

HexaPan<sup>®</sup>

HoneyComb  
Panel Systems



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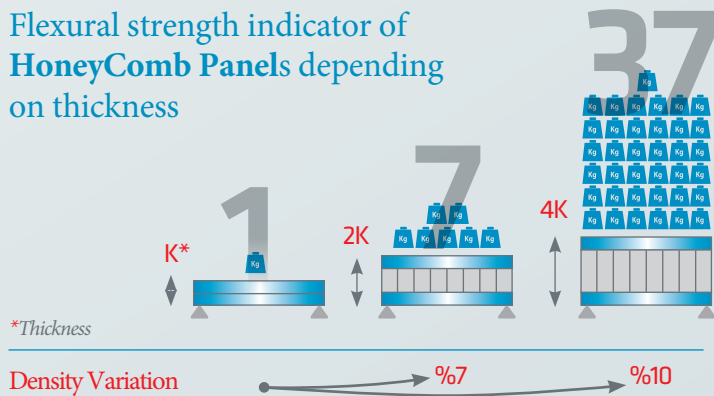
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## About Hexapan Honeycomb

Our production is mainly HoneyComb Core and thermoplastic HoneyComb Sandwich panels. Our products with outstanding features such as lightness, high compressive strength and being eco-friendly, are used mainly in products such as van trailer, high-speed rail, aerospace, household goods, military, industrial, sports and leisure products. Due to it will make a very big and positive effect to our common living area, to increase the usage of this new composite material in our daily lives, has become our responsibility and duty.

### Flexural strength indicator of HoneyComb Panels depending on thickness



### Hexapan Specifications PP HoneyComb naming convention

XX	-	CM	-	DT	-	LT	-	LT
↓		↓		↓		↓		↓
Honeycomb diameter		Material		Density/Thickness		Surface type		Surface thickness

#### For example:

Type **9,6PP120/20WPC1,2** → Honeycomb cell diameter : **9,6MM**

Material : **PP**  
 Density/Thickness : **120 kg/m<sup>3</sup> - 20mm**  
 Surface Type: **Wood plastic composite**  
 Surface Thickness: **1,2**  
 Total Thickness: **20+(1,2x2)= 22,4 mm**

### Properties

**Lightweight and robust**  
 - High compressive strength  
 - High shear strength

**Eco-friendly**  
 - Energy-saving  
 - 100% recycling  
 - Does not contain volatile organic compounds  
 - Does not contain any harmful odors or formaldehit.

**Resistance to Water and Moisture**  
 - With their perfect water resistance, thermoplastic composites can be used in above-water structures

**Resistance to corrosive liquids**  
 - High resistance against sea water and chemicals

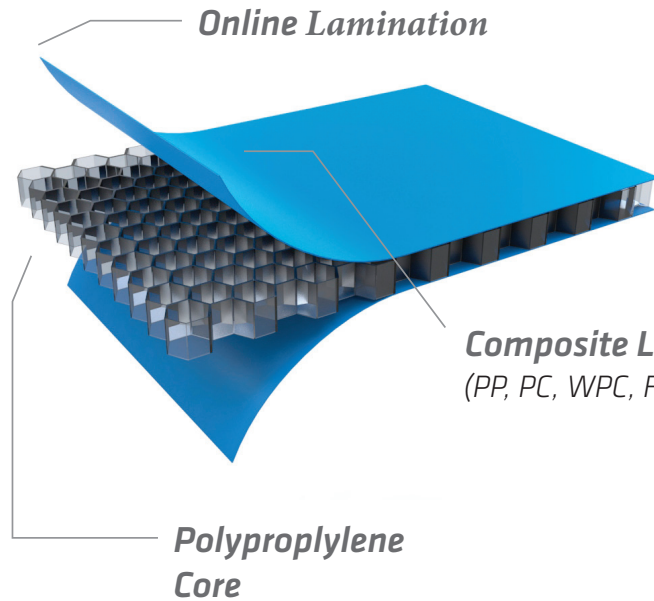
**Sound Insulation**  
 - Has the features of vibration reducing and sound absorbing

**Energy absorber**  
 - The structure in the shape of customized honeycomb has the features of high level energy absorbing, high impact resistance and load-bearing.



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## Hexapan HoneyComb Panel Type

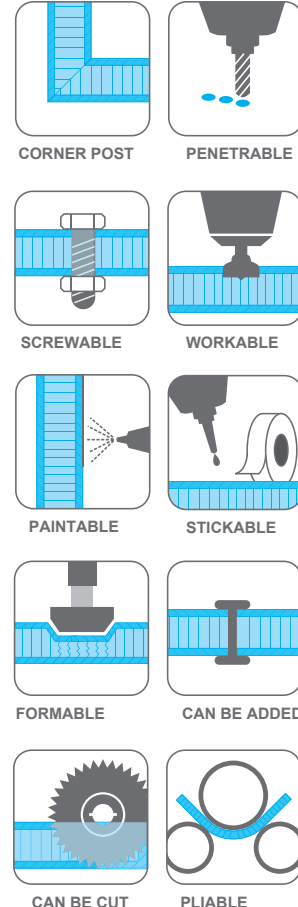
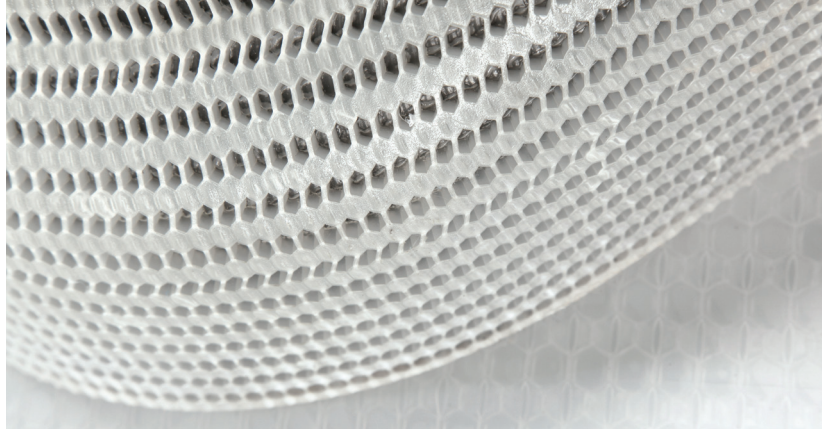


Hexapan Honeycomb panel is a high technology sandwich structure with a honeycomb structure inside, and high specific composite folios on both sides.

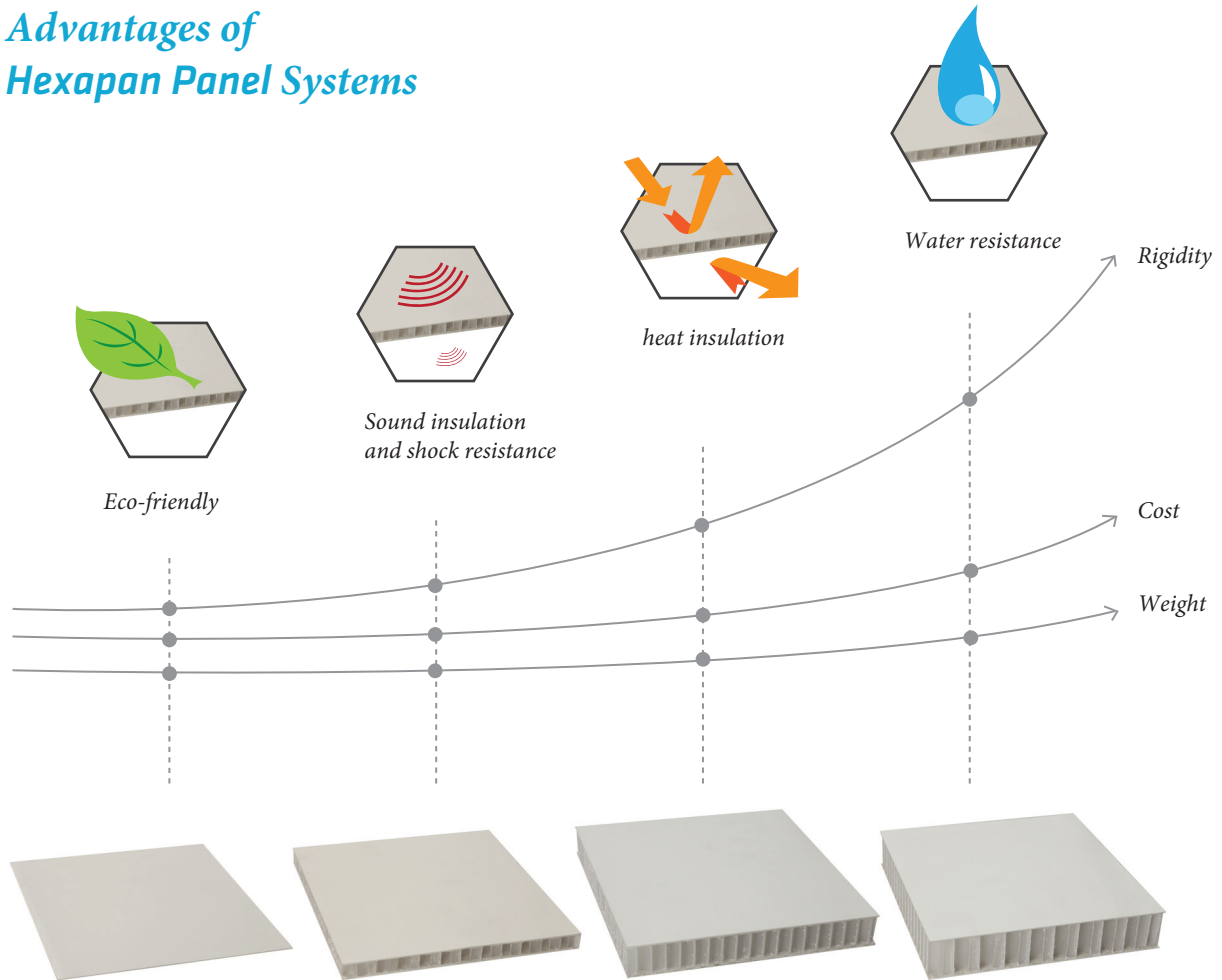
Due to its features such as lightness, high resistance and eco-friendly, made it the indispensable solutions of the main sectors such as Automotive, Construction, Furniture.

Thickness Details	: 4 - 40 mm
Core Type	: PP, PC Max.
Width - Length	: 2,1 - 12 m
Weight	: 1000 - 8000 gr/m <sup>2</sup>
Surface Type	: PP, PC, WPC, FRP ∞

## Formable and Workable Panel Structure



## Advantages of Hexapan Panel Systems



Cost effective solution suggestions are provided by ensuring optimization in production with Honeycomb core structure where all advantages are combined.

## Thermal Insulation

Due to compressed air in the comb cells, thermal insulation performance of the Honeycombs is much higher, comparing to metals with hard polymer core, glass and sandwich panels.

While thermal insulation coefficient of a typical PP comb structure Honeycomb was 0.07

WmK, thermal conductivity of panels with hard PP cores is approximately 0.02 WmK.

Product type	Aluminium and alloys	Glass	Classical Al composite panel with hard PP/PE core	PP Honeycomb composite panel
Thermal insulation performance	None or very weak	Weak	Good	Perfect



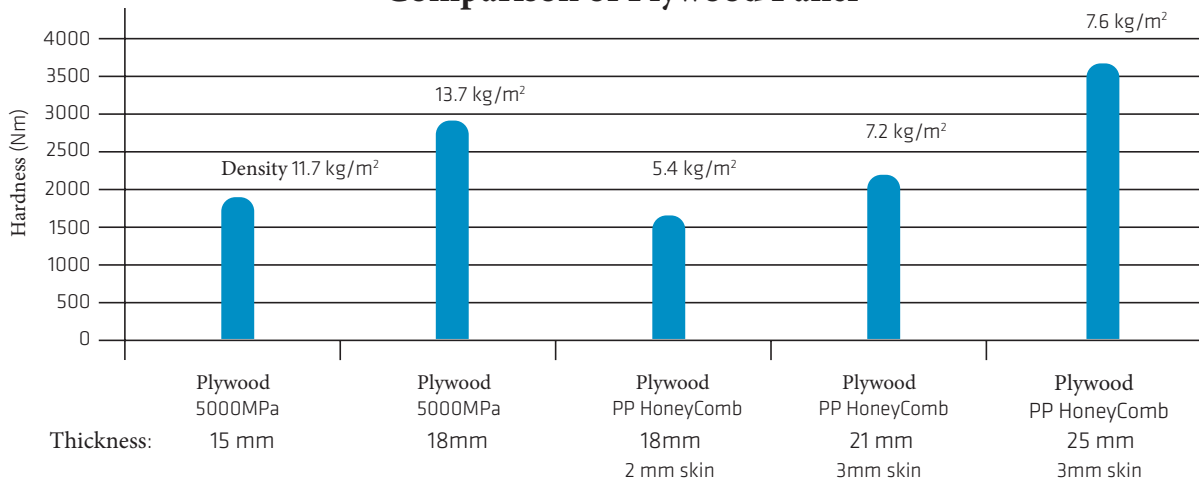
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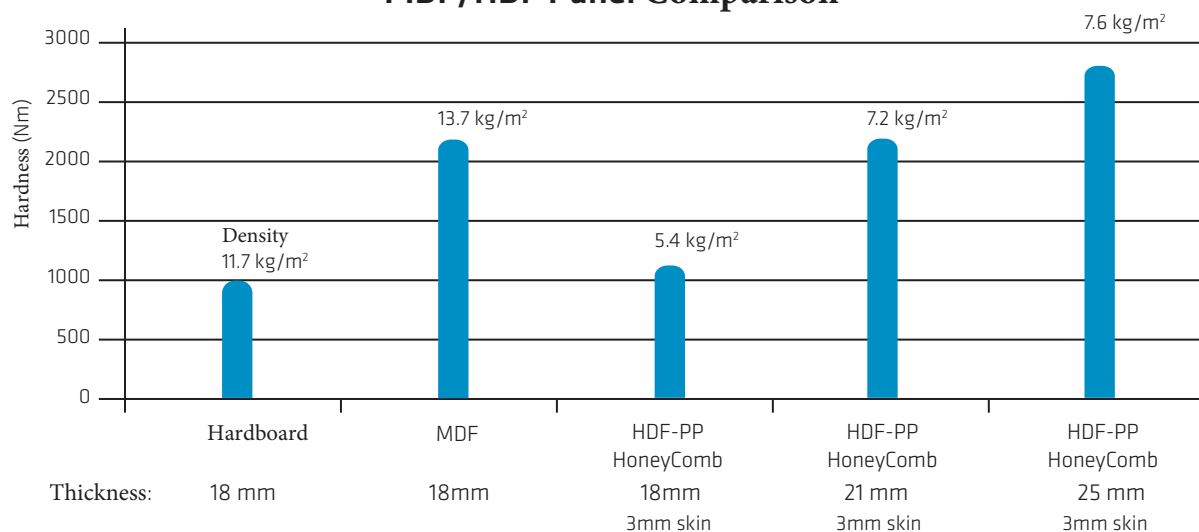
## Comparison of Thermoplastic HoneyComb with other Panels

Hexapan-Corrugated steel plate	Hexapan-Plywood	Hexapan-Fiber Reinforced Polymer
It is light, easy to install	It is light, easy to install	It is light, easy to install
High impact resistance	High impact resistance	High impact resistance
Resistant (with fiberglass)	Robust (with fiberglass)	Waterproof
Thermal insulation, waterproof	Waterproof, high heat resistance	High resistance to delamination
Foods can be carried	Foods can be carried	100% recyclable
Stainless, high corrosion resistance	Eco-friendly 100% recyclable	Easy to repair
Easy to repair	Increases resistance to oil and contamination	Long lifetime
Long lifetime	Easy to repair	
	Long lifetime	

### Comparison of Plywood Panel



### MDF/HDF Panel Comparison



MDF board faced honeycomb tile is very effective in processing industry. When thickness of hardboard means at 18mm, 2mm HDF faced PP Honeycomb shows a bending lesser than half weight.

## HoneyComb Panel Features

### Lightness

- Honeycomb plates consist of two surface plates and a honeycomb shaped core structure.

With low density property of the thermoplastic structure, superiority is provided compared to materials such as metal and ceramic and others



### Recycling

- Panels are 100% recyclable. Our product which is free from additives such as adhesive film, consists of PP and composite folios.



### Impact Resistance

- In room conditions, when 20mm diameter of load is applied, impact resistance is over > 80J and at -20 °C up to 35 J.



### Chemical Resistance

- PP comb structure and composite folio provide superior resistance against chemicals.



### Compressive Strength

- On the short term loadings, it is determined that it has resistance up to 1.6 Mpa of pressure, on 75x75mm area.



### Procedures

- Panels can be formed with chip removal and thermoforming methods. It is suitable especially for riveting, welding and bonding



### Environmental Resistance Factor

- It is proven with tests that surface plates have perfect UV resistance and also show high resistance against chemical, petrol and oil derivatives.

Water absorption of the panel is below 14%.



### Thermal Insulation

- Our panels whose thermal conductivity in room conditions is less than 0.12 W/mK, also can be used for heat insulation purposes.



### Bending Feature

- There is no torsion observed on 8 kg of load which is put along the 600 mm of the bearing support distance of the standard plate in 30mm thickness and 100mm width.



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## Application Areas

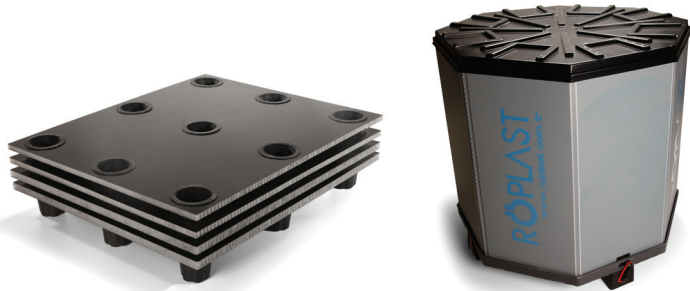
### 01 Pallets and Plastic Container

#### Usage Area

In packaging of all kinds of industrial products

#### Advantages

- Lightness
- High resistance
- Recycling feature
- Resistance against moisture and chemicals



### 02 Automotive

#### Usage Area

Load-bearing floors, side panels, baggage pool, the internal components

#### Advantages

- Lightness
- High Resistance
- Moisture resistance
- Easy to form



### 03 Light commercial vehicle

#### Usage Area

Commercial vehicle trailer

#### Advantages

- Lightness
- Compressive strength to the load
- Energy absorption
- Easy to install and use
- Recycling feature



### 04 Yachting

#### Usage Area

Body, division, deck, basic construction, interior design

#### Advantages

- Lightness
- Energy-saving
- Shock absorption
- Corrosion resistance
- Sound insulation





## 05 *High-Speed Train*

### Usage Area

Floor, side and roof coverings

### Advantages

- High Strength
- Excellent Sound Resistance
- Shock resistance
- Moisture resistance



## 06 *Wind Energy*

### Usage Area

Each surface of the tank, the outer composite structure, the top, base and side portions

### Advantages

- Sound insulation
- Shock resistance
- Water resistance, humidity resistance
- Long-lasting
- UV-resistant



## 07 *Solar Panels*

### Usage Areas

Supporting division of solar panels

### Advantages

- UV resistance,
- Lightness
- Moisture resistance
- High strength



## 08 *Household Appliances*

### Usage Area

Upper and divisive trays

### Advantages

- High strength
- Moisture resistance
- Lightness
- With other mounting components  
ultrasonic welding possibility



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## 09 Prefabricated House

### Usage Area

Wall panels, floor panels,  
kitchen, partitions

### Advantages

- Easy installation and removal
- Reusability
- Water and moisture resistance
- Excellent sound resistance
- Excellent dimensional stability
- Strong shock resistance
- Thermal insulation



## 10 Construction

### Usage Area

Formwork and support parts

### Advantages

- Lightness
- Moisture resistance
- High strength
- Recycling capability
- Reusability



## 11 Granite and Natural Stone Support Panels

### Usage Area

In all kinds of natural stone  
applications

### Advantages

- Lightness
- High strength
- High shock resistance



## 12 Carrying Chests

### Usage Area

In all kinds of carrying chests,  
travel bags and luggages

### Advantages

- Lightness
- Moisture resistance
- High Strength
- Recycling Feature





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