



ALBOND ALUMINIUM COMPOSITE PANEL



TECHNICAL GUIDE

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ALBOND® COMPOSITE PANEL

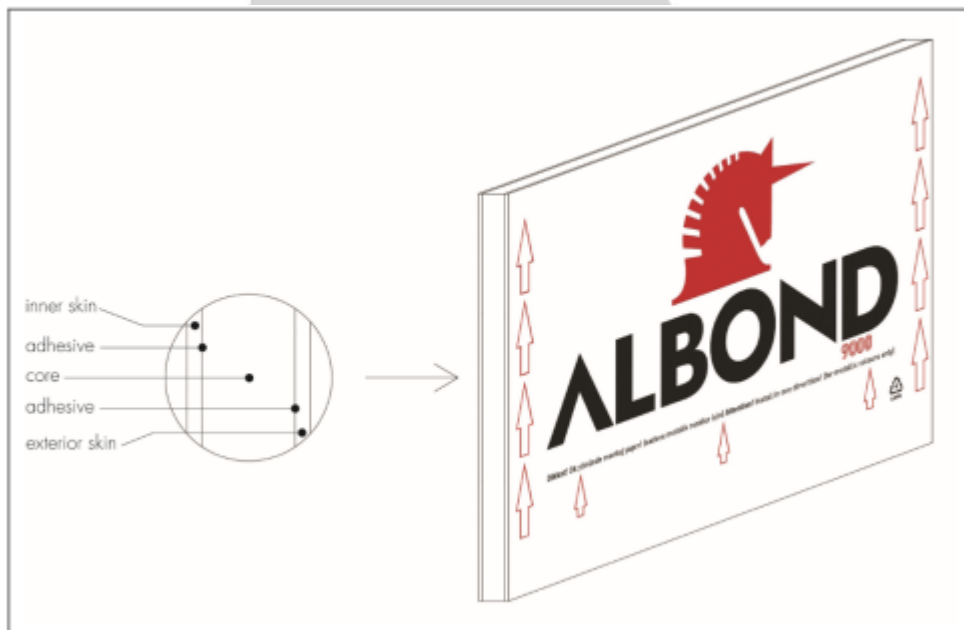
Albond composite panel is a lightweight metal building material with high strength, superior flatness, extreme durability, long service life and ease of maintenance.

Albond composite panel provide rapid and simple assemblies and ease of processing. Albond composite panels are totally recyclable.

Albond composite panel expands the capabilities of architects and designers and enables the creation of original designs.

Albond Composite Panels consists of a core (LDPE/FR B1/A2 grade) which is sandwiched between two coated aluminium alloy sheets using polymeric adhesive in a continuous process.

Aluminium Sheets	: EN AW 5005 H42-46 EN AW 3XXX H 42-46
Exterior Skin Coating	: Superior Durable Coatings (PVDF / FEVE/ UsPs)
Inner Skin Coating	: Protective Coating
Core Material	: Low-Density-Polyethylene (LDPE) FR Core (B-s1;d0 acc.to EN 13501-1) A2 CORE (A2-s1;d0 acc.to EN 13501-1)





Production Dimensions <i>(Standart Dimension 4x1250x3200 mm)</i> <i>(Aluminium standard widths are 1000/1250/1500/*2000 mm)</i>			
Dimensions	PE Panel (mm)	FR Panel (mm)	A2 Panel (mm)
Min - Max Panel Thickness	2 - 6	3 - 6	3 - 6
Min - Max Panel Width	max 1650 mm max 2000 mm*	max 1600 mm	max 1600 mm
Min - Max Panel Length	1600 - 6400	1600 - 6400	1600 - 6400
Panel Thickness Tolerance	±0,2 mm	±0,2 mm	±0,2 mm
Panel Width Tolerance	-0 mm / + 1,0 mm	-0 mm / + 1,0 mm	-0 mm / + 1,0 mm
Panel Length Tolerance	-0 mm / + 4,0 mm	-0 mm / + 4,0 mm	-0 mm / + 4,0 mm
Squareness (Diagonal Difference)	max. 3,0 mm	max. 3,0 mm	max. 3,0 mm
Incurvity Tolerance	±2,0 mm	±2,0 mm	±2,0 mm
Protective film width tolerance	-6 mm	-6 mm	-6 mm

*/** Max 2000 mm width is available for Albond Sign panels

TECHNICAL SPECIFICATIONS			Albond PE		Albond FR		Albond A2
Parameters	Reference Standart	Unit	4mm	6mm	4mm	6mm	4mm
Aluminium Skin Thickness		mm	0,50 mm				
Alloy	EN 573-3		Exterior skin EN AW 5005 Interior skin EN AW 3XXX				
Temper	EN 515		H44 – H46				
Tensile Strength	EN 485-2	MPa	150 - 200				
0,2 % Proof Stress	EN 485-2	MPa	min. 120				
Elongation	EN 485-2	A50 %	min. 3				
Linear Thermal Expansion	EN 1999-1-1		2,4mm/m at 100° C temperature difference				
Section Modulus	DIN 53293	cm ³ /m	1,75	2,75	1,75	2,75	1,75
Rigidity	DIN 53293	kN/cm ² /m	2400	5900	2400	5900	2400
Modulus of Elasticity	EN 1999-1-1	MPa	70.000				
Core Type			Low-Density-Polyethylene		Reinforced Fire Retardant Core		Mineral Core
Unit Weight		kg/m ²	5,5	7,3	7,5	10,5	8,3



Specifications			Albond PE		Albond FR		Albond A2
Parameters	Reference Standart	Unit	4mm	6mm	4mm	6mm	4mm

Fire Behaviour

Fire Classification	EN 13501-1		D-s2-d0	B-s1-d0	A2-s1-d0
ASTM E84 Classification	ASTM E84-16		N/A	Class A	Class A
Flame Spread (FSI)	ASTM E84-16		N/A	0	0
Smoke Development (SDI)	ASTM E84-16		N/A	35	0
Spontaneous Ignition Temperature	ASTM D1929-16		N/A	396°C	446°C
Flash Ignition Temperature	ASTM D1929-16		N/A	416°C	440°C
ASTM E119 Fire Test Rating	ASTM E119		N/A	1 hour	2 hours
Intermediate Scale Multistory Fire Test	NFPA 285		N/A	Passed	Passed

Finish Properties

Type/Finish		Superior Durable Coatings (PVDF / FEVE/ UsPs)					
Color Difference	EN 13523-3	Delta E < 1,0 (Visual control for metallic, texture and design colors)					
Dry Film Thickness	EN 13523-1	Standart Application 30 µm, (depending on the colour and the coating type)					
Gloss @60°	EN 13523-2	5 - 90 % (depending on the colour and the coating type)					
Pencil Hardness	EN 13523-4	Min HB					
Solvent Rubs	EN 13523-11	>100 AR (MEK)					
Coating Flexibility	EN 13523-6	6 mm					
T-Bend	EN 13523-7	1T Loss of adhesion					
Color Stability	BS 3900-D9	1500 hours UVA lambs Delta E<3,0					
Salt Sprey Corrosion Resistance	EN ISO 9227	1000 hours; No evidence was found of corrosion of the substrate or blistering, cracking or flaking of the coating					

Acoustic Properties

Sound Transmission Loss	EN ISO 10140-2	dB	25	27	26	27	27
Sound Absorption Factor	EN ISO 354		0,05				
Loss Factor	EN ISO 6721		0,0087	0,0138	0,009	0,0151	0,005

Thermal Properties

Thermal Resistance	DIN 52612	m²K/W	0,0103	0,0172	0,003	0,005	0,003
Heat Transition Coefficient	DIN 4108	Wm²/K	5,54	5,34	5,58	5,34	5,8
Temperature Resistance		° C	-50 up to +80				



Albond Panel Unit Weight Table**				
Albond Panel	Panel Thickness	PE Panel (kg/m ²)	FR Panel (kg/m ²)	A2 Panel (kg/m ²)
Albond 9000	6 mm	7,3	10,4	11,7
	5 mm	6,4	8,9	9,9
	4 mm	5,5	7,4	8,2
	3 mm	4,5	5,8	6,3
Albond 7000	4 mm	5,0	7,1	7,9
	3 mm	4,1	5,5	6,1
Albond 6000	4 mm	4,6	6,8	7,7
Albond 5000	4 mm	4,5	6,7	7,6
	3 mm	3,6	5,2	5,8
	2 mm	2,7	3,6	N/A
Albond Sign	4 mm	4,3	N/A	N/A
	3 mm	3,4	N/A	N/A
	2 mm	2,5	N/A	N/A

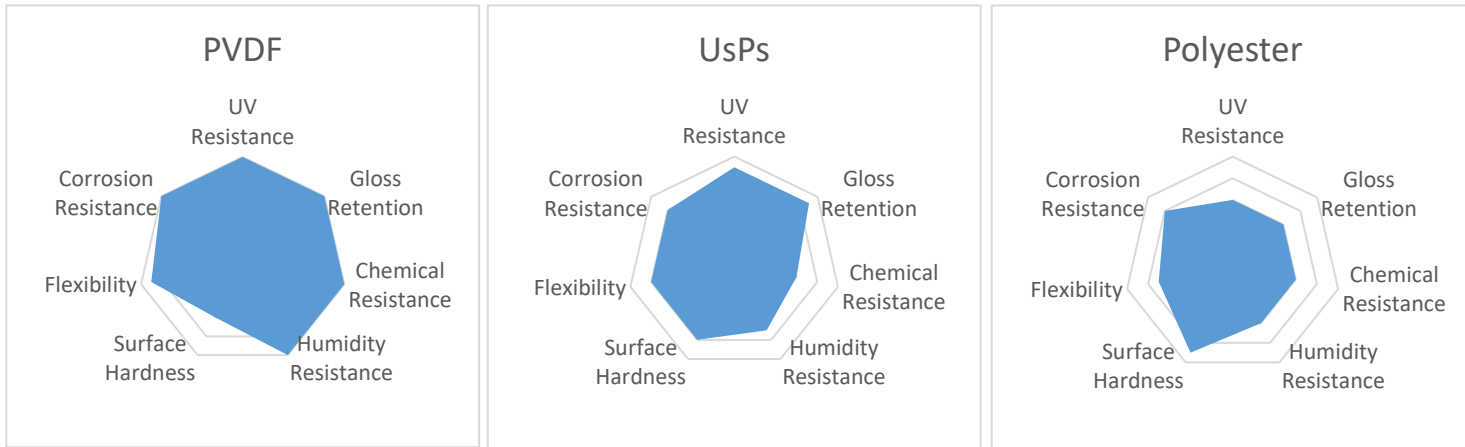
** Unit weight has +/- 10% tolerance due to production tolerances.

Skin Thickness and Coating Types		
Albond Panel	Aluminium Skin Thickness (mm)	Exterior Coatings
Albond 9000	0,50	Superior Durable Coatings (PVDF / FEVE/ UsPs)
Albond 7000	0,40	Superior Durable Coatings (PVDF / FEVE/ UsPs)
Albond 6000	0,30	Superior Durable Coatings (PVDF / FEVE/ UsPs)
Albond 5000	0,25/0,30	Polyester
Albond Sign	0,18/0,21	Monolayer Polyester

Depending on the colour and special surface types.



FEATURES OF COATINGS



SPECIFICATION / COATING TYPE	TEST METHOD (EN)	PVDF 70/30	UsPs	Polyester
FINISH	-	Smooth Finish	Smooth or Textured, Wrinkle	Smooth or Textured, Wrinkle
DRY FILM THICKNESS	EN 13523-1	Standart 2L : 30 µ 3L: 40-45µ 4L (ink design) : 43-48µ Coastal Quality: 45-50 µ	Standart 2L : 30 µ 3L: 40-45µ 4L (ink design) : 43-48µ Coastal Quality: 45-50 µ	Standart 2L : 20-25 µ Monolayer for Albond Sign: 15-20µ
GLOSS @60 °	EN 13523-2	20 - 40 %	3-90%	3-90%
COLOUR RANGE	EN 13523-3	Limited	Full Range	Full Range
AAMA 2605 COMPLIANCE	AAMA 2605	OK (Depending on the layers and thickness of coating)	OK (Depending on the layer and thickness of coating)	NOK
UV CLASSIFICATION	13523-14/21	RUV4	RUV4	RUV2
10 YRS FLORIDA NATURAL WEATHERING	ASTM G7	$\Delta E < 5$ GR>50	$\Delta E < 5$ GR>50	N/A

Albond do not use Chromium in any pretreatment and paint as a part of commitment to the environment.



CERTIFICATIONS

Despite ALBOND composite panels are performed under a controlled process with tight internal testing and quality control procedures, the quality is tested by prestigious construction institutes in the various countries. And factory production audits are performed periodically by these institutes. By thus we offer our customers quality which comes from having the most demanding certifications.

Albond composite panel has the following technical approvals and certificates issued by different recognized bodies both for the panel and for the installation system.

COUNTRY	RECOGNITION	BODY	PRODUCT	
EU	ETA 19/0654 ETA 19/0655 ETA 19/0656	IETcc Madrid	Albond Albond FR	
SPAIN	No: 658p/21	IETcc Madrid	Albond Albond FR	
FRANCE	Avis Techniques: 2.2/19-1801 2.2/19-1802 QB15 N° 139-149	CSTB Paris	Albond Albond FR Albond A2	
UK	21/5897	BBA Watford	Albond FR	
SWITZERLAND	n° 27487 n° 27489 n° 27490	VKF Bern	Albond Albond FR Albond A2	
POLAND		ITB Warsaw	Albond 9000 Albond 9000 FR Albond 9000 A2 Albond 7000 FR Albond 7000 A2	
UAE		TBWIC Dubai	Albond FR Albond A2	
TURKEY	TS 13777	TSE Istanbul	Albond 9000 Albond 9000 FR Albond 9000 A2 Albond 7000 Albond 7000 FR Albond 7000 A2 Albond 6000	



ENVIRONMENTAL PRODUCT DECLARATION (EPD)

All Albond panels are designed, manufactured and supplied with sustainability in the LEED green building certification system.

EPD provides the project owners demanding LEED document in materials and resources category with points in certification processes.

Environmental impacts of Albond products that can be measured by using Life-Cycle Assessment (LCA) has been assessed. They were documented in the EPD report and internationally verified and published on relevant platforms.

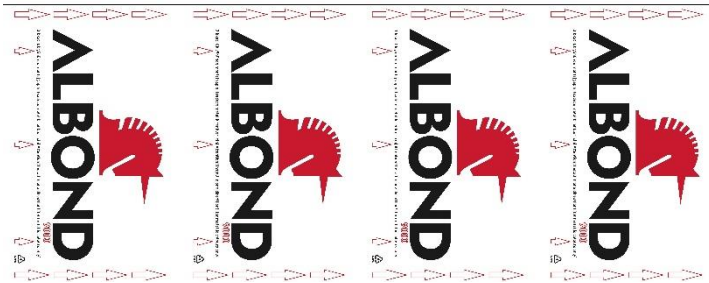
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Protective Film

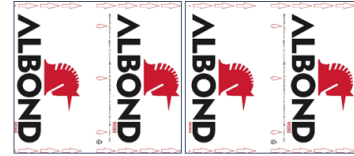
The protective film used is a temporary surface protector. It is easy to peel. It is recommended to peel it by 180 ° angle. Once the panel is installed in the façade it should be removed as soon as possible as climatic factors (geographic location or sharp changes in temperature) may affect the adhesive used on the protective film.

Do not remove the protective foil using cutters or sharp tools.

Do not mark with inks that can pass through the protective film and affect the surface of the panel.



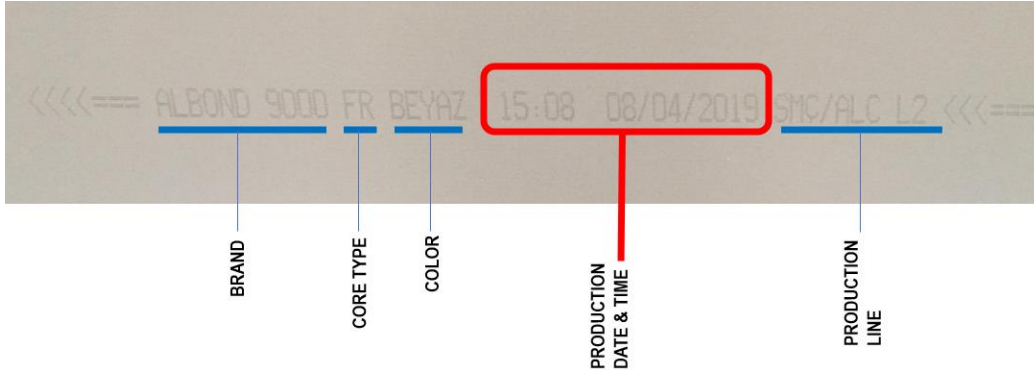
For the machining and later installation of the ALBOND composite panel on the façade, it must be ensured that the orientation of the arrows indicated on the protective film must be the same on the entire surface, in order to avoid variations in the colour tone of the coating.





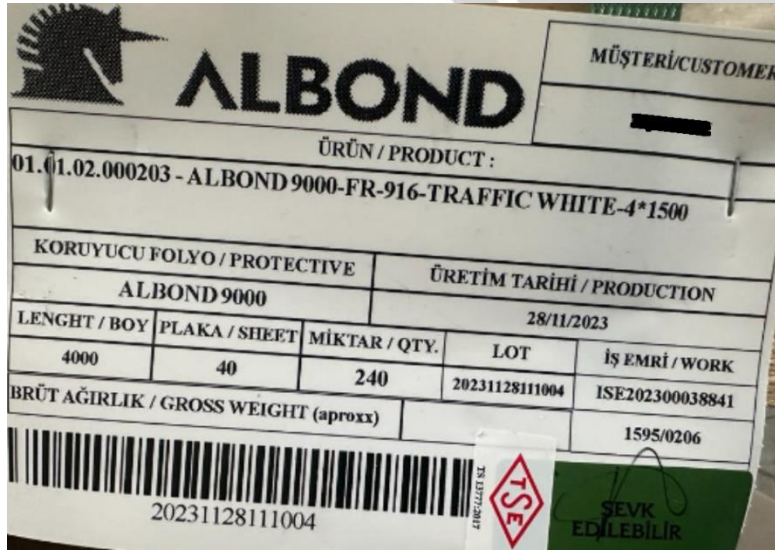
Backside Print

Albond panels are marked on the backside during manufacturing process with an inkjet printer. This is for the traceability of manufacturing informations of panels in case of any issue.



Label

Manufacturing batches are correctly labeled with their lot numbers.



Handling, Storage and Transport

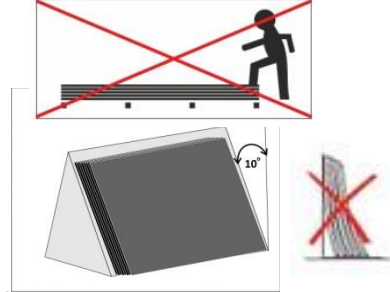
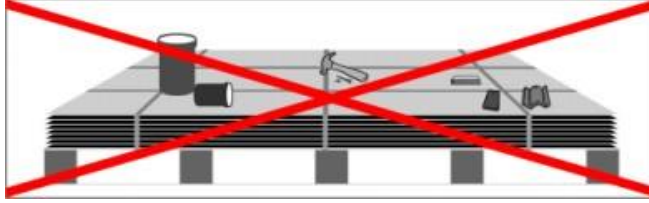
1. The panel must be carefully held in vertical position by two people while being picked up on the pallet without being bent and twisted.



2. Pallets which are unpacked should not be moved.
3. Before moving the pallet, it is necessary to be sure moving with the appropriate forklifts to handle the length of the sheets.



4. Vertical stacking of Albond panels is not recommended. Panels can be stacked horizontally or with an equipment such as a special pyramid, with faces facing each other, not more than 100 sheets at a 10-degree angle.



5. No objects, tools, objects should be placed on the pallets and panels.
6. The pallets must be stacked on each other with no more than 6 pallets. Heaviest pallet should be at the bottom.
7. At the pallets which are stacked on each other, the support bars of the pallets should be aligned at the same axis.
8. Storage should be done in cool and dry environment (preferably indoor environment). Excessive temperature changes in the storage location can cause form changes that can lead to permanent damage to the stockpiled panels.

PRODUCT MAINTENANCE GUIDE

Albond composite panel is designed for covering buildings and industrial constructions and to resist changes in the appearance after exposition to normal weather conditions for long time periods.

Provided that care is taken to maintenance the panel in good conditions by regular cleaning and ensuring that incompatible or contaminant materials don't come into contact with the surface, the panel will not crack or delaminate but may experience a change of uniform appearance, as slight changes in colour and brightness. Particularly, in aggressive environments like zones with high level of UV radiation, areas, in risk of sandstorms, near to chemical plants, swimming pools and salty environments or areas that aren't cleaned by rain, a faster deterioration may occur. These effects are worst in areas where natural rainfall can't clean the contaminants and deposits. For all these reasons, cleaning the roofs and facades is an important factor in the composite covering maintenance.

Inspection and cleaning are obligatory minimum once a year to optimum appearance and durability of coated composite panels. But there might be a need of more frequent cleaning programme depends on the atmospheric conditions and the rate at which the contamination occurs. Below is the recommendation table to decide the frequency of cleaning Albond panels due to the building environment.

Building Location	Frequency of Cleaning
Rural Area	1 times/ Year
Urban Area	1 times / Year
Low Rainfall and/or Coastal Area	2 times / Year
Heavy Industry + Coastal Area	2 or 3 times / Year



Those areas not exposed to natural rainfall may need a more regular cleaning to remove potentially corrosive deposits. Leaves, grass, mould and other objects should be removed. Clean any obstructions to prevent overflows. Clean retained dirt in areas in which the coating is not naturally washed by rain water, for example in cantilevers. Examine and repair local defects that can cause premature deterioration of the coating or corrosion of the substrate.

Inspection and cleaning operations must be properly documented and carried out by a specialized company. Building's Owner must retain inspection and cleaning records for the period of guarantee.

PANEL CLEANING

- The cleaning should ideally be processed on balmy, cloudy days.
- Do not clean sun-heated surfaces(> 40°C). Spotting may occur through fast surface drying!
- The optimal surface temperature during the cleaning process of facade elements is < 25°C.
- The cleaning process shall be conducted from top to bottom, manually or with low-pressure washers (5 to 10 bars)
- Non-abrasive, soft cleaning wipes, sponges shall be used.
- The detergent (must be Ph neutral) should be tested on an inconspicuous part of the object which is to be cleaned, to check the effect on the appearance of the surface.
- Cleaning detergent and water must not be hot.
- Rinsing thoroughly from top to bottom must be done, so that all detergent residues are removed.

Do not use:

- Organic solvents or abrasive cleaning detergents (like scouring powder for example)
- Detergents of unknown chemical composition
- Highly alkaline detergents such as potassium hydroxide, sodium carbonate or caustic soda
- Any acidic product