



HexWeb® Rigicell™

**Corrosion Resistant
Aluminum Corrugated Honeycomb**

Product Data

Description

Corrosion resistant HexWeb® Rigicell™ is manufactured by bonding together corrugated sheets of treated 5052 aluminum. This process allows fabrications of much higher density honeycomb than is possible by the expansion process. The node bond adhesive is a thermosetting type. Slices are cut from the corrugated block to specified thickness, length, and width.

Features

- High-density structural grade honeycomb
- High-compressive, shear and crush strength values
- Easily machined
- Excellent corrosion resistance
- Excellent energy absorption characteristics
- Damage tolerant; exhibits a nonbrittle failure mode
- Excellent for fastener points and closeouts; stronger than potting compounds

Applications

- Hexcel HexWeb® Rigicell™ honeycomb finds numerous uses as an energy absorption medium where large predetermined crush forces are required to decelerate, restrain, and protect moving objects. Crush strokes of up to 65% are obtainable.
- HexWeb® Rigicell™ is used in sandwich structures where high strength and rigidity are required. In addition, it is used as a higher performance alternative to epoxy potting compounds, aluminum extrusion and machined aluminum details in honeycomb structures for fastener inserts, details and closeouts. For the same weight as epoxy potting compounds, HexWeb® Rigicell™ offers higher strength, lower manufacturing costs, better reliability, and higher skin to insert bond strength. HexWeb® Rigicell™ eliminates expensive fit up and edge voids between extrusion and low-density core. For the same strength, HexWeb® Rigicell™ weighs and costs less than machined details with undercuts and lightening holes.
- HexWeb® Rigicell™ plugs are easily bonded in low-density core by wrapping them with a foaming core splice adhesive prior to insertion.

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Type Designation

Hexcel HexWeb® Rigidell™ honeycomb is designated as follows:

Material – Coating – Cell Size – Alloy – Foil Thickness – Density – Configuration

Example:

CR-PAA™ – 1/8 – 2 – .006 – 22.1 – STD

Where:

CR-PAA™ – is phosphoric acid anodized corrosion resistant coating
(**CR III** for CR III corrosion resistant coating;
CRV for CRV corrosion resistant coating)

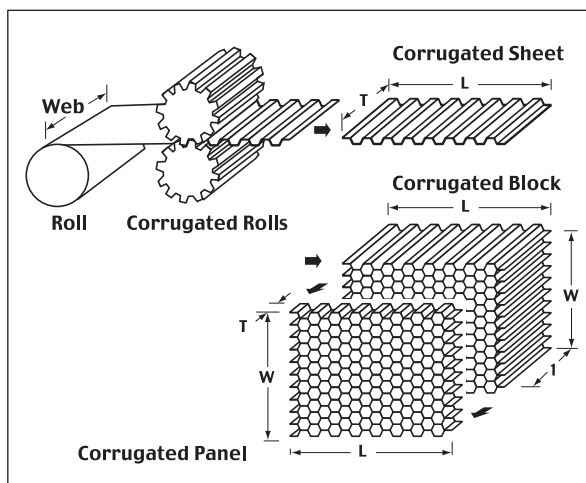
1/8 – is the cell size in inches

2 – is the alloy of aluminum used (2 = 5052; 6 = 5056)

.006 – is the foil thickness in inches

22.1 – is the nominal density in pounds per cubic foot

STD – standard hexagonal cell configuration



Configurations

STD = Standard corrugated core

R1 = Reinforced (interleaf) every other ribbon, non-staggered

R2 = Reinforced (interleaf) every ribbon, non staggered

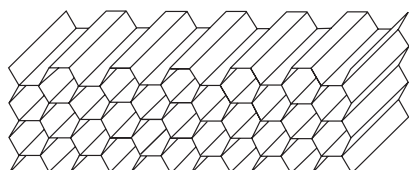
2R2 = Corrugated double lap, reinforced (interleaf) every ribbon, non staggered

R2S = Reinforced (interleaf) every ribbon, staggered

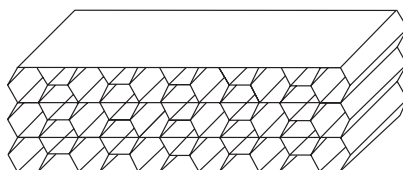
2R2S = Corrugated double lap, reinforced (interleaf) every ribbon staggered

2RSDG = Reinforced (interleaf) every ribbon, staggered, different gauge interleaf every ribbon, staggered gauges of reinforcement layers

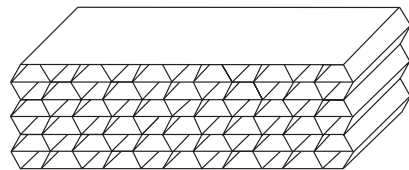
RF = Roll formable



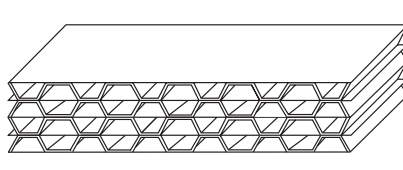
STD



R1



R2



2R2

Coatings

HexWeb® Rigidell™ corrosion resistant aluminum corrugated honeycomb is available with three types of corrosion resistant coating. These coatings are CR III, CRV, and phosphoric acid anodized (CR-PAA™). CR III is an organo-metallic polymer coating that offers protection for aluminum honeycomb exposed to corrosive environments. CR III corrosion resistant treatment meets the requirements of Military Specification MIL-C-7438G. CR-PAA™ offers superior protection in extreme salt spray corrosive environments.

Crush Strengths

Crush strengths other than those listed are possible by altering the aluminum foil gauge and reinforcement layers. Average crush strengths are typically within $\pm 15\%$. Tolerance of $\pm 10\%$ or closer may be specially ordered.

Precrushing

Precrushed HexWeb® Rigicell™ is available for energy absorption applications. Precrushing the honeycomb eliminates the initial peak crush stress by initiating intercellular buckling.

Custom Processing

Hexcel aluminum corrugated honeycomb can be provided machined, formed to various shapes, or with bonded top and bottom plates to meet specific customer specifications. Contact the nearest Hexcel Sales Office for additional information.

Standard, Maximum, and Minimum Block Sizes

The standard HexWeb® Rigicell™ corrosion resistant aluminum corrugated honeycomb block size is:

L 96 in. + 4 in. – 0 in. W 24 in. + 1 in. – 0 in. T 10 in.

The maximum size HexWeb® Rigicell™ corrosion resistant aluminum corrugated honeycomb block sizes that can be built are:

for CR III and CR-PAA™ coatings:

L 140 in. W 38 in. T 12 in.

for CR V:

L 110 in. W 38 in. T 12 in.

The smallest size HexWeb® Rigicell™ corrosion resistant aluminum corrugated honeycomb block that can be built practically is:

L 36 in. W 12 in. T 12 in.

Thickness Tolerances

Tolerances on cut thicknesses are as follows, depending upon sheet thickness:

Sheet Thickness	Standard Tolerance
0.125 in. to 3.999 in.	± 0.010 in.
4.000 in. and over	± 0.062 in.

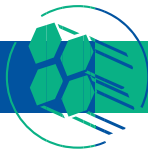
Special thickness tolerances down to ± 0.005 are available on request at a premium.

Density Tolerances

The standard density tolerance from the nominal is $\pm 10\%$.

Availability

HexWeb® Rigicell™ honeycomb will be supplied F.O.B. Casa Grande, Arizona. Lead times vary with the particular core types selected. Please contact the nearest Hexcel Sales Office or Hexcel Customer Service for price and delivery information.



Mechanical Properties

Hexcel Honeycomb Designation Material – Cell Size – Alloy – Foil Gauge (Reinforcement)	Nominal Density pcf	Crush Strength psi	Compressive Strength		Beam Shear Strength	
			Bare psi	Stabilized psi	L Direction psi	W Direction psi
1/8 – 2 – 003 – STD	typ	typ	typ	typ	typ	typ
1/8 – 2 – 0038* – STD	12.0	1450	2300	2400	1950	1500
1/8 – 2 – 006 – STD	14.5	2100	2900	3050	2200	1600
1/8 – 2 – 006 – R2	22.1	4100	5200	5200	3000	2050
1/8 – 2 – 006 – R2	38.0	5650	8500	8700	4300p	2200p
1/8 – 2 – .006 – 2R2	55.0	–	–	13000p	4900p	2610p
3/16 – 2 – .006* – STD	15.7	2100	3200	3300	–	–
3/16 – 2 – .006 – R2S	25.0	2900	5700	5800p	3350p	1700p
1/4 – 2 – .006* – STD	10.5	1350	2100	200	–	–

p = preliminary values that are obtained from testing of only one or two blocks of honeycomb type.

* Minimum block purchase may be required.

Important

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For more information

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- RTM Materials
- Honeycomb Cores
- Continuous Fiber Reinforced Thermoplastics
- Carbon, Glass, Aramid and Hybrid Prepregs
- Structural Film Adhesives
- Honeycomb Sandwich Panels
- Special Process Honeycombs
- Reinforced Fabrics

For US quotes, orders and product information call toll-free 1-800-688-7734. For other worldwide sales office telephone numbers and a full address list please click here: <http://www.hexcel.com/contact/salesoffices>.