Aerospace

Honeycomb Core for Commercial and Military Aircraft, Space and Defense Applications
Plascore Honeycomb Core

For Commercial, Defense and Space Applications

Plascore is a global manufacturer in advanced honeycomb core. Plascore honeycomb core is used in a wide range of applications, wherever high strength-to-weight, dampening and dimensional accuracy are critical characteristics.

In commercial and defense aerospace industries, Plascore Aluminum, Nomex® and Kevlar® honeycomb meet manufacturers’ specifications for use throughout structures, control surfaces and interior components. Plascore’s breathable metallic core is ideal for satellite structures.

Our reputation and presence in the global aerospace industry is evident in lasting and dedicated relationships with numerous customers worldwide.

Plascore Honeycomb Core is:

• High Strength
• Light Weight
• Flame Resistant
• Cost Effective
• Moisture & Corrosion Resistant
• Suitable for Custom/Machined Shapes

With value-added capabilities and modern manufacturing facilities in the US and Europe, Plascore supports aerospace engineering and assembly plants throughout the world.

Make your composite structures lighter, stiffer and stronger… Build with Plascore.
Interior Surfaces

Galleys and Lavatories

Overhead Stowage

Radomes

Thrust Reversers

Engine Nacelles

Energy Absorbing Tail Skids

Floor Panels

Fairings

Partition Walls

Ailerons

Energy Absorbing Tail Skids

Flaps

Spoilers

Slats

Partition Walls

Ailerons

Energy Absorbing Tail Skids

Flaps

Spoilers

Slats
Full Line of Honeycomb Core
Cell Size, Density and Material to Aerospace Specifications

PN2 Aerospace Grade Aramid Fiber Honeycomb
PN2 aerospace grade aramid fiber honeycomb exhibits outstanding flammability properties. It is manufactured from DuPont Nomex® paper (or equivalent) and coated with a heat resistant phenolic resin.

- High strength to weight ratio
- Fire resistant (self extinguishing)
- Corrosion resistant
- Excellent dielectric properties
- Thermally insulating
- High toughness
- Excellent creep and fatigue performance
- Good thermal stability
- Over expanded cell configuration suitable for forming simple curves
- Compatible with most adhesives used in sandwich composites

PK2 Kevlar® N636 Para-Aramid Fiber Honeycomb
PK2 Kevlar® N636 para-aramid fiber honeycomb is an extremely lightweight, high strength, non-metallic honeycomb manufactured with para-aramid fiber paper (DuPont Kevlar® N636 or equivalent) coated with a heat resistant phenolic resin. This core material exhibits improved performance characteristics over Nomex® in the areas of weight, strength, stiffness and fatigue.

- Up to 40% higher properties than comparable density Nomex® honeycomb
- Improved shear strength and modulus
- Extremely high strength to weight ratio
- Excellent thermal and moisture stability
- Conforms to stringent smoke, toxicity and flammability standards

PAMG 5052 Aluminum Honeycomb
PAMG 5052 aerospace grade aluminum honeycomb is a lightweight core material which offers superior strength over commercial grade aluminum honeycomb. PAMG 5052 honeycomb is made from 5052 aluminum alloy foil and meets all the requirements of AMS(MIL)-C-7438. PAMG 5052 honeycomb is available with Plascore’s organo-metallic XR1 coating or phosphoric acid anodized PA3 coating.

- Available with XR1 or PA3 coating
- High strength to weight ratio
- Elevated use temperatures
- High thermal conductivity
- Excellent moisture and corrosion resistance
- Flame resistant
- Fungi resistant

PAMG 5056 Aluminum Honeycomb
PAMG 5056 aerospace grade aluminum honeycomb is a lightweight core material which offers superior strength over 5052 and commercial grade aluminum honeycomb. PAMG 5056 honeycomb is made from 5056 aluminum alloy foil and meets all the requirements of AMS(MIL)-C-7438. PAMG 5052 honeycomb is available with Plascore’s organo-metallic XR1 coating or phosphoric acid anodized PA3 coating.

- Available with XR1 or PA3 coating
- High strength to weight ratio
- Elevated use temperatures
- High thermal conductivity
- Excellent moisture and corrosion resistance
- Flame resistant
- Fungi resistant
### PN2 Typical Mechanical Properties

<table>
<thead>
<tr>
<th>PLASCORE® Honeycomb Designation</th>
<th>DENSITY</th>
<th>COMPRESSION (BARE) STRENGTH</th>
<th>PLATE SHEAR &quot;L&quot; DIRECTION</th>
<th>PLATE SHEAR &quot;W&quot; DIRECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lb/ft³</td>
<td>kg/m³</td>
<td>psi</td>
<td>MPa</td>
</tr>
<tr>
<td>PN2-1/8-1.8-2.5</td>
<td>2.5</td>
<td>40.0</td>
<td>225</td>
<td>1.55</td>
</tr>
<tr>
<td>PN2-1/8-3.0</td>
<td>3.0</td>
<td>48.1</td>
<td>315</td>
<td>2.17</td>
</tr>
<tr>
<td>PN2-1/8-4.0</td>
<td>4.0</td>
<td>64.1</td>
<td>515</td>
<td>3.55</td>
</tr>
<tr>
<td>PN2-3/16-3.0</td>
<td>3.0</td>
<td>48.1</td>
<td>315</td>
<td>2.17</td>
</tr>
<tr>
<td>PN2-3/16-3.0-OV</td>
<td>3.0</td>
<td>48.1</td>
<td>315</td>
<td>2.17</td>
</tr>
</tbody>
</table>

### PK2 Typical Mechanical Properties

<table>
<thead>
<tr>
<th>PLASCORE® Honeycomb Designation</th>
<th>DENSITY</th>
<th>COMPRESSION (BARE) STRENGTH</th>
<th>PLATE SHEAR &quot;L&quot; DIRECTION</th>
<th>PLATE SHEAR &quot;W&quot; DIRECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lb/ft³</td>
<td>kg/m³</td>
<td>psi</td>
<td>MPa</td>
</tr>
<tr>
<td>PK2-1/8-2.5</td>
<td>2.5</td>
<td>40.0</td>
<td>225</td>
<td>1.55</td>
</tr>
<tr>
<td>PK2-1/8-3.0</td>
<td>3.0</td>
<td>48.1</td>
<td>315</td>
<td>2.17</td>
</tr>
</tbody>
</table>

### PAMG 5052 Typical Mechanical Properties

<table>
<thead>
<tr>
<th>PLASCORE® HONEYCOMB DESIGNATION</th>
<th>COMPRESSION (BARE)</th>
<th>PLATE SHEAR &quot;W&quot; DIRECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CELL SIZE (IN)</td>
<td>FOIL GAUGE (IN)</td>
<td>NOMINAL DENSITY (PCF)</td>
</tr>
<tr>
<td>1/8</td>
<td>.0007</td>
<td>3.1</td>
</tr>
<tr>
<td>1/8</td>
<td>.001</td>
<td>4.5</td>
</tr>
<tr>
<td>3/16</td>
<td>.002</td>
<td>5.7</td>
</tr>
<tr>
<td>1/4</td>
<td>.0015</td>
<td>3.4</td>
</tr>
<tr>
<td>1/4</td>
<td>.002</td>
<td>4.3</td>
</tr>
</tbody>
</table>

### PAMG 5056 Typical Mechanical Properties

<table>
<thead>
<tr>
<th>PLASCORE® HONEYCOMB DESIGNATION</th>
<th>COMPRESSION (BARE)</th>
<th>PLATE SHEAR &quot;W&quot; DIRECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CELL SIZE (IN)</td>
<td>FOIL GAUGE (IN)</td>
<td>NOMINAL DENSITY (PCF)</td>
</tr>
<tr>
<td>1/8</td>
<td>.0007</td>
<td>3.1</td>
</tr>
<tr>
<td>1/8</td>
<td>.001</td>
<td>4.5</td>
</tr>
<tr>
<td>1/8</td>
<td>.0015</td>
<td>6.1</td>
</tr>
<tr>
<td>3/16</td>
<td>.0007</td>
<td>2.0</td>
</tr>
<tr>
<td>3/16</td>
<td>.001</td>
<td>3.1</td>
</tr>
</tbody>
</table>
Manufacturing Competencies

Lean manufacturing principles are employed throughout manufacturing, administration, and validation to reduce lead times while assuring optimum quality.

Plascore capabilities include adhesive development, precision cutting, slotting, chamfering, expanding, and automated assembly. Tight tolerances and unique profiles are achieved through engineering expertise.

Quality Assurance – AS9100 Certified

Plascore is AS9100 registered and has a range of testing capabilities. Our on-site validation lab is experienced in providing timely and accurate first article submissions to aerospace customers.

Mechanical testing confirms cell size, density, compression and shear values are within specification. Certification documents are included upon request for validation and tracking purposes.

Machined Core

Plascore has the in-house capabilities to deliver custom parts to print with the highest level of accountability and quality.

With the addition of a 40,000 ft² building, we can offer 5-axis CNC machining, roll forming, heat forming, splicing, cut to size, high density cores, and more according to your specific honeycomb needs.

Energy Absorption Products

Plascore offers lightweight energy absorbing honeycomb products built to specification. Aluminum honeycomb is an ideal energy absorber for aerospace applications where weight and envelope constraints are critical.
Global Aerospace Presence

Plascore Supports Numerous Customers According to Aerospace Industry Specifications

Aluminum Honeycomb Core
- AAR
- AIDC
- Airbus
- Alliance Space Systems
- Applied Aerospace
- ATK Space Systems
- Bell Helicopter
- Bombardier
- Boeing Satellite Systems
- Kaman Aerospace
- SpaceX
- Teklam
- UTC Aerospace Systems
- Zodiac

Aramid Fiber Honeycomb Core
- AAR
- Airbus
- B/E Aerospace
- Bell Helicopter
- Boeing Helicopter
- Bombardier
- Embraer
- FACC AG
- General Atomics Aeronautical
- Gulfstream
- McDonnell Douglas
- Northrop Grumman
- Thales Alenia
- Zodiac
Honeycomb core is specified as follows:

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Cell Size</th>
<th>Density</th>
<th>Cell Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>PN2</td>
<td>3/16</td>
<td>3.0</td>
<td>OV</td>
</tr>
</tbody>
</table>

- Designates aerospace grade Nomex®
- The nominal density in pounds per cubic foot
- Over expanded cells

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Cell Size</th>
<th>Density</th>
<th>Cell Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>PK2</td>
<td>3/16</td>
<td>3.0</td>
<td>HS</td>
</tr>
</tbody>
</table>

- Designates aerospace grade Kevlar®
- The nominal density in pounds per cubic foot
- Higher shear property configuration

---

**Honeycomb core specifications**

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Corrosion Coating</th>
<th>Density</th>
<th>Cell Size</th>
<th>Perforation</th>
<th>Alloy</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAMG</td>
<td>XR1</td>
<td>3.0</td>
<td>3/8</td>
<td>P</td>
<td>5052</td>
</tr>
</tbody>
</table>

- Designates aerospace grade aluminum
- Nominal density in pounds per cubic foot
- Nominal foil gauge in ten-thousands inch
- Alloy of the foil

- XR1 for XR1 corrosion coating
- PA3 for phosphoric acid anodized coating
- Cell walls perforated (P); not perforated (N)

---

Plascore, Inc., employs a quality management system that is ISO 9001 and ISO 14001 certified.

**IMPORTANT NOTICE**: The information contained in these materials regarding Plascore’s products, processes, or equipment, is intended to be up to date, accurate, and complete. However, Plascore cannot warrant that this is always the case. Accordingly, it is a purchaser’s or user’s responsibility to perform sufficient testing and evaluation to determine the suitability of Plascore’s products for a particular purpose. Information in these materials and product specifications does not constitute an offer to sell. Your submission of an order to Plascore constitutes an offer to purchase which, if accepted by Plascore, shall be subject to Plascore’s terms and conditions of sale. **Plascore MAKES NO WARRANTIES OF ANY KIND REGARDING THESE MATERIALS OR INFORMATION, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.** Plascore owns and shall retain all worldwide rights in its intellectual property, and any other trademarks used in these materials are the property of their respective owners. The information in these materials shall not be construed as an inducement, permission, or recommendation to infringe any patent or other intellectual property rights of any third parties. © 2018 Plascore, Inc. All Rights Reserved. v07.16.19