

Elybond® Steel composite panel

Technical datasheet

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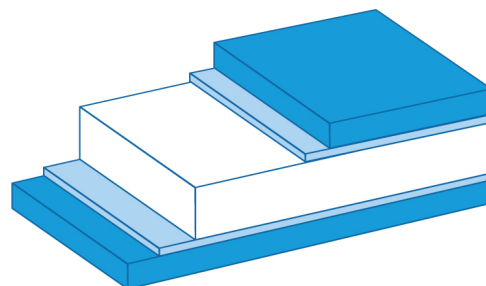


Description

The Elybond® Steel composite panels are composed of two galvanized steel skins, combined with a glass fiber reinforced polypropylene solid core (SC) joined together by adhesive bonding.

The Elybond® Steel composite panels are designed especially to meet the highest esthetical requirements, in combination with a low weight and high cost efficiency.

The Elybond® Steel composite panels are particularly suited for application in façade panels, machine construction, appliances, partitioning systems, doors, as well as furniture.

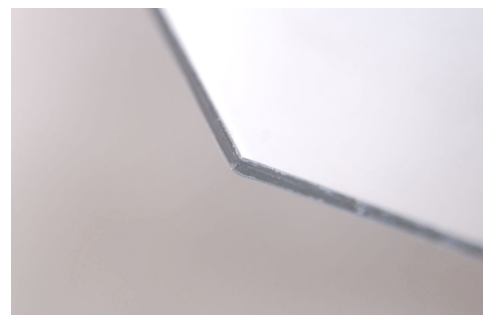


Product range

Standard panels

Composition:

- Glass reinforced polypropylene solid core in several thicknesses: 0.5 mm, 1 mm or 1.5 mm.
- Two galvanized skins in 0.4 mm thickness with a Z275 zinc coating thickness for an increased corrosion protection.
- Joined together by a high performance adhesion system.



Dimensions

<i>Elybond® Steel</i>	<i>Core</i>	<i>Skin 1 & 2</i>	<i>1200 x 2400 mm</i>	<i>1200 x 2750 mm</i>
<i>1.3 mm</i>	GFR PP 0.5 mm	Galva Z275 0.4 mm	●	●
<i>1.8 mm</i>	GFR PP 1.0 mm	Galva Z275 0.4 mm	●	●
<i>2.3 mm</i>	GFR PP 1.5 mm	Galva Z275 0.4 mm	●	●

On request

Other compositions are available on request.

Composition	Different skin thickness
	Different core thickness and/or density
	Different steel grades

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>	1.3 mm	6 mm	+/- 0.4 mm

(*) Certain combinations might not be available

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

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Technical characteristics

Weight & stiffness

The Elybond® Steel composite panels have a high stiffness / weight ratio and outperform most competitive materials.

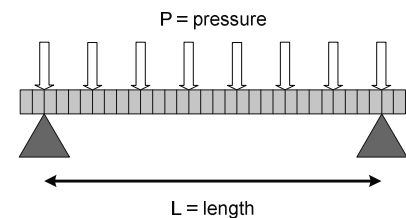
Weight (kg/m ²)	Elybond® Steel
1.3 mm	7.11
1.8 mm	7.71
2.3 mm	8.31

Bending stiffness $E \cdot I$ (Nm ² /m)	Elybond® Steel
1.3 mm	35
1.8 mm	83
2.3 mm	151

Deflection

Deflection (mm) (*)	$L = 1000 \text{ mm}, W = 1000 \text{ mm}, P = 100 \text{ N/m}^2$ ($M_{tot} = 10 \text{ kg}$)
	Elybond® Steel
1.3 mm	36.8
1.8 mm	15.8
2.3 mm	8.7

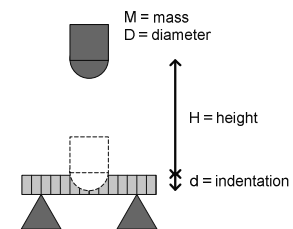
(*) calculated values including bending and shear stiffness.



Impact resistance

The steel skins have a very high resistance to impact and outperform most other light weight metal based composite panels.

Impact resistance (mm)	$M = 2 \text{ kg}, H = 1000 \text{ mm}, \text{diameter} = 20 \text{ mm}$
Steel 0.4 mm	3.1
1 mm aluminum (ref)	6.6



Bending

The Elybond® Steel composite panels can be processed in a similar manner as sheet material. Following bending radii can be obtained.

Bending radius (mm) (*)	Elybond® Steel
1.3 mm	4
1.8 mm	6
2.3 mm	7

(*) lower bending radii can be obtained when milling one skin. Please refer to Elytra's processing guide.

Damping and acoustic properties

The Elybond® Steel 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.

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The Elybond® Steel composite panels also demonstrate good noise insulation properties.

Fire behavior





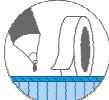
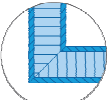
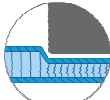

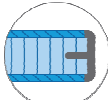
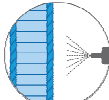
Based on its composition, the performance level of the complete panels is estimated to be M1/F1 in accordance with NF F16-101.

Weather resistance

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

Processing guidelines

Please refer to Elytra's 'Processing Guidelines for Elybond Steel 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. Elybond® Steel composite panels can be stacked up to a height of 0.5 m.

These datasheet represent the current state of our technical knowledge. Its purpose it to inform our customers about the Elybond® Steel 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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