

TECHNICAL DATASHEET

3003 Aluminum Honeycomb

This aluminium honeycomb, used as a core material, allows the bonding of sandwich panels with various facing : metallic, composite, wood or laminates, etc. This structural self-supporting panel is designed to be used in various applications such as building (cladding, partition walls, sunbreakers...), transport as ships or trains (flooring, inside partition, ceiling...), and any applications where lightness and stiffness are required. Large, monolithic and decorative parts are possible.

This hexagonal cell structure finds other applications when used alone, as shock-absorption, air-flow control grid or laser/water jet cutting support table.

This honeycomb is made from treated extra-hard 3003 alloy aluminium foil of 50, 60 or 75 microns thick. The aluminum alloy foil is specially coated in order to get optimum corrosion resistance. This coating reaches easily the US military spec MIL-7438G. ALPHEX is a very popular core product on non-aerospace applications with an attractive level of price.

CML offers the widest range of honeycomb cores from industrial grade to aerospace specifications. With this technology and our experience, Composite Materials Ltd will advise and assist you to calculate the honeycomb for your specific applications.

The aluminum honeycomb blocks can be sawn into slices at any thicknesses and then can be expanded. Micro-perforation is the standard, non-micro-perforated is possible upon request. Dependant upon the customer requirements, the honeycomb can be supplied at different stages of process.

Main Characteristics:

- Better ratios weight / mechanical properties than any other core material
- Thickness regularity
- Wide range of cell sizes
- High resistance to compression and shear
- Excellent ratio price / quality

Dimensions:

- 2 standard dimensions 2500 x 1250 mm and 3000 x 1500 mm
- Other dimensions available according to quantities (economical optimisation)
- Length and width dimensions are guaranteed as the minimum value (-0/+ 50 mm).
- Any thicknesses , from few millimeters up to 960 mm by steps of 0.1mm
- Standards tolerances on thickness are +/- 0.2 mm all over the surface

Designation		Thickness		Compression	Shear (cisaillement)		Compression
cell size		Density	Foil	Stabilized			After crush
mm	Inch	kg / m ³	(μ / microns)	(Mpa)	L (Mpa)	W (Mpa)	(Mpa)
6	1/4	57	50	2,3	1,20	0,80	1,00
9	3/8	38	50	1,3	1,10	0,70	0,60
12	1/2	28	50	0,8	0,50	0,40	0,35
19	3/4	19	50	0,4	0,40	0,30	0,15

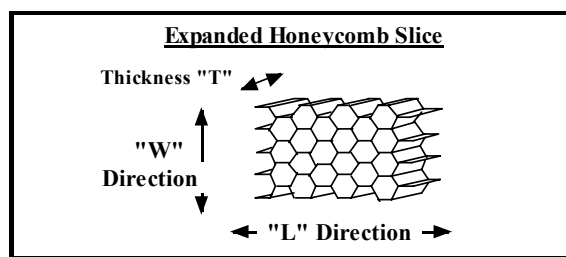
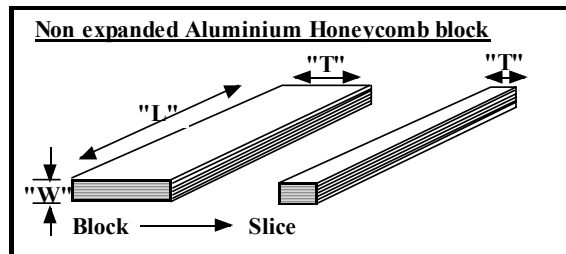
Mechanical Properties of 3003 (Typical values):

Designation		Density	Thickness	Compression	Shear		Compression
cell size	Foil		Stabilized	L (Mpa)	W (Mpa)	After crush	
mm	Inch	kg / m ³	(μ / microns)	(Mpa)			(Mpa)
5,2		83	60	3,7	2,30	1,50	1,67
6	1/4	69	60	3,4	1,80	1,20	1,50
9	3/8	46	60	1,8	1,50	0,90	0,80
12	1/2	34	60	1,2	0,70	0,60	0,48
19	3/4	23	60	0,5	0,50	0,40	0,20
25	1	17,5	60	0,3	0,35	0,21	
5,2		103	75	5,4	2,90	1,90	2,45
6	1/4	86	75	4,6	2,40	1,60	2,05
9	3/8	57	75	2,5	2,00	1,20	1,14
12	1/2	42	75	1,7	1,00	0,80	0,69
19	3/4	29	75	0,7	0,70	0,60	0,29
25	1	22	75	0,4	0,50	0,30	

Reminder : 1 MPa = 10 bars = 10 kg/cm² (for instance 3.4 MPa = 34 bars)

When ordering, please specify the following parameters:

- Designation : name, cell size/density
 Format : length (L) x width (W) x thickness (T) in mm
 State : micro-perforated (P) or non micro-perforated (NP)
 expanded slice (EXP), non expanded slice(NEXP) or block (BLOCK)
 For instance : ALPHEX 3003 - Ø 6/69 - L 3000 x W 1500 x T 15 mm - P - EXP



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