

Gillcore™HD NOMEX® ARAMID HONEYCOMB

Description Gillcore™HD is a Nomex® Aramid fiber reinforced honeycomb which is coated with heat resistant phenolic resin.

Gillcore™HD provides a wide range of honeycomb types including: different cell sizes, cell geometries, paper thicknesses and densities, for commercial and aerospace defense applications.

Applications: Interior aircraft panels including flooring, sidewalls, ceilings, galleys and lavatories. Exterior aircraft panels including trailing and leading edges, flaps, ailerons, radomes, fairings, helicopter blades, access panels and doors. Sports and leisure industry such as surfboards, pleasure boats, skis and auto racing bodies. Ceilings, walls and floors of portable structures. Dividing berthing areas, staterooms and hulls for marine applications.

Features:

- High strength to weight ratio
- High toughness
- Corrosion resistant
- Good fatigue and impact resistance
- Fire resistant (self-extinguishing)
- Excellent dielectric properties
- Good thermal stability
- Good formability for curve forming
- Good thermal and electrical insulating properties

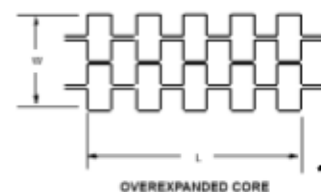
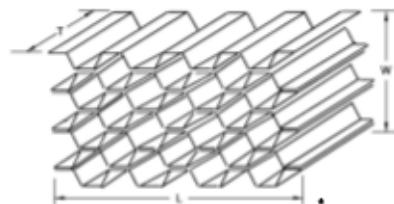
Hexagonal Shaped Core

L = Ribbon Dimension

W = Dimension normal to ribbon

T = Thickness dimension

* Per BMS 8-124



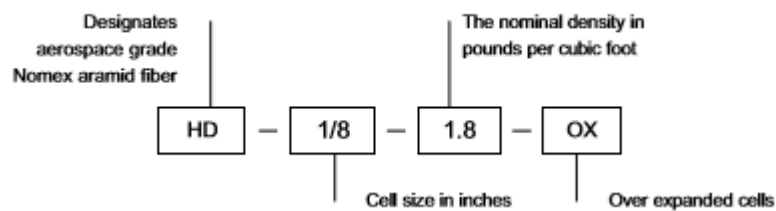
Construction:

Reinforcement: Meta-Aramid Nomex®paper

Resin: Phenolic

Specifications:

- Qualified to FMS 1030
- Qualified to Boeing BMS 8-124 Cl IV
- Qualified to McDonnell Douglas DMS 1974 Gr A
- Qualified to Lockheed STM 28-105
- Qualified to Lockheed LCM 28-1041
- Qualified to Northrop Grumman GC101
- Qualified to Vought 10425.1957
- Qualified to Cessna CMNP083, Ty II, Cl 4, Gr 1.8, 3.0, 6.0
- Qualified to AMS 3711, Aerospace Material Standards
- Qualified to Bell Helicopter (Textron) 299-947-103
- Qualified to Raytheon/Beech - BS 23732
- Qualified to AIM Aviation AIM-M-1013, AIMS 11-01-001
- Meets the requirements of AMS-C-91986
- Meets the requirements of Rockwell LB0130-022
- Qualified to Airbus AIMS 11-01-001/ABS5035
- Qualified to Lockheed C28-105
- Qualified to Lockheed-Georgia STM 28-105. [1/8 - 1.8 (1.5) and 1/8 - 3.0
- DHMS P1.26 DeHavilland



The following tests are run in accordance with BMS 8-124 requirements.

Gillcore™ HD Honeycomb Description	Gillcore™ HD Honeycomb Configuration	Compressive				Plate Shear					
		Bare		Stabilized		L Direction			W Direction		
		Strength		Strength		Strength		Modulus	Strength		Modulus
		TYP	MIN	TYP	MIN	TYP	MIN	TYP	TYP	MIN	TYP
		psi	psi	psi	psi	psi	psi	ksi	psi	psi	ksi
HD-1/8-1.8	HD111	107	93	114	96	99	82	5.28	51	44	2.37
HD-1/8-3.0	HD132	309	263	329	288	224	192	7.26	109	93	3.97
HD-1/8-4.0	HD142	554	460	595	514	277	238	9.04	153	129	5.15
HD-1/8-5.0	HD153	715	606	773	681	415	364	11.79	231	202	6.48
HD-1/8-6.0	HD163	1,074	963	1,187	1,016	466	438	14.35	287	257	7.76
HD-1/8-8.0	HD183	1,722	1,435	1,835	1,644	548	488	18.61	398	347	10.37
HD-1/8-9.0	HD193	1,934	1,737	2,133	1,901	564	529	20.51	422	380	12.08
HD-3/16-2.0	HD322	127	104	138	108	126	102	5.29	62	50	2.74
HD-3/16-3.0	HD332	303	237	365	304	209	185	7.22	111	93	4.45
HD-3/16-4.0	HD343	521	449	573	523	331	303	10.18	178	154	5.16
HD-1/4-1.5	HD412	81	73	87	78	96	81	4.37	52	44	2.81
HD-1/4-3.0	HD433	302	261	323	279	236	206	7.47	128	103	4.24
HD-3/8-3.0	HD533	277	240	328	305	223	200	7.37	134	114	4.77
HD-3/16-1.8-OX	HD312O	107	86	160	142	59	54	2.11	61	53	3.74
HD-3/16-3.0-OX	HD332O	323	253	365	289	128	112	3.30	146	130	6.84
HD-3/16-4.0-OX	HD342O	552	424	607	484	190	180	4.60	271	256	9.40

Gillcore™ HD Honeycomb Description	Gillcore™ HD Honeycomb Configuration	Cell Size	Density	Compressive				Plate Shear					
				Bare		Stabilized		L Direction			W Direction		
				Strength		Strength		Strength		Modulus	Strength		Modulus
				TYP	MIN	TYP	MIN	TYP	MIN	TYP	TYP	MIN	TYP
				Mpa	Mpa	Mpa	Mpa	Mpa	Mpa	Gpa	Mpa	Mpa	Gpa
HD-1/8-1.8	HD111	3.2	29	0.74	0.64	0.79	0.66	0.68	0.56	0.036	0.35	0.30	0.016
HD-1/8-3.0	HD132	3.2	48	2.13	1.81	2.27	1.98	1.54	1.32	0.050	0.75	0.64	0.027
HD-1/8-4.0	HD142	3.2	64	3.82	3.17	4.10	3.54	1.91	1.64	0.062	1.05	0.89	0.035
HD-1/8-5.0	HD153	3.2	80	4.93	4.18	5.33	4.69	2.86	2.51	0.081	1.59	1.39	0.045
HD-1/8-6.0	HD163	3.2	96	7.40	6.64	8.18	7.00	3.21	3.02	0.099	1.98	1.77	0.053
HD-1/8-8.0	HD183	3.2	128	11.86	9.89	12.64	11.33	3.78	3.36	0.128	2.74	2.39	0.071
HD-1/8-9.0	HD193	3.2	144	13.33	11.97	14.70	13.10	3.89	3.64	0.141	2.91	2.62	0.083
HD-3/16-2.0	HD322	4.8	32	0.88	0.72	0.95	0.74	0.87	0.70	0.036	0.43	0.34	0.019
HD-3/16-3.0	HD332	4.8	48	2.09	1.63	2.51	2.09	1.44	1.27	0.050	0.76	0.64	0.031
HD-3/16-4.0	HD342	4.8	64	3.59	3.09	3.95	3.60	2.28	2.09	0.070	1.23	1.06	0.036
HD-1/4-1.5	HD412	6.4	24	0.56	0.5	0.60	0.54	0.66	0.56	0.030	0.36	0.30	0.019
HD-1/4-3.0	HD433	6.4	48	2.08	1.08	2.23	1.92	1.63	1.42	0.051	0.88	0.71	0.029
HD-3/8-3.0	HD533	9.5	48	1.91	1.65	2.26	2.10	1.54	1.38	0.051	0.92	0.79	0.033
HD-3/16-1.8-OX	HD312O	4.8	29	0.74	0.59	1.10	0.98	0.41	0.37	0.015	0.42	0.37	0.026
HD-3/16-3.0-OX	HD332O	4.8	48	2.23	1.74	2.51	1.99	0.88	0.77	0.023	1.01	0.90	0.047
HD-3/16-4.0-OX	HD342O	4.8	64	3.80	2.92	4.18	3.33	1.31	1.24	0.032	1.87	1.76	0.065

Flammability: Gillcore™ HD honeycomb meets the flammability requirements of BMS 8-124.

Water migration: Gillcore™ HD honeycomb does not exceed 1 cell migration in 24 hours when tested per BMS 8-124.

Gillcore™HK ARAMID HONEYCOMB

Description: Gillcore™HK is a Kelvar®aramid fiber reinforced honeycomb which is coated with heat resistant phenolic resin.

Kevlar®honeycomb cores exhibit enhanced performance characteristics over Nomex®honeycomb core in the areas of weight, strength, stiffness and fatigue.

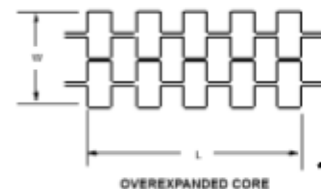
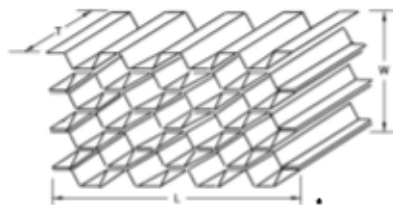
Applications: Interior aircraft panels including flooring, sidewalls, ceilings, galleys and lavatories. Exterior aircraft panels including trailing and leading edges, flaps, ailerons, radomes, fairings, helicopter blades, access panels and doors. Sports and leisure industry such as surfboards, dividing berthing areas, staterooms and hulls for high-performance boats and ships. Ceilings, walls and floors of portable structures. Heat formability for complex and contour components.

Features:

- Extremely high strength to weight ratio
- High toughness, shear strength and shear modulus
- Corrosion resistance
- Fire resistant (self-extinguishing)
- Excellent thermal stability
- Good formability for curve forming

Hexagonal Shaped Core
L = Ribbon Dimension
W = Dimension normal to ribbon
T = Thickness dimension

* Per BMS 8-124



Construction:

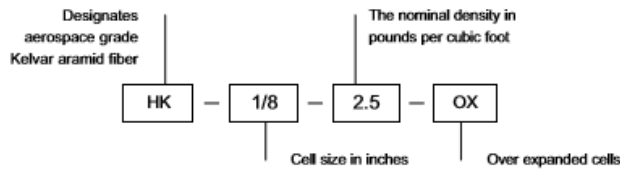
Reinforcement: Para-Aramid Kevlar®paper

Resin: Phenolic

Specifications:

Gillcore Kevlar®honeycomb core is qualified to the following specifications:

1. Boeing BMS 8-124, Class 6, Type V, Grades 2.5, 3.0,4.0, 6.0; and Type VI, Grade 2.5.
2. Airbus Industries: AIMS 11-01-004 Grades D,F,P ,T,W (ABS5341-A3,A5,C1,C5,C8).
3. Bell Helicopter: 299-947-386: Type 1, Grade A, Classes 2.0, 3.0, 4.5, 6.0.
4. Northrop-Grumman: ACS-MRS-5301, Class 1, 1/8” cell, 6 pcf density.
5. Lockheed-Martin: 5PTMDL17-D Meets flammability requirements of FAR 25.853 for cabin interiors and FAR 25.855 for cargo interiors.



The following tests are run in accordance with BMS 8-124 specification requirements.

Gillcore™ HK Honeycomb Description	Gillcore™ HK Honeycomb Configuration	Compressive				Plate Shear					
		Bare		Stabilized		L Direction			W Direction		
		Strength		Strength		Strength		Modulus	Strength		Modulus
		TYP	MIN	TYP	MIN	TYP	MIN	TYP	TYP	MIN	TYP
		psi	psi	psi	psi	psi	psi	ksi	psi	psi	ksi
HK-1/8-2.5	HK1061	288	240	321	297	272	248	16.7	156	147	7.9
HK-1/8-3.0	HK131	390	341	422	352	281	247	17.8	146	126	8.2
HK-1/8-3.0*	HK132	378	345	403	374	304	276	22.2	164	151	10.5
HK-1/8-4.0	HK141	578	480	628	589	362	337	21.0	206	196	9.7
HK-1/8-4.5	HK1033	744	693	764	711	555	527	30.9	305	289	13.4
HK-1/8-6.0	HK162	1,131	1,006	1,190	1,062	524	496	27.0	362	338	14.6
HK-1/8-6.0*	HK163	1,187	1,100	1,246	1,170	621	575	37.2	417	391	16.8
HK-5/32-2.5	HK2061	282	260	310	285	232	204	13.8	135	118	8.3
HK-5/32-6.0	HK262	1060	995	1163	1082	517	502	25.7	394	378	14.0
HK-3/16-2.0	HK322	323	290	356	336	322	290	18.9	169	155	8.9
HK-3/16-2.5-OX	HK3061O	208	179	217	186	152	138	7.4	148	130	11.5

*Made using thicker Kevlar® paper than the similar item above.