MATRIX
ALUMINIUM HONEYCOMB CORE & AHC CORED BOARDS

WHAT IS HONEYCOMB CORE

Honeycomb cores are used in the fabrication of lightweight structures commonly applied for building exterior walls and various applications in other industry. The core material is typically 'sandwiched' between aluminum or other high strength composite panels. A bonding adhesive is used to adhere the core and panel. The resultant honeycomb panel offers high strength and lightweight.

APPLICATION

• Boats
• Filters
• Furniture
• Air Vents
• Ceiling Panel
• Building Exterior Wall
• Interior Partitions and Panels

ADVANTAGES

• High Thermal Conductivity
• Moisture and Corrosion Resistance
• High Strength
• LightWeight
• Flame Resistance
• Reduce loading of the Building
• Reduce construction Cost
• Easy to install and maintain
• Durability

Sound insulation, heat insulation, heat preservation

As the air layer between both face panels is divided into multiple sealed holes by the honeycomb structure, the diffusion of sound wave and heat is greatly restricted, which allows the material to have excellent heat preservation and sound insulation functions.

Superior-flat and excellent-rigid

Aluminum honeycomb panel is constituted by a number of interactional dense honeycombs that act as numerous mini I beams and can separately bear the face panel pressure, which then enables each part of the panel under even pressure and guarantees its strength and also the flatness when its in a large form.

Moisture resistant

The material does not absorb moisture, and its surface applies filming technology, which enables the color to be durable, and makes it free from mildew and deformation etc. in damp environments.
Eco-friendly

The material does not give off any human body hazardous gases, easy to clean and recycle for reuse.

Rust resistant

According to test, it shows no change after being immersed into 2%HCL for 24 hours, and after being immersed into saturated Ca(CH)2 for 24 hours.

Easy to apply

The are attached aluminum alloyed keels available, which facilitates its fitting and saves labor, it can also be dismantled and moved away for elsewhere application repeat.

3003 Grade Aluminum Honeycomb

3003 commercial grade aluminium honeycomb, used as a core material, allows the bonding of sandwich panels with various facing: metallic, composite, wood or laminates, etc. This structural self-supporting panel is designed to be used in various applications such as building (cladding, partition walls, sunbreakers…), transport as ships or trains (flooring, inside partition, ceiling…), and any applications where lightness are stiffness are required. Large, monolithic and decorative parts are possible.

This hexagonal cell structure finds other applications when used alone, as shock-absorption, air-flow control grid or laser/water jet cutting support table.

This honeycomb is made from treated extra-hard 3003 alloy aluminium foil of 40, 50, 60 or 75 microns thick. The aluminum alloy foil is specially coated in order to get optimum corrosion resistance.

MAIN CHARACTERISTICS

• Better ratios weight / mechanical properties than any other core material
• Thickness regularity
• Wide range of cell sizes
• High resistance to compression and shear
• Excellent ratio price / quality

DIMENSIONS:

• 3 standard dimensions 1200 x 2400, 1250 x 2500 mm and 1500 x 3000 mm
• Other dimensions available according to quantities (economical optimisation)
• Length and width dimensions are guaranteed as the minimum value (-0/+ 50 mm).
• Any thicknesses, from few millimeters up to 960 mm by steps of 0.1mm
• Standards tolerances on thickness are +/- 0.2 mm all over the surface
### PHYSICAL & MECHANICAL PROPERTIES

<table>
<thead>
<tr>
<th>Properties</th>
<th>1/4&quot;</th>
<th>1/2&quot;</th>
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</thead>
<tbody>
<tr>
<td>Density (kg/m³)</td>
<td>80</td>
<td>40</td>
</tr>
<tr>
<td>Compression strength unstabilized (kg/mm²)</td>
<td>0.46</td>
<td>0.23</td>
</tr>
<tr>
<td>Compression strength stabilized (kg/mm²)</td>
<td>0.48</td>
<td>0.24</td>
</tr>
<tr>
<td>Compression module stabilized (kg/mm²)</td>
<td>108</td>
<td>52.05</td>
</tr>
<tr>
<td>Crush strength (kg/mm²)</td>
<td>0.18</td>
<td>0.0493</td>
</tr>
<tr>
<td>Plate shear strength L-Direction(kg/mm²)</td>
<td>0.25</td>
<td>0.094</td>
</tr>
<tr>
<td>Plate shear modulus L-Direction(kg/mm²)</td>
<td>0.05</td>
<td>0.0198</td>
</tr>
<tr>
<td>Plate shear strength W-Direction(kg/mm²)</td>
<td>0.15</td>
<td>0.0488</td>
</tr>
<tr>
<td>Plate shear modulus W-Direction(kg/mm²)</td>
<td>0.027</td>
<td>0.013</td>
</tr>
<tr>
<td>Bonding strength between foil (kg/mm²)</td>
<td>35</td>
<td>30</td>
</tr>
<tr>
<td>Flammability(kg/mm²)</td>
<td>Non Combustible</td>
<td>Non Combustible</td>
</tr>
</tbody>
</table>

**Designation Thickness Compression Shear (cisaillement) Compression :**

<table>
<thead>
<tr>
<th>Cell size</th>
<th>Density (kg / m³)</th>
<th>Foil (μ / microns)</th>
<th>Stabilized After crush (Mpa) L (Mpa) W (Mpa) (Mpa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 ¼</td>
<td>57</td>
<td>50</td>
<td>2.3 1.20</td>
</tr>
<tr>
<td>9 3/8</td>
<td>38</td>
<td>50</td>
<td>1.3 1.10 0.70 0.60</td>
</tr>
<tr>
<td>12 ½</td>
<td>28</td>
<td>50</td>
<td>0.8 0.50 0.40 0.35 0.15</td>
</tr>
<tr>
<td>19 ¼</td>
<td>19</td>
<td>50</td>
<td>0.4 0.40 0.30 0.15</td>
</tr>
</tbody>
</table>

Reminder : 1 MPa = 10 bars = 10 kg/cm² (for instance 3.4 MPa = 34 bars)

When ordering, please specify the following parameters:

- **Designation** : name, cell size/density
- **Format** : length (L) x width (W) x thickness (T) in mm
- **State** : micro-perforated (P) or non micro-perforated (NP)