396: Aluminum and aluminum alloys – Coil coated sheet and strip for general applications - Specifications



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

2.1 Intended use

According to the EAD 210046-00-1201, the TCMS STACBOND® A2 and STACBOND® FR have the following intended uses:

- Façade elements (panels and cassettes) in internal and external façade kits.
- Pieces (fill-in elements) for partition kits.
- False ceiling elements, with internal or external support.
- Panels for information and navigation systems.

The provisions on this EAD are based on the assumption of a service life of at least 25 years, according to the EAD, considering that the TMCS has proper use and maintenance.

The indications on service life cannot be interpreted as a guarantee given by the manufacturer, as it will be only considered as a way to select the proper product related to a service life that is economically reasonable.

2.2 Manufacturing

This ETA is awarded to the TCMS STACBOND® A2 and STACBOND® FR based on the agreed data/information deposited with the Instituto de Ciencias de la Construcción Eduardo Torroja (IETcc), which identifies the product that has been assessed or judged. Changes on the product or the production process, that can cause the data/information deposited is incorrect, must be notified to the IETcc before changes are introduced. The IETcc will decide if these changes affect this ETA or not and consequently to the validity of the CE marking based in the ETA and if needed a later assessment or a modification of the ETA.

2.3 Design and installation

It is assumed that the product will be installed according to the manufacturer's instructions or (in case of absence of such instructions) according to the general practice of construction professionals.

2.4 Packaging, transport and storage

The information of packaging, transport and storage is given in the technical documentation of the manufacturer. It is the responsibility of the manufacturer to ensure that this information is known by the interested parties. Products must be stored in a fresh and dry place, protected from the environment.

2.5 Use, maintenance and repair

Maintenance of the assembled construction elements that result of the manufacturing of panels must include inspections in situ, considering the following aspects:

- Appearance of any damage such as cracking, delamination o detachment due to permanent and irreversible deformation.
- Regarding metallic components: Presence of corrosion or water accumulation.
- Necessary repairs should be done rapidly, using the same kit components and following the repair instructions given by ETA holder.

Information of use, maintenance and repair is given in the technical documentation of the manufacturer. It is the responsibility of the manufacturer to ensure that this information is known by the interested parties.

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

The assessment of the TCMS STACBOND® A2 and STACBOND® FR, according to the Basic Work Requirements (BWR) was carried out in compliance with the applicable clause of the EAD 210046-00-1201. Characteristics of the components shall correspond to respective values laid down in the technical documentation of this ETA, checked by IETcc.



• Basic Work Requirement 2: Safety in case of fire

1 Reaction to fire:

It has been assessed according to cl. 2.2.1 of EAD. Results are shown in Table 3:

Table 3: Fire classification of TCMS STACBOND® A2 and STACBOND® FR

Thin metal composite sheet			Class	Test / Class./ Exap Report	Remarks
Type	Lacquering material	Paint thickness (µm)			
STACBOND® FR Thickness: 4 (-0.15 / +0.1) mm	PVDF bilayer	27-30	B-s1,d0	AFITI 5399T25	NPA: No Performance Assessed Tests were carried out on panels FR and A2 with FEVE coating (worst PCS value) PCS values: -Specimen FR01074383- STB-425 FEVE: 24,4 MJ/kg - -Specimen 4241035412-- 415 PVDF: 22,6 MJ/kg Specimen B928241115: STB-555 HDPE: 16,8 MJ/kg
	PVDF trilayer	43-51	NPA		
	FEVE bilayer	27-30	B-s1,d0	AFITI 5399T25-2	
	FEVE trilayer	36-46	NPA		
	HDPE bilayer	25-40	B-s1,d0	AFITI EXAP 5399T25	
	HDPE trilayer	35-55	NPA		
	PE single layer	20	NPA		
	PE bilayer	25-30	NPA		
	PU single layer	20	NPA		
STACBOND® A2 Thickness: 4 (-0.15 / +0.1) mm	Mirror (PVDF)	2.5	B-s1,d0	AFITI 4972T23	
	PVDF bilayer	27-30	A2-s1,d0		
	PVDF trilayer	43-51	NPA	AFITI 4972T23-2	
	FEVE bilayer	27-30	A2-s1,d0		
	FEVE trilayer	36-46	NPA	AFITI EXAP 4972T23	
	HDPE bilayer	25-40	A2-s1,d0		
	HDPE trilayer	35-55	NPA		
	PE single layer	20	NPA		
	PE bilayer	25-30	NPA		
	PU single layer	20	NPA		
Mirror (PVDF)	2.5	A2-s1,d0			

Based on the test reports³ products were tested according to the EAD 210046-00-1201, using panels with the highest organic load (FEVE), open vertical and horizontal joints of 20 mm for STACBOND®A2 and 10 mm for STACBOND®FR, fixed to an aluminum substructure for STACBOND®A2 and a wood substructure for STACBOND®FR, considering a ventilated chamber of 40mm between panels and isolating material made of 50 mm thick non-hydrophilic mineral wool, with class A1. A joint of 10 mm was left between the panel and the top part of the U profile of the test rig to guarantee ventilation of the chamber. These tests have been performed according to the norm UNE-EN ISO 1716⁴ and UNE-EN 13823⁵ and the corresponding classification, according to the standard UNE-EN 13501-1⁶ and the Commission Delegated Regulation (EU) 2016/364⁷.

• Basic Work Requirement 4: Safety and accessibility in use

2 Tensile performance: No performance assessed.

3 Tensile strength perpendicular to the face: No performance assessed

³ AFITI Reports 4972T23 for STACBOND®A2 panels and 5399T25 for STACBOND®FR and classification reports 4972T23-2 and 5399T25-2 respectively. These reports are emitted by AFITI LICOF – Center of fire testing and investigation, in Toledo, Spain.

⁴ EN ISO 1716:2018. Reaction to fire tests for products – Determination of the gross heat of combustion (calorific value)

⁵ EN 13823:2020+A1:2022: Reaction to fire tests for building products – Building products excluding floorings exposed to the thermal attack by a single burning item.

⁶ EN 13501-1:2018: Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests.

⁷ Commission Delegated Regulation (EU) 2016/364 of 1 July 2015 on the classification of the reaction to fire performance of construction products pursuant to Regulation (EU) No 305/2011 of the European Parliament and of the Council (Text with EEA relevance)



4 Flexural performance

It has been assessed according to cl. 2.2.4.1 (4P) and 2.2.4.2 (3P) of EAD. Results are shown in Table 4:

Table 4: Flexural performance of TCMS STACBOND® FR and STACBOND® A2

TMCS	4P Flexural strength (MPa)			4P Modulus of elasticity (GPa)			3P Flexural strength (MPa)		
	R _{bend,INI,av}	σ_n	R _{bend,INI,k}	E _{bend,av}	σ_n	E _{bend,0.95}	R _{flex,INI,av}	σ_n	R _{flex,k}
STACBOND® FR	93.78	2.78	93.72	36.15	5.77	31.41	104.81	0.92	104.79
STACBOND® A2	96.78	1.56	96.75	36.88	0.41	36.87	101.29	2.40	96.06

Key:

4P Flexural strength in four points test arrangement values:

- Bending strength: R_{bend,INI,av}: Average; σ_n : Estimated standard deviation; R_{bend,INI,k}: Characteristic value
- Mod. of elasticity: R_{bend,INI,av}: Average; σ_n : Estimated standard deviation; E_{bend,0.95}: One-side bottom confidence level value

3P Flexural strength in three points test arrangement:

- Flexural strength: R_{flex,INI,av}: Average; σ_n : Estimated standard deviation; R_{flex,k}: Characteristic value

5 Shear performance: No performance assessed

6 Thickness:

6.1 Total thickness of sheet. It has been assessed according to cl. 2.2.6.1 of EAD.

6.2 Thickness of skin: It has been assessed according to cl. 2.2.6.2. of EAD.

Results are shown in Table 5:

Table 5: Thicknesses of TCMS STACBOND® FR and STACBOND® A2

TMCS	Total thickness of sheet (mm)			Thickness of top skin (mm)			Thickness of bottom skin (mm)		
	Median	d _{0,975} Two-sided confidence interval		Median	d _{0,975} Two-sided confidence interval		Median	d _{0,975} Two-sided confidence interval	
STACBOND® FR	4.06	4.05	4.07	0.53	0.52	0.53	0.50	0.50	0.51
STACBOND® A2	4.05	4.03	4.07	0.50	0.50	0.50	0.50	0.50	0.50

7 Apparent area density:

7.1 Apparent area density.

It has been assessed according to cl. 2.2.7 of EAD. Results are shown in Table 6.

Table 6: Apparent density of TCMS STACBOND® FR and STACBOND® A2

TMCS	Apparent density (kg/m²)		
	Average	g _{0,975} Two-sided confidence interval	
STACBOND® FR	7.97	7.95	7.98
STACBOND® A2	9.98	9.91	10.05

8 Torque peel strength

It has been assessed according to cl. 2.2.8 of EAD. Results are shown in Table 7

Table 7: Torque peel strength of TCMS STACBOND® FR and STACBOND® A2

TMCS	Torque peel strength in initial state (N.m/m)			
	T _{INI,av} Average	σ_n Standard deviation	T _{INI, 0,975} Two-sided confidence interval	
STACBOND® FR	231.78	22.44	208.23	255.33
STACBOND® A2	117.07	18.54	97.63	136.51



9 Hard body impact resistance

It has been assessed according to cl. 2.2.9 of EAD. Results are shown in Table 8

Table 8: Hard body impact resistance of TCMS STACBOND® FR and STACBOND® A2

TMCS	Hard body impact energy after 24 h at 23/55			Hard body impact energy after 24 h at -20 °C		
	Impact energy E (N.m)	Damage	Average Ø mark (mm)	Impact energy E (N.m)	Damage	Average Ø mark (mm)
STACBOND® FR	1	No	2.53	1	No	2.33
	3	No	4.20	3	No	4.73
	5	No	5.03	5	No	5.67
	10	No	7.53	10	No	7.50
STACBOND® A2	1	No	1.43	1	No	1.87
	3	No	3.37	3	No	3.23
	5	No	5.10	5	No	4.67
	10	No	6.70	10	No	6.60

Key: No damage = No collapse, no penetration, no projection and no degradation

- **Basic Work Requirement 5: Protection against noise**

10 Dynamic stiffness: No performance assessed

- **Basic Work Requirement 6: Energy economy and heat retention**

11 Coefficient of thermal conductivity: No performance assessed

- **Basic Work Requirement 7: Sustainable use of natural resources**

12 Durability: No performance assessed



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

According to European Commission decisions referred on the EAD 210046-00-1201 (Decision 2003/640/EC⁸, its amendments, and the Decision 1998/437/EC⁹, the AVCP systems (see the EC Delegated Regulation (EU) 568/2014, amended the Annex V of the Regulation (EU) 305/2011) apply to the following Table:

Table 9: System AVCP applied

Product(s)	Intended use(s)	Level(s) or class (es)	System (s)
Thin composite aluminium sheets STACBOND®FR and STACBOND®A2	Internal and external walls, roofs and signage	Fire reaction	1
		Cladding of external walls	2+
		Rest of uses and characteristics	3

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

The ETA is issued for this sheets on the basis of agreed data / information which identify the products that have been assessed and judged. Detailed description and conditions of the manufacturing process of the kits, and all the relevant design and installation criteria of the kits are specified in the manufacturer's technical documentation deposited with the IETcc. It is the manufacturer's responsibility to make sure that all those who use the kits are appropriately informed of specific conditions according to sections 1, 2, 4 and 5 and including the annexes of this ETA.



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On behalf of the Instituto de Ciencias de la Construcción Eduardo Torroja
Madrid, 24th July 2025

Director

⁸ 2003/640/EC – Commission Decision of 4 September 2003, published on the Official Journal of the European Union (OJEU) L226/21 of 21/09/2003

⁹ 1998/437/EC – Commission Decision, published on the Official Journal of the European Union (OJEU) L194 of 10/07/1998



Annex A: General schemes

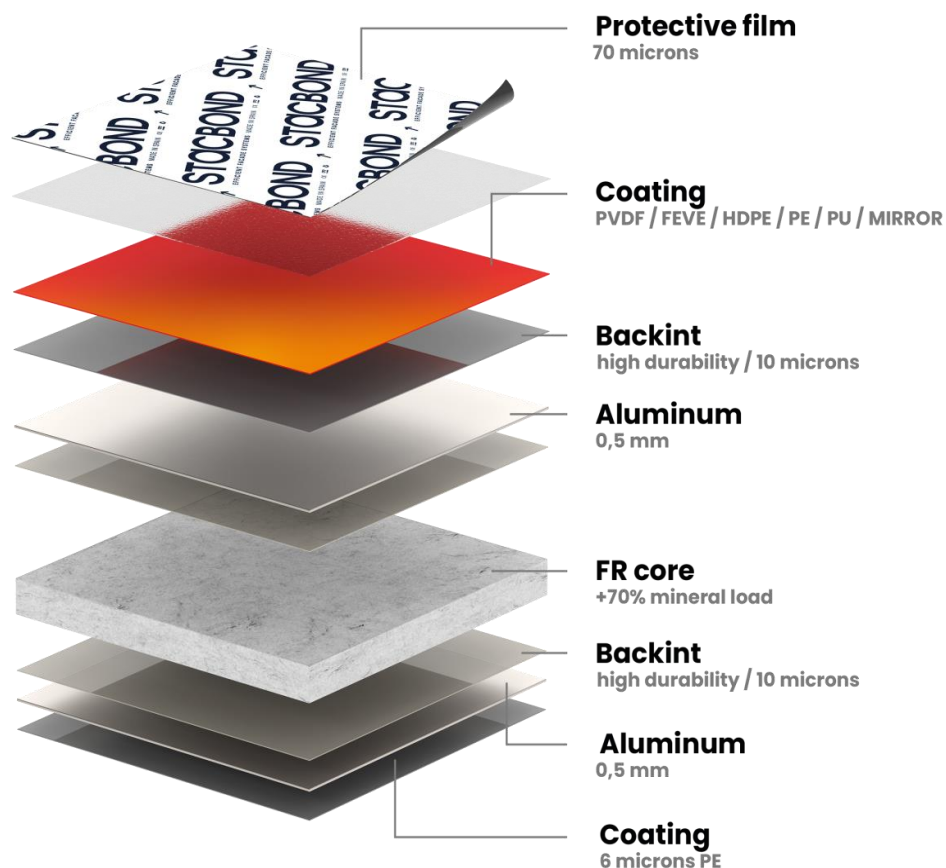


Figure 1: STACBOND®FR



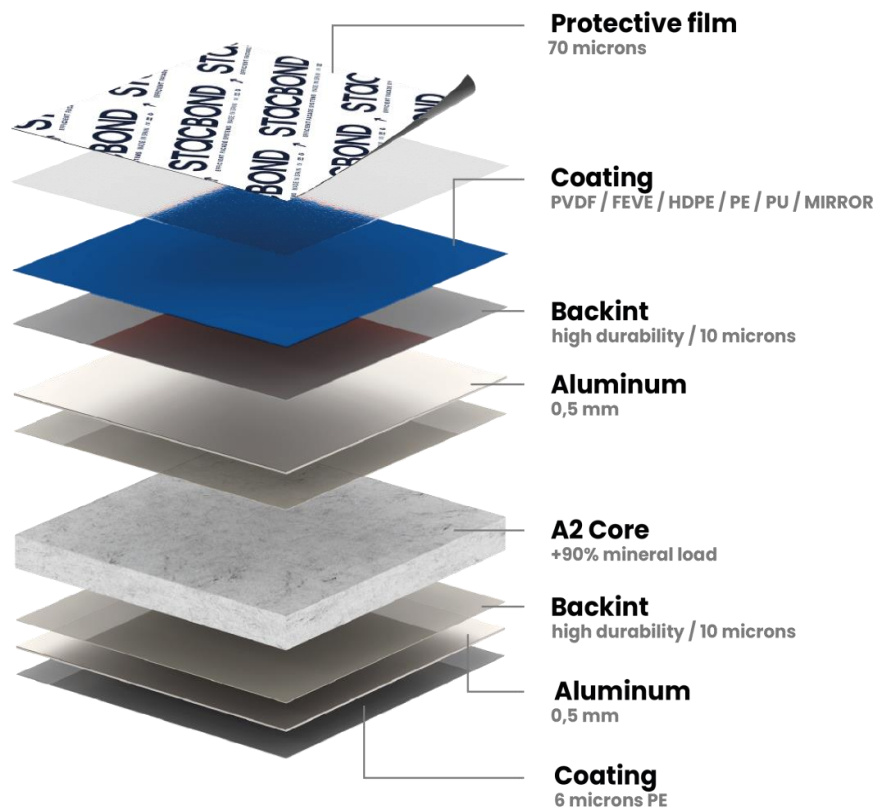


Figure 2: STACBOND®A2



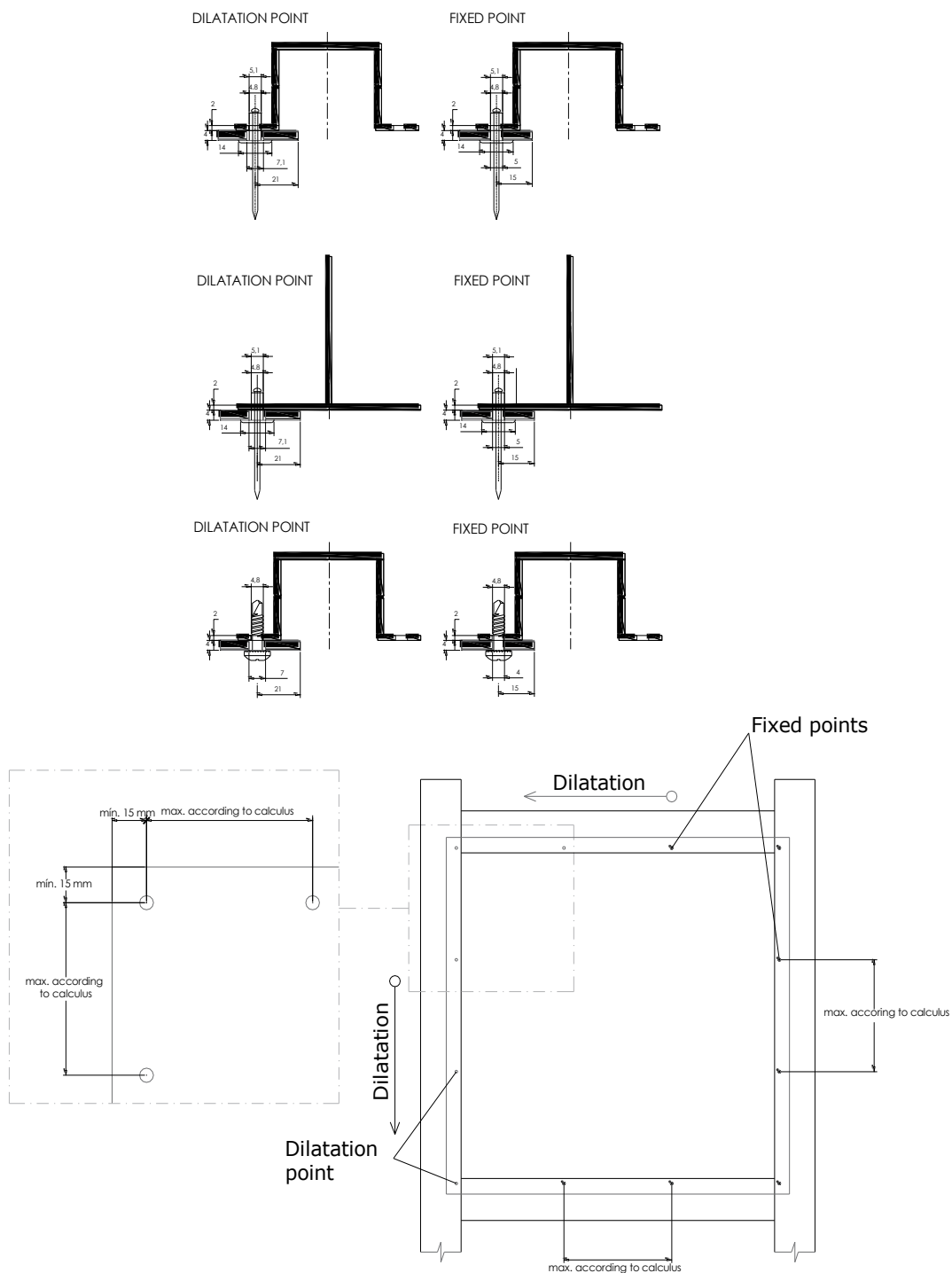


Figure 3: Example of fixed and expansion points and recommended drill holes



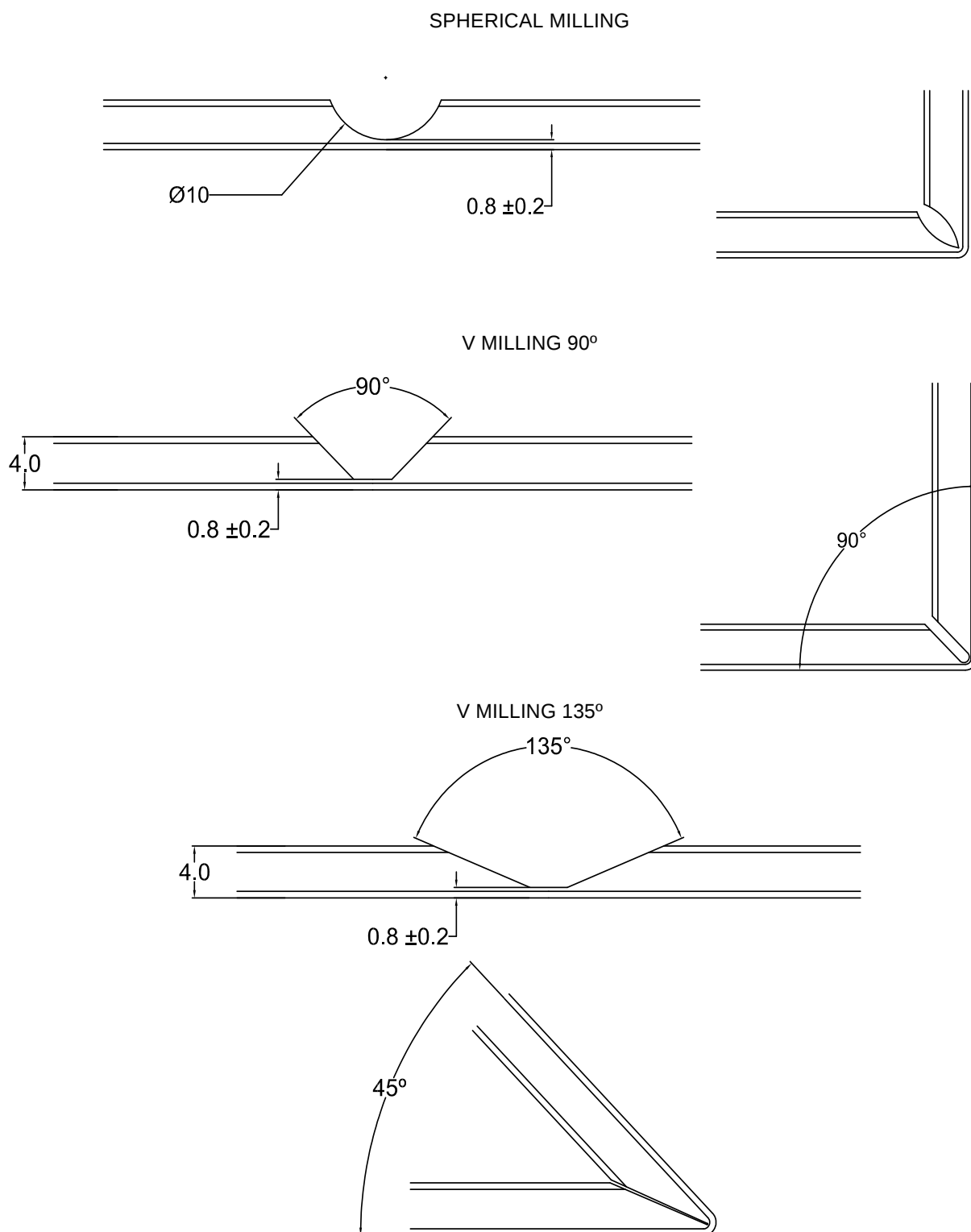


Figure 4: Milling recommendations – spherical, 90° and 135°



Annex B: Confidential information

This confidential information and is not included in the European Technical Assessment when that assessment is publicly available: C.1. Quality control of components of kits manufactured by suppliers or ETA holder.

