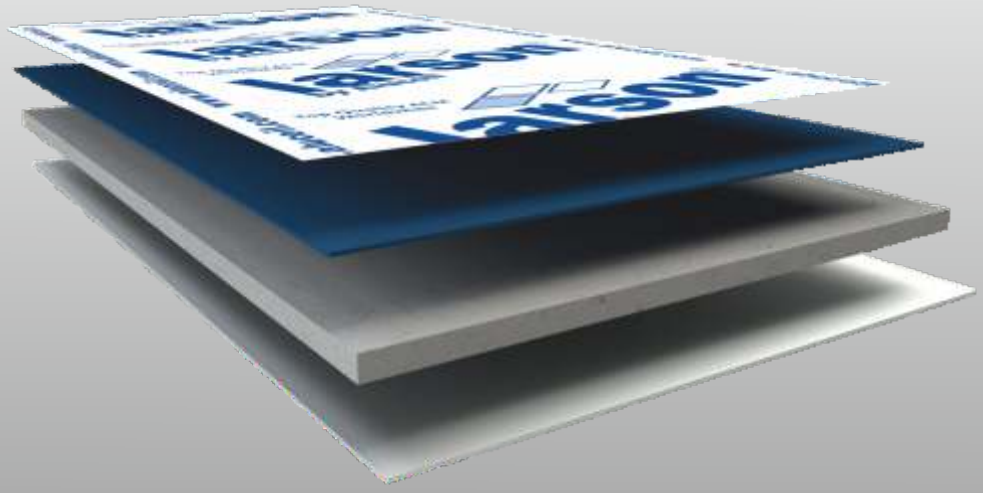
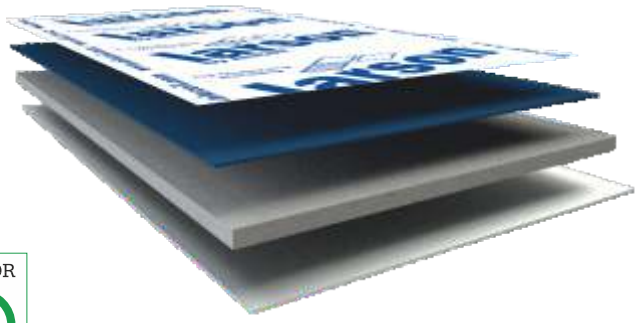
larson®
by Alucoil®

METAL PANELS FOR ARCHITECTURAL ENVELOPES



Alucoil®
Grupo Alibérico

larson® FR
by Alucoil®



1. PROTECTIVE FILM
2. ALUMINIUM
3. MINERAL FR CORE
4. ALUMINIUM

IQNet CERTIFIED MANAGEMENT SYSTEM

AENOR ER Registered Company ISO 9001 ER-0726/2011

AENOR Environmental Management ISO 14001 GA-2011/0356

Fire Class Architectural **B-s1, d0** according **EN 13501-1**

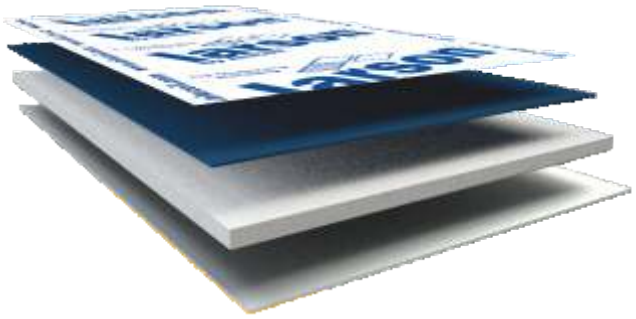
LARSON® FR aluminium composite panel, is a high-tech product for architectural façade cladding. It is formed with two aluminium sheets, 5005 alloy, bonded by a mineral fire retardant (FR) core. **ALUCOIL®** has developed a core that delays panel combustion which allows this material to achieve **B-s1,d0** 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/m^2)
Aluminium thickness	0,5 (mm)
Moment of inertia "I"	1583[(1)] / 3070 / 8630 (mm^4/m)
Rigidity "EI"	1108[(1)] / 2150 / 6041 (kNcm^2/m)
Standard width	1000 - 1250 - 1500 (mm)
Min / max length	2000 - 8000 (mm)
Core	**MINERAL FIRE RESISTANT**
Reaction to fire test	**B-s1,d0**[(4)] EN 13501-1 **BS 8414-1**[(5)] Full scale test **NFPA 285**[(6)] Full scale test
Modulus of elasticity "E"	70000[(2)] (N/mm^2)
Ultimate tensile strength "R_m"	125<R_m<185[(2)] (N/mm^2)
Elasticity limit "$R_{p0,2}$"	80<$R_{p0,2}$[(2)] (N/mm^2)
Elongation "A"	>3[(2)] (%)
Aluminium alloy	5005[(3)] EN 573-3
Aluminium thermal expansion	2,3 mm/m Δ100ºC
Coated surface	a) PVdF 70% kynar 500 2 layers **COASTAL PRIMER** 31µ b) PVdF 70% kynar 500 3 layers 37µ

[(1)]Estimated values while lab results arrive. [(2)]Aluminium features. [(3)]Alunatural finishes - alloy 3000. [(4)]ALUCOIL's vertical riveted & 45mm cassette installation systems. [(5)]Details of tested constructive system appear in Tecnalia's 070717-002A report. [(6)]Details of tested constructive system appear in Intertek's 102936114SAT-004B report. Extended technical data sheet available upon request.

larson® A2
by Alucoil®



1. PROTECTIVE FILM
2. ALUMINIUM
3. MINERAL A2 CORE
4. ALUMINIUM

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.

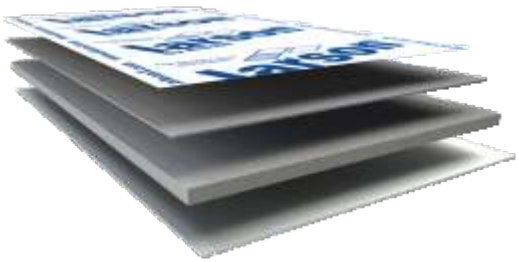
ALUMINIUM COMPOSITE PANEL FEATURES	LARSON® A2
Panel thickness	4 (mm)
Panel weight	8,25 (kg/m^2)
Aluminium thickness	0,5 (mm)
Moment of inertia "I"	3070[(1)] (mm^4/m)
Rigidity "EI"	2150[(1)] (kNcm^2/m)
Standard width	1250 - 1500 (mm)
Min / max length	2000 - 8000 (mm)
Core	**MINERAL A2**
Reaction to fire test	**A2-s1,d0** EN 13501-1 (Alucoil's vertical riveted & 45mm cassette installation systems) **BS 8414-2 Full scale test** (cassette installation system)
Modulus of elasticity "E"	70000[(2)] (N/mm^2)
Ultimate tensile strength "R_m"	125<R_m<185[(2)] (N/mm^2)
Elasticity limit "$R_{p0,2}$"	80<$R_{p0,2}$[(2)] (N/mm^2)
Elongation "A"	>3[(2)] (%)
Aluminium alloy	5005[(3)] EN 573-3
Aluminium thermal expansion	2,3 mm/m Δ100ºC
Coated surface	a) PVdF 70% kynar 500 2 layers **COASTAL PRIMER** 31µ b) PVdF 70% kynar 500 3 layers 37µ

[(1)] Estimated values while laboratory results arrive. [(2)] Aluminium features. [(4)] ALUCOIL's vertical riveted & 45mm cassette installation systems. Extended technical data sheet available upon request.

BIM OBJECTS Revit & Archicad

larson® Metals
by Alucoil®

Stainless Steel Composite Panel
Copper Composite Panel
Brass Composite Panel
Zinc Composite Panel



1. PROTECTIVE FILM
2. METAL
3. MINERAL A2/FR CORE
4. METAL

PRODUCT	METAL SHEETS	STANDARD SURFACE FINISH	FIRE REACTION CLASSIFICATION
LARSON® A2 METALS	Stainless steel	AISI 316ext / AISI 304int	Class **A2-s1, d0**[4] EN 13501-1
	Copper	Natural Copper Cu-DHP	
	Brass	Natural Brass CuZn30/CW505L	
	Zinc	Zinc Zn 99,995	
LARSON® FR METALS	Stainless steel	AISI 316ext / AISI 304int	Class **B-s1, d0**[4] EN 13501-1
	Copper	Natural Copper Cu-DHP	
	Brass	Natural Brass CuZn30/CW505L	
	Zinc[5]	Zinc Zn 99,995	

[4]ALUCOIL's vertical riveted & 45mm cassette installation systems. [5]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	PANEL THICKNESS (tolerance -0/+0,2mm)	METAL THICKNESS External / Internal	PANEL WEIGHT (kg/m²)	STANDARD WIDTH (tolerance -0/+2,5mm)
LARSON® A2/FR METALS STAINLESS STEEL	4 mm	0,23[5] / 0,23mm	A2: 10,12 kg/m² FR: 9,62 kg/m²	1000, 1200, 1250 mm
LARSON® A2/FR METALS COPPER	4 mm	0,3 / 0,3 mm	A2: 11,57 kg/m² FR: 11,09 kg/m²	1000, 1250 mm
LARSON® A2/FR METALS BRASS	4 mm	0,5 / 0,5 mm	A2: 13,99 kg/m² FR: 13,58 kg/m²	1000 mm
LARSON® A2/FR METALS ZINC	4 mm	0,5 / 0,5mm	A2: 12,69 kg/m² FR: 12,28 kg/m²	1000 mm

[5] The external sheet thickness of the Stainlees Steel BRILLIANT BA AISI 316 is 0,25mm.. LENGTH MIN./MAX. (tolerance -0/+20mm): 2000/8000mm

MECHANICAL CHARACTERISTICS	MOMENT OF INERTIA **"I"**	RIGIDITY **"EI"**	MODULUS **"W"**	T-BEND ROUTED PANEL (MIN. RECOMMENDED)
LARSON® A2/FR METALS STAINLESS STEEL	1446[(1)(2)] mm⁴/m	2981[(1)(2)] kNcm²/m	723[(1)(2)] mm³/m	≥2
LARSON® A2/FR METALS COPPER	2017[(2)] mm⁴/m	2662[(2)] kNcm²/m	1008[(2)] mm³/m	≥2
LARSON® A2/FR METALS BRASS	3070[(1)(2)] mm⁴/m	3748[(1)(2)] kNcm²/m	1535[(1)(2)] mm³/m	≥2
LARSON® A2/FR METALS ZINC	2790[(1)(2)] mm⁴/m	2511[(1)(2)] kNcm²/m	1595[(1)(2)] mm³/m	≥2

[1]LARSON® FR Metals estimated values while laboratory results arrive. [2]LARSON® A2 Metals estimated values while laboratory results arrive.
Extended technical data sheet available upon request.

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	700<R_m (N/mm²)	240<R_m (N/mm²)	290<R_m (N/mm²)	150<R_m (N/mm²)
Yield strength $R_{p0,2}$	600<$R_{p0,2}$ (N/mm²)	140<$R_{p0,2}$ (N/mm²)	186<$R_{p0,2}$ (N/mm²)	110<$R_{p0,2}$ (N/mm²)
Elongation **A**	>20 %	>8 %	>36 %	>40 %
Modulus of elasticity **E**	200000 (N/mm²)	132000 (N/mm²)	110000 (N/mm²)	90000 (N/mm²)
Thermal expansion **α**	1,6 (mm/m Δ100ºC)	1,7 (mm/m Δ100ºC)	2 (mm/m Δ100ºC)	2,2 (mm/m Δ100ºC)
Density **ρ**	8000 (kg/m³)	8900 (kg/m³)	8600 (kg/m³)	7200 (kg/m³)

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 Assesment – valid in 34 countries), EPD (Environmental Product Declaration), DIT, Avis Technique, LNEC, BBA, DIBt, VKF, Intertek North America.

C ETL LISTED US
Intertek
C#5007929

BBA APPROVAL INSPECTION TESTING CERTIFICATION
CERTIFICATE 08/4551

Deutsches Institut für Bautechnik DIBt

CE
ETA 14/0010 - **ALUCOIL®** Suspended Cassette
ETA 14/0010 - **ALUCOIL®** Riveted Boards
ETA 18/0712 - **LARSON® A2** Composite panel

DIT plus
DOCUMENTO DE IDONEIDAD TÉCNICA Nº 405P/15
LARSON® Suspended Cassettes
LARSON® Riveted Boards

Manufactured by: **ALUCOIL®** S.A.U. - Product: **LARSON®**

QB
QB 15-Built-up cladding products Nº 64-79

CC FAT
AVIS TECHNIQUE
2.2/14-1643_V1 end of validity 30/11/2019
2.2/14-1669_V1 end of validity 31/08/2022

MONUMENTAL ARCHITECTURE


1

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

2


3


4


5


6


7

PAINT AGAINST GRAFFITI FAST CLEAN

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

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

1

2

3

HOUSING

Torre Bolueta (Bilbao, Spain)
Architect: VARQUITECTOS

AIRPORTS

Marrakech-Menara (Morocco)

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.

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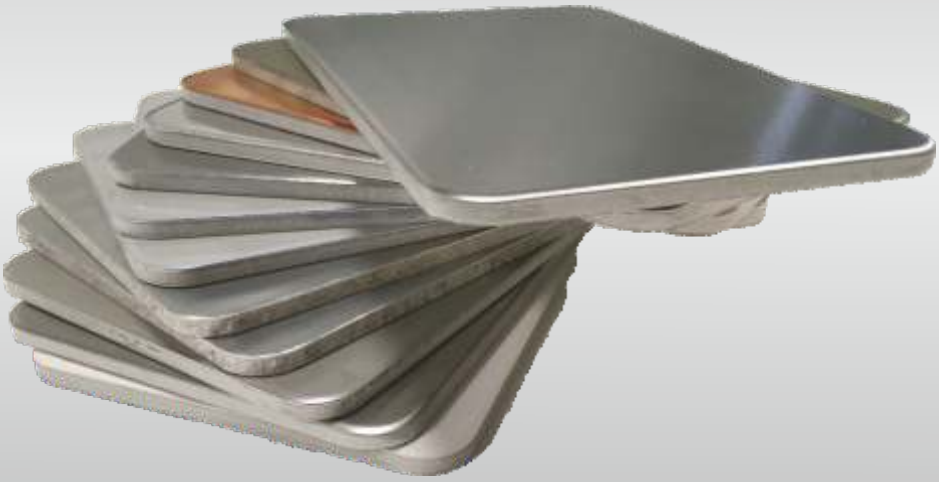

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Edición 2021 (01) (INGLES)