



HexWeb® 3003

Commercial grade aluminium honeycomb

Product Data

Description

HexWeb 3003 is a hexagonal cell honeycomb material used principally as a shear carrying core in light weight adhesively bonded sandwich structures, and suitable for a wide range of other applications.

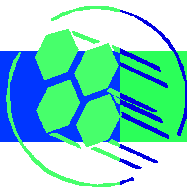
HexWeb 3003 is available in a number of cell sizes and densities allowing versatility in design of sandwich structures with minimum weight but maximum stiffness and buckling resistance.

Key Features

- Good strength and stiffness to weight ratio.
- High fatigue resistance.
- Good vibration damping characteristics.
- Non-combustible.
- Can be machined to complex profiles.
- Exhibits uniform crushing characteristics.
- Compatible with a wide range of skin materials, providing a good bonding surface for Redux® adhesives.

Typical Applications

- In sandwich panels:**
- Building cladding panels
 - Commercial vehicle panels
 - Railway floors, doors, interiors and fairing panels
 - Boat hulls and interior panels and furniture
 - Racing car chassis and body panels
 - Cable car structural panels
- Non-sandwich panel:**
- Energy absorption
 - Flow straighteners for air or fluids
 - Heat exchangers
 - Light collimation



Typical Mechanical Properties

Honeycomb Designation	Stabilised Compression		Plate Shear			
	Strength (MPa)	Modulus (MPa)	Strength "L Direction" (MPa)	Modulus "L Direction" (MPa)	Strength "W Direction" (MPa)	Modulus "W Direction" (MPa)
1.8-3/4-25(3003)	0.90	165	0.65	110	0.40	55
2.3-3/8-15(3003)	1.40	240	0.80	190	0.45	90
2.6-1/2-25(3003)	1.50	275	0.90	220	0.50	100
3.4-1/4-15(3003)	2.50	540	1.40	260	0.85	130
3.7-3/8-25(3003)	2.60	630	1.45	280	0.90	140
5.2-1/4-25(3003)	4.60	1000	2.40	440	1.50	220

Material Properties

Fire Properties

Classified as non-combustible when tested to IMO resolution A.472(XII).

2.3 -3/8-15 (3003) has been classed as 'non-flammable' (incombustible) when tested in accordance with Method 1 of the French Merchant Navy Bill of 19.5.80.

Elevated Temperature Performance

The honeycomb in a sandwich panel will withstand temperatures of up to 200°C although the properties will reduce as the temperature increases.

Machining

HexWeb 3003 honeycomb can be machined to form complex surfaces with the use of high speed routers. Some single curvature contours can be machined on to an un-expanded slice before expansion.

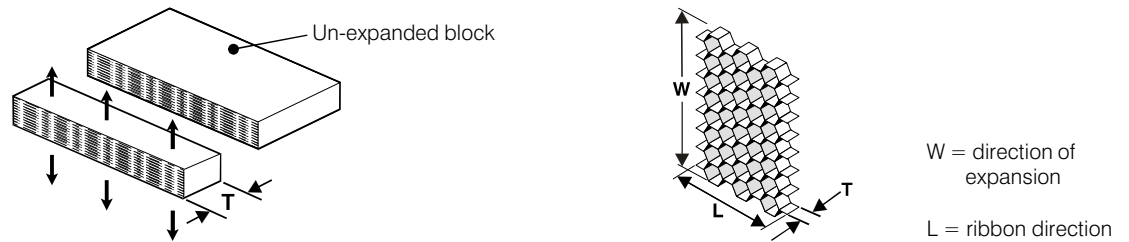
Bonding

Non-volatile adhesives should be used for bonding skins to the honeycomb to prevent possible build up of volatiles during cure. This may be alleviated by using perforated honeycomb.

Material Form

HexWeb 3003 honeycomb is supplied in flat sheets as shown where the length and width are determined by the block dimensions and the slice thickness "T" is cut to customer order.

The material can be supplied expanded or in the un-expanded form for expansion by the customer. In this case, the L and W dimensions given are those in the expanded condition.



Corrosion protection

HexWeb 3003 is normally supplied with a corrosion protection coating. Non-treated foil can be supplied by special order.

Perforating

Perforated foil can be used for the production of 3003 honeycomb. Pin holes in the honeycomb allow gasses to be vented from the cells. Perforated honeycomb is only available to special order.

Typical dimensions and tolerances:

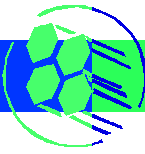
	Length		Width
All 3003 types	1250mm	x	2500mm
	1400mm	x	3000mm
Standard tolerance	-0 /+50		-0 /+50

Thicknesses are available between 3mm and 500mm.

Slice thickness	Tolerance
3mm to 75mm	±0.125mm
75mm +	-0/+2.5mm

Density ± 10% of nominal

Other dimensions and tolerances may be available subject to minimum order limitations or stock availability. Please refer to Hexcel Composites for any non standard requirement.



Ordering

To specify the material you require, the material type and dimensions must be defined, e.g.

Material type: **HexWeb** **5.2-1/4-25P(3003)T-UNX**

5.2 density (lb/ft ³)	1/4 cell size (inches)	25 nominal foil thickness (inches x 10 ⁻⁴)	P specifies perforated foil (optional)	(3003) specifies alloy type	T corrosion protected foil	UNX un-expanded slice
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Dimensions: **1250** **x** **2500** **x** **12.7**

	 L or ribbon dimension		 W or direction of expansion		 Customer specified thickness
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Material can be supplied with a Certificate of Conformity

Handling and Safety Precautions

The usual precautions when handling metallic materials should be observed. The use of clean disposable inert gloves provides protection for the operator and avoids contamination of material and components. Product safety data sheets have been prepared for all Hexcel Composites products and are available to company Safety Officers on request.

Important

All information is believed to be accurate but is given without acceptance of liability. Users should make their own assessment of the suitability of any product for the purposes required. All sales are made subject to our standard terms of sale which include limitations on liability and other important terms.

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