

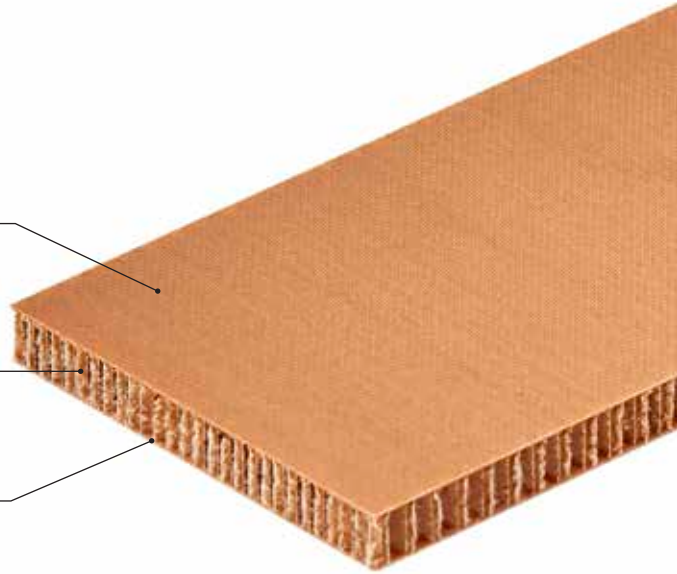
ALUSTEP®- FN

Panel's composition

SKINS IN BIDIRECTIONAL GLASSFIBER FABRIC impregnated with phenolic resin
Thickness mm: 0,25±0,3

CORE
 Nomex® honeycomb core
Diameter: from Ø1/8" to Ø3/16", X₁

X₁ = other diameters on request



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

TECHNICAL CHARACTERISTICS OF PANEL		Technical data sheet for standard panels (dimensions, materials and special finishes on request)									
		panel size	standard 1250x2500								
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 type			aramid paper, impregnated with phenolic resin								
diameter of honeycomb		Ø = mm	3 and 4,8								
honeycomb density		Kg/m ³	48 and 32								
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	1,4±0,1	1,7±0,1	1,9±0,1	2,1±0,1	2,4±0,1	2,6±0,1	2,8±0,1	
		compressive stabilised strength MPa ** ‡	ASTM C 365-365 M	Mpa	1,6±0,2						
		maximum load ** ‡	ASTM C 393 †	N	100±10	210±20	320±30	430±40	540±50	650±60	760±70
		deflection at maximum load ‡	ASTM C 393 †	mm	49±5	24±3	16±2	12±1	10±1	8±1	7±1
		skins E Elastic Modulus **		Mpa	22'000±1000						
		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)		>450 N/76 mm or >45 Nmm/mm						
maximum service temperature **		°C	- 50/ + 80								
thermal expansion coefficient **		°C ⁻¹	3,5*10 ⁻⁵								

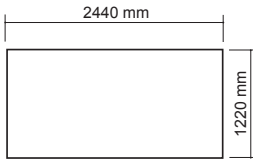
** Tested by Internal Laboratory

*** Approximate value

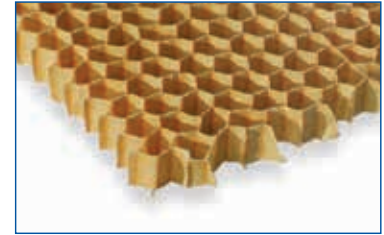
† Sample dimension with 4 support points (L, W) 540x540; distance among the lower points 500mm, distance among the upper points 250mm

‡ All values refer to a panel made of a honeycomb in nomex diameter 3mm mm 48 kg/m³ and two skins in fiberglass impregnated with phenolic resin and thermoplastic adhesive

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





Tolerance - density +/- 16%



Nomex® honeycomb

Honeycomb core's properties					
Nomenclature			Compression Strength	L-Shear	W-Shear
	Cell size mm	Density kg/m ³	N/mm ²	N/mm ²	N/mm ²
Hexagonal	3,2	48	1,90	1,16	0,62
Hexagonal	3,2	64	3,10	1,48	0,82
Hexagonal	3,2	80	4,70	1,95	1,05
Hexagonal	3,2	96	6,60	2,45	1,42
Hexagonal	3,2	128	11,30	2,95	1,78
Hexagonal	3,2	144	13,20	3,05	1,90
Hexagonal	4,0	29	0,60	0,45	0,26
Hexagonal	4,0	80	5,10	1,90	0,98
Hexagonal	4,8	32	0,90	0,58	0,36
Hexagonal	4,8	48	2,60	0,98	0,56
Hexagonal	4,8	64	3,40	1,70	0,92
Hexagonal	4,8	80	6,00	1,95	1,10
Hexagonal	4,8	96	7,30	2,26	1,32
Hexagonal	6,4	24	0,54	0,34	0,18
Hexagonal	6,4	32	0,80	0,54	0,30
Hexagonal	6,4	48	2,05	1,00	0,56
Hexagonal	6,4	64	3,40	1,54	0,79
Hexagonal	9,6	24	0,52	0,32	0,16
Hexagonal	9,6	32	0,68	0,56	0,29
Hexagonal	9,6	48	1,80	1,15	0,66
Over expanded	4,8	29	0,60	0,31	0,32
Over expanded	4,8	48	2,30	0,60	0,72
Over expanded	4,8	64	3,80	0,72	0,90
Over expanded	4,8	72	4,00	0,75	0,92
Over expanded	4,8	80	5,30	0,88	1,17
Over expanded	4,8	96	6,70	0,92	1,28
Over expanded	6,4	48	2,30	0,60	0,72
Over expanded	6,4	64	3,20	0,72	0,90

Certified version of ALUSTEP FN must be requested while asking for a quotation.
 Certified products must be requested 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- 269 (IG-004-2019) REV.0 MOD. D. Certification Nr.: MED- 154 (IG-178-2014) REV.13	ALUSTEP FN Aramid paper 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. Approbation Nr.: 164.112/0407 MOD. D. N. Approbation.: 164.112/0407/ MED000154 (for MED/3.18)	ALUSTEP FN Aramid paper panel with skins in fiberglass impregnated with phenolic resin
RAILWAY VEHICLES	UNI EN 45545	HL2 (HAZARD LEVEL) (10- 25mm) Class certification n 358634	ALUSTEP FN Aramid paper 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) (4-25mm) Class certification n 355811	ALUSTEP FN aramid paper panel with skins in fiberglass impregnated with phenolic resin Meets requirements for applications R10 , floors