TECHNICAL CATALOGUE

INTERIORS

WALLS AND CEILINGS

Prodema

NATURAL WOOD BEAUTY

VERSION Nº 1	4/2018
SPECIFIC CATALOGUE FOR	EUROPE ASIA AFRICA OCEANÍA CENTRAL-SOUTHAMÉRICA

For proper PRODEMA floor instalation, it is mandatory to follow all instructions in this technical guide, without exception.

For technical consultations, alternative installation systems, etc., we recommend consulting **PRODEMA's** Technical Department (tech@prodema.com).

The most updated version of this technical guide is available on **PRODEMA`s** website.

TABLE OF CONTENTS

1 INTRODUCTION

1.1 PRODEMA. INTERIORS. WALLS AND CEILINGS.

THE ART OF WOOD

PRODEMA's line of interior coverings creates unique, comfortable environments, with a beautiful material: natural wood.

Wood is treated with exquisite care on each panel, so that its aesthetic and versatility can help turn the creativity of architects and interior designers into a reality.

The origin is key, selecting the sheet of wood used to manufacture **PRODEMA** products. This is why we work with a wide variety of wood species, all from forests with top quality standards, sustainably managed by prestigious suppliers with whom we closely collaborate to obtain our main raw material.

Thanks to this meticulous selection, coupled with the technology we use during the production process, we obtain products capable of creating interior spaces of enchanting beauty, well-being and comfort.

PRODEMA products are individual, with a unique colour, grain pattern that make each piece one-of-a-kind. These variations in tone between boards provide naturalness and authenticity that is visible at first glance.

At **PRODEMA**, our philosophy of ongoing improvement and innovation compels us to make an effort to obtain the most demanding quality certificates, such as the ISO 9001 management system. It also compels us to always remain steadfast in our respect and care for the environment.

❷ THE WOOD

2.1 ENVIRONMENTAL COMMITMENT

At **PRODEMA,** we have always been committed to the environment. This is why we are constantly introducing new initiatives to encourage environmental improvements. We stand at the forefront of our industry in technical innovation, simultaneously driving sustainable practices. Loyal to this commitment, we meet (and often exceed) real and honest objectives, translating into tangible benefts for our clients and society as a whole.

PRODEMA products have environmental product declarations (ECOlabels), pursuant to **ISO14025** and **NF P01-010**. These systems identify the product's environmental aspects at the design phase, reducing negative impacts over the course of its life cycle. Since 2007, we have also operated under the strict standards of the **PEFC organisation** (**P**rogramme for the **E**ndorsement of **F**orestry **C**ertification) which guarantees that our products are made with wood from forests that are managed in a socially and environmentally sustainable fashion.

PEFC
PEFC/14-35-00025

Additionally, **PRODEMA** products earn points in the **LEED** system. (**L**eadership in **E**nergy and **E**nvironmental **D**esign), the most widely recognised certification scheme in the world for 'green' buildings. Our products can also earn points in rating systems used in other worldmarkets: **BREEAM**, Casbee, gbtool, green globes... differnt markets: Breeam, Casbee, gbtool, green globes...

SUMMARY OF CERTIFICATES

Certificate of Compliance for the Chain of Custody over Forest Products	PEFC/14-35-000416-AEN

2.2 CHARACTERISATION OF OUR WOODS

The table below provides details on the aspects that characterise each one of the wood species we work with for the indoor **PRODEMA** line. We always select the highest-quality wood.

PRODEMA WOOD	ORIGINAL SPECIES NAME	ORIGIN	CUTTING METHODS	JOINT SYSTEM
SAPELLI	Entandroophragma cylindricum	Africa	Flat	Slip
NATURAL ZEBRAWOOD	Microberlina brazzaavillensis	Africa	Flat	Slip
WENGE	Milletia laurentii	Africa	Flat	Slip
EUCALYPTUS	Eucalyptus globulus	Spain	Flat	Slip
FRESNO	Fraxinus excelsior	North America	Flat	Slip
TEAK	Tectona grandis	Asia	Flat	Book
NATURAL BEECH	Fagus sylvatica	Europe	Flat	Book
CAMEL OAK (3)	Quercus robur	Europe	Flat	Book
MAPLE	Acer saccharum	North America	Flat	Book
BLONDE ASH	Fraxinus excelsior	North America	Flat	Book
AMERICAN WALNUT(1)	Juglans nigra	North America	Flat	Book
CHERRY	Prunus avium	North America	Flat	Book
WHITE OAK (1)	Quercus alba	North America	Flat	Book
BAMBOO	Bambusa vulgaris	Asia	Flat	Random
TOFFEE BAMBOO	Bambusa vulgaris	Asia	Flat	Random
CHARACTER OAK	Quercus alba	North America	Flat	Random
WILD OAK	Quercus alba	North America	Flat	Random
GREY CIGAR OAK (2)	Quercus rubra	North America	Rift	Slip
DEEP BROWN	Aucoumea Klaineana	Africa	Rotary	No: whole piece
NUX	Aucoumea Klaineana	Africa	Rotary	No: whole piece
ALMOND	Aucoumea Klaineana	Africa	Rotary	No: whole piece
LIGHT BROWN	Triplochiton Scleroxylon	Africa	Rotary	No: whole piece
DARK BROWN	Triplochiton Scleroxylon	Africa	Rotary	No: whole piece
MOCCA	Triplochiton Scleroxylon	Africa	Rotary	No: whole piece
HONEY	Triplochiton Scleroxylon	Africa	Rotary	No: whole piece
CREAM	Triplochiton Scleroxylon	Africa	Rotary	No: whole piece
NATURAL A	Triplochiton Scleroxylon	Africa	Rotary	No: whole piece
QUERCUS	Triplochiton Scleroxylon	Africa	Rotary	No: whole piece
GREY QUERCUS	Triplochiton Scleroxylon	Africa	Rotary	No: whole piece
WHITE QUERCUS	Triplochiton Scleroxylon	Africa	Rotary	No: whole piece
CARBON	Triplochiton Scleroxylon	Africa	Rotary	No: whole piece

(1) Available: STRAIGHT GRAIN or FIGURED/GRAIN
(2) Available: STRAIGHT GRAIN
(3) Available: FIGURED/GRAIN

2.3 VENEER OBTAINMENT DESCRIPTIONS

Depending on the final application we require the use of specific veneer types, due to technical considerations:

• For external applications (only panels for ventilated façades), **PRODEMA** use Ayous and Okume veneers. These are sourced from very particular trees, providing large-format sheets with a single veneer of 2440mm x 1220mm.

• For internal use on floors, walls and ceilings, **PRODEMA** work with numerous species (e.g. Oak, Walnut, Bamboo, Eucalyptus, Ash, Beech, Maple, Cherry, Zebrano, Sapele, etc.). We also manufacture our internal products in Ayous and Okume, which enables us toprovide total aesthetic coordination with the external panels.

There are differing cutting systems used to obtain the natural wood veneersheets offered in the huge range of **PRODEMA** products:

• ROTARY CUT

• TANGENTIAL FLAT CUT

• QUARTER CUT

• RIFT CUT

2.3.1 ROTARY CUT

The trunk is centred on the lathe and rotated against a blade, as if stretching out a roll of paper. This method produces highly pronounced and varied grain. The panel obtained is wide enough to provide the entire face of one panel.

2.3.2 TANGENTIAL FLAT CUT

This cutting system is based on a trunk that is divided in half. It gets the most out of the wood. The blade obtains the sheets of wood by cutting the top part, grouping into 32-unit packs. The number of packages obtained is subject to the trunk. Depending on the part of the trunk being cut, a different pattern is obtained. Thus:

• Sheets obtained from the top part of the trunk ···► Figured, with much grain.

• Sheets from the centre part ···► Straight grain.

• Sheets obtained from the middle ···► Semi-figure, (blend, one part grainy, another part figured).

2.3.3 QUARTER CUT

This cutting system is based on a quarter of the trunk, as indicated by the name. The blade obtains sheets of wood that are entirely straight grain.

We work with woods such as Eucalyptus, Zebrano and Sapele.

2.3.4 RIFT CUT

This cut system is a mix between the flat cut and the rotary cut systems. It provides veneers with wide, straight-grain sheets, where the grain is more separated. It is normally used to cut oak, and reduces mirroring.

2.4 MATCHING TYPES

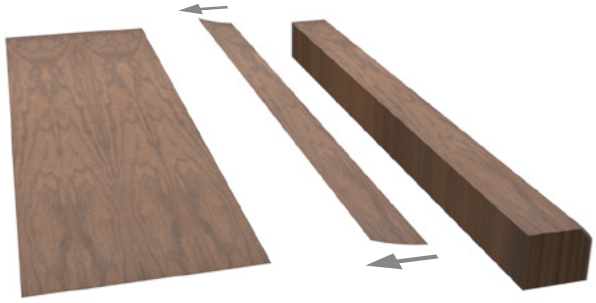
There are different matching types for indoor wooden boards. At **PRODEMA**, we use the following kinds of matchings, depending on the species in question:

2.4.1 BOOK MATCHING

This type of matching is used when the wood veneers are turned over and placed simetrically, providing for an open-book or mirror effect.

1

2



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2.4.2 SLIP MATCHING

It is used when the wood veneers are placed next to each other consecutively. This creates a repetitive pattern.

1

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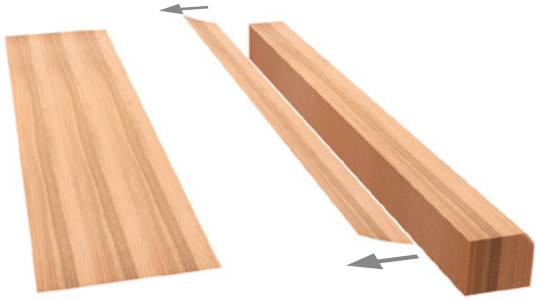

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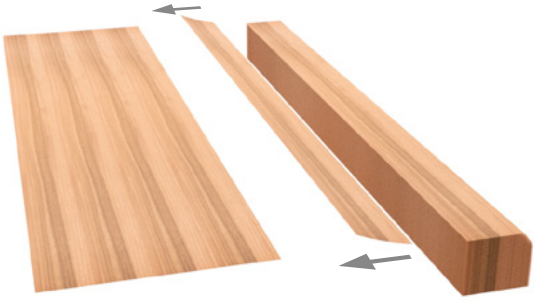

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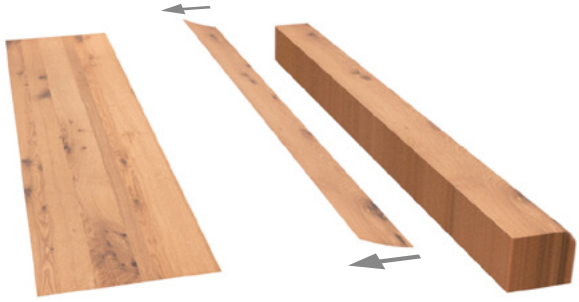
2.4.3 RANDOM MATCHING

This matching is random, mixing sheets of wood with different patterns. With this system, veneers from different trunks are blended. This means that there is no defined pattern. A highly rustic and irregular result is obtained.

1

2



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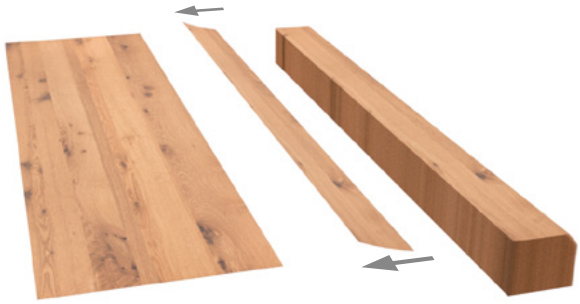

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* NOTE: Pre-defined matching systems cannot be modified. Certain matchings are selected for each wood, based on in-hause company criteria, the result of our know-how.

❸ WALLS AND CEILINGS

3.1 PROLIGNA

Panels that can be installed in dry environments, and those that are acoustically sensitive. The panel core consists on a birch plywood board.

COMPOSITION

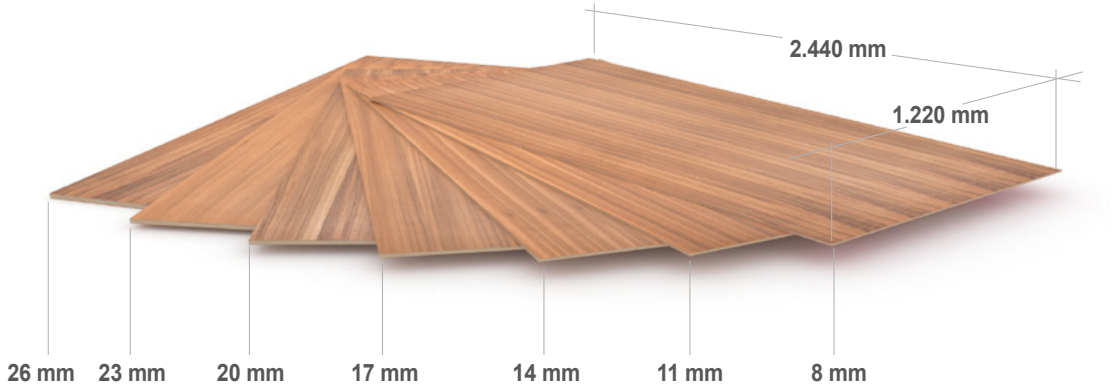
PROLIGNA panels have a wooden plywood core and natural wood surface, protected with a covering from our own know-how.

DIMENSIONS AND WEIGHT

PROLIGNA panels adapt to the needs of each project, and can be cut to the measurements or shape required. We must always follow recommendations in this technical catalogue.

Maximum dimensions (mm): **Length x width: 2.440 mm x 1.220 mm**

Board thickness:	8	11	14	17	20	23	26	(mm)
Weight / surface unit:	6,00	8,25	10,5	12,75	15,00	17,25	19,5	(Kg/m)



Prodema NATURAL WOOD BEAUTY	TECHNICAL DATA SHEET		Doc.: FTPROLIGNA Rev.: 012 - Mar 2017 Page: 1/1
MATERIAL:	**THICKNESS:**		**SURFACE FINISH:**
PROLIGNA	**8 - 26 mm**		**TEXTURE**
TESTS	**RESULTS**	**MEASUREMENT UNIT**	**STANDARD**
1. INSPECTION REQUIREMENTS			
Colour, pattern and surface finish	Due to the fact that wood is a natural product, each veneer may be considered as unique. Slight colour and structure differences are considered as normal. Singularities such as knots and resin inclusions are not considered as defects, but as a part of the decor. There are differences in light fastness performances depending on the wood species and the source of the wood.		EN 438-8 Part 5.2.2.3
2. DIMENSIONAL TOLERANCES			
Thickness (t)	**+1,6/-1 (t = 8)** **+1,4/-1,1 (t = 11)** **+1,6/-1,1 (t = 14)** **+1,3 / -1,3 (t = 17)** **+1,3 / -1,1 (t = 20)** **+1,3 / -1,1 (t = 26)**	mm	EN 438-2 Part. 5
Tolerance for thickness variations inside a panel	**≤ 6**	mm	EN 315:1993
Length and widtht	**+ 10 / - 0**	mm	EN 438-2 Part. 6
Edge strightness	**1,5**	mm/m	EN 438-2 Part. 7
Edge squareness	**1,5**	mm/m	EN 438-2 Part. 8
3. PHYSICAL PROPERTIES			
Resistance to surface wear	**-**	Revolution	EN 438-2 Part. 10
	≥ 350	Wear resistance	
Resistance to immersion in boiling water	**Pass**	Delamination Pass / Fail	EN 438-2 Part. 12
Resistance to scratching	**3**	Rating	EN 438-2 Part. 25
Lightfastness (Xenon arc)	**≥ 2 (A)**	Grey scale rating	EN 438-2 Part. 27
Flexural strength	**≥ 70 (Longrain)** **≥ 60 (Crossgrain)**	MPa	EN 310
Flexural modulus	**≥ 7.000 (Longrain)** **≥ 6.000 (Crossgrain)**	MPa	EN 310
Perpendicular tensile strength	**≥ 2**	MPa	ASTM C 297
Density	**≥ 0,75**	g/cm³	-
4. CE SAFETY REQUIREMENTS			
Reaction to fire	**D-s2,d0**	Classification	EN 13.501-1
Resistance to fixings	**≥ 150 (t < 15 mm)**	N/mm	EN 438-7 Part. 4.5
	≥ 2.000 (t ≥ 15 mm)	N	
Bonding strength	**≥ 1**	MPa	EN 438-7 Part 4.7
Flexural tensile strength	**≥ 1**	MPa	EN 438-7 Part 4.8
Content of pentachlorophenol	**≤ 5**	ppm	EN 438-7 Part. 4.10
Release of formaldehyde	**E 1**	Class	EN 717-2
Glue-line quality	**5**	Rating	EN 438-7 Part 4.13.3
Resistance to elevated temperature	**No damage**	Result	EN 438-7 Part. 4.13.3
Water resistance	**≤ 7**	%	EN 438-7 Part. 4.13.3
5. ADDITIONAL REQUIREMENTS UPON REQUEST			
Evaluation of antimicrobial activity	**99,99**	% reduction after 24h (S. aureus and E.coli)	ISO 22196 (JIS Z 2801)

(A) Except wood Maple, that gets Grey scale Rating <2

The reaction to fire performance shown was obtained pursuant to European Standard EN 13.501 – 1. To discover the product's fire reaction performance in other places, and under different standards, please contact **PRODEMA** (PRODEMA@PRODEMA.com).

PROLIGNA IGN

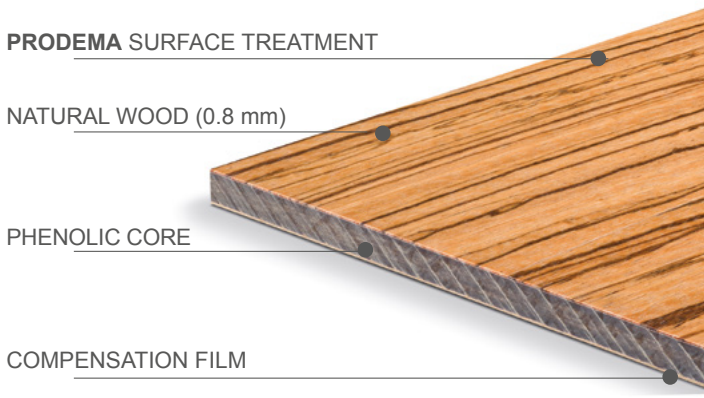
Prodema NATURAL WOOD BEAUTY	TECHNICAL DATA SHEET		Doc.: FTPROLIGNAIGN Rev.: 011 - Mar 2017 Page: 1/1
MATERIAL:	**THICKNESS:**		**SURFACE FINISH:**
PROLIGNA IGN	**14 - 26 mm**		**TEXTURE**
TESTS	**RESULTS**	**MESURE UNIT**	**STANDARD**
1. INSPECTION REQUIREMENTS			
Colour, pattern and surface finish	Due to the fact that wood is a natural product, each veneer may be considered as unique. Slight colour and structure differences are considered as normal. Singularities such as knots and resin inclusions are not considered as defects, but as a part of the decor. There are differences in light fastness performances depending on the wood species and the source of the wood.		EN 438-8 Part 5.2.2.3
2. DIMENSIONAL TOLERANCES			
Thickness (t)	**+1,3 / -0,9 (t = 14)** **+1,4 / -1,0 (t = 17)** **+1,6 / -1,2 (t = 20)** **+1,6 / -1,2 (t = 26)**	mm	EN 438-2 Part 5
Tolerance for thickness variations inside a panel	**≤ 0,6**	mm	EN 315:1993
Length and widtht	**+ 10 / - 0**	mm	EN 438-2 Part 6
Edge strightness	**1,5**	mm/m	EN 438-2 Part 7
Edge squareness	**1,5**	mm/m	EN 438-2 Part 8
3. PHYSICAL PROPERTIES			
Resistance to surface wear	**-**	Revolutions	EN 438-2 Part 10
	≥ 350	Wear resistance	
Resistance to immersion in boiling water	**Pass**	Delamination Pass or fail	EN 438-2 Part 12
Resistance to scratching	**3**	Rating	EN 438-2 Part 25
Lightfastness (Xenon arc)	**≥ 2 (A)**	Grey scale rating	EN 438-2 Part 27
Flexural strength	**≥ 70 (Longrain)** **≥ 60 (Crossgrain)**	MPa	EN 310
Flexural modulus	**≥ 7.000(Longrain)** **≥ 6.000 (Crossgrain)**	MPa	EN 310
Perpendicular tensile strength	**≥ 2**	MPa	ASTM C 297
Density	**≥ 0,75**	g/cm³	-
4. CE SAFETY REQUIREMENTS			
Reaction to fire	**B-s2,d0**	Classification	EN 13.501-1
Resistance to fixings	**≥ 100 (t < 15 mm)**	N/mm	EN 438-7 Part 4.5
	≥ 1.500 (t ≥ 15 mm)	N	
Bonding strength	**≥ 1**	MPa	EN 438-7 Part 4.7
Flexural tensile strength	**≥ 1**	MPa	EN 438-7 Part 4.8
Content of pentachlorophenol	**≤ 5**	ppm	EN 438-7 Part 4.10
Release of formaldehyde	**E 1**	Class	EN 717-2
Glue-line quality	**5**	Rating	EN 438-7 Part 4.13.3
Resistance to elevated temperature	**No damage**	Result	EN 438-7 Part 4.13.3
Water resistance	**≤ 5**	%	EN 438-7 Part 4.13.3
5. ADDITIONAL REQUIREMENTS UPON REQUEST			
Evaluation of antimicrobial activity	**99,99**	% reduction after 24h (S. aureus and E.coli)	ISO 22196 (JIS Z 2801)

(A) Except wood Maple, that gets Grey scale Rating <2

The reaction to fire performance shown was obtained pursuant to European Standard EN 13.501 – 1. To discover the product's fire reaction performance in other places, and under different standards, please contact **PRODEMA** (PRODEMA@PRODEMA.com).

3.2 NEPTUNO

Panels that can be installed in any environment: dry, moist, acoustically sensitive, etc. The core is made of a compact phenolic panel, very similar to the one used in outdoor boards from the PRODEX line. Their main difference lies in the fact that they are perfectly valid for any environment.



COMPOSITION

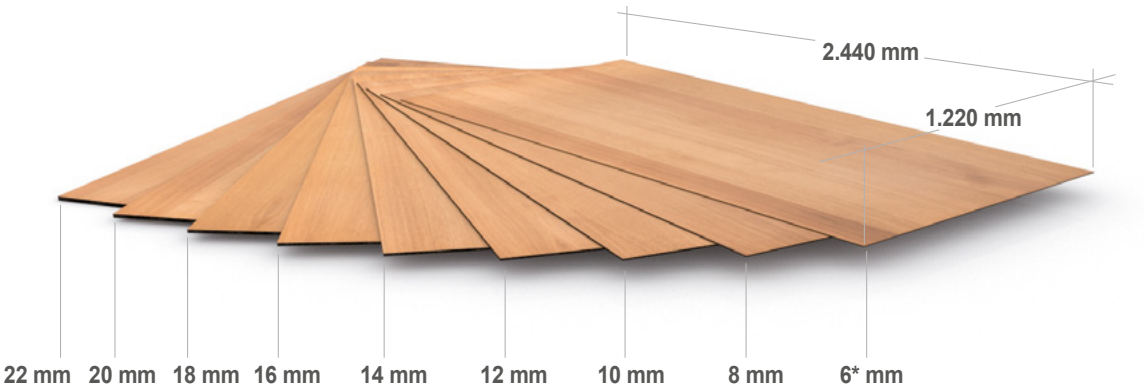
NEPTUNO is a result of **PRODEMA** PRODEX´S experience with outdoor products. This panel is made of a high-density Bakelite body, covered with a natural wood board whose surface has been treated with synthetic resins to provide greater durability to the panels, and with anti-adhesive properties to protect the board and meet demanding requirements for moist environments.

DIMENSIONS AND WEIGHT

NEPTUNO panels adapt to the needs of each project, and can be cut to the measurements or shape required. We must always follow recommendations in this technical catalogue.

Maximum dimensions (mm): **Length x width: 2.440 mm x 1.220 mm**

Board thickness:	**6***	**8**	**10**	**12**	**14**	**16**	**18**	**20**	**22**	**(mm)**
Weight / surface unit:	**6,10**	**10,80**	**13,50**	**16,20**	**18,90**	**21,60**	**24,30**	**27,00**	**29,70**	**(Kg/m$^{2)}$**



* Only for special applications. Contact **PRODEMA** (PRODEMA@PRODEMA.com).

NEPTUNO

Prodema NATURAL WOOD BEAUTY	TECHNICAL DATA SHEET	Doc.: FTNEPTUNO Rev.: 08-Mar 2017 Page: 1/1

MATERIAL:	THICKNESS:	SURFACE FINISH:
NEPTUNO	6-22 mm	TEXTURE*

TESTS	RESULTS FTNEPTUNO Rev: 08	PROPERTY OR ATTRIBUTE	MESURE UNIT	STANDARD
1. INSPECTION REQUIREMENTS				
Colour, pattern and surface finish	Due to the fact that wood is a natural product, each veneer may be considered as unique. Slight colour and structure differences are considered as normal. Singularities such as knots and resin inclusions are not considered as defects, but as a part of the decor. There are differences in light fastness performances depending on the wood species and the source of the wood.		EN 438-8 Part 5.2.2.3	
2. DIMENSIONAL TOLERANCES				
Thickness (t)	**± 0,40** **± 0,50** **± 0,60** **± 0,70** **± 0,80**	6,0 ≤ t < 8,0 8,0 ≤ t < 12,0 12,0 ≤ t < 16,0 16,0 ≤ t < 20,0 20,0 ≤ t < 25,0	mm	EN 438-2 Part 5
Flatness	**8,0** **5,0**	6,0 ≤ t < 10,0 10,0 ≤ t	mm/m	EN 438-2 Part 9
Length and widtht	**+ 10 / - 0**	-	mm	EN 438-2 Part 6
Edge strightness	**1,5**	-	mm/m	EN 438-2 Part 7
Edge squareness	**1,5**	-	mm/m	EN 438-2 Part 8
3. PHYSICAL PROPERTIES				
Resistance to surface wear	**≥ 350**	Wear resistance	Revolutions	EN 438-2 Part 10
Resistance to scratching	**3**	Force	Rating	EN 438-2 Part 25
Dimensional stability at elevated temperatures	**0,3** **0,6**	Cumulative dimensional change	% max Longrain % max Crossgrain	EN 438-2 Part 17
Resistance to impact with large diameter ball	**≥ 1.800**	Maximum height for witch no visible surface cracking or imprint greater than 10 mm	mm	EN 438-2 Part 21
Flexural strength	**≥ 80** **≥ 80**	Lograin Cossgrain	MPa	EN ISO 178
Flexural Modulus	**≥ 9.000** **≥ 9.000**	Lograin Cossgrain	MPa	EN ISO 178
Light fastness (Xenon arc)	**>2 (2)**	Contrast	Grey scale rating	EN 438-2 Part 27
4. CE SAFETY REQUIREMENTS				
Reaction to fire	**C-s1,d0**	Euroclass	Classification	EN 13.501-1
Water vapour permeability	**110**	Wet cup method	μ	EN 438-7 Part 4.4
	250	Dry cup method		
Resistance to fixings	> **2.000**	Screw holding value t **≥ 6 mm**	N	EN 438-7 Part 4.5
	> **3.000**	Screw holding value t **≥ 8 mm**		
	> **4.000**	Screw holding value t **≥ 10 mm**		
Density	**≥ 1,35**	Density	g/cm³	EN ISO 1.183
Resistance to inmersion in bolling water	**Pass**	Appearance	Delamination pass or fail	EN 438-2 Part 12
Release of formaldehyde	**E1**	Release of formadehyde	Rating	EN 438-7 Part 4.11
5. ADDITIONAL REQUIREMENTS UPON REQUEST				
Evaluation of antimicrobial activity	**99,99**	% reduction after 24h (S. aureus and E.coli)		ISO 22196 (JIS Z 2801)

*Except for the colour Light Brown, Rustik, Mocca, Cream, Deep Brown, Dark Brown, Ice Grey, which have the surface finish Smooth
(1) Provided that the laminates are stored in the manner and conditions recommended by the manufacturer.
(2) Maple <2

The reaction to fire performance shown was obtained pursuant to European Standard EN 13.501 – 1. To discover the product's fire reaction performance in other places, and under different standards, please contact **PRODEMA** (PRODEMA@PRODEMA.com).

NEPTUNO IGN

Prodema NATURAL WOOD BEAUTY	TECHNICAL DATA SHEET		Doc. FTNEPTUNOIGN Rev.: 09-Mar 2018 Page: 1/1	
MATERIAL:	**THICKNESS:**		**SURFACE FINISH:**	
NEPTUNO IGN	**8-22 mm**		**TEXTURE***	
TESTS	**RESULTS** **FTNEPTUNO Rev: 08**	**PROPERTY OR ATTRIBUTE**	**MESURE UNIT**	**STANDARD**
1. INSPECTION REQUIREMENTS				
Colour, pattern and surface finish	Due to the fact that wood is a natural product, each veneer may be considered as unique. Slight colour and structure differences are considered as normal. Singularities such as knots and resin inclusions are not considered as defects, but as a part of the decor. There are differences in light fastness performances depending on the wood species and the source of the wood.		EN 438-8 Part 5.2.2.3	
2. DIMENSIONAL TOLERANCES				
Thickness (t)	**± 0,40** **± 0,50** **± 0,60** **± 0,70** **± 0,80**	6,0 ≤ t < 8,0 8,0 ≤ t < 12,0 12,0 ≤ t < 16,0 16,0 ≤ t < 20,0 20,0 ≤ t < 25,0	mm	EN 438-2 Part 5
Flatness	**8,0** **5,0**	8,0 ≤ t < 10,0 10,0 ≤ t	mm/m	EN 438-2 Part 9
Length and widtht	**+ 10 / - 0**	-	mm	EN 438-2 Part 6
Edge strightness	**1,5**	-	mm/m	EN 438-2 Part 7
Edge squareness	**1,5**	-	mm/m	EN 438-2 Part 8
3. PHYSICAL PROPERTIES				
Resistance to surface wear	**≥ 350**	Wear resistance	Revolutions	EN 438-2 Part 10
Resistance to scratching	**3**	Force	Rating	EN 438-2 Part 25
Dimensional stability at elevated temperatures	**0,3** **0,6**	Cumulative dimensional change	%max Longrain %max Crossgrain	EN 438-2 Part 17
Resistance to impact with large diameter ball	**≥ 1.800**	Maximum height for witch no visible surface cracking or imprint greater than 10 mm	mm	EN 438-2 Part 21
Flexural strength	**≥ 80** **≥ 80**	Lograin Cossgrain	MPa	EN ISO 178
Flexural Modulus	**≥ 9.000** **≥ 9.000**	Lograin Cossgrain	MPa	EN ISO 178
Light fastness (Xenon arc)	**>2 (2)**	Contrast	Grey scale rating	EN 438-2 Part 27
4. CE SAFETY REQUIREMENTS				
Reaction to fire	**B-s1,d0**	Euroclass	Classification	EN 13.501-1
Water vapour permeability	**110**	Wet cup method	μ	EN 438-7 Part 4.4
	250	Dry cup method		
Resistance to fixings	> **2.000**	Screw holding value t **≥ 6 mm**	N	EN 438-7 Part 4.5
	> **3.000**	Screw holding value t **≥ 8 mm**		
	> **4.000**	Screw holding value t **≥ 10 mm**		
Density	**≥ 1,35**	Density	g/cm³	EN ISO 1.183
Resistance to inmersion in bolling water	**Pass**	Appearance	Delamination pass	EN 438-2 Part 12
Release of formaldehyde	**E1**	Release of formadehyde	Rating	EN 438-7 Part 4.11
5. ADDITIONAL REQUIREMENTS UPON REQUEST				
Evaluation of antimicrobial activity	**99,99**	% reduction after 24h (S. aureus and E.coli)		ISO 22196 (JIS Z 2801)

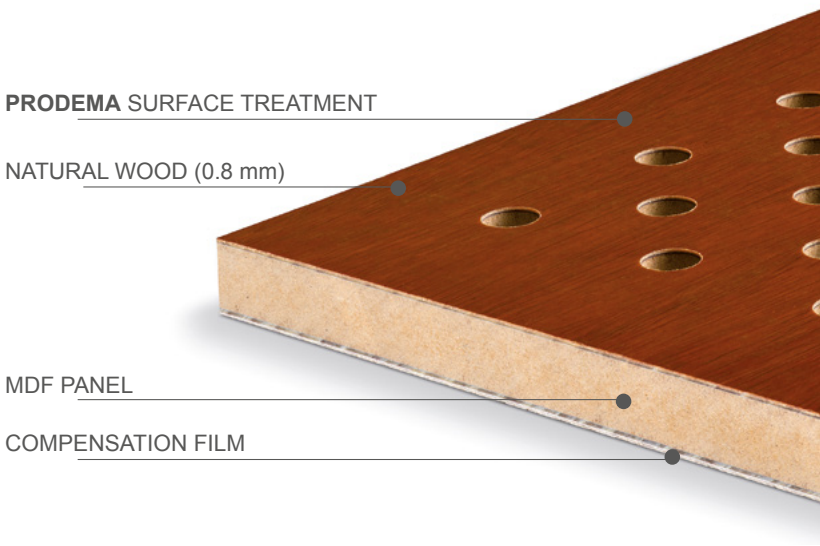
·Except for the colour Light Brown, Rustik, Mocca, Cream, Deep Brown, Dark Brown, Ice Grey, which have the surface finish Smooth
(1) Provided that the laminates are stored in the manner and conditions recommended by the manufacturer.
(2) Maple <2

3.3 AUDITORIUM

Panels especially designed to be installed in environments where the acoustics are an essential factor. The panel core is made of an MDF board.

COMPOSITION

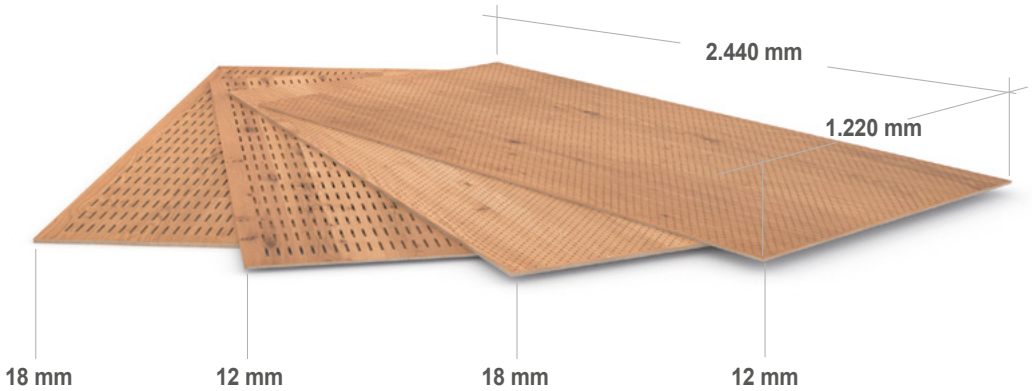
AUDITORIUM panels are composed of a core made by an MDF board, and the surface is natural wood, protected with a covering formulated by **PRODEMA**. There are different kinds of perforations, depending on the acoustic absorption desired. A wide variety of designs with perforations and slots are offered.



DIMENSIONS AND WEIGHT

Maximum dimensions (mm): **Length x width: 2.440 mm x 1.220 mm**

Board thickness:	**12**	**18**	**(mm)**
Weight / surface unit:	**9,6**	**14,4**	**(Kg/m2)**

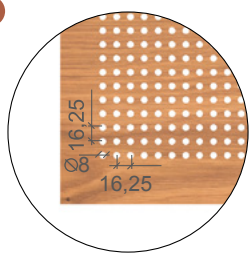


PERFORATED

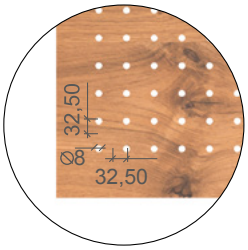
PRODEMA offers the following perforation designs for its entire line of panels for walls and ceilings.

Three kinds of perforations

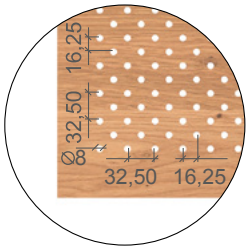
A



B

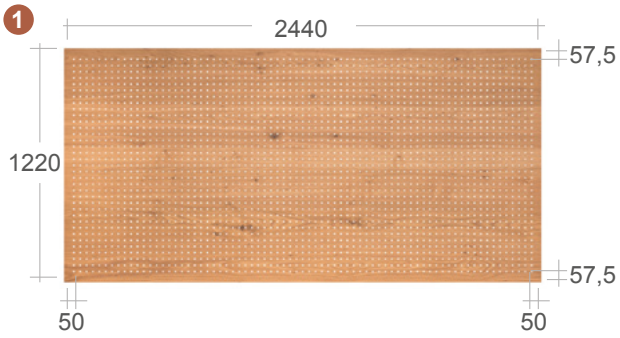


C



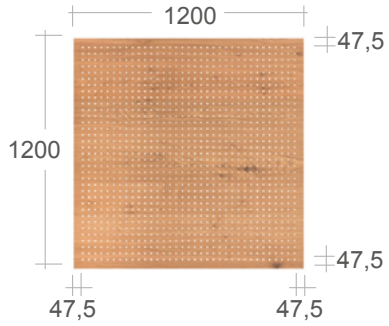
OPC	CUT	DRILL NUM.	ROWS	COLUMN	% PANEL	% M²

1



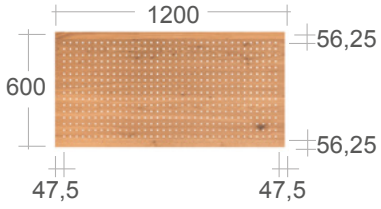
A1	16,25 mm	10.005	69	145	16,9	18,7
B1	32,5 mm	2.555	35	73	4,3	4,5
C1	SCALE 1/2	5.003	70/2	144	8,5	9,5

2



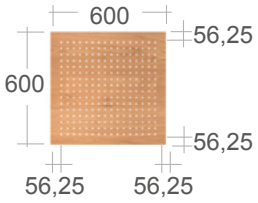
A2	16,25 mm	4.761	69	69	16,6	18,7
B2	32,5 mm	1.225	35	35	4,3	4,5
C2	SCALE 1/2	2.381	70/2	69	8,3	9,5

3



A3	16,25 mm	2.139	69	31	14,9	18,7
B3	32,5 mm	560	35	16	3,9	4,5
C3	SCALE 1/2	1.070	70/2	31	7,5	9,5

4



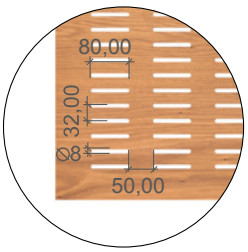
A4	16,25 mm	961	31	31	13,4	18,7
B4	32,5 mm	256	16	16	3,6	4,5
C4	SCALE 1/2	481	32/2	31	6,7	9,5

SLOTS

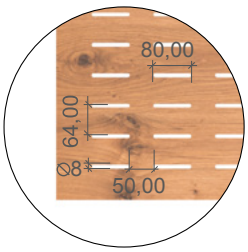
PRODEMA offers the following slot designs for its entire line of panels for walls and ceilings.

Two types of slots

D

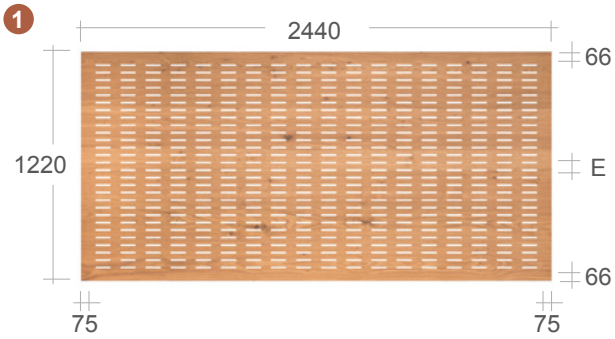


E



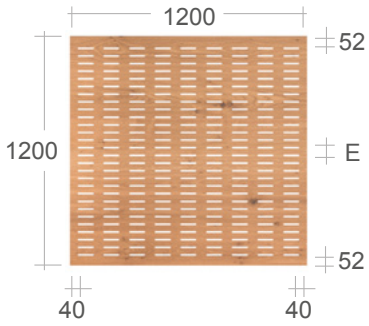
OPC	CUT	CHANN. NUM.	ROWS	COLUMN	% PANEL	% M²

1



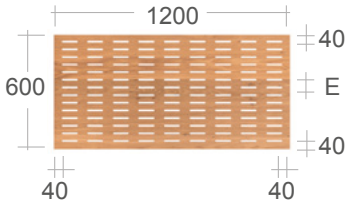
D1	32 mm	630	35	18	13,3	16,0
E1	64 mm	324	18	18	6,8	8,0

2



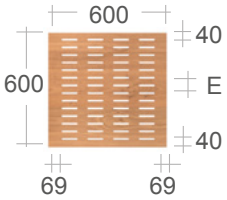
D2	32 mm	315	35	9	13,7	16,0
E2	64 mm	162	18	9	7,0	8,0

3



D3	32 mm	153	17	9	13,3	16,0
E3	64 mm	81	9	9	7,0	8,0

4



D4	32 mm	68	17	4	11,8	16,0
E4	64 mm	36	9	4	6,3	8,0

AUDITORIUM

Prodema NATURAL WOOD BEAUTY	TECHNICAL DATA SHEET		Doc.: FTAUDITORIUMIGN Rev.: 011 - Mar 2017 Page: 1/1
MATERIAL:	**THICKNESS:**		**SURFACE FINISH:**
AUDITORIUM IGN	**12 - 18 mm**		**TEXTURE**
TESTS	**RESULT**	**MEASUREMENT UNIT**	**STANDARD**
1. INSPECTION REQUIREMENTS			
Colour, pattern and surface finish	Due to the fact that wood is a natural product, each veneer may be considered as unique. Slight colour and structure differences are considered as normal. Singularities such as knots and resin inclusions are not considered as defects, but as a part of the décor. There are differences in light fastness performances depending on the wood species and the source of the wood		EN 438-8 Part 5.2.2.3
2. DIMENSIONAL TOLERANCES			
Thickness (t)	**+ 1,2 / - 0,8 (t = 12)** **+1,3 / - 0,9 (t = 18)**	mm	EN 438-2 Part 5
Length and width	**+ 10 / - 0**	mm	EN 438-2 Part 6
Edge straightness	**1,5**	mm/m	EN 438-2 Part 7
Edge squareness	**1,5**	mm/m	EN 438-2 Part 8
3. PHYSICAL PROPERTIES			
Resistance to surface wear	**-**	Revolutions	EN 438-2 Part 10
	≥ 350	Wear resistance	
Resistance to scratching	**3**	Rating	EN 438-2 Part 25
Lightfastness (Xenon arc)	**≥ 2 (A)**	Grey scale rating	EN 438-2 Part 27
Flexural strength	**≥ 70 (Longrain)** **≥ 50 (Crossgrain)**	MPa	EN 310
Flexural modulus	**≥ 7.000 (Longrain)** **≥ 5.000 (Crossgrain)**	MPa	EN 310
Perpendicular tensile strength	**≥ 1**	MPa	ASTM C 297
Density	**≥ 0,80**	g/cm³	-
4. CE SAFETY REQUIREMENTS			
Reaction to fire	**C-s2,d0**	Classification	EN 13.501-1
Resistance to fixings	**≥ 100 (t < 15 mm)**	N/mm	EN 438-7 Part 4.5
	≥ 1.300 (t ≥ 15 mm)	N	
Bonding strength	**≥ 0,75**	MPa	EN 438-7 Part 4.7
Flexural tensile strength	**≥ 0,75**	MPa	EN 438-7 Part 4.8
Content of pentachlorophenol	**≤ 5**	ppm	EN 438-7 Part. 4.10
Release of formaldehyde	**E 1**	Class	EN 717-2
Glue-line quality	**3**	Rating	EN 438-7 Part 4.13.3
Resistance to elevated temperature	**No damage**	Result	EN 438-7 Part 4.13.3
Water resistance	**≤ 5**	%	EN 438-7 Part 4.13.3
5. ADDITIONAL REQUIREMENTS UPON REQUEST			
Evaluation of antimicrobial activity	**99,99**	% reduction after 24h (S. aureus y E. coli)	ISO 22196 (JIS Z 2801)

(A) Except wood Maple, that gets Grey scale Rating <2

The reaction to fire performance shown was obtained pursuant to European Standard EN 13.501 – 1.
To discover the product's fire reaction performance in other places, and under different standards, please contact **PRODEMA** (PRODEMA@PRODEMA.com).

4 PRODUCT PRE-INSTALLATION

4.1 MATERIAL RECEPTION

Verify the condition of the package:

• If there are visible damages, indicate this on the transporter's delivery note.

• In the event of hidden damages, inform within 72h.

No transport claims shall be accepted in the event of failure to comply with any of these instructions.

4.2 HANDLING AND STORAGE

• The conditions of the area must be of min. **15ºC (59ºF)** and a RH of **40% to 65%**.

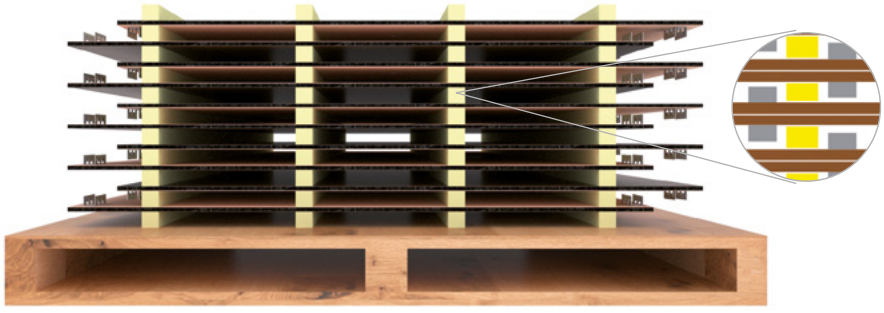
• The **PRODEMA** products must be acclimated in the room where are going to be installed at least **72 hours** before their installation in the original packaging.

• It is advisable to keep the **PRODEMA** panels in their original packaging until installation. If a panel must be packaged again, this must be done under the same conditions as the original packaging.

• Once the package is open, it is recommended to only remove the **PRODEMA** panels that are going to be immediately installed. The rest of the panels must remain stored under the same conditions as the original packaging.

• **PRODEMA** panels cannot be stored vertically. The panels must always be stored in horizontal position, with a distance between supports no greater than 800 mm.

• The floor under the pallet must be free from materials that could cause damage.



Improper storage/handling of **PRODEMA** panels can lead to their permanent deformation.

• For transport, **PRODEMA** panels must be properly strapped, bearing in mind that they can easily slide and deteriorate. They must always be transported horizontally.

• It is advisable to avoid exposing both sides of the **PRODEMA** panel to different moisture and temperature conditions. In the particular case of **PRODEMA** panels where attachment elements have been installed (for example, hooks for hidden mechanical installation), they must be stored in frontside – frontside format; backside – backside and thus successively, using intermediate wood or plastic supports placed at a distance under 600 mm between supports.

• These same indications, in principle, are also valid for cutting.

4.3 RANDOM PANEL PLACEMENT

Since **PRODEMA** panels are made of natural wood, there may be certain differences in tone between panels. For this reason, before installing, machining, etc., it is advisable to mix them up to avoid undesired aesthetic effects. The steps to follow are explained below.

1. Number all the pallets at the installation site as 1, 2, 3, etc. – The pallets must be stored throughout the entire installation process, following the requirements set forth in the storage section.

2. Open the pallet number 1 and remove two panels – Place these two panels on a flat pallet, leaving a maximum distance of 800 mm between supports.

3. Turn the third panel from pallet number one without removing it from the pallet.

4. Close pallet number one and put it away, following the packaging conditions set forth by **PRODEMA** so that the panels do not warp.

5. Repeat the same operation with other pallets, selecting them randomly, until you have removed 10 – 20 panels. For example, if you have 20 pallets, remove panels from pallets numbers 1, 8, 13, 15 and 20.

6. Mix the 10-20 removed panels and install them within 2 to 3 hours after the first panel was removed.

7. Repeat the six steps above until all panels are installed.

CUTTING TYPES

Depending on the cut selected for the surface, the aesthetic result can be summarised by the following two options in most cases:

A. Installation of slats with different widths.
B. Installation of complete panel or large pieces.

A. SLAT INSTALLATION

B. INSTALLATION OF COMPLETE PANEL OR LARGE PIECES

4.4 MACHINING

4.4.1 CUT RECOMMENDATIONS

Before cutting a board, verify its perpendicularity, the dimensions and its straightness.

PRODEMA panels must be cut with hardness K-05 and K-01 (tungsten-carbide/Widia) tools, properly sharpened, and avoiding overheating them at all times.

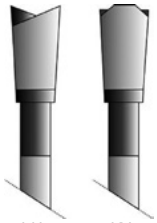
A. SAW

Saw types:

Wood-cutting saw disks made with hard material (Widia tip).

Indicative parameters for saw disks, depending on tool type:

DIAMETER (mm)	TEETH (z)	SPEED (rpm)	BLADE THICKNESS (mm)	TYPES OF TEETH
300	48	4000-6000	3,2	Tilted alternating teeth (1) and flat trapezoidal tooth. (2)
250	40 / 48	4000-6000	3,2	
190	30	3000-3500	2,2	



(1) (2)

Board placement:

The cutting disk should always enter on the visible side of the board.

- Static saw: the board should be face-up.
- Manual saw: the board should be face-down.

Height of the cutting disk:

For the cut to be clean, we recommend that the cutting disk protrude approximately 1-2 cms over the material to be sawed.

After the cut:

After machining (sawing, drilling, milling, bevelling, sanding, and perhaps polishing), no finish or protection treatment for the surfaces obtained is necessary. Sharp edges can be sanded.

B. CNC

PRODEMA panels can be machined with computer numeric control machines (CNC). The bits used must be perfectly sharpened, and we recommend operation at the following speeds:

• Rotation speed: 16,000 rpm.
• Forward speed: 4 m / min.

It is very important to keep the tool from heating at all times.

C. ALTERNATIVE SYSTEMS

Besides the aforementioned systems, there are other machining possibilities, although not all of them are compatible with the material.

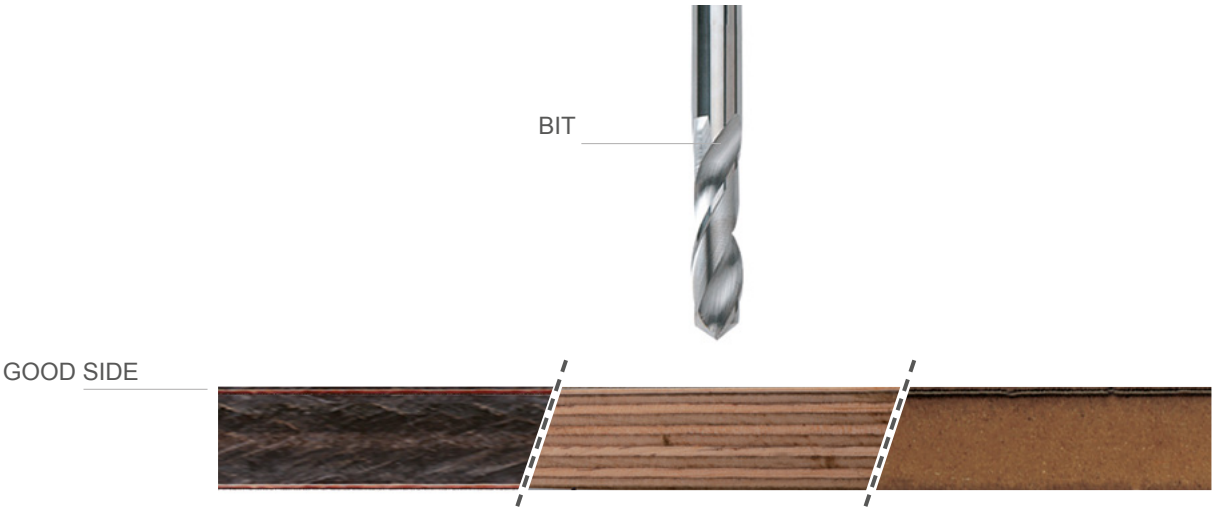
• **Water jet cutting:** this system is compatible with **PRODEMA** panels, but it is advisable to conduct a test beforehand to adjust parameters.

• **Laser cutting:** it is not recommended to use this system with **PRODEMA** panels, since they blacken and the wood veneer burns.

4.4.2 DRILLING RECOMMENDATIONS

PRODEMA panels are drilled with whole hard metal bits or steel bits with a tungsten-carbide tip (Widia), with a cut angle above 100º. Metal-perforation bits are also valid.

To avoid splintering the material when perforating, use support plates under the board, thus obtaining a clean hole, as shown below:



Indicative drilling speeds are shown below, although they should be considered a starting point, since they vary depending on the tool, its condition, the material and the perforation type.

• Rotation speed: 16.000 rpm.
• Forward speed: 4 m / min.

5 PRODUCT INSTALLATION

5.1 GENERAL CONCEPTS

5.1.1 AIR CHAMBER

Did you know that... **PRODEMA** products installed cladding with an air chamber is essential? For this panel to behave properly, it is very important for moisture and temperature differences between both sides of the panel to be reduced to the minimum. The air-chamber cladding has several advantages over conventional cladding:

• Improved acoustic insulation

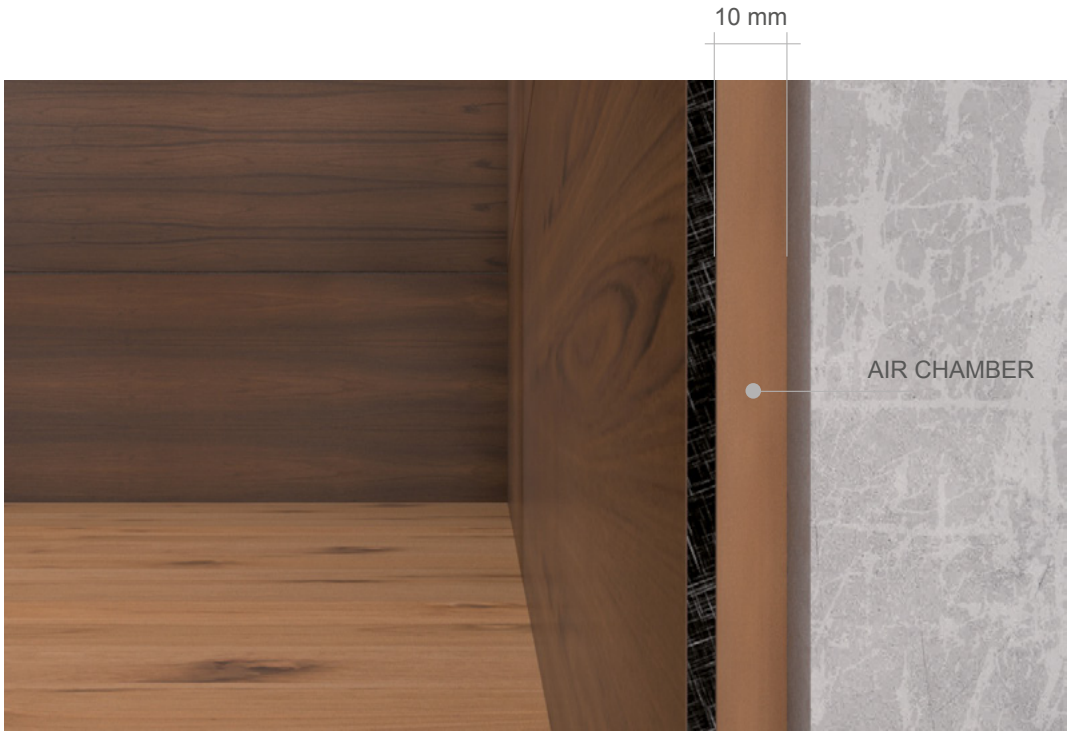
• Thermal insulation

Energy savings of up to 50%*.

Easy assembly, disassembly and good solution for renovation.

During winter or cold spells, the air chamber acts as a heat accumulator, since it helps the system's thermal stability. This construction system, along with a possible thermal insulator, impedes heat loss.

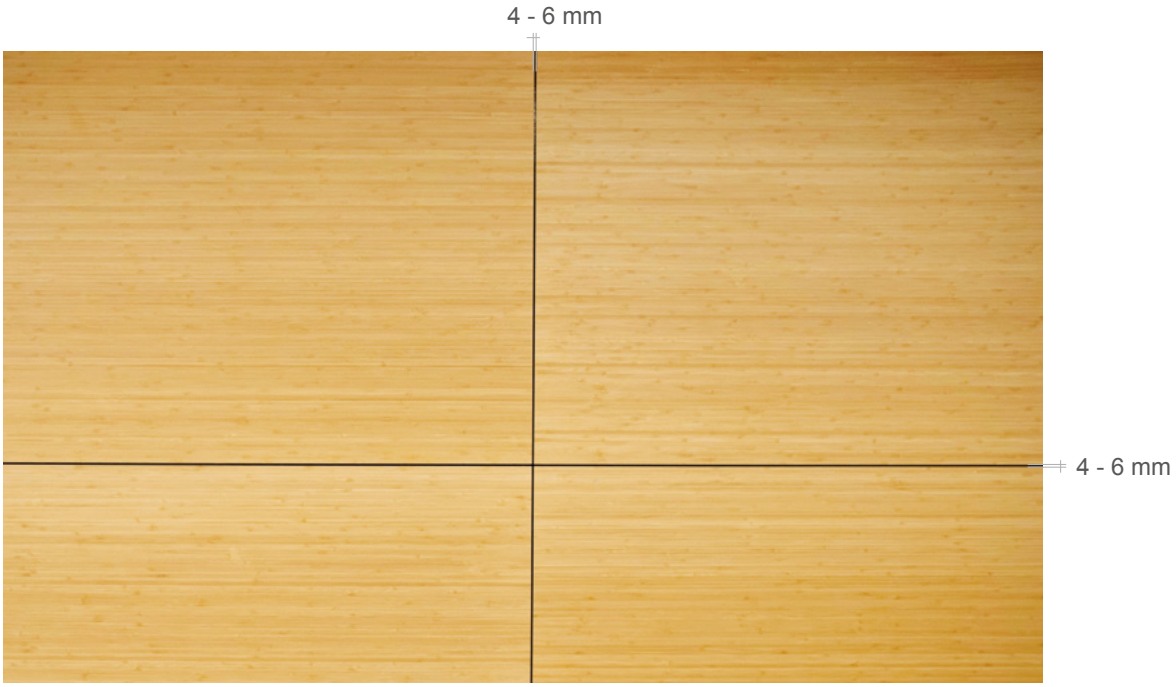
The air chamber between the panels and the insulation or enclosure must be at least 10 mm, while national or local law must also be followed.



* Depending on the building's orientation, the insulation used and the number of doors, windows, etc. therein.

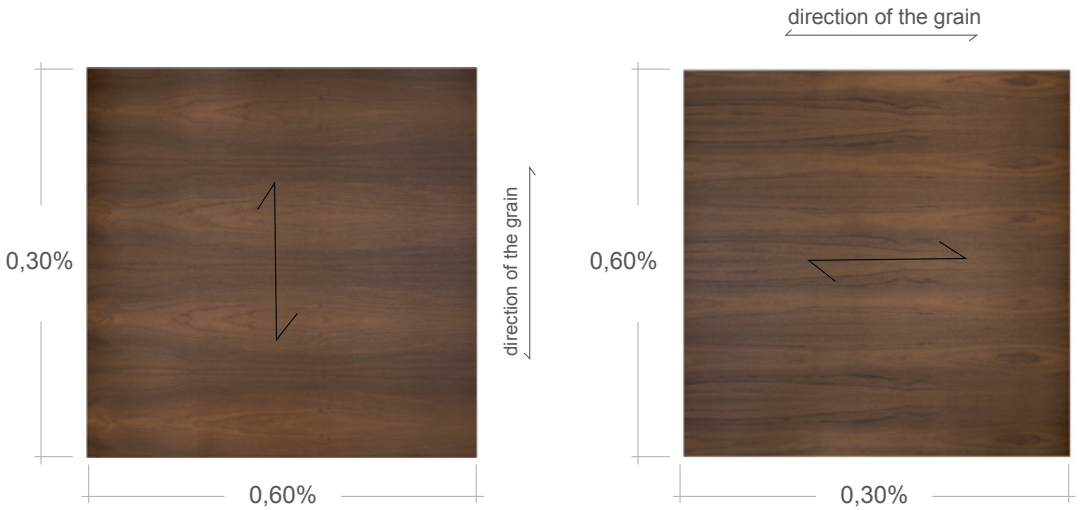
5.1.2 EXPANSION JOINTS

There must be an expansion joint between the panels between 4 and 6 mm. This joint provides **PRODEMA** panels with the freedom necessary for expansion and contraction movements caused by material properties, as a result of changes in temperature and humidity.



5.1.3 DIMENSIONAL STABILITY

Since **PRODEMA** panels are covered in natural wood, there are small dimensional variations, the result of changes in environmental humidity and temperature. Maximum dimensional variation lengthwise is 0,30%, and crosswise is 0,60%. These small dimensional variations do not affect the boards' aesthetic or functionality. For this reason, it is highly important to have the expansion joints instructed by **PRODEMA**.

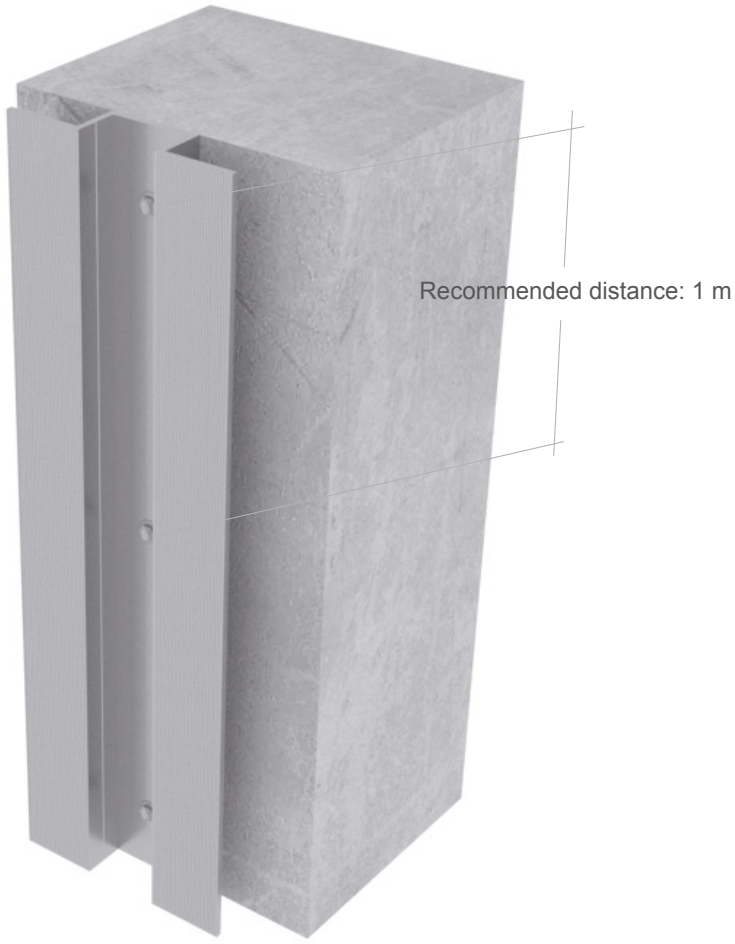


5.1.4 SUB-STRUCTURE

These battens should be attached to the surface where the **PRODEMA** products is going to be installed with attachment elements.

Moreover, the planimetry of the surface, the selected attachment system and the thickness and dimensions of the **PRODEMA** panels to be installed must be have in mind. Additionally, the elements comprising the sub-structure must be optimally protected from rust and rotting, regardless of the material or system used.

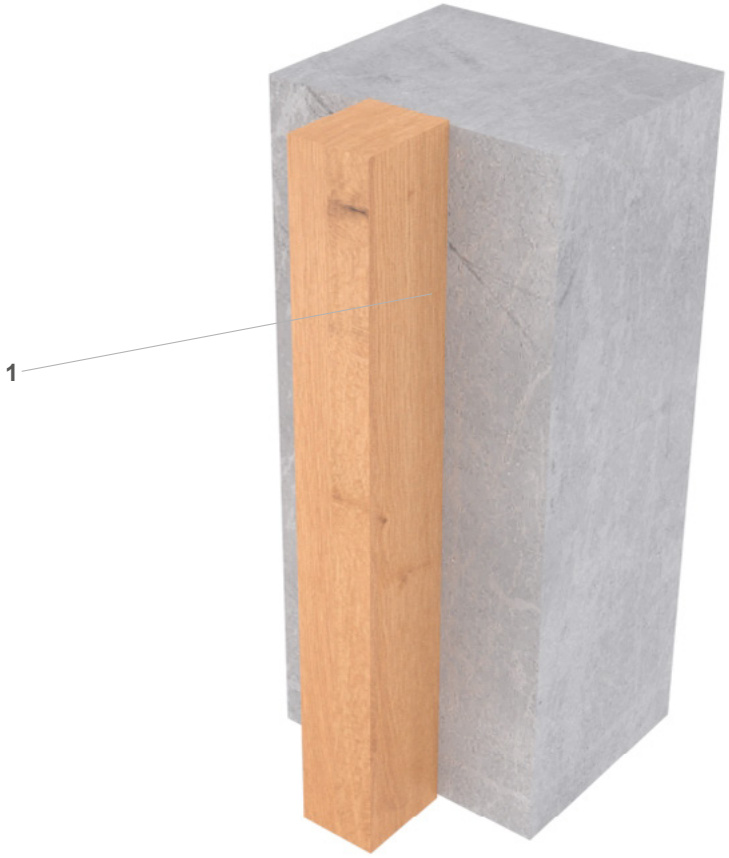
Metallic sub-structure



For more information on accessories, see chapter 8 of this catalogue.

Wooden sub-structure

To resolve irregularities in perpendicularity deviations, adjustable auxiliary elements must be used.



1 The battens are attached with screws and the pertinent (steel or nylon) wedge to the enclosure..

5.1.5 MINIMUM SUPPORT POINTS PER PANEL

PRODEMA recommends that the panels be supported by the maximun surface area of sub-frame element. The panels must be supported on at **least three points, both vertically and horizontally,** on a full-size panel, following the diagrams on this page. Maximum distances between attachments described later on in this catalogue must also be obeyed. They are explained in tables, along with each installation system.

For pieces as shown in the table below, two support points in the same direction are sufficient.

EXCEPTIONS

PIECE DIMENSIONS	VISIBLE ATTACHMENT
VISIBLE ATTACHMENT Pieces 100 to 300 mm	
HIDDEN ATTACHMENT Pieces 100 to 600 mm	

INSTALLATION SYSTEMS

INSTALLATION SYSTEMS	APPLICATION WALLS	APPLICATION CEILINGS	MAX SIZE ALLOWED (LXA)	MINIMUM THICKNESS	REGISTRABLE
Concealed fastening with adhesive	✓	✗	2440x1220mm	8mm	✗
Concealed fastening with clip	✓	✓	2440x600mm	8mm	✓
Concealed fastening with caps	✓	✓	2440x1220mm	10mm	✓
Concealed slat system	✓	✓	2440x114/94/86mm	10mm	✗
Visible fastening with screws or rivets	✓	✓	2440x1220mm	8mm	✓

5.2 INSTALLATION SYSTEMS FOR WALLS

5.2.1 CONCEALED FASTENING WITH ADHESIVE

Concealed attachment with adhesive provides for installation of **PRODEMA** panels, using a glue system that includes cleaner, primer, two-sided tape and elastic mono-component adhesive.

This type of installation requires 8, 10 or 12 mm thick panels. Attachment with glue is a delicate process, where it is essential to obey a strict, suitable procedure, always following the adhesive manufacturer's instructions.

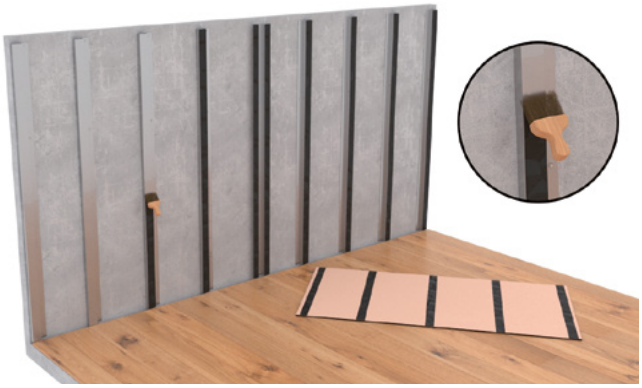
THICKNESS (mm)	DISTANCE BETWEEN STUDS (mm)
8	≤ 400
≥10	≤ 600

For more information on accessories, see chapter 8 of this catalogue.

Gluing procedure instructions

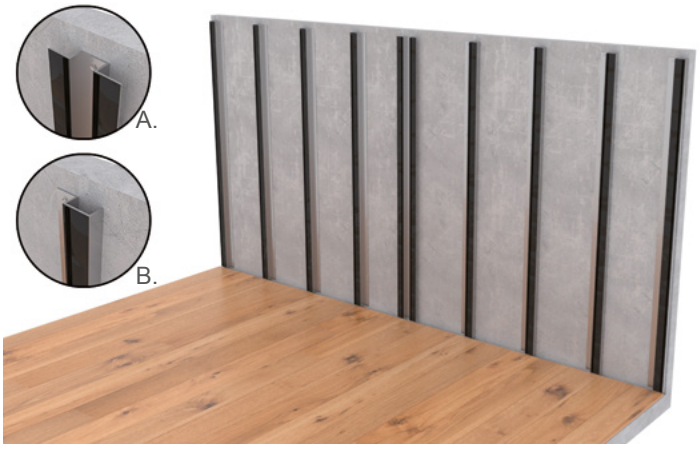
1 Clean the panel in the adhesive area before gluing with a brush, air or special liquid from the same manufacturer as the adhesive.

2 Sand the profile on the surface supporting the panel. Wooden and aluminium profiles must be sanded, and we must verify that the profile is free from dust and that the glue surface is properly dried. Steel profile must not be sanded to avoid harming their rust protection layer, and they must be de-greased with a liquid.



3 Stir the primer well before using it, and apply it to the clean and dry adhesion zones, the panels and the profile, bearing in mind that you must not prime any more area than you can glue within the next 6 hours. For each material (wooden profile, metallic slat, panel, etc.) the specific primer defined by the adhesive manufacturer must be used.

4 Follow minimum and maximum drying time instructions for primer, based on the material primed. After drying, continue with the gluing procedure.



5 With the profiles that will act as intermediate support for the panels (B), stick two-sided adhesive tape continuously and in parallel all along the slat, and to one side of it.

For profiles acting as a joint between two panels (A), two strips must be installed in the centre. Do not remove the protective paper from the tape surface yet.

6 Apply a line of mono-component adhesive to the profile acting as intermediate support (B) for the panel next to the double-sided adhesive tape, and two lines on the sides of the same tape on the intermediate profile (A). The adhesive must be applied with a manual or pneumatic gun, using a special nozzle that leaves a triangular line as section. We must always make sure that the adhesion surfaces are neither moist nor dirty.

7 Remove the protective paper from the adhesive tape.

8 After the first 10 minutes of applying the adhesive, carefully place the panels, taking care not to press too hard, since the adhesive line would spread too much and the surface would be uneven. With the double-sided adhesive tape, all three dimensions of the panels will be attached to the required location on the slat.

9 End result.

THIS **PRODEMA** GLUING PROCEDURE IS A SHORT, NON-SPECIFIC LIST OF INSTRUCTIONS, NOT MEANT TO REPLACE THE ADHESIVE MANUFACTURER'S COMPLETE INSTRUCTIONS, WHICH EXPLAIN EACH CASE ESPECIALLY.

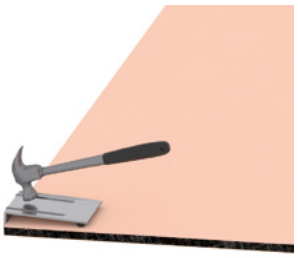
5.2.2 CONCEALED FASTENING WITH CLIP

Attachment with clips provides for installation of the entire line of PRODEMA INDOOR products, making the attachment and the system concealed and registrable. This attachment is possible with wide panels up to 600 mm

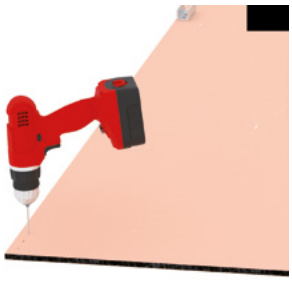
Installation procedure

The guide rails are horizontal studs attached to the plumbed surface where the material is going to be installed. On the backside of the panel, we install the special attachment pieces at 6 mm from the edge of the board with the screws, using the marker to perfectly mark along the entire panel.

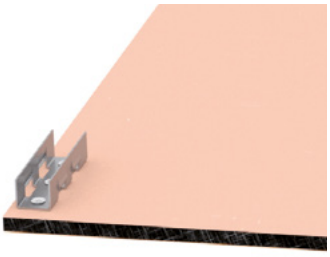
1 Mark piece (every 600 mm).



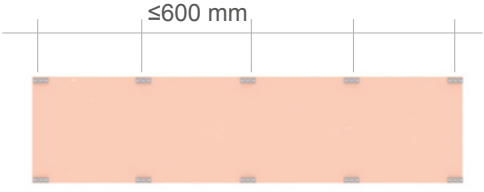
2 Pre-drilling 3.5 mm diameter x 6 mm depth.



3 Clip placement.



4 Successive clip placement (maximum every 600 mm).



Anchor the horizontal double rail to the last clip column, thus helping to position the rail itself on the surface, which will then clip the next panel. In order to prevent possible displacements on the vertical axis if placing the panels in vertical, install a square at the base of the panel.

5 Place the base single rail.

6 Bring board with double-clipped rail.

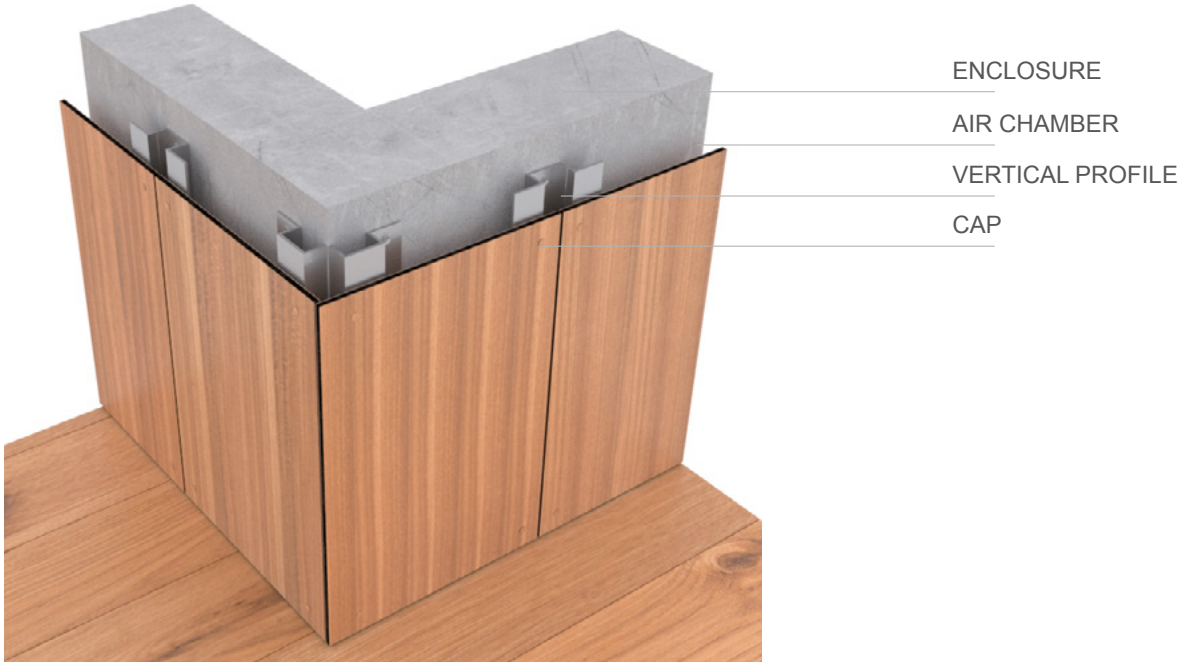
7 Screw double rail.

8 Continue along the entire surface.

9 End result.

5.2.3 CONCEALED FASTENING WITH CAPS

This type of installation uses screws to attach the **PRODEMA** panels to the sub-structure, which are covered with 14,25 mm diameter caps, supplied by **PRODEMA** in the same finish as the panels.



This installation system is designed to be used with **PRODEMA** panels that are at least 10 mm thick.

Sub-structure placement

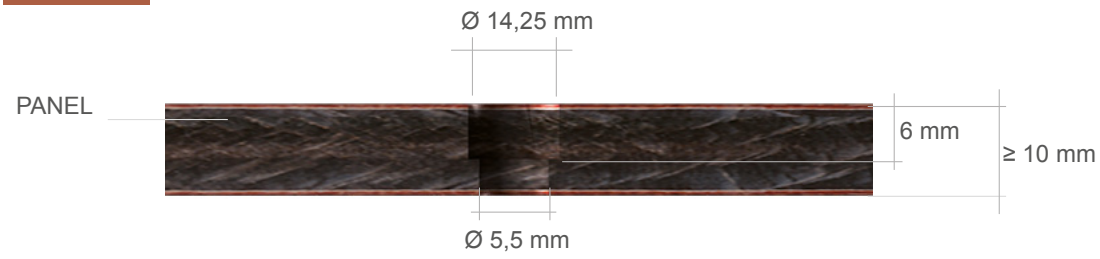
To place the profiles for the sub-structure, determine the distance between profiles and attachments, etc., you must follow the instructions in sections 5.1.4 and 5.2.3 of this technical catalogue. The distances between attachments vary, depending on the thickness of the selected board.

THICKNESS (mm)	DISTANCE BETWEEN ATTACHMENTS (mm)
10	≤ 600
≥12	≤ 800

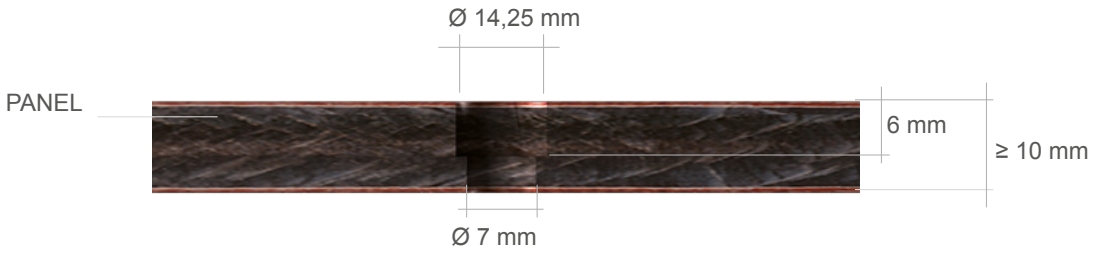
Panel pre-drilling

To install the panels using this system, we must pre-drill the panels as shown below.

Fixed point



Floating point



The panels must be pre-drilled, following the drilling instructions described in section 4.4.2 of this technical catalogue.

Installing the panels

Once the panels are pre-drilled, they are attached to the sub-structure using the correct screw depending on the profile.

• **Metallic sub-structure**: DIN 7504N screw with cylindrical head, self- threading and self-perforating.

Screw diameter: 5.5 mm
Head diameter: 10.8 mm
Length: 32 mm

• **Wooden sub-structure**: DIN 7505B screw with cylindrical head.

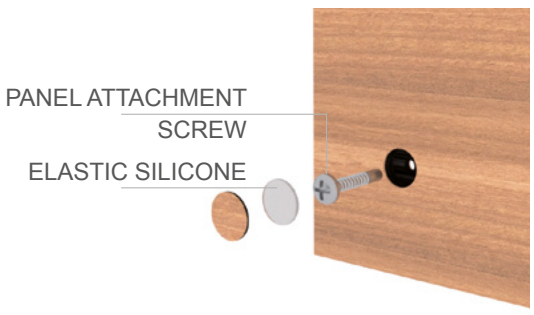
Screw diameter: 5 mm
Head diameter: 10 mm

METAL SUB-STRUCTURE

WOODEN SUB-STRUCTURE

Cap placement

Once the panels are attached, the caps to cover the head of the screws are inserted. To do so, first we fill the existing cavity with elastic silicone, leaving enough space for a 2-mm thick cap. To fix the cap and perfectly settle it, we recommend hitting it with a wooden wedge.



5.2.4 CONCEALED SLAT SYSTEM

This construction kit provides for installation of **PRODEMA** panel slats that are at least 10 mm thick. The kit's versatility means that these planks can be installed both horizontally and vertically, with 0º, 30º and 60º inclinations.

For this installation, **PRODEMA** supplies panel planks with 3 different widths. These planks can be supplied with the selected finish on one side or on both.

This construction kit is installed in three simple steps: sub-structure preparation, preparation of the **NEPTUNO** planks and installation of the fixed lattices.

Installing the attachment foundations to the profiles

Once the special profiles are placed to install **PRODEMA's** fixed lattices, the foundations to which the lattice will be anchored must be installed. These pieces are anchored to the profiles with two austenitic stainless steel self-threading screws (one on each side). It should be noted that the profiles are supplied with holes that have already been made to show the 20 mm distance between lattices. Although this step is standard, with special projects, profiles without any kind of perforation may be supplied. In turn, these profiles and accessories can also be supplied anodised, lacquered in any colour on the RAL card or FUTURA card (see accessories section).

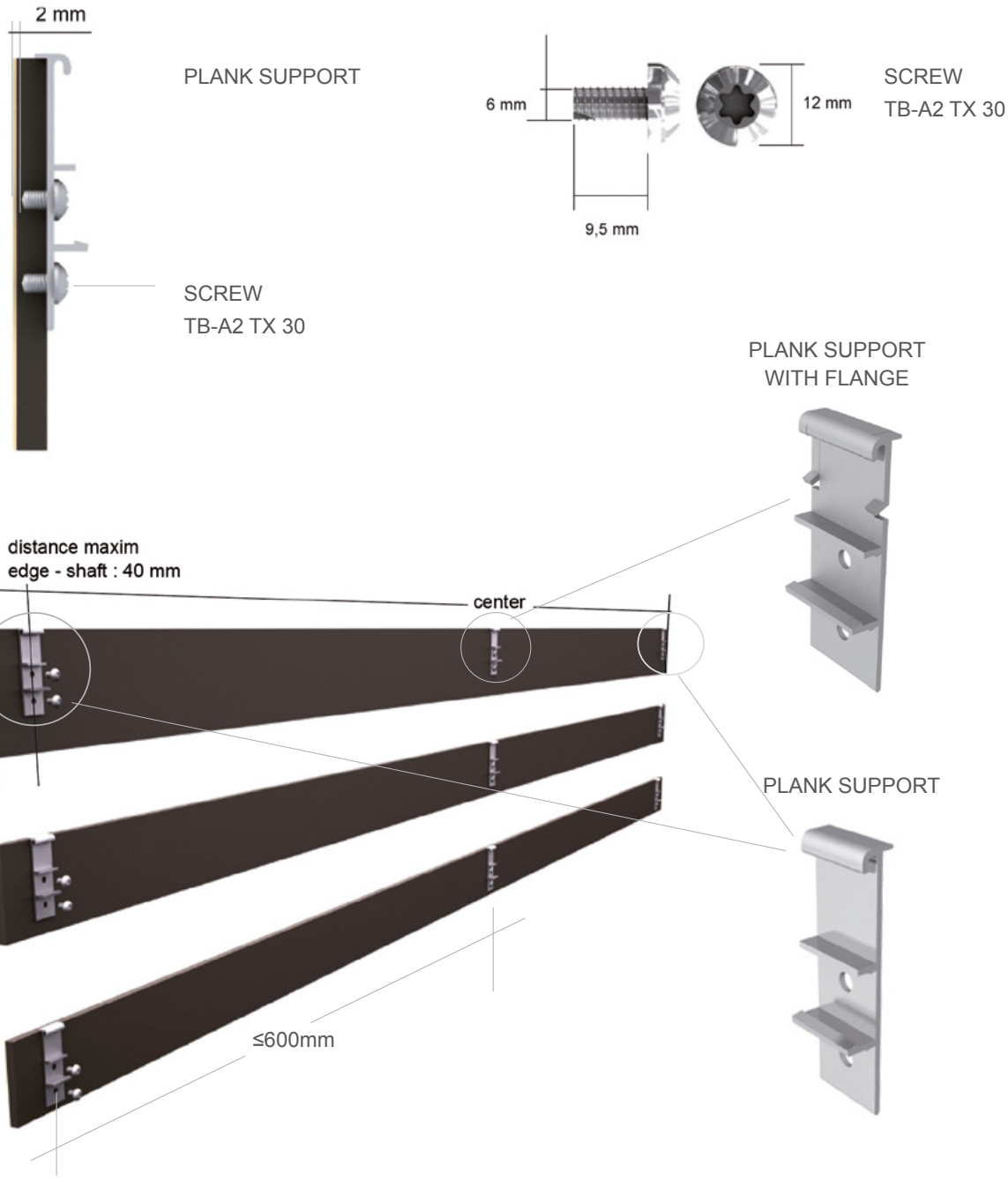
INSTALLATION OF ANCHORING PIECE

SELF-THREADING SCREW
DIN 7981 5.5 x 13 stainless

Structure preparation

On the back side of the **PRODEMA** pieces supplied, we install the attachment pieces, which act to anchor the lattices to the sub-structure.

Each plank must have three supports anchored to the back part, two of them on the edges (40 mm from the edge at most) and the third one in the geometric centre of the piece. To prevent lateral or vertical movement (depending on the position) of the planks, a support with a flange must be installed in the centre of the piece. To install the supports on the **PRODEMA** planks, two TB-A2 TX 30 screws 9,5 mm long, shall be used for support. To this end, blind pre-drill 5-5,1 mm on the panel, always leaving 2 mm of material between the end of the hole and the visible side of the lattice.



1 Anchor sub-structure to the wall every 600 mm.

2 Attach bases.

There are 3 bases with 3 different angles.

Double-base piece for fixed, straight lattices

Double-base piece for fixed, inclined lattices (30º)

Double-base piece for fixed, inclined lattices (60º)

3 Attach planks.

4 End result.

5.2.5 VISIBLE FASTENING WITH SCREWS OR RIVETS

This type of installation attaches the **PRODEMA** panels with visible screws or rivets. These screws and rivets* are metallic and can be ordered lacquered in rotary wood colours.

The distance between screws or rivets*, both horizontally and vertically in one same line, depends on the thickness of the panel:

THICKNESS (mm)	DISTANCE BETWEEN ATTACHMENTS (mm)
6*	≤ 400
8, 10	≤ 600
12	≤ 800
14, 16, 18, 20, 22	≤ 1.000

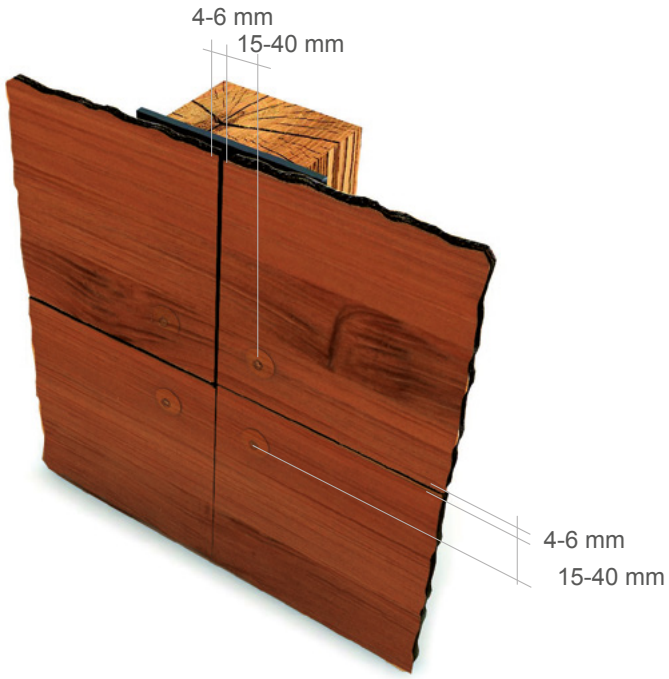
* Only for special applications. Contact **PRODEMA.**

- Each piece must have at least 3 support points in each direction.
- Do not ever use counter-sunk screws to attach **PRODEMA panels.**

* Rivets are only used with metallic sub-structures, not with wooden sub-structures.

For more information on accessories, see chapter 8 of this catalogue.

Distances from screws and rivets* to panel corner



Screws and rivets* at panel corners must be between 15 and 40 mm from the panel edge.

Recommendation of screws and rivets* to attach panels

For wooden profiles

Screw: SFS - TW - S - D12 – 4.8 x 38 (lacquered or non-lacquered).

EPDM

When installing wooden profile panels, it is advisable to use a strip of **EPDM** to protect the profile.

* Rivets are only used with metallic sub-structures, not with wooden sub-structures.

For more information on accessories, see chapter 8 of this catalogue.

For metallic profiles

• With screw:

Screw: SFS - SX3 - L12 – 5.5 x 32 – IRIUS head (lacquered or non-lacquered).
SFS - SX3 - L12 – 5.5 x 30 – TORX head (lacquered or non-lacquered).

• With rivet*:

Rivets*: SFS - AP16 - 50160 (lacquered or non-lacquered).

SFS - AP16 - 50180 (lacquered or non-lacquered).

SFS - AP16 - 50210 (lacquered or non-lacquered).

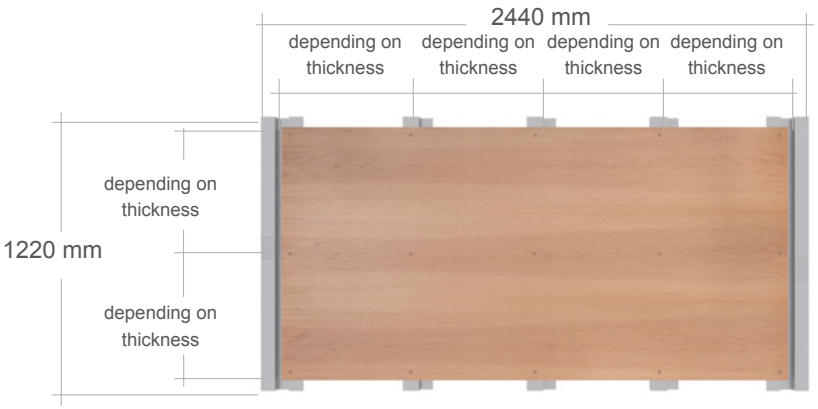
* Rivets are only used with metallic sub-structures, not with wooden sub-structures.

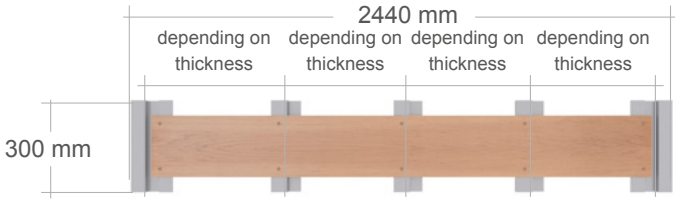
For more information on screws, rivets and other installation tools, see chapter 8 in this catalogue.

Space in the holes for screws/rivets

All the holes for screws to hold the visible attachment board must be 3 mm greater than the diameter of the screw finally placed, except for the hole in the geometric centre of the board, which must be the size of the screw. The gap of the screws allows the board to freely expand and contract, without forcing the screw perpendicularly to its axis at any time.

For panel drilling operations, follow the instructions described in section 4.4.2 of this technical catalogue.

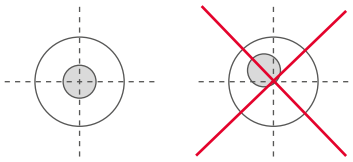




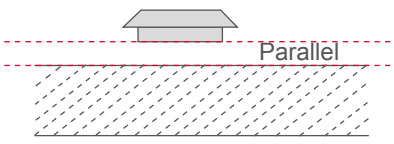
The rest of the points are floating.

Position of screw/rivet upon installation of panel

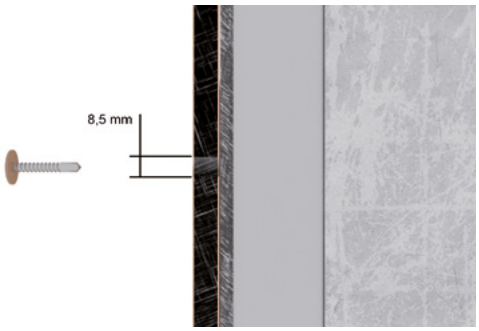
When inserting the screw/rivet to attach the panel, it is vitally important that it be centred in the hole.



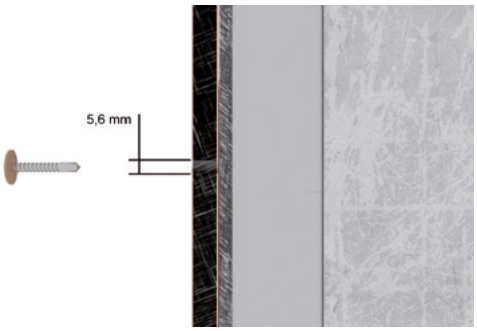
It is also very important that the attachment head is completely parallel to the panel's surface.



METAL SUB-STRUCTURE WITH SELF-DRILLING SCREW SFS-SX3-L 12-5.5 x 32 mm



• FLOATING POINTS
Board pre-drilling: 8,5 mm.



• FIXED POINTS
Board pre-drilling: 5,6 mm.

Recommended installation tools:

• **E-430 screwdriver**.
For SX3 screws with IRIUS head.

• **T25W adapter**.
For SX3 screws with TORX head.

Recommended tightening torque:

• Aluminium profile, 2,5 mm thick:

5 Nm to perforate the slate and attach the panel.

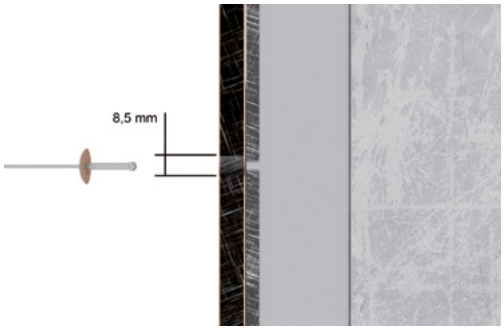
• Galvanised steel profile, 1,5 mm thick:

5 Nm to perforate the profile and attach the panel.

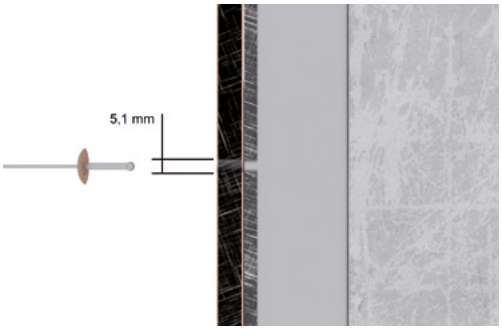
• NOTE: These results were obtained after conducting assembly tests at the laboratory. In any event, the figures above should **always** be deemed as approximate, so it is advisable to conduct a prior on-site test, and thus determine the appropriate value before beginning installation of **PRODEMA** panels.

For more information on accessories, see chapter 8 of this catalogue.

METAL SUB-STRUCTURE WITH RIVET SFS-AP-16-50XXX



• FLOATING POINTS
Board pre-drilling: 8,5 mm.
Profile pre-drilling: 5,1 mm.



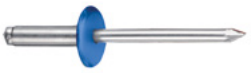
• FIXED POINTS
Board pre-drilling: 5,1 mm.
Profile pre-drilling: 5,1 mm.

Recommended installation tools:

• **Centring piece with built-in bit** (recommended). To pre-drill the sub-structure concentrically with the panel.

• **AP bit**. This is built into the rivet gun to install the rivets at the **floating points.**

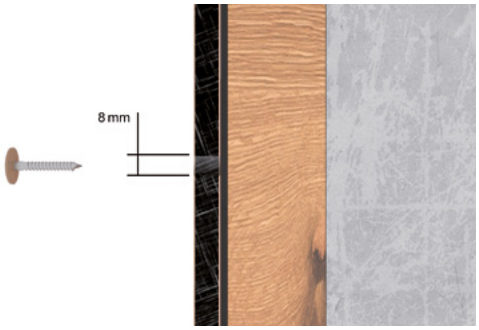
• NOTE. For steel profiles, marine environments, etc., A4 steel SS0-D15 rivets must be used, with their matching accessories.



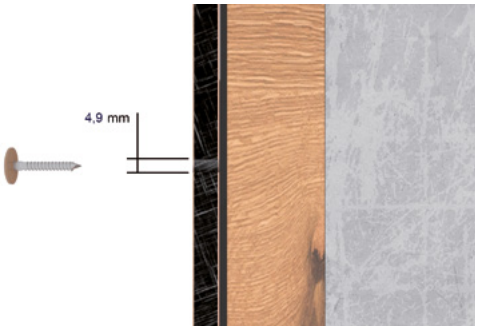
Rivet SS0-D15
(lacquered or non-lacquered).

Nozzle for SS0-D15 rivet at **floating points.**

WOODEN SUB-STRUCTURE WITH SCREWS SFS-TW-S-D12-4.8 X 38 mm



• FLOATING POINTS
Board pre-drilling: 8 mm.



• FIXED POINTS
Board pre-drilling: 4,9 mm.

Recommended installation tools:

• **T25W adapter**. For TW-S screws with TORX head.

5.3 INSTALLATION SYSTEMS FOR CEILINGS

The versatility of **PRODEMA's** construction kits mean they can be installed as a ceiling. To this end, we must select the most suitable installation system for each project and keep some brief instructions in mind.

Joints and perimeter ventilation

With the entire ceiling installation, there must be a perimeter space of 6 mm, to make it possible to expand and contract the panels and thus avoid different temperature and moisture conditions on both of their sides.

5.3.1 CONCEALED FASTENING WITH CLIP

This system provides for installing **PRODEMA** panels that are 8 mm thick in a ceiling, using a clip system for a hidden and registrable installation system with planks 600mm wide.

When doing this kind of installation, it is mandatory to follow the steps in point 5.2.2 of this technical catalogue.

For more information on accessories, see chapter 8 of this catalogue.

5.3.2 CONCEALED FASTENING WITH CAPS

This system provides for installation of **PRODEMA** panels 10 mm thick in a ceiling, using caps to hide the head of the attachment screws.

Besides this, it is essential to remember that the support profiles must be installed in perpendicular position to their grain, obeying the distances described below:

THICKNESS (mm)	DISTANCE BETWEEN ATTACHMENTS (mm)
10	≤ 600
12	≤ 800

For this kind of installation, it is mandatory to follow the steps in points 5.2.3 and 6.1 of this technical catalogue.

5.3.3 CONCEALED SLAT SYSTEM

This construction kit provides for installation of **PRODEMA** panel slats that are at least 10 mm thick as slats. The kit's versatility means that these slats can be installed both horizontally and vertically, with 0º, 30º and 60º inclinations.

For this installation, **PRODEMA** supplies panel slats with 3 different widths. These slats can be supplied with the selected finish on one side or on both.

This construction kit is installed in three simple steps: preparation of the substructure, preparation of the **PRODEMA** slats and installation of the slats.

For this kind of installation, it is mandatory to follow the steps in points 5.2.4 and 6.1 of this technical catalogue.

5.3.4 VISIBLE FASTENING WITH SCREWS OR RIVETS

To install the **PRODEMA** panels in a ceiling with screws or rivets, it is very important to follow the instructions described in section 5.2.5 of this technical catalogue. Additionally, it is very important to remember that the profiles that support the panels are installed in perpendicular position to their grain.

Regular ceiling cuts are 1,200 x 1,200 mm, 1,200 x 600 mm and 600 mm x 600 mm, so we need at least 8 screw (or rivet) units to hold each ceiling piece.

Each piece must be entirely supported lengthwise on 3 profiles, placed in perpendicular position to the panel's grain.

The minimum thickness of **PRODEMA** panels to apply a ceiling is 8 mm, and the maximum is 14 mm. The distance between attachments should follow the instructions in the table below:

THICKNESS (mm)	DISTANCE BETWEEN ATTACHMENTS (mm)
8, 10	≤ 800
12, 14	≤ 1000

• Do not ever use counter-sunk screws to attach **PRODEMA** panels.

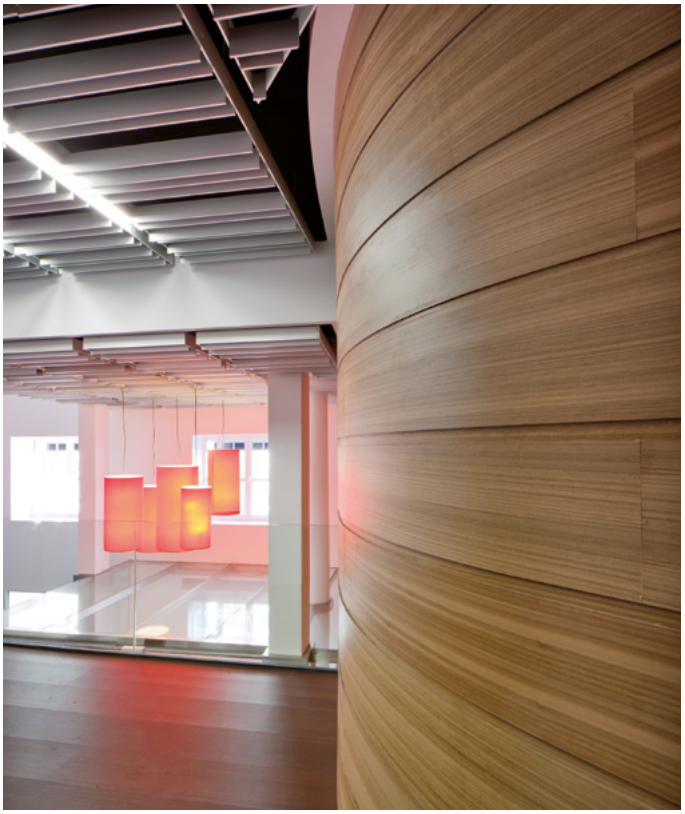
5.4 INSTALLATION SYSTEMS FOR CURVES

5.4.1 POLYGONAL CURVE

This curve technique includes straight, non-curved panels to create curved surfaces. Depending on the selected installation system, the instructions specific to the system provided previously in this technical catalogue must be followed.

5.4.2 CURVES WITH STRAIGHT **NEPTUNO** PANELS

NEPTUNO material is flexible enough that it moulds to a curved sub-structure and remains in the required position. For the material to perfectly mould to the radius of the curve, and for the board's tensions to be irrelevant for the surface once finished, some factors that must be borne in mind while assembling are indicated below:



Panels for curved surfaces are only attached with the visible attachment system or adhesived system, and only curve in the direction of the grain.

Board thickness

The board thickness is selected based on the attached table:

CURVE RADIUS REQUIRED FOR THE PROJECT	NEPTUNO PANELS THICKNESS	DISTANCE BETWEEN PROFILES
3,00 m - 10,00 m	6 mm	≤ 300 mm
10,00 m - 20,00 m	8 mm	≤ 400 mm
> 20,00 m	10 mm	≤ 450 mm

This table shows the minimum curve radii for a 2440 x 1220 mm panel. If, using one same panel length, the width is reduced, the material provides for more closed radii.

Material attachment distances between vertical studs

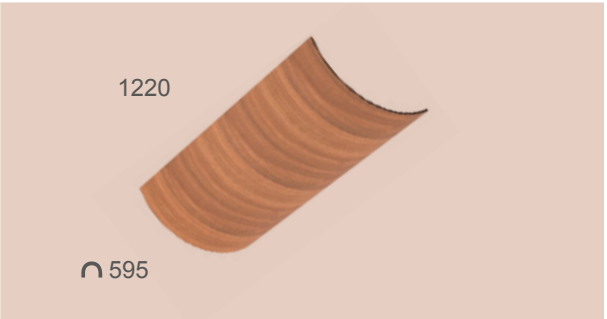
It is very important to remember that the **PRODEMA NEPTUNO** boards attached to curved areas must be attached and supported with many more profiles than the sub-structure recommended for non-curved surfaces (see table on this page).

5.4.2.1 **NEPTUNO** PRE-CURVED

Pre-curved panels are **NEPTUNO** panels that are supplied already curved at different radii. Depending on the direction of the selected grain, the panel formats are different.

Pre-curved NEPTUNO

Prodema NATURAL WOOD BEAUTY	TECHNICAL DATA SHEET	Doc. : FTPRODEXCU Rev. : 01 - Mar 2017 Page : 1/1
MATERIAL:	**THICKNESS:**	**SURFACE FINISH:**
CURVED NEPTUNO	**6 mm**	**TEXTURE***

TESTS	RESULTS	PROPERTY OR ATTRIBUTE	MESURE UNIT	STANDARD
1. INSPECTION REQUIREMENTS				
Colour, pattern and surface finish	Due to the fact that wood is a natural product, each veneer may be considered as unique. Slight colour and structure differences are considered as normal. Singularities such as knots and resin inclusions are not considered as defects, but as a part of the decor. There are differences in light fastness performances depending on the wood species and the source of the wood.			EN 438-8 Sect. 5.2.2.3
2. DIMENSIONS TOLERANCES				
 Available on both, concave and convex curvates		 Available on both, concave and convex curvates		
Thickness	**±0,4**	6	mm	-
Curvature radius	**±10%**	330/500/1000/2000/4000	mm	-
Length and width	**+10/-0**	2440x595 595x1220	mm	-
3. PHYSICAL PROPERTIES				
Resistance to surface wear	**≥ 350**	Wear resistance	Revolutions	EN 438-2 Sect. 10
Resistance to scratching	**3**	Force	Rating	EN 438-2 Sect. 25
Resistance to impact with large diameter ball	**≥ 1.800**	Maximum height for which no visible surface cracking or imprint greater than 10mm	mm	EN 438-2 Sect. 21
Light fastness (Xenon arc)	**≥ 2 (1)**	Contrast	Grey scale rating	EN 438-2 Sect. 27
4. SAFETY REQUIREMENTS				
Reaction to fire	**D-s2,d0 (2)**	Euroclass	Classification	EN 13.501-1
Water vapour permeability	**110** **250**	Wet cup method Dry cup method	μ	EN 438-7 Sect. 4.4
Resistance to fixings	**> 2000**	Screw holding value	N	EN 438-7 Sect. 4.5
Density	**≥ 1,35**	Density	g/cm³	EN ISO 1.183
Resistance to inmersion in boiling water	**Pass**	Appearance	Delamination Pass / Fail	EN 438-2 Sect. 12
Release of formaldehyde	**E1**	Release of formadehyde	Rating	EN 438-7 Sect. 4.11
5. ADDITIONAL REQUIREMENTS UPON REQUEST				
Evaluation of antimicrobial activity	**99,99**		% reduction after 24h (S. aureus y E. coli)	ISO 22196 (JIS Z 2801)

* Except for the colours Light Brown, Rustik, Pale, Mocca, Cream, Deep Brown, Dark Brown, Ice Grey, which have the surface finish Smooth

(1) Maple <2

(2) CWFT: Classified Without Further Testing according to EN 438 Part 7, 4.2.3.

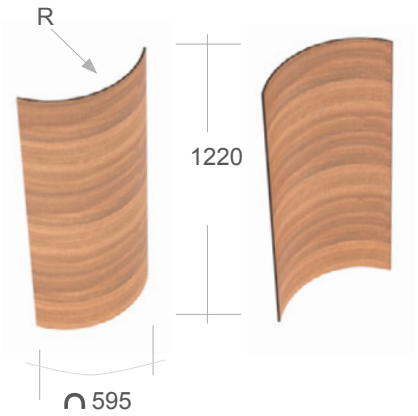
Screw or rivet fixing is recommended. For any other fixing system please contact PRODEMA´s Technical Department.

Panel selection

Before installing the panels, it is very important to remember that the model that best adapts to the project's requirements. Must be selected make this selection exactly as explained below:

1) Selection of the pre-curved **NEPTUNO** panel: these panels are offered in different formats, depending on the direction of the selected grain, the curve radius of the area where the panel is going to be installed, and if concave or convex curve is required, as shown in the images below:

Sales formats, depending on the direction of the grain.
Radii available: 330, 500, 1000, 2000 and 4000 mm.



The pre-curved panels are available in convex or concave format

2) Selection of curve radius: to select the curve radius of the pre-curved panel, you must first consider the curve radius of the area where you plan to install the panel. The curve radius of the area where you intend to install the panel need not always match the standard radii offered, so in this case, what you must do to select the panel is:

a. Consider the surface's curve radius.

b. Always use a standard panel radius, the nearest to the curve radius of the building, but always greater than it.

Examples:

Radius to cover 3,700 mm → Pre-curved panel with 4,000 mm radius

Radius to cover 1,400 mm → Pre-curved panel with 2,000 mm radius

NOTE: When the radius is very similar to the panel, for example, 1,100 mm, the nearest curve radius is selected, meaning 1,000 mm.

Installation systems

This kind of Pre-Curved NEPTUNO panel can be installed following by the procedures described in sections 5.2.1 and 5.2.5, for adhesive system and visible screw system, respectively.

1 Glued pre-curved.

The Pre-Curved NEPTUNO panels can be installed, following the procedure described in the adhesive installation section of this catalogue.

Follow instructions from the adhesive system procedure, paying special attention to placement of the clamps.

2 Pre-curved with screws.

It is also possible to install this kind of product with screws, following the steps described in the section installation with screws in this technical catalogue.

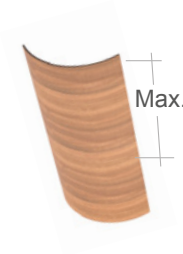
1. Support the central axis of the piece on the central support slat.
2. Attach the sides of the piece with screws or rivets.

Minimum attachments per piece and types of pre-curve

Depending on the type of pre-curved **NEPTUNO** panel that you are going to install, the minimum number of attachments per piece varies. For this reason, below there is an explanation as to the number of required attachments based on the pre-curved **NEPTUNO** model, according to the curve type. In other words, depending on if the pieces have a concave or convex curve. In turn, each model is designated with a different letter to facilitate identification.

CONVEX PIECES

In this case, the central slat only acts as support, and the screws or rivets are only attached to the side slats of each piece:

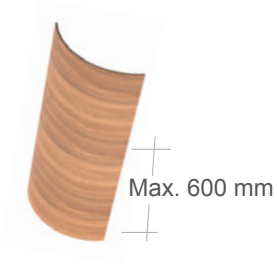


TYPE A
Piece 595 x 1220 mm
6 through-attachments

TYPE B
Piece 2440 x 595 mm
10 through-attachments

CONCAVE PIECES

When installing convex pieces, you must also include attachments on the central slat to adjust each piece to the required radius, as shown below:



TYPE C
Piece 595 x 1220 mm
9 through-attachments

TYPE D
Piece 2440 x 595 mm
15 through-attachments

5.4.2.2 **PRODEMA** PRE-CURVED CORNER

The **PRODEMA** pre-curved corner panels are supplied with a 90º curve to cover corners. Depending on the direction of the selected grain, the panel formats are different.

NEPTUNO Corner

Prodema NATURAL WOOD BEAUTY	TECHNICAL DATA SHEET	Doc. : FTPRODEXCU Rev. : 01 - Mar 2017 Page : 1/1
MATERIAL:	**THICKNESS:**	**SURFACE FINISH:**
NEPTUNO CORNER	**6 mm**	**TEXTURE***

TESTS	RESULTS	PROPERTY OR ATTRIBUTE	MESURE UNIT	STANDARD
1. INSPECTION REQUIREMENTS				
Colour, pattern and surface finish	Due to the fact that wood is a natural product, each veneer may be considered as unique. Slight colour and structure differences are considered as normal. Singularities such as knots and resin inclusions are not considered as defects, but as a part of the decor. There are differences in light fastness performances depending on the wood species and the source of the wood.			EN 438-8 Sect. 5.2.2.3
2. DIMENSIONAL TOLERANCES				
 Available on both, concave and convex curvatures		 Available on both, concave and convex curvatures		
Thickness	**±0,4**	6	mm	-
Curvature radius	**±10%**	90	grad	-
Angle α	**±10%**	50	mm	-
Length and width	**+10/-0**	2440x595	mm	-
	+10/-0	250x1220	mm	-
3. PHYSICAL PROPERTIES				
Resistance to surface wear	**≥ 350**	Wear resistance	Revolutions	EN 438-2 Sect. 10
Resistance to scratching	**3**	Force	Rating	EN 438-2 Sect. 25
Resistance to impact with large diameter ball	**≥ 1.800**	Maximum height for which no visible surface cracking or imprint greater than 10mm	mm	EN 438-2 Sect. 21
Light fastness (Xenon arc)	**≥ 2 (1)**	Contrast	Grey scale rating	EN 438-2 Sect. 27
4. SAFETY REQUIREMENTS				
Reaction to fire	**D-s2,d0 (2)**	Euroclass	Classification	EN 13.501-1
Water vapour permeability	**110** **250**	Wet cup method Dry cup method	μ	EN 438-7 Sect. 4.4
Resistance to fixings	**> 2000**	Force	N	EN 438-7 Sect. 4.5
Density	**≥ 1,35**	Density	g/cm³	EN ISO 1.183
Resistance to inmersion in boiling water	**Pass**	Appearance	Delamination Pass / Fail	EN 438-2 Sect. 12
Release of formaldehyde	**E1**	Release of formadehyde	Class	EN 438-7 Sect. 4.11
5. ADDITIONAL REQUIREMENTS UPON REQUEST				
Evaluation of antimicrobial activity	**99,99**		% reduction after 24h (S. aureus y E. coli)	ISO 22196 (JIS Z 2801)

* Except for the colours Light Brown, Rustik, Pale, Mocca, Cream, Deep Brown, Dark Brown, Ice Grey, which have the surface finish Smooth

(1) Maple <2

(2) CWFT: Classified Without Further Testing according to EN 438 Part 7, 4.2.3.

Screw or rivet fixing is recommended. For any other fixing system please contact PRODEMA´s Technical Department.

Panel selection

To select these panels and perfectly adapt them to each project's requirements, consider the direction of each piece's grain, as well as if covering a concave or convex corner. Possibilities offered by **PRODEMA** corner pre-curved panels are shown below:

Sales formats, depending on the direction of the grain.
∝ = 90º

The pre-curved panels are available in convex or concave format

Installation systems

This kind of NEPTUNO corner panel can be installed following by the procedures described in sections 5.2.1 and 5.2.5, for adhesive system and visible screw or rivet system, respectively.

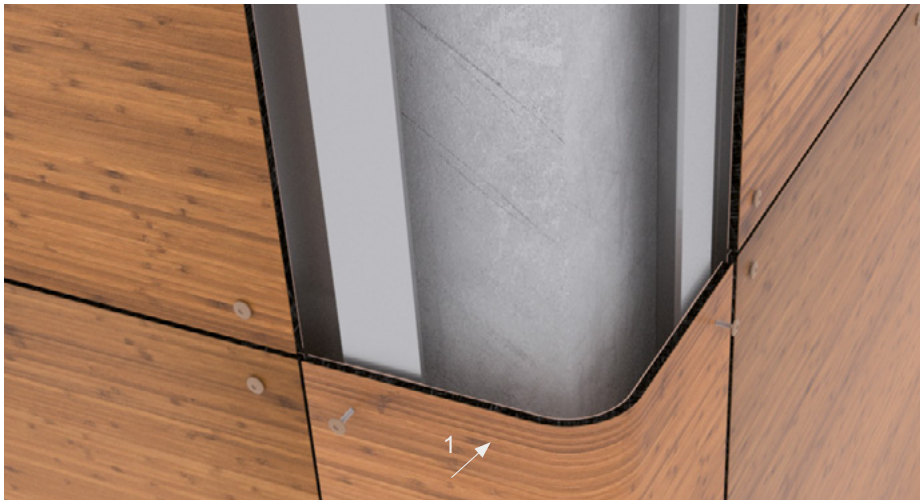
1 Adhesive system.

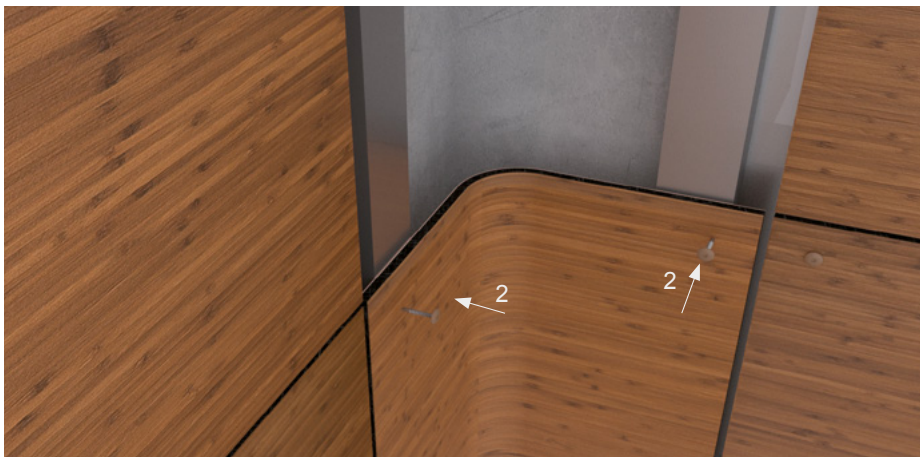
The NEPTUNO corner panels can be installed, following the procedure described in the adhesive installation section 5.2.1 of this catalogue.

Follow instructions from the gluing procedure, paying special attention to placement of the clamps.

2 Visible screw or rivet system.

It is also possible to install this kind of product with screws, following the steps described in the section installation with screws in this technical catalogue.





1. Support the central axis of the piece on the central support slat.
2. Attach the sides of the piece with screws or rivets.

❻ PRECAUTIONS FOR USE

6.1 CLEANING

• It is difficult for dirtiness to adhere to the surface of the **PRODEMA** board.

• However, if the surface is dirtied, or if leftover adhesive from the protective film remains, it can be cleaned with lukewarm water mixed with liquid detergent, using a soft cloth, never rubbing the surface when dry.

• Never use abrasive detergents.

• In the event of more persistent dirtiness, the board's surface can also be cleaned with a soft cloth (not dyed) that has been dampened with benzene-free petroleum ether (40-60 ºC, light naphtha).

• Cloths or sponges with abrasive cleaning or sanding agents should never be used, since they can damage the product's surface.

• Moreover, aggressive solvents such as acetone, ethyl acetate, MEC, nail polish remover, etc., should not be used either. They can cause permanent damage, dissolving the protective surface film, either partially or completely, or by causing cracking that may not be evident upon first glance. These products should not be used on the back side of the boards, either.

• It is best to dry the product surface with an absorbent, lint-free cloth.

• We recommend always doing a cleaning test on a small area of the material, to verify the procedure's efficacy, and only after doing this to clean the entire surface.

• There is no repair method for scratched or banged panels.

• Solvents and chemical cleaning products must always be used in obedience to pertinent safety and hygiene rules.

6.2 MAINTENANCE

• **PRODEMA** products do not require maintenance. If they are dirty, please see section 6.2 Cleaning.

6.3 REPAIR

• Natural wood is a delicate material. No method to repair **PRODEMA** panels has been set forth. Damaged panels must be replaced by new ones.

6.4 RELATIVE HUMIDITY DURING THE PRODUCTS LIFE

• Maintain the room where the **PRODEMA** products are installed at a minimum temperature of **15ºC** and a relative humidity between **40% and 65%**. To achieve these conditions, humidification/dehumidification system may be necessary. Failure to meet the conditions indicated may cause deformation, cracking, in some cases even permanent damage.

7 INFORMATION ON UNINSTALLING

7.1 UNINSTALLING

• The **PRODEMA** product is part of a ventilated surface construction kit, whose main components (aluminium, steel, wood and plastic) are easy to separate and recycle.

7.2 WASTE MANAGEMENT

• Reuse: reusing the **PRODEMA** panel for other applications with different requirements is encouraged.

• Recycling: the cellulose fibres in the core and the thermos stable components can be recycled. Recycling possibilities include using it as a material to fill wood-based panels for construction.

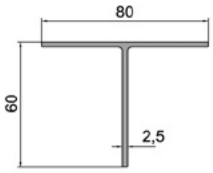
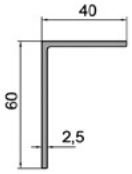
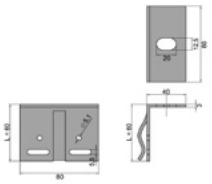
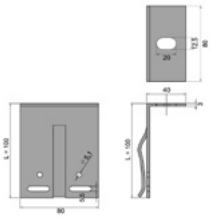
Landfill dumping: follow provisions regulating construction and demolition waste management and production, as well as applicable local regulations. They can also be reused in industrial incinerators.

• Sub-construction: wooden, aluminium or steel profiles can be directly reused for their original application, or recycled if the buildings are carefully deconstructed.

8 ACCESORIES

8.1 GENERAL ELEMENTS FOR PRIMARY SUBFRAME

8.1.1 ALUMINIUM:

REFERENCE	DESCRIPTION		MATERIAL / FINISH
PRAS001BRU		T Profile 60/80 Al. 3000 mm long profile	Aluminium 6063 / Rough T5
PRAS002BRU		L Profile 60/40 Al. 3000 mm long profile	Aluminium 6063 / Rough T5
PRAS003BRU		L60 Al bracket	Aluminium 6060 / Rough T5
PRAS004BRU		L100 Al bracket	Aluminium 6060 / Rough T5

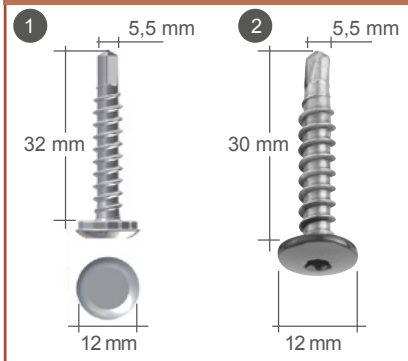
8.2 SPECIFIC ELEMENTS FOR THE EXPOSED FASTENING SYSTEM WITH SCREWS OR RIVETS

8.2.1 SCREWS:

8.2.1.1 GENERAL ACCESSORIES FOR SCREWS:

REFERENCE	DESCRIPTION		MATERIAL / FINISH
PRGA002EXF		SFS-T25W Adapter	Accessory for SX3 with TORX heads
PRGA004EXF		SFS-T20W Adapter	Accessory for TW-S screws with TORX heads
PRGA003EXF		SFS-E-420 Setting tool - Federvision	Accessory for SX3 screws with IRIUS heads

8.2.1.2 SCREWS FOR ALUMINIUM AND/OR STEEL SUBFRAME:

DESCRIPTION		MATERIAL / FINISH
	Self drilling screws 1. SFS-SX3-L12-5,5x32 mm **IRIUS head** Thickness of assembly ≤17mm SFS-SX3-D12-5,5x30 mm **TORX head** Thickness of assembly ≤15mm Dimensions:	Austenitic stainless steel 1.4567 / Lacquered and unlacquered (see table below)

8.2.1.3 SCREWS FOR WOOD SUBFRAME:

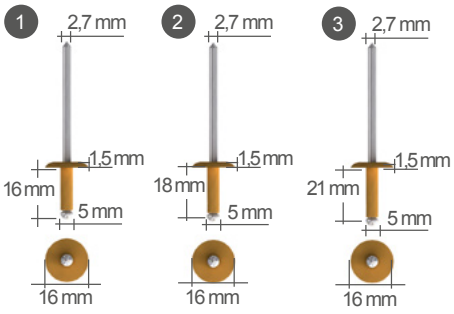
DESCRIPTION		MATERIAL / FINISH
	SFS-TW-S-D12 4,8x38 mm screw **TORX head**	Austenitic stainless steel 1.4567 / Lacquered and unlacquered (see table below)

8.2.2 RIVETS

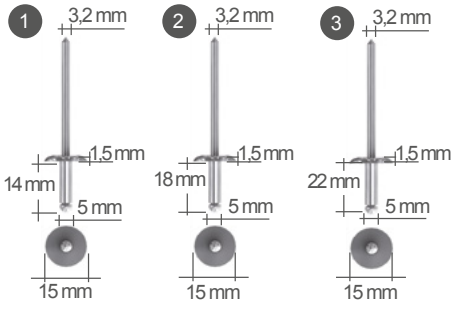
8.2.2.1 GENERAL ACCESSORIES FOR RIVETS:

REFERENCE	DESCRIPTION		MATERIAL / FINISH
PRGA005EXF		SFS Centering seat with integrated bit	Recommended accessory to perform the pre-drilling of the substructure concentrically to that of the panel.
PRGA006EXF		SFS-AP nozzle	Accessory to be used only with SFS-AP16 rivets. This is fitted to the riveter for the installation of the rivets on floating points.
PRGA007EXF		SFS-SSO-D15 nozzle	Accessory to be used only with SFS-SSO-D15 rivets. This is fitted to the riveter for the installation of the rivets on floating points.

8.2.2.2 RIVETS FOR ALUMINIUM SUBFRAME:

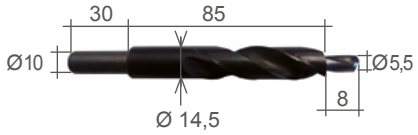
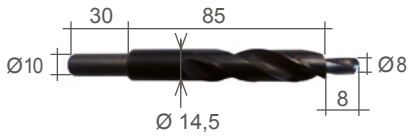
DESCRIPTION		MATERIAL / FINISH
	Rivet 1. SFS-AP-16-50160 2. SFS-AP-16-50180 3. SFS-AP-16-50210	Body: $AlMg_5$ Shaft: Stainless steel 1.4541 Lacquered and unlacquered (see table below)

8.2.2.3 RIVETS FOR STEEL SUBFRAME:

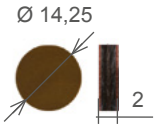
DESCRIPTION		MATERIAL / FINISH
	1. SFS-SSO-D15-50140 2. SFS-SSO-D15-50180 3. SFS-SSO-D15-50220	Body: Stainless steel A4, nº 1.4578 Shaft: Stainless steel A4, nº 1.4578 Lacquered and unlacquered (see table below)

8.3 SPECIFIC ELEMENTS FOR THE CONCEALED FASTENING WITH CAPS SYSTEM

8.3.1 CENERAL ACCESSORIES FOR THE CONCEALED FASTENING WITH CAPS SYSTEM:

REFERENCE			MATERIAL / FINISH
PRGA008BRC		Bit for fixed points	Steel 114 150 HSS
PRGA009BRC		Bit for floating points	Steel 114 150 HSS

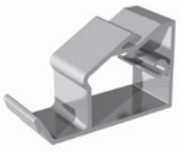
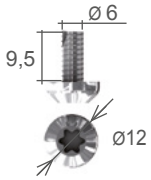
8.3.2 CAPS:

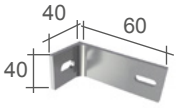
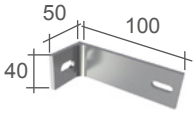
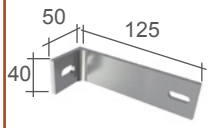
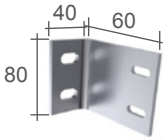
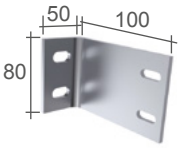
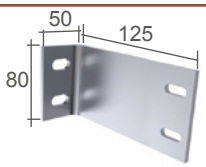
DESCRIPTION	
	**Caps**

8.4 SPECIFIC ELEMENTS FOR THE CONCEALED SLAT SYSTEM

8.4.1 GENERAL ACCESSORIES FOR THE CONCEALED SLAT SYSTEM:

REFERENCE	DESCRIPTION		MATERIAL / FINISH
PRFL002RAL		Perforated lacquered profile 3000mm long profile	Lacquered
PRFL004RAL		Non-perforated lacquered profile3000mm long profile	Lacquered

REFERENCE	DESCRIPTION		MATERIAL / FINISH
PRFL005RAL		Base part for straight fixed louvers (0º)	Lacquered
PRFL006RAL		Double base part for straight fixed louvers (0º)	Lacquered
PRFL007RAL		Base part for straight fixed louvers (30º)	Lacquered
PRFL008RAL		Double base part for straight fixed louvers (30º)	Lacquered
PRFL009RAL		Base part for straight fixed louvers (60º)	Lacquered
PRFL010RAL		Double base part for straight fixed louvers (60º)	Lacquered
PRFL011RAL		End louver clip	Lacquered
PRFL012RAL		Center louver clip	Lacquered
PRFL013		Panel screw TB-A2 TX 30 - 9,5 mm	Stainless steel

REFERENCE	DESCRIPTION		MATERIAL / FINISH
PRFL014		Screw for perforated profile 55137981	Mill
PRFL005RAL		Single L-bracket 60x40 length 40	Lacquered
PRFL006RAL		Single L-bracket 100x50 length 40	Lacquered
PRFL007RAL		Single L-bracket 125x50 length 40	Lacquered
PRFL018RAL		Double L-bracket 60x40 length 80	Lacquered
PRFL019RAL		Double L-bracket 100x50 length 80	Lacquered
PRFL020RAL		Double L-bracket 125x50 length 80	Lacquered
PRFL021		T-M8 - 25 bolt	Stainless Steel
PRFL022		M8 DIN 943 Stainless steel nut	Stainless Steel
PRFL023		8,3 DIN125A stainless steel washer	Stainless Steel

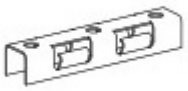
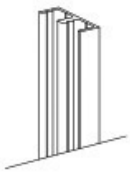
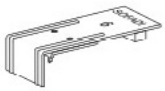
* All lacquered finishes are offered for selection in the following manner:

• RAL color chart
• FUTURA color chart

*Finishes available for each choice: GLOSS or MATTE.

8.5 SPECIFIC ELEMENTS FOR THE CLIP SYSTEM

8.5.1 GENERAL ACCESORIES FOR THE CONCEALED AND REGISTRABLE CLIP SYSTEM:

REFERENCE	DESCRIPTION		MATERIAL / FINISH
PRCS001CL		Clip	Steel
PRCS002SI		Single profile - 3000mm long profile	Black/Silver anodized
PRCS003DB		Double profile - 3000mm long profile	Black/Silver anodized
PRCS004SC		Screw 3,5x6,5mm	Stainless steel
PRCS005MC		Clips position marker	Stainless steel
PRCS006AN		Vertical installation panel stopper	Stainless steel

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