



HexWeb® Fibertruss® HFT®

Fiberglass/Phenolic Honeycomb

Product Data

Description

HexWeb® HFT® is a fiberglass ± 45 degree Fibertruss® bias weave reinforced/phenolic honeycomb. This bias weave construction enhances the shear modulus properties of the honeycomb core. The shear modulus for HexWeb® Fibertruss® HFT® is about twice that of HRP® (honeycomb made of straight weave fiberglass) and three times that of HRH®-10 (honeycomb made from NOMEX®). This makes HexWeb® Fibertruss® HFT® honeycomb ideal for applications where minimum deflections are required. There is little change in flatwise compression properties due to the bias of the glass.

HexWeb® Fibertruss® HFT® has improved damage resistance and handling since the 45 degree angle of the fiber at the cell wall corners allows greater flexibility. This increased flexibility allows the HexWeb® Fibertruss® HFT® to be formed more easily than straight weave honeycombs, resulting in reduced shop losses and simplified fit up of parts during assembly.

HexWeb® Fibertruss® HFT® has improved node bond strength and flexibility that makes it possible to offer a 1/8-inch cell fiberglass reinforced honeycomb. This, together with the higher shear properties, makes HexWeb® Fibertruss® HFT® an excellent core for use with high modulus graphite or other composite facing materials. The potential problem of galvanic corrosion with untreated aluminum honeycomb is eliminated, and the small cell size provides uniform support and bonding area for such facings.

Features

- High shear properties, due to the ± 45 degree fiber orientation
- Small cell size, 1/8 inch minimum hexagonal
- Improved flexibility; damage resistance, and handling characteristics over conventional 0/90 degree fiber construction
- High strength retention at temperatures up to 350°F
- Low moisture pickup
- Low smoke emission

Applications

HexWeb® Fibertruss® HFT® is ideally suited for use in structural panels where superior nonmetallic core shear properties and/or minimum deflections are required. Typical applications are airfoil, control surfaces, fairings, engine nacelles, bulkheads, helicopter rotor blades, and equipment trays for motion-sensitive block boxes. HexWeb® Fibertruss® HFT® has also been designed into radomes because of its small cell size, dielectric transparency, and ease of handling.

HexWeb® Fibertruss® HFT® honeycomb is designated as follows:

Where:

Material – Cell Size – Density

Example– HFT – 1/8 – 4.0

HFT – designates bias weave fiberglass phenolic honeycomb

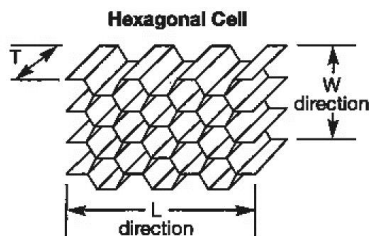
1/8 – is the cell size inches

4.0 – is the nominal density in pounds per cubic foot



Dimensional Nomenclature

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



Images for explanation only and do not represent actual appearance.

Standard Dimensions

HexWeb® Fibertruss® HFT® is currently made in standard panel sizes as shown below. For other thickness dimensions or requirements involving larger panels, pieces cut-to-size or formed parts, contact the nearest Hexcel Sales Office.

	L	W	T Min
HFT Hexagonal	40 in. \pm 1 in.	90 in. \pm 3 in.	0.125 in.

Thickness Tolerance

Tolerances on cut thickness are as follows:

0.125 in. to 2.000 in. tolerance will be \pm 0.006 in.

2.001 in. to 3.000 in. tolerance will be \pm 0.010 in.

3.001 in. and over tolerance will be \pm 0.062 in.

Availability

HexWeb® Fibertruss® HFT® is supplied as follows:

SHIPPING TERMS: FCA Hexcel, Casa Grande, AZ, USA (Incoterms 2010)

MATERIAL TITLE TRANSFER: Hexcel, Casa Grande, AZ, USA

Lead times will vary with the particular core type selected.

The information in this Data Sheet is subject to change without notice.

Contact your nearest Hexcel Sales Office for delivery information.

**Mechanical Properties**

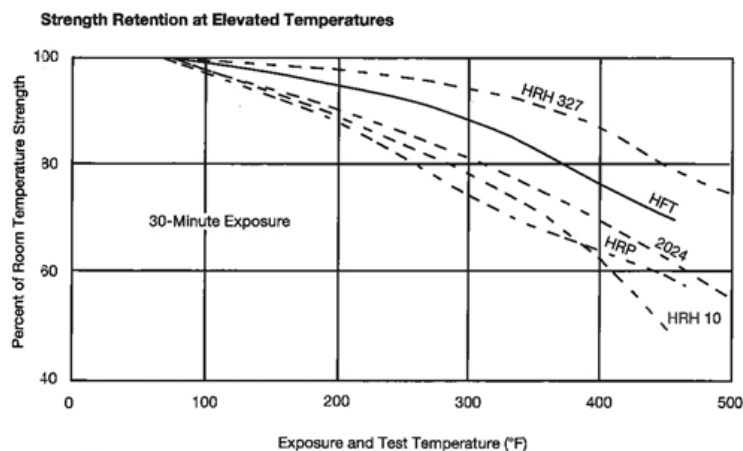
The following mechanical properties are based on testing of products per AMS-STD-401 at 0.500 inch thickness.

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
	typ	min	typ	typ	min	typ	typ	min	typ
HFT – 1/8 – 3.0	350	270	23.0	195	150	19.0	95	75	7.5
HFT – 1/8 – 4.0	560	420	46.0	315	240	25.0	150	120	12.0
HFT – 1/8 – 5.5	900	700	69.0	525	410	40.0	250	190	16.0
HFT – 1/8 – 8.0	1750	1500	100.0	675	525	45.0	480	400	21.5
HFT – 3/16 – 2.0	170	130	17.0	115	90	15.0	60	50	5.0
HFT – 3/16 – 3.0	365	275	34.0	200	155	19.0	100	80	9.0
HFT – 3/16 – 4.0	550	460	44.0	340	270	25.0	190	140	12.0
HFT – 3/8 – 4.0	500	400	–	380	290	27.0	195	140	13.0

Other cell sizes, densities, and dimensions may be available on special request. Please contact your nearest Hexcel Sales Office for additional information. One block minimum buy may apply.

Elevated Temperatures

A limited amount of testing at temperatures up to 450°F have shown the shear strength retention of HexWeb® Fibertruss® HFT® to be very good. The ±45 degree fiber orientation helps to maintain good shear properties since the fiberglass is affected less than the resin system. Since the data is limited, it is suggested that the curve below is used as a guide only. Additional testing should be performed if certain properties are required.





Moisture Pickup

Samples of HexWeb® Fibertruss® HFT®, HRP®, and HRH-10® were exposed to 95% relative humidity at 120°F for 120 hours to determine the moisture pickup. Three specimens each 5 in. L x 6 in. W x 0.50 in. T were first dried for one hour at 200°F, weighed, exposed to 95% R.H. and weighed again. The following percent moisture pickup was measured:

Product	Pickup
HFT – 1/8 – 4.0	1.3%
HFT – 3/16 – 4.0	1.6%
HRP – 3/16 – 4.0	1.7%
HRH-10 – 3/16 – 4.0	4.4%

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:

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|---|---------------------------------------|
| ▪ Carbon Fiber | ▪ Engineered Core |
| ▪ Reinforced Fabrics | ▪ HexTOOL® composite tooling material |
| ▪ Carbon, Glass, Aramid and Hybrid Prepregs | ▪ Structural Film Adhesives |
| ▪ RTM Materials | ▪ Honeycomb Cores |

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>.