

Elylite® Aluminum composite panel

Technical datasheet

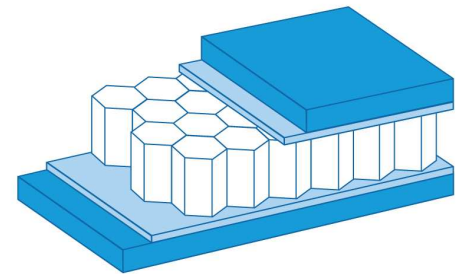
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Description

Elylite® Aluminum panels are composed of two aluminum skins combined with a honeycomb core (HC), joined together by adhesive bonding.

These panels are designed to meet the highest mechanical performance characteristics, especially stiffness, in relation to the lowest possible weight. The Elylite® Aluminum panels outperform similar panels with aluminum skins in terms of cost efficiency. Further, these panels are easily recyclable.



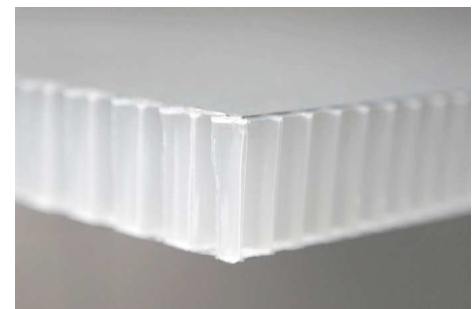
Elylite® Aluminum panels are particularly suited for any industrial application where a combination of low weight, high stiffness, durability and cost efficiency is required. Typical applications are façade cladding, balconies but also interior design like furniture, partitioning systems and ceilings.

Product range

Standard panels

Composition

- Polypropylene Honeycomb Core with a density of 80 kg/m³.
- Two aluminum skins in two thicknesses: 0.5 mm and 1 mm.
- Joined together by a high performance adhesion system.



Dimensions

<i>Elylite Alu</i>	<i>Core</i>	<i>Aluminum skins</i>	<i>1250 x 3000 mm</i>	<i>1500 x 3000 mm</i>
<i>9 mm</i>	HC 80 kg/m ³ 8 mm	EN AW 3003/3004/3005 0,5 mm	●	●
<i>13 mm</i>	HC 80 kg/m ³ 12 mm	EN AW 3003/3004/3005 0,5 mm	●	●
<i>16 mm</i>	HC 80 kg/m ³ 15 mm	EN AW 3003/3004/3005 0,5 mm	●	●
<i>21 mm</i>	HC 80 kg/m ³ 20 mm	EN AW 3003/3004/3005 0,5 mm	●	●
<i>25 mm</i>	HC 80 kg/m ³ 24 mm	EN AW 3003/3004/3005 0,5 mm	●	●

<i>Elylite Alu</i>	<i>Core</i>	<i>Aluminum skins</i>	<i>1250 x 3000 mm</i>	<i>1500 x 3000 mm</i>
<i>10 mm</i>	HC 80 kg/m ³ 8 mm	EN AW 3003/3004/3005 1 mm	●	●
<i>14 mm</i>	HC 80 kg/m ³ 12 mm	EN AW 3003/3004/3005 1 mm	●	●
<i>17 mm</i>	HC 80 kg/m ³ 15 mm	EN AW 3003/3004/3005 1 mm	●	●
<i>22 mm</i>	HC 80 kg/m ³ 20 mm	EN AW 3003/3004/3005 1 mm	●	●
<i>26 mm</i>	HC 80 kg/m ³ 24 mm	EN AW 3003/3004/3005 1 mm	●	●

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On request

Other compositions are available on request.

Composition	Different skin thickness
	Different core thickness and/or density
	Different aluminum grade

Dimensions	<i>Minimum</i>	<i>maximum</i>	<i>tolerances</i>
<i>Length (**)</i>	400 mm	3000 mm	+/- 2 mm
<i>Width</i>	400 mm	1500 mm	+/- 2 mm
<i>Thickness</i>	8 mm	50 mm	+/- 0.4 mm

(*) Certain combinations might not be available

(**) A maximum length of up to 6000 mm is available upon special request

Surfaces	Protective foil
	Primer for painting
	Different colors

Technical characteristics

Weight, stiffness, compression & shear strength

The Elylite® Aluminum composite panels have an extremely high stiffness / weight ratio and outperform most competitive materials.

Weight (kg/m²)	<i>0.5 mm</i>
<i>9 mm</i>	3.5
<i>13 mm</i>	3.8
<i>16 mm</i>	4.1
<i>21 mm</i>	4.5
<i>25 mm</i>	4.8

Weight (kg/m²)	<i>1 mm</i>
<i>10 mm</i>	6.2
<i>14 mm</i>	6.5
<i>17 mm</i>	6.8
<i>22 mm</i>	7.2
<i>26 mm</i>	7.5

Bending stiffness E*I (Nm²/m)	<i>0.5 mm</i>
<i>9 mm</i>	1269
<i>13 mm</i>	2746
<i>16 mm</i>	4226
<i>21 mm</i>	7403
<i>25 mm</i>	10586

Bending stiffness E*I (Nm²/m)	<i>1 mm</i>
<i>10 mm</i>	2850
<i>14 mm</i>	5937
<i>17 mm</i>	8991
<i>22 mm</i>	15493
<i>26 mm</i>	21967

Core Compression strength (MPa)	<i>Elylite® Aluminum</i>
<i>EHC 80 kg/m³</i>	1.3

Core Shear strength (MPa)	<i>Elylite® Aluminum</i>
<i>EHC 80 kg/m³</i>	0.5

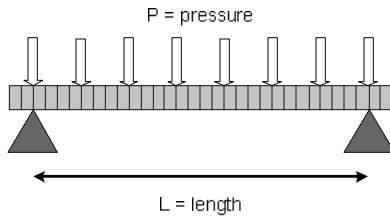
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Deflection



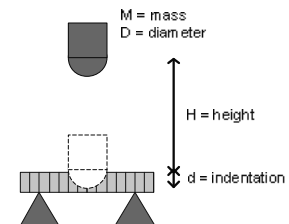
Deflection (mm) (*)	L = 1000 mm, W = 1000 mm,	
	0,50 mm, P = 1000 N/m ² (M _{tot} = 100 kg)	1 mm, P = 5000 N/m ² (M _{tot} = 500 kg)
9 mm	11.5	
10 mm		28.6
13 mm	5.6	
14 mm		15.0
16 mm	3.8	
17 mm		10.5
21 mm	2.3	
22 mm		6.7
25 mm	1.7	
26 mm		5.1

(*) calculated values including bending and shear stiffness.

Impact resistance

The aluminum skins have a relatively good resistance to impact. The impact resistance increases with increasing thickness of the skins.

Impact resistance (mm)	M = 2 kg, H = 1000 mm, diameter = 20 mm
Aluminum 0.5 mm	9.68
Aluminum 1 mm	6.58



Damping and acoustic properties

The Elylite® Aluminum composite panels demonstrate excellent vibration damping properties in regard to other monolithic and composite materials. These properties are an important asset in the reduction of structural vibrations.

The Elylite® Aluminum composite panels also demonstrate good noise insulation properties.

Fire behavior

The complete panels are expected to reach an M1/F1 performance level in accordance with NF F16-101.

Weather resistance

- The Elylite® Aluminum composite panels are stable within a temperature range from -40 °C to +80 °C.
- The Elylite® Aluminum composite panels are resistant to salt water, oil, fats and most other agents. Please contact Elytra in case of specific corrosion protection requirements.
- Water absorption of the panels is minimal.

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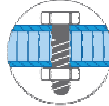

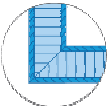
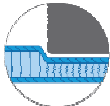
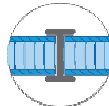
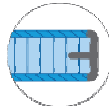
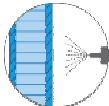
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Processing guidelines

Please refer to Elytra's 'Processing Guidelines for Elylite Aluminum Composite Panels' for following panel processing topics:

 <i>Cutting</i>	 <i>Milling</i>	 <i>Drilling</i>	 <i>Fastening</i>	 <i>Adhesive bonding</i>
 <i>Bending</i>	 <i>Pressing</i>	 <i>Joining</i>	 <i>Edge finishing</i>	 <i>Surface finishing</i>

Or contact Elytra for any further information.

Storage

Elytra advises to protect the panels from rain, penetration of moisture and condensation during storage. Elylite® Aluminum composite panels can be stacked up to a height of 2 m.

These datasheet represent the current state of our technical knowledge. Its purpose it to inform our customers about the Elylite® Aluminum composite panels and their applications. The datasheets do not guarantee particular properties or suitability for a specific application. We reserve the right to make changes in accordance with technological advancements and other developments.

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