

Elyfoam® PET Steel composite panel

Technical datasheet

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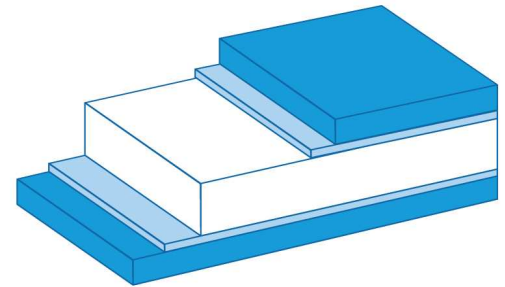


Description

The Elyfoam® PET Steel composite panels are composed of two carbon steel skins combined with polyester foam (PET), joined together by adhesive bonding.

The Elyfoam® PET Steel composite panels are designed to meet the highest mechanical performance characteristics, especially bending stiffness, shear stiffness and compression strength, in relation to the lowest possible weight. These panels outperform similar panels with metal skins, and are also easy to process in a wide range of applications.

The Elyfoam® PET Steel composite panels are particularly suited for any industrial application where a combination of light weight, extremely high mechanical performance, durability and cost efficiency is required. Typical applications are furniture, partitioning systems, floors, doors, as well as construction and temporary installations.



Product range

Standard panels

Composition

- Polyester (PET) foam with a density of 100 kg/m³.
- Two galvanized skins in several thicknesses: 0.25 mm, 0.4 mm and 0.6 mm, with several zinc coating thicknesses: Z100 (basis) and Z275 for an increased corrosion protection.
- Joined together by a high performance adhesion system.

Dimensions

<i>PET Steel</i>	<i>Core</i>	<i>Skins</i>	<i>950 x 2400 mm</i>	<i>950 x 2750 mm</i>
<i>10.5 mm</i>	PET 100 kg/m ³ 10 mm	Galva Z100 0.25 mm	●	●
<i>15.5 mm</i>	PET 100 kg/m ³ 15 mm	Galva Z100 0.25 mm	●	●

<i>PET Steel</i>	<i>Core</i>	<i>Skins</i>	<i>1200 x 2400 mm</i>	<i>1200 x 2750 mm</i>
<i>10.8 mm</i>	PET 100 kg/m ³ 10 mm	Galva Z275 0.4 mm	●	●
<i>15.8 mm</i>	PET 100 kg/m ³ 15 mm	Galva Z275 0.4 mm	●	●

<i>PET Steel</i>	<i>Core</i>	<i>Skins</i>	<i>1200 x 2400 mm</i>	<i>1200 x 2750 mm</i>
<i>11.2 mm</i>	PET 100 kg/m ³ 10 mm	Galva Z275 0.6 mm	●	●
<i>16.2 mm</i>	PET 100 kg/m ³ 15 mm	Galva Z275 0.6 mm	●	●

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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>	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
	Different colors (organic coating)
	Different zinc coating thicknesses

Technical characteristics

Weight, stiffness, compression & shear strength

The Elyfoam® PET Steel composite panels have an extremely high stiffness / weight ratio and outperform most competitive materials. The panels are also very resistant against compression.

Weight (kg/m²)	<i>0.25 mm</i>	<i>0.4 mm</i>	<i>0.6 mm</i>
<i>10.5 mm</i>	5.14		
<i>10.8 mm</i>		7.51	
<i>11.2 mm</i>			10.67
<i>15.5 mm</i>	5.64		
<i>15.8 mm</i>		8.01	
<i>16.2 mm</i>			11.17

Bending stiffness E*I (Nm²/m)	<i>0.25 mm</i>	<i>0.4 mm</i>	<i>0.6 mm</i>
<i>10.5 mm</i>	2764		
<i>10.8 mm</i>		4551	
<i>11.2 mm</i>			7092
<i>15.5 mm</i>	6125		
<i>15.8 mm</i>		9983	
<i>16.2 mm</i>			15359

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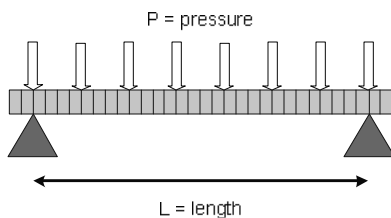
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Core Compression strength (MPa)	Elyfoam® PET Steel
PET 100 kg/m ³	1.8

Core Shear strength (MPa)	Elyfoam® PET Steel
PET 100 kg/m ³	0.8

Deflection



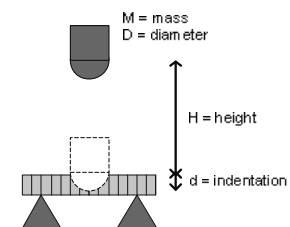
Deflection (mm) (*)	L = 1000 mm, W = 1000 mm,		
	0.25 mm, P = 1000 N/m ² (M _{tot} = 100 kg)	0.4 mm, P = 5000 N/m ² (M _{tot} = 500 kg)	0.6 mm, P = 5000 N/m ² (M _{tot} = 500 kg)
10.5 mm	5.3		
10.8 mm		17.3	
11.2 mm			12.1
15.5 mm	2.5		
15.8 mm		8.6	
16.2 mm			6.2

(*) 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 kg, H = 1000 mm, diameter = 20 mm
Galva Z100 0.25 mm	6.6
Galva Z275 0.4 mm	5.1
Galva Z275 0.6 mm	4.1
1 mm aluminum (ref)	6.6



Damping and acoustic properties

The Elyfoam® PET 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.

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

Fire resistance

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

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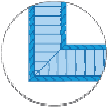
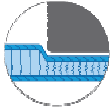


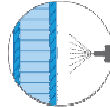
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Weather resistance

- The Elyfoam® PET Steel composite panels are stable within a temperature range from -40 °C to +80 °C.
- The Elyfoam® PET Steel 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.

Processing guidelines

Please refer to Elytra's 'Processing Guidelines for 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. Elyfoam® PET Steel 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 Elyfoam® PET 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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