



# HexWeb® HRH-49

## Honeycomb of KEVLAR® 49

### Product Data

#### Description

HexWeb® HRH-49 is manufactured from KEVLAR® 49 fabric. A thermosetting adhesive is used for the node bonds and a 350°F cure modified epoxy resin is applied for initial and final impregnations. The standard cell size is 1/4 inch. Standard products are listed under Mechanical Properties. Other cell sizes and densities are available upon request. Due to the low resin content of HexWeb® HRH-49, core movement may occur during handling and part curing if proper restraining techniques are not employed.

#### Features

- Lightweight
- Excellent thermal stability
- Very low coefficient of thermal expansion
- Good flatwise tensile strength
- Excellent dielectric properties

#### Applications

HexWeb® HRH-49 has been developed by Hexcel for use as a sandwich core material in radomes and antennas. When used with KEVLAR® 49 or graphite facings, the HexWeb® HRH-49 sandwich has been considered to have good thermal stability when exposed to cyclic heat exposures such as encountered in space applications.

#### Type Designation

Hexcel's honeycomb of KEVLAR® 49 is designated as follows:

Material – Cell Size – Density

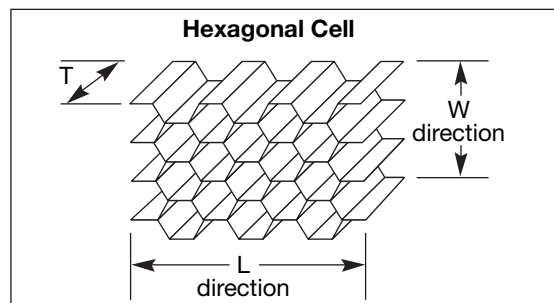
Example: HexWeb® HRH-49 – 1/4 – 2.1

Where:

- |                       |   |
|-----------------------|---|
| <b>HexWeb® HRH-49</b> | – designates honeycomb type                       |
| <b>1/4</b>            | – is the cell size in inches                      |
| <b>2.1</b>            | – is the nominal density in pounds per cubic foot |

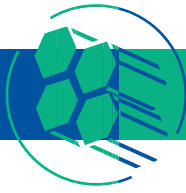
#### Dimensional Nomenclature

- T** = Thickness, or cell depth
- L** = Ribbon direction, or longitudinal direction
- W** = Long direction, or direction perpendicular to the ribbon



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## **Availability**

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HexWeb® HRH-49 will be shipped F.O.B. Casa Grande, Arizona. Contact your nearest Hexcel Sales Office for delivery information.

## **Specifications**

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**General** – HexWeb® HRH-49 will be supplied in flat expanded sheets ready for bonding. Sheets may be supplied as standard size panels, cut to specific plan forms, or heat formed to contours as specified by the purchase order.

**Configuration** – The average cell size as measured across the flats (nodes) of cells will be  $\pm 10\%$  of the nominal. Cell determination will be made by measuring the length of 10 consecutive cells in 6 random locations and averaging the results. Double laps will be permitted as long as the core blankets are within density tolerance. Unbonded nodes will be permitted as long as the core blankets are within density tolerance. Unbonded nodes will be permitted to the extent that no opening larger than three times the nominal cell size is created and the minimum mechanical properties are obtainable.

**Density** – The acceptable tolerance on density will be  $\pm 10\%$ .

**Standard Dimensions** – HexWeb® HRH-49 is available in the following standard dimensions and tolerances:

L dimension      30 in.  $\pm 2$  in.

W dimension      36 in.  $\pm 2$  in.

T dimension      0.125 in. minimum to 2 in. maximum  $\pm 0.006$  in.

Other L, W, and T dimensions are available per special request.

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**Mechanical Properties** – The table below lists the HexWeb® HRH-49 product line and mechanical properties when tested per MIL-STD-401B using 0.500 inch core thickness. The typical values represent the mean average of a relatively large number of test values obtained from many blocks of honeycomb. Minimum properties are guaranteed minimum values of honeycomb when tested at ambient conditions per MIL-STD-401B.

### Mechanical Properties of HexWeb® HRH-49 at Room Temperature

Hexcel Honeycomb Designation Material – Cell – Density	Compressive		Plate Shear						
	Stabilized		L Direction			W Direction			
	Strength psi	Modulus ksi	Strength psi	Modulus ksi	Strength psi	Modulus ksi			
HRH-49 – 1/4 – 2.1	typ 130	min 100	typ 25	typ 85	min 50	typ 2.7	typ 40	min 30	typ 1.3



## **Important**

Hexcel Corporation believes, in good faith, that the technical data and other information provided herein is materially accurate as of the date this document is prepared. Hexcel reserves the right to modify such information at any time. The performance values in this data sheet are considered representative but do not and should not constitute specification minima. The only obligations of Hexcel, including warranties, if any, will be set forth in a contract signed by Hexcel or in Hexcel's then current standard Terms and Conditions of Sale as set forth on the back of Hexcel's Order Acknowledgement.

## **For more information**

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

- Carbon Fiber
- 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>.