

ALUSTEP®- FN

Panel's composition

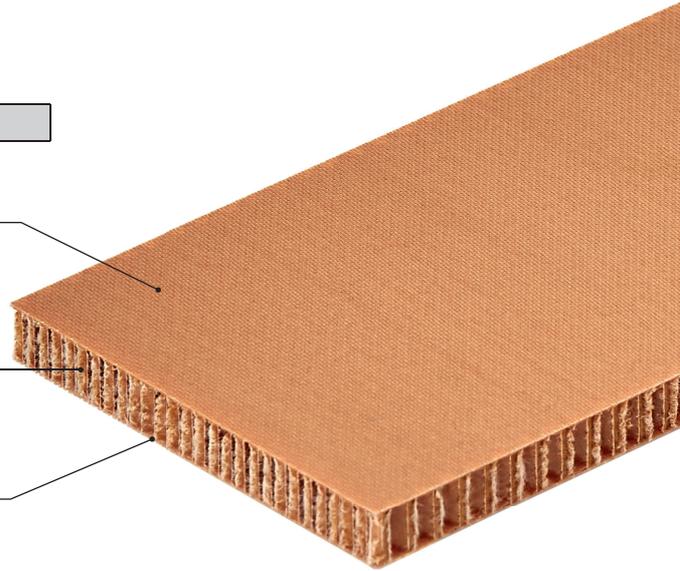
SKIN IN GLASSFIBRE

impregnated with phenolic resin 300 g/m²
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)

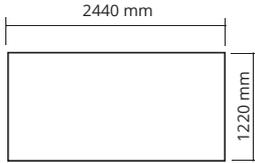
TECHNICAL CHARACTERISTICS OF PANEL									
Panel size	mm	Standard 1250x2500							
Thickness tolerance	mm	±0,4							
Dimension tolerance	mm	±30							
Skins thickness	mm	0,3							
Skin		300 gr/m ²							
Honeycomb type		Aramid paper, impregnated with phenolic resin							
Honeycomb diameter	Ø = mm	3,2 and 4,8							
Honeycomb density	Kg/m ³	32 and 48							
Adhesive		Thermoplastic							
PANEL PHYSIC AND MECHANIC PERFORMANCES									
Panel Thickness (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	1,5 * 10 ⁻⁵ / 1,5 mm for ΔT 100 °C for 1 meter length						

** Tested by Internal Laboratory

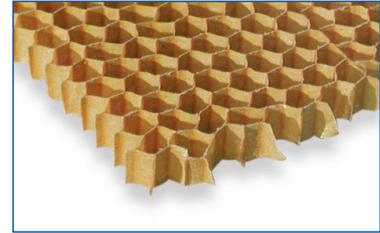
† Sample dimension with 4 support points (L, W) 540x540; distance among the lower points 500mm, distance among the upper points 250mm

‡ All values refer to a panel made of a honeycomb in nomex diameter 3.2 mm 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



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ALUMINIUM AND THERMOPLASTIC HONEYCOMBS, LAMINATES, SANDWICH PANELS

ENG

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.

FIRE REACTION			
SECTOR	NORM	CLASSIFICATION	DESCRIPTION
SHIPBUILDING	FTP CODE 2010 3.18a  0407	LOW FLAMESPREAD MOD. B. Certification Nr. MED- 269 (IG-004-2019) MOD. D. Certification Nr. MED- 154 (IG-178-2014)	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 Approbation Nr. 164.112/0407 MOD. D. USCG Approbation Nr. 164.112/0407/MED000154	ALUSTEP FN Aramid paper panel with skins in fiberglass impregnated with phenolic resin
RAILWAY VEHICLES	UNI EN 45545-2	HL2 (HAZARD LEVEL) (10 - 25mm) Class certification Nr. 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 45545-2	HL3 (HAZARD LEVEL) (4-25mm) Class certification Nr. 355811	ALUSTEP FN Aramid paper panel with skins in fiberglass impregnated with phenolic resin. Meets requirements for applications R10 floors

Sandwich Panel ALUSTEP®- FN