

Aluminum Honeycomb

3003 Series



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GLOBAL DESCRIPTION - 3003 SERIES

3003 is a standard aluminum honeycomb quality. The foil is cleaned and treated using a proprietary chemical conversion coating without chrome for perfect bonding ability and holding the nodal joint. The resulting 3003 honeycomb exhibits excellent corrosion resistance as specified by MILC-7438 G standard.

We supply a broad range of cell sizes and densities, assuring that the correct product will be available for your application. When combined with our ability to custom-manufacture specific core types, plus our Special Processing capabilities, we can ship you drop-in core details in any shape, size, density or contour that you need.

- Lightness, Stiffness and Aesthetics
- Excellent flatness & constant thickness
- Thermal and electrical conductivity
- Excellent durability and price/quality ratio

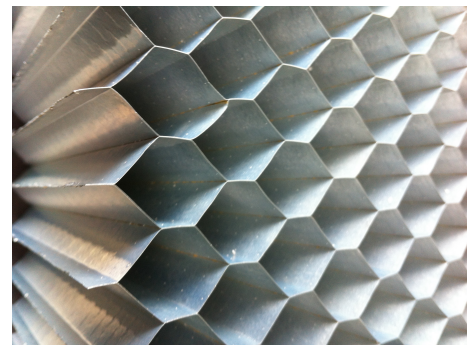
APPLICATION - 3003 SERIES

- Core material for sandwich panels with composites, laminates, wood, etc.
- Various applications: walls, ceilings, flooring, interiors panels for rail and marine industries, construction, architecture etc.
- Structural floors, facades, structures and tooling machines, etc.
- Other various applications for energy absorption, clean rooms, ventilation, flow straighteners, optical, heating, furniture, vehicle, lighting, etc.

AVAILABILITY - 3003 SERIES

- Unexpanded blocks
- Unexpanded slices
- Expanded sheets
- Pieces cut to size

3003 aluminum honeycombs are available with cell perforations to facilitate venting. Custom dimensions, cell sizes, tolerances and mechanical properties are also available.



HOW TO ORDER - 3003 SERIES

When ordering, please specify 3003 using the following format example:

- 3003 - 23 - 19 - P - E as described in the table below

Product	Density	Cell Size	Perforated Or Non-Perforated	Expanded Or Unexpanded
3003	23	19	P or N	E or U

Aluminum Honeycomb

3003 Series



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AVAILABLE DIMENSIONS - 3003 SERIES

- Standard Cell size: 5.2mm, 6mm, 9mm, 12mm, 19mm and 25mm
- Aluminum foil: 50μ, 60μ and 75μ (70μ, 80μ and 100μ upon request)
- Standard format:
 - W 2500 x L 1250 mm
 - W 1250 x L 1250 mm
 - W 3000 x L 1500 mm
- Other format available upon request up to pieces cut to size
- Thickness T upon customer request from 4 mm to 960 mm (step of 0.1 mm)

MECHANICAL PROPERTIES - 3003 SERIES

Cell Size	Density	Foil Thickness	Stabilized Compressive Strength	Shear Strength	
mm	Kg/m ³	μ	MPa	L - MPa	W - MPa
6	57	50	2.3	1.2	0.8
9	38	50	1.3	1.1	0.7
12	28	50	0.8	0.5	0.4
19	19	50	0.4	0.4	0.3
5.2	83	60	3.7	2.3	1.5
6	69	60	3.4	1.8	1.2
9	46	60	1.8	1.5	0.9
12	34	60	1.2	0.7	0.6
19	23	60	0.5	0.5	0.4
25	17	60	0.3	0.35	0.2
5.2	103	75	5.4	2.9	1.9
6	86	75	4.6	2.4	1.6
9	57	75	2.5	2.0	1.2
12	42	75	1.7	1.0	0.8
19	29	75	0.7	0.7	0.6
25	20	75	0.4	0.5	0.3

Aluminum Honeycomb

5052 Series



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GLOBAL DESCRIPTION - 5052 SERIES

5052 aluminum honeycombs provides the aerospace and commercial markets with a high degree of flexibility in solving lightweight structural design challenges.

Prior to bonding, the foil is cleaned and treated using a proprietary chemical conversion coating. The resulting honeycomb exhibits excellent corrosion resistance in hostile environments, especially salt fog. Typical weight loss after 30 days in salt fog (using ASTM B-117) is 15 mg/ft² (161.4 mg/m²), while MIL-C-7438 allows up to 125 mg/ft² (1345.0 mg/m²).

We supply a broad range of cell sizes and densities, assuring that the correct product will be available for your application. When combined with our ability to custom-manufacture specific core types, plus our Special Processing capabilities, we can ship you drop-in core details in any shape, size, density or contour that you need.

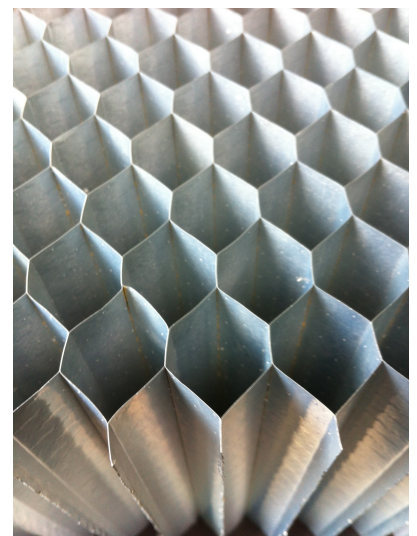
For lightweight applications requiring excellent mechanical strength and excellent corrosion resistance at a good value, 5052 is the best all-around structural core material.

APPLICATION - 5052 SERIES

- Aircraft control surfaces, flooring
- Energy absorbers
- Aircraft engine nacelles
- RF and EMI shielding
- Advanced sporting equipment
- Space & Satellite components
- Air and light directionalization
- Other high performance applications

FEATURES - 5052 SERIES

- Excellent strength-to-weight ratio
- Corrosion resistant
- Elevated temperature performance to 350° F/177° C
- Fire and fungus resistant
- Broad range of cell sizes
- Easily machined and formed
- Resistant to hostile environments
- Complies with MIL-C-7438 and many other aerospace specifications



Aluminum Honeycomb

5052 Series



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AVAILABILITY - 5052 SERIES

- Unexpanded blocks
- Unexpanded slices
- Expanded sheets
- Pieces cut to size

5052 aluminum honeycombs are available with cell perforations to facilitate venting. Custom dimensions, cell sizes, tolerances and mechanical properties are also available.

HOW TO ORDER - 5052 SERIES

When ordering, please specify 5052 using the following format example:

- 5052 - 2.3 - 3/8 - N - E as described in the table below

Product	Density	Cell Size	Perforated Or Non-Perforated	Expanded Or Unexpanded
5052	2.3	3/8	P or N	E or U

AVAILABLE DIMENSIONS - 5052 SERIES

	Standard		Maximum		Tolerance	
	Inches	mm	Inches	mm	Inches	mm
Ribbon (L)	48	1219	100	2540	+2.0 / -0.0	+50.8 / -0.0
Transverse (W)	96	2438	144	3658	+4.0 / -0.0	+101.6 / -0.0
Thickness (T)			35	889		
	Up to 4 inches (102mm) T				±0.005	±0.127
	Over 4 inches (102mm) T				±0.062	±1.575
Density	See mechanical characteristics chart				±10%	
Cell Size	See mechanical characteristics chart				±10%	

Aluminum Honeycomb

5052 Series



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MECHANICAL PROPERTIES - 5052 SERIES

Mechanical Characteristics (Typical Values - SI/metric units)

lbs/ft ³ - in - in	Stabilized Strength	Compressive	Crush Strength	Shear Strength				Shear Modulus	
	MPa		MPa	MPa				MPa	
				L		W		L	W
	23°C	177°C	23°C	23°C	177°C	23°C	177°C	23°C	
3.1 - 1/8 - .0007	2.10	1.38	1.00	1.48	1.00	0.91	0.62	221	110
4.5 - 1/8 - .0010	4.00	2.62	1.86	2.38	1.65	1.55	1.03	352	172
6.1 - 1/8 - .0015	7.10	4.55	3.10	3.90	2.76	2.38	1.52	531	255
8.1 - 1/8 - .0020	10.86	7.41	5.24	5.58	3.96	3.72	2.14	772	345
10.0 - 1/8 - .0025	12.93	8.96	7.38	7.41	5.58	4.21	2.86	965	414
12.0 - 1/8 - .0030	20.13	10.69	9.65	13.48*	8.96*	6.55*	3.03*	1103	517
2.6 - 5/32 - .0007	1.69	1.03	0.72	1.17	0.76	0.70	0.55	165	83
3.8 - 5/32 - .0010	2.86	1.93	1.45	1.90	1.38	1.16	0.97	283	138
5.3 - 5/32 - .0015	5.03	3.45	2.34	2.93	2.34	1.90	1.38	441	214
6.9 - 5/32 - .0020	7.86	5.38	3.93	4.10	3.45	2.62	1.90	627	290
8.4 - 5/32 - .0025	11.14	7.93	5.52	5.31	4.07	3.31	2.28	800	352
2.0 - 3/16 - .0007	1.24	0.69	0.48	0.84	0.55	0.49	0.45	117	62
3.1 - 3/16 - .0010	2.34	1.38	1.00	1.48	1.00	0.88	0.62	221	110
4.4 - 3/16 - .0015	3.83	2.59	1.86	2.31	1.62	1.52	1.00	345	165
5.7 - 3/16 - .0020	6.00	4.14	2.83	3.21	2.62	2.10	1.38	483	234
6.9 - 3/16 - .0025	8.17	5.38	3.93	4.14	3.45	2.62	1.90	627	290
8.1 - 3/16 - .0030	11.96	7.41	5.24	5.07	3.96	3.38	2.14	772	345
1.6 - 1/4 - .0007	0.70	0.48	0.34	0.61	0.41	0.35	0.24	90	41
2.3 - 1/4 - .0010	1.48	0.86	0.59	1.00	0.62	0.61	0.48	145	76
3.4 - 1/4 - .0015	2.59	1.62	1.10	1.62	1.10	1.00	0.69	241	124
4.3 - 1/4 - .0020	3.76	2.52	1.72	2.24	1.62	1.41	0.97	331	165
5.2 - 1/4 - .0025	5.31	3.45	2.28	2.86	2.28	1.86	1.10	427	214
6.0 - 1/4 - .0030	7.65	4.48	2.96	3.69	2.69	2.41	1.45	517	248
7.9 - 1/4 - .0040	10.38	7.07	4.96	4.90	3.79	3.10	2.07	745	338
1.0 - 3/8 - .0007	0.39	0.17	0.17	0.32	0.21	0.21	0.21	48	21
1.6 - 3/8 - .0010	0.68	0.48	0.34	0.61	0.41	0.35	0.24	90	41
2.3 - 3/8 - .0015	1.41	0.86	0.59	0.97	0.62	0.57	0.48	145	76
3.0 - 3/8 - .0020	2.17	1.31	0.93	1.41	0.97	0.88	0.59	207	103
3.7 - 3/8 - .0025	2.86	1.83	1.38	1.76	1.31	1.14	0.72	276	138
4.2 - 3/8 - .0030	3.90	2.34	1.65	2.17	1.59	1.41	0.90	324	159
5.4 - 3/8 - .0040	5.58	3.72	2.48	3.00	2.45	1.97	1.24	455	221
6.5 - 3/8 - .0050	7.00	5.17	3.52	3.83	3.03	2.48	1.83	572	276

* Beam Shear

Aluminum Honeycomb

5052 Series



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Mechanical Characteristics (Typical Values - SI/metric units)									
	Stabilized Strength	Compressive	Crush Strength	Shear Strength				Shear Modulus	
lbs/ft ³ - in - in	MPa		MPa	MPa				MPa	
				L		W		L	W
	23°C	177°C	23°C	23°C	177°C	23°C	177°C	23°C	
2.6 - 1/2 - .0025	1.38	1.03	0.72	1.03	0.76	0.61	0.55	165	83
3.0 - 1/2 - .0030	1.72	1.31	0.93	1.24	0.97	0.73	0.59	207	103
4.0 - 1/2 - .0040	2.76	2.21	1.52	2.00	1.52	1.17	0.83	303	152
0.8 - 3/4 - .0010	0.16	0.14	0.10	0.17	0.17	0.13	0.17	34	14
1.8 - 3/4 - .0025	0.69	0.62	0.41	0.62	0.48	0.34	0.28	103	48
2.1 - 3/4 - .0030	0.90	0.72	0.52	0.72	0.59	0.41	0.52	124	62
3.0 - 3/4 - .0040	1.72	1.31	0.93	1.24	0.97	0.72	0.59	207	103
4.2 - 3/4 - .0060	3.10	2.34	1.65	2.21	1.59	1.31	0.90	324	159

* Beam Shear

Aluminum Honeycomb

5056 Series



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GLOBAL DESCRIPTION - 5056 SERIES

For those designers demanding maximum mechanical strength with excellent corrosion resistance, 5056 aluminum honeycombs are the lightweight material of choice.

Prior to bonding, the foil is cleaned and treated using a proprietary chemical conversion coating. The resulting honeycomb exhibits excellent corrosion resistance in hostile environments, especially salt fog. Typical weight loss after 30 days in salt fog (using ASTM B-117) is 15 mg/ft² (161.4 mg/m²), while MIL-C-7438 allows up to 125 mg/ft² (1345.0 mg/m²).

We supply a broad range of cell sizes and densities, assuring that the correct product will be available for your application. When combined with our ability to custom-manufacture specific core types, plus our Special Processing capabilities, we can ship you drop-in core details in any shape, size, density or contour that you need.

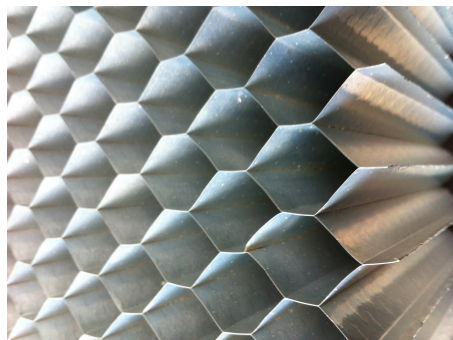
For lightweight applications requiring maximum mechanical strength and excellent corrosion resistance at a good value, 5056 is the best all-around structural core material.

APPLICATION - 5056 SERIES

- Aircraft control surfaces
- Energy absorbers
- Aircraft engine nacelles
- Space applications
- Advanced sporting equipment
- Satellite components
- Other high performance applications requiring maximum strength-to-weight ratio

FEATURES - 5056 SERIES

- Maximum mechanical strength
- Corrosion resistant
- Elevated temperature performance to 350° F/177° C
- Fire and fungus resistant
- Broad range of cell sizes
- Easily machined and formed
- Resistant to hostile environments
- Complies with MIL-C-7438 and many other aerospace specifications



Aluminum Honeycomb

5056 Series



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AVAILABILITY - 5056 SERIES

- Unexpanded blocks
- Unexpanded slices
- Expanded sheets
- Pieces cut to size

5056 aluminum honeycombs are available with cell perforations to facilitate venting. Custom dimensions, cell sizes, tolerances and mechanical properties are also available.

HOW TO ORDER - 5056 SERIES

When ordering, please specify 5056 using the following format example:

- 5056 - 3.1 - 3/16 - N - E as described in the table below

Product	Density	Cell Size	Perforated or Non-Perforated	Expanded or Unexpanded
5056	3.1	3/16	P or N	E or U

AVAILABLE DIMENSIONS - 5056 SERIES

	Standard		Maximum		Tolerance	
	Inches	mm	Inches	mm	Inches	mm
Ribbon (L)	48	1219	100	2540	+2.0 / -0.0	+50.8 / -0.0
Transverse (W)	96	2438	144	3658	+4.0 / -0.0	+101.6 / -0.0
Thickness (T)			35	889		
	Up to 4 inches (102mm) T				±0.005	±0.127
	Over 4 inches (102mm) T				±0.062	±1.575
Density	See mechanical characteristics chart				±10%	
Cell Size	See mechanical characteristics chart				±10%	

Aluminum Honeycomb

5056 Series



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MECHANICAL PROPERTIES - 5056 SERIES

Mechanical Characteristics (Typical Values - SI/metric units)									
	Stabilized Compressive Strength		Crush Strength	Shear Strength				Shear Modulus	
lbs/ft ³ - inches - inches	MPa		MPa	MPa				MPa	
				L		W		L	W
	23°C	177°C	23°C	23°C	177°C	23°C	177°C	23°C	
3.1 - 1/8 - .0007	2.45	1.59	1.24	1.76	1.17	1.10	0.76	221	110
4.5 - 1/8 - .0010	4.83	3.31	2.21	3.10	1.89	1.79	1.24	352	172
6.1 - 1/8 - .0015	8.34	5.38	3.79	4.83	2.93	2.83	1.69	531	255
8.1 - 1/8 - .0020	13.24	9.31	5.86	6.62	4.07	3.96	2.34	772	345
10.0 - 1/8 - .0025	15.17	11.20	8.27	8.21	5.72	4.65	3.14	965	414
12.0 - 1/8 - .0030	22.41	13.45	10.69	11.89*	9.86*	7.07*	3.21*	1103	517
2.6 - 5/32 - .0007	1.86	1.10	0.90	1.41	0.90	0.83	0.62	165	83
3.8 - 5/32 - .0010	3.52	2.41	1.59	2.34	1.59	1.38	1.21	283	138
5.3 - 5/32 - .0015	6.03	4.31	3.00	3.86	2.55	2.31	1.59	441	214
6.9 - 5/32 - .0020	9.31	7.17	4.55	5.34	3.62	3.03	2.07	627	290
2.0 - 3/16 - .0007	1.41	0.79	0.55	1.00	0.69	0.60	0.48	117	62
3.1 - 3/16 - .0010	2.90	1.59	1.24	1.86	1.17	1.07	0.76	221	110
4.4 - 3/16 - .0015	4.65	3.28	2.14	3.00	1.79	1.72	1.17	345	165
5.7 - 3/16 - .0020	6.96	5.03	3.31	3.93	2.83	2.31	1.55	483	234
6.9 - 3/16 - .0025	8.62	7.07	4.55	5.27	3.62	3.10	2.07	627	290
8.1 - 3/16 - .0030	11.20	9.31	5.86	6.38	4.07	3.79	2.34	772	345
1.6 - 1/4 - .0007	0.79	0.55	0.41	0.63	0.48	0.43	0.28	90	41
2.3 - 1/4 - .0010	1.86	1.03	0.83	1.28	0.76	0.72	0.52	145	76
3.4 - 1/4 - .0015	3.38	2.07	1.31	2.07	1.31	1.24	0.86	241	124
4.3 - 1/4 - .0020	4.34	3.17	2.07	2.83	1.76	1.62	1.10	331	165
5.2 - 1/4 - .0025	5.72	4.31	2.62	3.45	2.48	2.14	1.34	427	207
6.0 - 1/4 - .0030	6.90	5.34	3.62	4.41	2.86	2.59	1.65	517	248
7.9 - 1/4 - .0040	10.89	8.96	5.65	6.21	3.90	3.72	2.28	745	338
1.0 - 3/8 - .0007	0.43	0.28	0.24	0.39	0.28	0.26	0.24	48	21
1.6 - 3/8 - .0010	0.79	0.59	0.41	0.64	0.48	0.43	0.28	90	41
2.3 - 3/8 - .0015	1.59	1.03	0.83	1.21	0.76	0.69	0.52	145	76
3.0 - 3/8 - .0020	2.41	1.52	1.10	1.72	1.14	1.03	0.69	207	103
3.7 - 3/8 - .0025	3.10	2.24	1.52	2.24	1.55	1.31	0.90	276	138
4.2 - 3/8 - .0030	3.79	2.83	2.00	2.72	1.79	1.55	1.07	324	159
5.4 - 3/8 - .0040	5.86	4.48	3.10	3.90	2.69	2.24	1.38	455	221
6.5 - 3/8 - .0050	7.83	6.55	4.14	4.90	3.17	2.90	2.07	572	276
2.6 - 1/2 - .0025	1.59	1.10	0.90	1.31	0.90	0.69	0.62	165	83
3.0 - 1/2 - .0030	2.17	1.52	1.10	1.65	1.14	0.86	0.69	207	103
6.0 - 1/2 - .0040	6.90	5.31	3.62	4.41	2.86	2.59	1.65	517	248

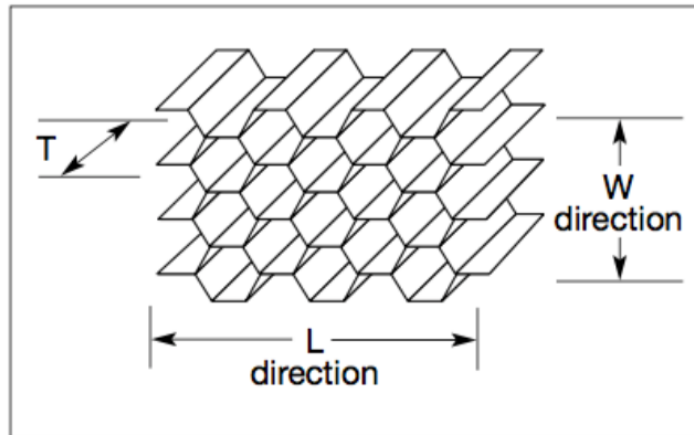
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Annex 1



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ALUMINUM HONEYCOMB - CELL ORIENTATION



Aluminum Honeycomb - Cell Orientation

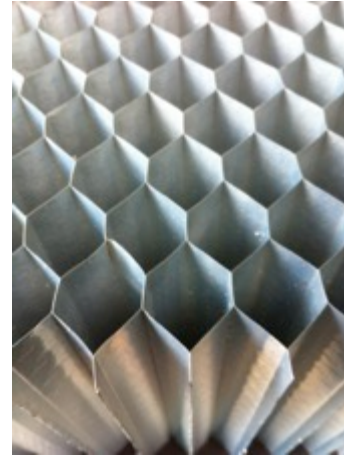
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Annex 2



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ALUMINUM HONEYCOMB - PERFORATED ALUMINUM FOIL



Aluminum Honeycomb - Micro-Perforated aluminum Foil