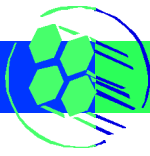
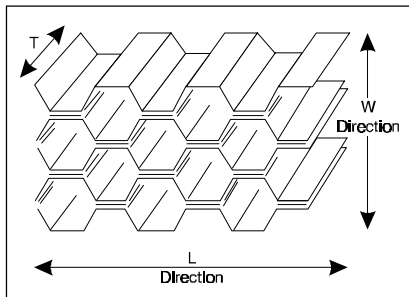




HexWeb™  
Honeycombs  
*Selector Guide*



## Honeycomb Configurations

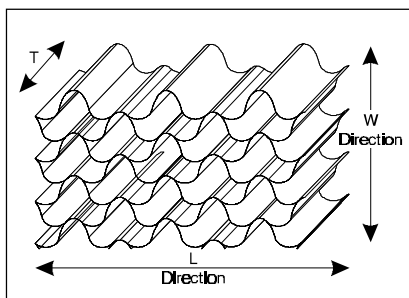
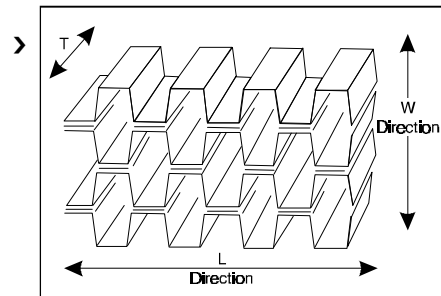


### ◀ Hexagonal Core

The standard hexagonal honeycomb is the basic and most common cellular honeycomb configuration, and is currently available in all metallic and non-metallic materials.

### OX-Core®

The "OX" configuration is a hexagonal honeycomb which has been over-expanded in the "W" direction, providing a rectangular configuration which facilitates curving or forming in the "L" direction. The OX process increases "W" shear properties and decreases "L" shear properties when compared to hexagonal honeycomb.

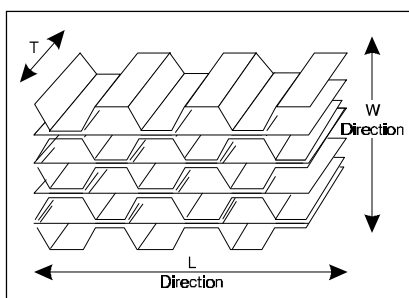
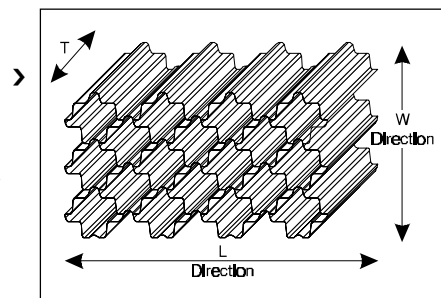


### ◀ Flex-Core®

The Flex-Core cell configuration provides for exceptional formability in compound curvatures without buckling the cell walls. Curvatures of very tight radii are easily formed. When formed into tight radii, Flex-Core seems to provide higher shear strengths than comparable hexagonal core of equivalent density. Flex-Core can be manufactured in most of the materials from which hexagonal is made.

### Double-Flex®

Double-Flex is a unique large cell Flex-Core for excellent formability and high specific compression properties. Double-Flex formability is similar to standard Flex-Core.



### ◀ Reinforced Hexagonal

The Reinforced Hexagonal configuration provides a heavy density aluminium honeycomb suitable for attachment points.

### Other Configurations

The standard honeycomb configurations described above will meet almost all requirements. Hexcel can also design and fabricate special configuration honeycomb in response to specific needs.

## Introduction

Honeycomb is a lightweight core material for structural stiffening applications. This versatile material is widely used in the construction of aircraft components such as floors, interior panelling a helicopter rotor blade aerofoils. Other applications include railway carriage doors and ceiling panels, marine bulkheads and furniture. Honeycomb is also the ideal material for energy absorption (bumpers/fenders, lift shaft bases), for RF shielding and fluid and light directionalisation.

This guide has been compiled to assist with the selection of the best type of honeycomb for a particular application. More detailed information is included in the individual product data sheets.

## METALLIC

ALUMINIUM										
Product type	Strength	Stiffness	Dielectric Performance	Max Service Temp. °C (°F)	Thermal Conductivity/ Characteristics	Product Form	Density Range kg/m <sup>3</sup> (lb/cf)	Recommended For Energy Absorption	Treatment Options	Environmental
CR-PAA/CRIII 5052 Aerospace Grade Aluminium Honeycomb	High	High	Poor	175 (350)	High	Hexagonal cell	16 to 192 (1 to 12)	Yes	Chromated	Good
						OX cell	42 to 169 (2.5 to 10.5)			
						Rigicell	168 to 880 (10.5 to 55)	Yes	CR-PAA treated and primed	Excellent
						Flexcore	34 to 128 (2 to 8)			
						Double-Flex	44 to 77 (3 to 5)			
CR-PAA/CRIII 5056 Aerospace Grade High Performance Aluminium Honeycomb	High	High	Poor	175 (350)	High	Hexagonal cell	16 to 147 (1 to 9)	Yes	Chromated	Good
						Flexcore	34 to 128 (2 to 8)		CR-PAA treated and primed	Excellent
ACG Commercial Grade Aluminium Honeycomb	High	High	Poor	175 (350)	High	Hexagonal cell	29 to 114 (1.8 to 7)	Yes	Non treated	Fair
									Chromated	Good

**NON-METALLIC**

Product type	Strength	Stiffness	Dielectric Performance	Max Service Temp. °C (°F)	Thermal Conductivity/ Characteristics	Product Form	Density Range kg/m <sup>3</sup> (lb/cf)	Environmental Resistance	Cost
* N O M E X *	High	Moderate	Good	175 (350)	Low	Hexagonal cell	24 to 144 (1.5 to 9)	Excellent	Moderate
						OX cell	29 to 64 (1.8 to 4)		
						Flexcore	40 to 88 (2.5 to 55)		
* K O R E X *	High	Moderate	Good	175 (350)	Low	Hexagonal cell	32 to 80 (2 to 5)	Excellent	Moderate
						OX cell	48 to 64 (3 to 4)		
* K E V L A R *	High	High	Good	175 (350)	Low	Hexagonal cell	24 to 144 (1.5 to 9)	Excellent	High
						OX cell	29 to 64 (1.8 to 4)		
* G L A S S *	High	Moderate	Good	175 (350)	Very Low	Hexagonal cell	32 to 144 (2 to 9)	Excellent	Moderate
						OX cell	51 to 112 (3 to 7)		
						Flexcore	40 to 88 (2.5 to 5.5)		
* K O R E X *	High	High	Good	175 (350)	Low	Hexagonal cell	35 to 192 (2 to 12)	Excellent	Moderate
						OX cell	51 to 112 (3 to 7)		
* G L A S S *	High	Very High	Good	175 (350)	Low	Hexagonal cell	32 to 128 (2 to 8)	Excellent	Moderate
						OX cell	96 (4.3)		
* K O R E X *	High	High	Excellent	260 (500)	Low	Standard Hexagonal cell	51 to 128 (3 to 8)	Excellent	High

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**NON-METALLIC**

Product type	Strength	Stiffness	Dielectric Performance	Max Service Temp. °C (°F)	Thermal Conductivity/ Characteristics	Product From	Density Range kg/m <sup>3</sup> (lb/cf)	Environmental Resistance	Cost
<b>CARBON</b>	HFT-G Bias Weave Carbon/Phenolic	Very High	Poor	175 (350)	Medium	Hexagonal cell	64 (4)	Excellent	Very High
	HFT-G-327 Bias Weave Carbon/Polyimide	Very High	Poor	260 (500)	Medium	Hexagonal cell	32 to 160 (2 to 10)	Excellent	Very High
						Reinforced Hexagonal cell	320 (20)		
HRH-90 Carbon/Epoxy	High	High	Poor	175 (350)	Low Coefficient of Thermal Expansion	Hexagonal Cell	32 to 40 (2 to 2.5)	Excellent	Very High



## HexWeb™ Honeycomb Selector Guide

### 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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Hexcel Composites is a leading worldwide supplier of composite materials to aerospace and other demanding industries. Our comprehensive product range includes:

- Carbon, glass, aramid and hybrid prepregs
- Honeycomb cores
- Structural film adhesives
- Honeycomb sandwich panels
- Special process honeycombs
- RTM materials

For further information, please contact your nearest **Hexcel Composites** sales office or visit our website at [www.hexcel.com](http://www.hexcel.com).

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