



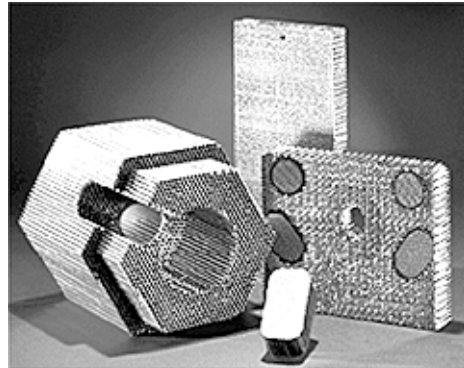
## Higrid™ Corrugated Aluminum Honeycomb

January 2003

### Description

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HIGRID high-strength corrugated aluminum honeycomb offers an ideal solution for fastener inserts and edge reinforcements in honeycomb structures. It also excels as a high-impact energy absorber. Produced by bonding together corrugated sheets of aluminum foil, much higher densities are possible than with conventional expanded honeycomb.



In sandwich structures where localized strength and stiffness are required, HIGRID outperforms alternative materials. Easier to use than microballoon epoxy potting compounds, it is also stronger and more reliable with no possibility of bubbles or voids. If damaged, HIGRID will deform instead of exhibiting epoxy's brittle behavior. HIGRID is also lighter and less expensive than aluminum extrusions and machined aluminum details, without any of the fit-up problems between these metal parts and the surrounding core. Before installation, simply wrap the plug in core-splice adhesive and insert it into the low-density core. After bonding, it is ready to accept fasteners.

For fastener inserts, edge reinforcements and high-impact energy absorbers, HIGRID is the answer.

### Applications

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- Fastener inserts
- Edge reinforcements
- Lateral edge closeouts of control surfaces
- Reinforcement around actuator attachments
- High load energy absorbers
- Edge framing for load carrying
- Localized strength and densification
- Any application requiring very high mechanical strength

### Features

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- Much stronger than epoxy-filled honeycomb
- Higher strength-to-weight than metal inserts
- Excellent shear strength between skin and core
- Pre-cut to size, easy installation
- Reliable, no air bubbles or voids
- Tight tolerance eliminates fit-up problems
- Benign failure mode
- No irritants or evolving gases
- No shelf life limitation

## Availability

- Blocks
- Flat sheets
- Fabricated shapes

HIGRID corrugated aluminum honeycomb is produced in 5052 alloy, with either our DURA-CORE™ II modified conversion coating or our PAA-CORE™ phosphoric acid anodized protection. Custom dimensions, cell sizes, tolerances and mechanical properties are available.

## How to Order

When ordering, please specify HIGRID using the following format:

Example: HIGRID - PAA - 22.1 - 1/8, where

Product	Coating	Density	Cell Size
HIGRID	DUR or PAA	22.1	1/8

## Available Dimensions

	Standard		Maximum		Tolerance	
	inches	mm	inches	mm	inches	mm
Ribbon (L)	96	2438	96	2438	+1.0 / -0.0	+25.4 / -0.0
Transverse (W)	12	305	24	610	±1.0	±25.4
Thickness (T)	16	406	16	406		
	up to 4 inches (102mm) T				±0.005	±0.127
	over 4 inches (102mm) T				±0.062	±1.575
Density	see mechanical characteristics chart				±15%	
Cell Size	see mechanical characteristics chart				±15%	

## Higrid Mechanical Characteristics (Typical values at 75° F - US units)

Density	Cell Size	Crush Strength	Compressive Strength				Beam Shear Strength			
lbs/ft <sup>3</sup>	inches	psi	psi				psi			
			Bare		Stabilized		L		W	
		Typical	Typical	Minimum	Typical	Minimum	Typical	Minimum	Typical	Minimum
16.0	3/16	2200	3200	2500	3300	2600	1800	1440	900	740
22.1	1/8	3800	5600	4500	5700	4600	3200	2500	2300	1500
22.1	3/16	3400	5000	4000	5100	4100	2800	2210	1400	1100
25.0	3/16	3800	5600	4500	5700	4600	3000	2500	1600	1250
35.0	1/8	5800	8000	6400	8500	6500	4900	3700	2200	1500
41.0	3/32	6200	9700	7800	10000	8000	5600	4200	2200	1500
45.0	1/8	8200	10000	8300	11500	8500	5600	4200	2200	1500
55.0	3/32	10000	12500	10000	15800	11000	6600	4900	2450	1950

<b>Higrig Mechanical Characteristics (Typical values at 23° C - Si/metric units)</b>										
<b>Density</b>	<b>Cell Size</b>	<b>Crush Strength</b>	<b>Compressive Strength</b>				<b>Beam Shear Strength</b>			
lbs/ft <sup>3</sup>	inches	MPa	MPa				MPa			
			Bare		Stabilized		L		W	
		Typical	Typical	Minimum	Typical	Minimum	Typical	Minimum	Typical	Minimum
16.0	3/16	15.2	22.1	17.2	22.8	17.9	12.4	9.9	6.2	5.1
22.1	1/8	26.2	38.6	31.0	39.3	31.7	22.1	17.2	15.9	10.3
22.1	3/16	23.4	34.5	27.6	35.2	28.3	19.3	15.2	9.7	7.6
25.0	3/16	26.2	38.6	31.0	39.3	31.7	20.7	17.2	11.0	8.6
35.0	1/8	40.0	55.2	44.1	58.6	44.8	33.8	25.5	15.2	10.3
41.0	3/32	42.7	66.9	53.8	69.0	55.2	38.6	29.0	15.2	10.3
45.0	1/8	56.5	69.0	57.2	79.3	58.6	38.6	29.0	15.2	10.3
55.0	3/32	69.0	86.2	69.0	108.9	75.8	45.5	33.8	16.9	13.4

### Roll-Forming Grades

If your operation calls for roll-forming HIGRID, Alcore has optimized these following grades for enhanced roll-formability:

• 22.1 - 3/16      • 25.0 - 3/16      • 41.0 - 3/32      • 55.0 - 3/32

Should you need roll-formed HIGRID but cannot or choose not to roll-form it yourself, please ask us about Alcore Precision Processing™. Besides roll-forming to your requirements, we can also pot, stabilize, rout, heat form, planform, chamfer, saw, bond, 3- and 5-axis machine and more. If you need this in a hurry, we also offer Alcore Precision Express™, where your custom-machined core details can be on their way to you within 48 hours of your order. Please contact your Alcore customer service representative for more information.

Alcore gives no warranties, expressed, implied or statutory, or otherwise, as to the description, quality, fitness, capacity, or any other matter, of the properties described. The data given represents typical values to be expected. Through additional testing of each lot it is possible to verify that the product exceeds the tabulated values. It is recommended, however, that prospective users evaluate the materials to determine their suitability for the users' specific requirements. Values are given on the condition that the user assumes all risk and that responsibility for any loss or damage caused by or resulting from the use of such information is disclaimed by Alcore.

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