

# SAH<sup>®</sup>

## Aramid Fiber/Phenolic Resin Honeycomb

### Description

SAH is produced with Nomex<sup>®</sup> aramid fiber sheets. These sheets are bonded by a thermosetting adhesive at the nodes. After expanded to the hexagonal cell or over-expanded cell configuration, it is dipped in a heat resistant phenolic resin and cured in an oven. SAH is available at the required core thickness since the cutting to thickness is done according to customer's request.

### Features

- Small Cell Size at Low Density
- Damage Resistant
- Fire Resistant (Self-Extinguishing)
- Water and Fungus Resistant
- Excellent Dielectric Properties
- Good Surface for Bonding

### Applications

SAH has been widely accepted throughout the aerospace industry and several commercial areas as a very tough, environmentally resistant core material in sandwich panels. It has been designed and used in flat and contoured shapes, with a wide variety of facing material and adhesives, and it has extensive service in both structural and non-structural parts.

### Type Designation

SAH is designated as follows:

Material – Cell Size – Density

Example: SAH 1/8-3.0

Where: SAH – Showa Aramid Honeycomb

1/8 – 1/8 inch cell size

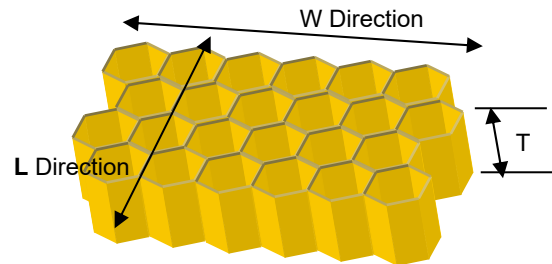
3.0 – 3.0 lbs/ft<sup>3</sup> Density

### Dimensional Nomenclature

**L** = Ribbon Direction, or Width

**W** = Length, or Perpendicular to the Ribbon

**T** = Core Thickness, or Cell Depth



### Special Cell Configuration and Processing

In addition to the hexagonal cell shapes, SAH is available in the OX cell shapes. The OX cell is an over-expanded hexagonal cell that provides a rectangular cell shape, and provides suitable formability. SAH is also available machined to customer's requirements including flat pieces cut to size.

### Standard Dimensions

SAH is available in the following standard dimensions with the tolerances as indicated.

Cell Configuration	L Direction	W Direction	T Maximum	T Minimum
Hexagonal Cell	48" ± 2"	96" ± 6"	32"	0.125"
OX Cell	38" ± 2"	96" ± 6"	20"	0.125"

Tolerances on cut thickness are as follows:

±0.006" for 0.120" to 2.000" Thickness

±0.010" for 2.001" to 4.000" Thickness

±0.120" for 4.001" and over

Note: 1) T maximum and T minimum to be confirmed with Showa Sales Office.

2) Longer L and W directions are available. Please contact Showa Sales Office.

### Standard Specifications

**Configuration:** Tolerance of the cell size will be plus or minus 10 percent of nominal cell size, that is determined by averaging measures of 10 consecutive cell length at 6 random locations. The double cell wall will be permitted providing the density is within the tolerance. The unbonded nodes will be permitted providing the minimum mechanical properties are conformable.

**Density:** Tolerance of the density will be plus or minus 10 percent of nominal density, that is determined by measuring on a minimum of 18 cubic inch.

**Mechanical Properties:** Table below lists SAH product line and mechanical properties.

**Mechanical Properties at Room Temperature**

Designation	Compressive				Plate Shear					
	Strength (psi)				L Direction			W Direction		
	Bare		Stabilized		Strength (psi)		Mod. (ksi)	Strength (psi)		Mod. (ksi)
	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Typ.	Min.	Typ.
SAH 1/8-1.8	110	70	130	85	90	65	3.7	50	36	2.0
SAH 1/8-3.0	300	180	330	250	180	155	7.0	95	85	3.5
SAH 1/8-4.0	500	330	560	430	245	200	9.1	140	98	4.7
SAH 1/8-5.0	755	580	860	660	325	235	12.0	175	120	5.5
SAH 1/8-8.0	1565	1095	1700	1260	490	355	16.0	250	190	7.8
SAH 1/8-9.0	1700	1400	1800	1600	500	370	17.0	270	240	9.0
SAH 3/16-3.0	300	180	330	250	150	130	5.0	95	67	3.5
SAH 1/4-1.5	90	45	95	55	75	45	3.0	35	23	1.5
SAH 3/16 OX-1.8	105	70	105	85	60	45	1.2	60	42	1.8
SAH 3/16 OX-3.0	365	230	400	270	115	90	3.0	125	90	6.0
SAH 1/4 OX-3.0	350	225	370	270	100	85	1.8	100	85	3.6

NOTE:

- 1) Above is the properties when tested per MIL-STD-401 using 0.500" core thickness.
- 2) The typical values represent the mean average of relatively large number of test values from many blocks of honeycomb.
- 3) The minimum values are guaranteed values for the average of five specimens of honeycomb when tested at ambient conditions per MIL-STD-401.

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**CONTACT for MORE INFORMATION**

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