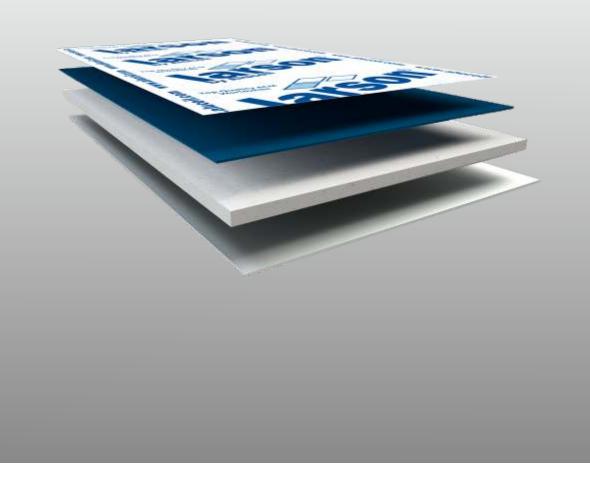


# Metal panels for architectural envelopes







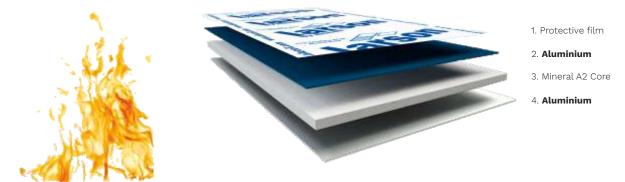
**larson® FR** aluminium composite panel, is a high-tech product for architectural façade cladding. It is formed with two aluminium sheets, 5005 alloy, bonded by a mineral fire retardant (FR) core. **Alucoil®** has developed a core that delays panel combustion which allows this material to achieve **B-s1**, **d0** classification, according to the EN 13501-1 standard.

**larson®** has the widest range of coated finishes in the market from the highest quality in liquid PVdF 70% Kynar 500 2 layers with COASTAL PRIMER 31µ or 3 layers 37µ.

Panel features	larson® FR				
Panel thickness	3 / 4 / 6 (mm)				
Panel weight	6,14 / 7,78 / 11,06 (kg/m²)				
Aluminium thickness	0,5 (mm)				
Moment of inertia (I)	1583 / 3070 / 8630 (mm <sup>4</sup> /m)				
Rigidity (EI)	1108 / 2150 / 6041 (kNcm²/m)				
Standard width	1000 - 1250 - 1500 (mm)				
Min. / max. length	2000 - 8000 (mm)				
Core	MINERAL FIRE RETARDANT				
Reaction to fire test	<b>B-s1, d0</b> <sup>(2)</sup> EN 13501-1 BS 8414-1 <sup>(3)</sup> Full scale test NFPA 285 <sup>(4)</sup> Full scale test				
Aluminium features					
Modulus of elasticity (E)	70000 (N/mm²)				
Ultimate tensile strength (R <sub>m</sub> )	125 <r<sub>m&lt;185 (N/mm<sup>2</sup>)</r<sub>				
Elasticity limit ( $R_{p0,2}$ )	>80 (N/mm²)				
Elongation (A)	>3 (%)				
Aluminium alloy	5005 <sup>(1)</sup> EN 573-3				
Aluminium thermal expansion	2,3 mm/m ∆100°C				
Coated surface	a) PVdF 70% kynar 500 2 layers COASTAL PRIMER 31µ b) PVdF 70% kynar 500 3 layers 37µ				

<sup>(7)</sup>Alunatural finishes - alloy 3000. <sup>(2)</sup>**Alucoil®**'s vertical riveted & 45mm cassette installation systems. <sup>(2)</sup>Details of tested constructive system appear in Tecnalia's 070717-002A report. <sup>(4)</sup>Details of tested constructive system appear in Intertek's 102936114SAT-004B report. Extended technical data sheet available upon request. Some of the information that appears in the catalogue could be estimated or extrapolated. Please request with **Alucoil®**'s technical department to confirm exact values to be used in specific calculations or projects.





Fire class architectural A2-s1, d0 according EN 13501-1

larson® A2 is the new aluminium composite panel developed by Alucoil 's R&D department for architectural cladding. This panel has been developed to be used in those countries whose regulations prevent the use of other types of composite panels which don't achieve the A2-s1, d0 fire class.

Panel features	larson® A2				
Panel thickness	4 (mm)				
Panel weight	8,25 (kg/m²)				
Aluminium thickness	0,5 (mm)				
Moment of inertia (I)	3070 (mm⁴/m)				
Rigidity (EI)	2150 (kNcm²/m)				
Standard width	1250 - 1500 (mm)				
Min. / max. length	2000 - 8000 (mm)				
Core	MINERAL A2				
Reaction to fire test	<b>A2-s1, d0</b> <sup>(2)</sup> EN 13501-1 BS 8414-2 <sup>(3)</sup> Full scale test				
Aluminium features					
Modulus of elasticity (E)	70000 (N/mm²)				
Ultimate tensile strength (R <sub>m</sub> )	125 <r<sub>m&lt;185 (N/mm<sup>2</sup>)</r<sub>				
Elasticity limit ( $R_{p0,2}$ )	>80 (N/mm²)				
Elongation (A)	>3 (%)				
Aluminium alloy	5005 <sup>(1)</sup> EN 573-3				
Aluminium thermal expansion	2,3 mm/m ∆100°C				
Coated surface	a) PVdF 70% kynar 500 2 layers COASTAL PRIMER 31µ b) PVdF 70% kynar 500 3 layers 37µ				

<sup>(1)</sup>Alunatural finishes - alloy 3000. <sup>(2)</sup>Alucoil@'s vertical riveted & 45mm cassette installation systems. <sup>(2)</sup>Cassette installation system. Some of the information that appears in the catalogue could be estimated or extrapolated. Please request with Alucoil@'s technical department to confirm exact values to be used in specific calculations or projects.



<sup>(1)</sup>Alucoil's vertical riveted & 45mm cassette installation systems. <sup>(4)</sup>Product not specifically tested. Same FR core composition as larson® FR 405 (3 mm of FR core), classified B-s1, d0 according to EN 13501-1 for Alucoil® vertical riveted & 45 mm cassette installation systems.

Dimensional characteristics	<b>Panel thickness</b> (tolerance -0/+0,2mm)	<b>Metal thickness</b> External / Internal	Panel weight (kg/m²)	<b>Standard width</b> (tolerance -0/+2,5mm)
larson® A2/FR Metals stainless steel	4 mm	0,23 <sup>(*)</sup> / 0,23 mm	<b>A2:</b> 10,12 kg/m <sup>2</sup> <b>FR:</b> 9,62 kg/m <sup>2</sup>	1000, 1200, 1250 mm
larson® A2/FR Metals copper	4 mm	0,3 / 0,3 mm	<b>A2:</b> 11,57 kg/m <sup>2</sup> <b>FR:</b> 11,09 kg/m <sup>2</sup>	1000, 1250 mm
larson® A2/FR Metals brass	4 mm	0,5 / 0,5 mm	<b>A2:</b> 13,99 kg/m <sup>2</sup> <b>FR:</b> 13,58 kg/m <sup>2</sup>	1000 mm
larson® A2/FR Metals zinc	4 mm	0,5 / 0,5mm	<b>A2:</b> 12,69 kg/m <sup>2</sup> FR: 12,28 kg/m <sup>2</sup>	1000 mm

<sup>(7)</sup>The external sheet thickness of the Stainlees Steel Brilliant BA AISI 316 is 0,25mm. Length min./max. (tolerance -0/+20mm): 2000/8000mm

Density (ρ)

Mechanical characteristics	Moment of inertia (I)	Rigididy (EI)	Modulus (W)	T-Bend routed panel (min. recommended)
larson® A2/FR Metals stainless steel	1446 mm⁴/m	2981 kNcm²/m	723 mm³/m	≥2
larson® A2/FR Metals copper	2017 mm⁴/m	2662 kNcm²/m	1008 mm³/m	≥2
larson® A2/FR Metals brass	3070 mm⁴/m	3748 kNcm²/m	1535 mm³/m	≥2
larson® A2/FR Metals zinc	2790 mm⁴/m	2511 kNcm²/m	1595 mm³/m	≥2
External metal sheet features	Stainless steel	Copper	Brass	Zinc
Alloy	AISI 316	Cu-DHP EN 1172	CuZn 30/CW505L	Z1(>99,995) en 988
Ultimate tensile strength ( $R_m$ )	>550 (N/mm²)	240 <r<sub>m&lt;300 (N/mm<sup>2</sup>)</r<sub>	290 <r<sub>m&lt;400 (N/mm<sup>2</sup>)</r<sub>	>150 (N/mm²)
Yield strength (R <sub>p0,2</sub> )	>200 (N/mm²)	>140 (N/mm²)	<200 (N/mm²)	>100 (N/mm²)
Elongation (A)	>20 %	>8 %	>36 %	>35 %
Modulus of elasticity (E)	200000 (N/mm²)	132000 (N/mm²)	110000 (N/mm²)	90000 (N/mm²)
Thermal expansion (α)	1,6 (mm/m ∆100°C)	1,7 (mm/m ∆100°C)	2 (mm/m ∆100°C)	2,2 (mm/m ∆100°C)

Some of the information that appears in the catalogue could be estimated or extrapolated. Please request with **Alucoil®**'s technical department to confirm exact values to be used in specific calculations or projects.

8900 (kg/m<sup>3</sup>)

8600 (kg/m<sup>3</sup>)

7200 (kg/m<sup>3</sup>)

8000 (kg/m<sup>3</sup>)

# Perforated

### WE CAN GUARANTEE THE BOND INTEGRITY FOR PERFORATED APPLICATIONS

The ability to perforate and warrant **larson® FR** metal composite panels is a reality, opening up design possibilities unimaginable until now with a plethora of perforation combinations at your disposal. Whether by CNC or Press processes, **Alucoil®** offers the possibility to utilize round, square, triangular, star, and many other shapes in different perforation sizes and patterns. As well as its use for wall cladding, the use of perforated composite panels for internal applications is a clear commitment to modern design. A warranty requires prior analysis of project specifics by **Alucoil®** in advance and is limited to panels manufactured in Miranda de Ebro, Spain.

HIGH QUALITY 5005 SERIES ALUMINUM ALLOY - CORROSION-RESISTANT PRETREATMENT - EXCEPTIONAL BOND STRENGTH, DOUBLING THE STANDARD SET FORTH BY INDUSTRY PARAMETERS FOR WALL CLADDING - DOUBLE SIDED COATED PANELS - PERFORATED CEILING PANELS - MULTIPLE PERFORATION PATTERNS



#### Installation systems - Certifications

**larson®** can be easily machined, transformed, drilled, perforated or curved. Its strength by design does not however limit its breadth of design capabilities. **Alucoil®** offers several installation systems for composite panels recognized under the CE marking, being the first company in the world to obtain that designation. **Alucoil®** has five installation systems tested with **larson®** panels. LCH-1, LC-2 and LC-4/LC-6 are used to install cassette. The riveted system and the LC-9 (glued) are used to install panels without a returned system. Additionally, **Alucoil®** has several certifications worldwide such as ETA (European Technical Assessment – valid in 34 countries), EPD (Environmental Product Declaration), DIT, Avis Technique, LNEC, BBA, DIBt, VKF, Intertek North America.

Verify field of application by certification and product.











Manufactured by: Alucoil® S.A.U. - Product: larson®



AVIS TECHNIQUE

2.2/14-1643\_V3 issued 16/12/2020 2.2/11-1469\_V3 issued 24/09/2020

#### **MONUMENTAL ARCHITECTURE**



- Cité des Civilisations du Vin (Bordeaux, France) Architect: X-TU
  SPM (Nieuwkuijk, Holland) Architect: De Twee Snoeken te's-Hertogenbosch
  EHPAD (Paris, Farnce) Architect: TOA Architectures
  Weybridge Business Park (Surrey, UK) Architect: Scott Brownrigg
  Barco headquarters (Kortrijk, Belgium) Architect: Jaspers-Eyers Architects
  Torre GAIA (Tarrasa, Spain) Architect: Mestura Arquitects
  Ukrainian Catholic (Lviv, Ukraine)
- Architect : Behnisch Architekten











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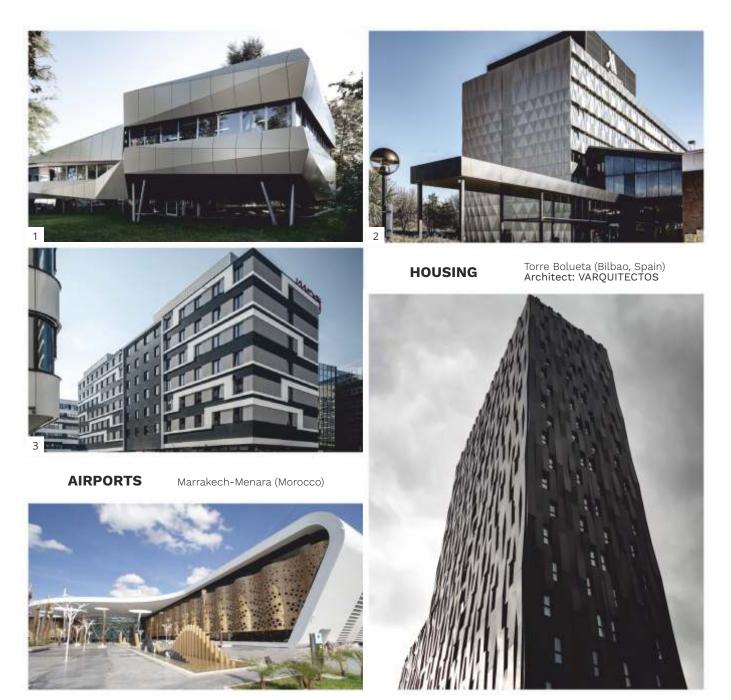
#### Paint against graffiti Fastclean

COATING APPLIED OVER PANEL - DIRT REPELLENT ON FAÇADES - WATER PROOF PROPERTIES

**Fastclean** is the solution for every architect and project which wants to protect a building against graffiti and pollutants such as dust and dirt build-up. **Fastclean** is a PVdF 3 coat paint utilizing a special 12-15µ thick FEVE clear coat (Fluoroethylene / Vinyl Ether) with special additives which provide "easy to clean" properties.

HOTELS

Hotel D'agglomeration (Bayonne, France). Architect: Gardera-D
Marriot Hotel (Portsmouth, United Kingdom). Architect: Satellite Architects
Moxy Hotels in Germnay (Oberding Munchen / Eschborn Frankfurt / Andreasstrasse Berlin)



PVDF 2 layers with **COASTAL PRIMER** is our standard liquid paint. **COSTAL PRIMER** is a special primer treatment for aggressive environments with a total thickness of 31 microns applied in combination with a PVDF Kynar 500 70%. **COASTAL PRIMER** is a special coating resulting from 17 years of experience and innovation in the manufacture of aluminium composite and honeycomb panels with projects supplied in over 50 countries. It's applied over the full range of PVdF 2 layer system standard colours, and optional in other finishes.





Endless Architectural Design Possibilities



www.alucoildesign.com





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## www.alucoil.com

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