

ALUSTEP®- F

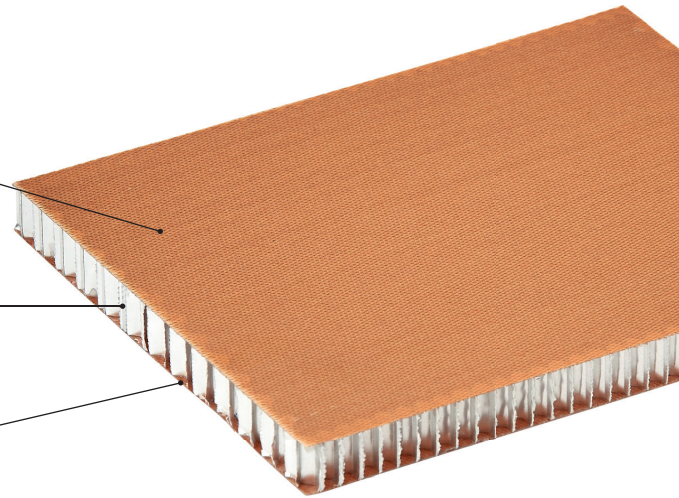
Panel's composition

SKINS IN BIDIRECTIONAL GLASSFIBER FABRIC impregnated with phenolic resin 290 g/m³

CORE

Aluminium honeycomb (Alloy 3003/3005/3103/3104) with hexagonal cells
Diameter: Ø3/8", Ø1/4", X₁
Thickness Foil: from 50 to 70 microns

X₁ = other diameters on request



Technical data sheet for standard panels (dimensions, materials and special finishes on request)

TECHNICAL CHARACTERISTICS OF PANEL		panel size		standard 1250x2500/1500x3000 On request up to 1500x4000								
		thickness' tolerance	mm	±0,4								
dimension's tolerance	mm	± 30										
skins' thickness	mm	0,3										
glass fiber skin type		satin 8/1 300 gr/m ²										
Impregnation		phenolic resin										
honeycomb aluminium alloy		3000 series / 5000 series										
thickness of honeycomb foil	µm	50 and 70										
diameter of honeycomb	Ø = mm	from 3 to 19										
honeycomb density	Kg/m ³	from 20 to 116										
adhesive for aluminum honeycomb		thermoplastic										
PANEL PHYSIC AND MECHANIC PERFORMANCES		type panel (some examples)	mm	5	10	15	20	25	30	35		
		panel weight ‡	Kg/m ²	1,5±0,1	1,7±0,1	2,0±0,1	2,3±0,1	2,6±0,1	2,8±0,1	3,1±0,1		
		compressive stabilised strength MPa ** ‡	ASTM C 365-365 M	Mpa	2,9±0,3							
		maximum load ** ‡	ASTM C 393 †	N	80±10	180±20	280±30	380±40	490±50	600±60	700±70	
		deflection at maximum load ‡	ASTM C 393 †	mm	38±4	19±2	13±2	10±1	8±1	7±1	6±1	
		skins E Elastic Modulus **		Mpa	24'000±1'000							
		moment of inertia I **		mm ⁴ /m	3'300	14'120	32'400	58'200	91'600	132'000	181'000	
		middle resistance to peeling ** ‡	ASTM D1781-98 (2012)		>500 N/76 mm oppure >60 Nmm/mm							
		maximum service temperature **		°C	- 50/ + 80							
thermal expansion coefficient **		°C ⁻¹	1,5 * 10 ⁻⁵ / 1,5 mm for ΔT 100 °C for 1 meter length									

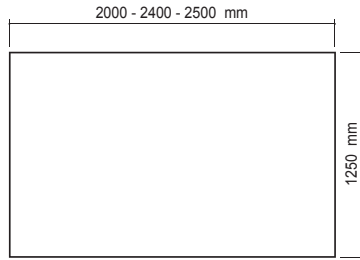
** Tested by Internal Laboratory

*** Approximate value

† Sample dimension with 4 support points (L, W) 540x540 ; distance among the lower points 500mm, distance among the upper points 250mm

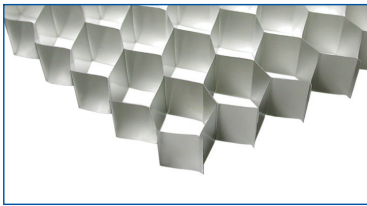
‡ All values refer to a panel made of aluminum honeycomb with a cell diameter 6 mm 56 kg/m³ and thermoplastic adhesive

Standard dimensions (other dimensions available on request) - Dimension tolerance ± 30 mm



Honeycomb core's properties		50 Microns			
Typ	ALUMINIUM ALLOY 3003/3005/3103/3104				
Ø honeycomb in mm	6	9	12	19	
Ø honeycomb in inches	1/4"	3/8"	1/2"	3/4"	
Density kg/m ³	56 - 59	39 - 40	29 - 30	20 - 21	
Compressive stabilised strength MPa	3,0 - 3,5	1,4 - 1,95	0,8 - 0,95	0,4 - 0,6	

Honeycomb core's properties		70 Microns			
Typ	ALUMINIUM ALLOY 3003/3005/3103/3104				
Ø honeycomb in mm	6	9	12	19	
Ø honeycomb in inches	1/4"	3/8"	1/2"	3/4"	
Density kg/m ³	80 - 83	54	40 - 42	27 - 29	
Compressive stabilised strength MPa	4,3 - 4,6	2,5 - 2,6	1,41 - 1,5	0,85 - 0,9	



Aluminium honeycomb

Certified version of ALUSTEP F must be required while asking for a quotation.
 Certified products must be required in advance and might have a price surcharge due to certified materials.

CLASSES FOR FIRE REACTION			
SHIPBUILDING	 MED, IMO 0407	MOD. B. Certification Nr.: MED- 235 (IG-192-2017) REV.1 MOD. D. Certification Nr.: MED- 154 (IG-178-2014) REV.13	ALUSTEP F Aluminium honeycomb panel with skins in fiberglass impregnated with phenolic resin complying with the MED directive for the application in ships registered or applied in the European Union. Item N. MED / 3.18a, IMO 2010 FTP Code, Annex 1
	 U.S. Coast Guard	MOD. B. USCG N. Approval Nr.: 164.112/0407 MOD. D. N. Approval.: 164.112/0407/ MED000154 (for MED/3.18)	ALUSTEP F Aluminium honeycomb panel with skins in fiberglass impregnated with phenolic resin
RAILWAY VEHICLES	UNI EN 45545	HL2 (HAZARD LEVEL) from 4 to 49mm Class certification n. 3355899 HL3 (HAZARD LEVEL) 50mm Class certification n. 3355900	ALUSTEP F Aluminium honeycomb panel with skins in fiberglass impregnated with phenolic resin Meets requirements for applications R2 suspended ceilings, countertop R1 , partitions
RAILWAY VEHICLES	UNI EN 45545	HL3 (HAZARD LEVEL) 4-50mm Class certification n 3355812	ALUSTEP F Aluminium honeycomb panel with skins in fiberglass impregnated with phenolic resin Meets requirements for applications R10 floors