

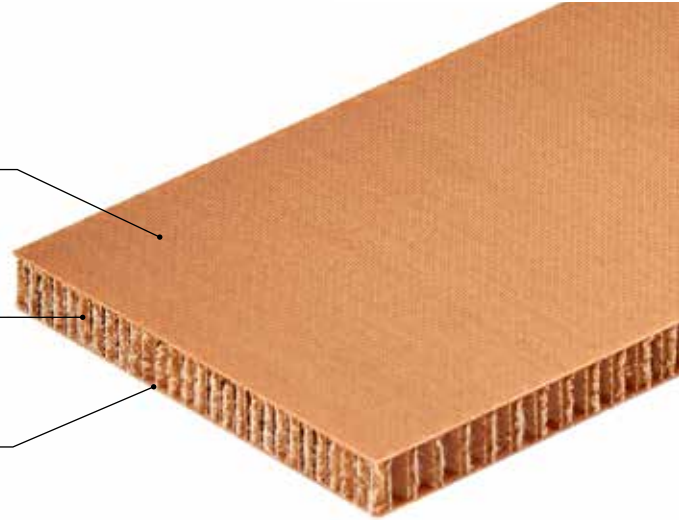
## ALUSTEP®- FN

### 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", X<sub>1</sub>

X<sub>1</sub> = 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's tolerance	mm	±30							
skins' thickness	mm	0,3							
glass fiber skin type		satin 8/1 300 gr/m <sup>2</sup>							
Impregnation		phenolic resin							
honeycomb type		aramid paper, impregnated with phenolic resin							
diameter of honeycomb	Ø = mm	3 and 4,8							
honeycomb density	Kg/m <sup>3</sup>	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 <sup>2</sup>	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 <sup>4</sup> /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 <sup>-1</sup>	1,5 * 10 <sup>-5</sup> / 1,5 mm for ΔT 100 °C for 1 meter length						

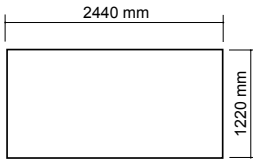
\*\* Tested by Internal Laboratory

\*\*\* 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 a honeycomb in nomex diameter 3mm mm 48 kg/m<sup>3</sup> and two skins in fiberglass impregnated with phenolic resin and thermoplastic adhesive

Standard dimensions (other dimensions available on request) - Dimension tolerance  $\pm 30$ mm





Tolerance - density +/- 16%



Nomex<sup>®</sup> honeycomb

Honeycomb core's properties					
Nomenclature			Compression Strength	L-Shear	W-Shear
	Cell size mm	Density kg/m <sup>3</sup>	N/mm <sup>2</sup>	N/mm <sup>2</sup>	N/mm <sup>2</sup>
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.

FIRE REACTION			
SECTOR	NORM	CLASSIFICATION	DESCRIPTION
SHIPBUILDING	FTP CODE 2010 3.18a  0407	<b>LOW FLAMESPREAD</b>  <b>MOD. B.</b> Certification Nr. MED- 269 (IG-004-2019) REV.0  <b>MOD. D.</b> Certification Nr. MED- 154 (IG-178-2014) REV.16	<b>ALUSTEP FN</b>  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 	<b>MOD. B.</b> USCG Approval Nr. 164.112/0407  <b>MOD. D.</b> USCG Approval Nr. 164.112/0407/MED000154	<b>ALUSTEP FN</b>  Aramid paper panel with skins in fiberglass impregnated with phenolic resin
RAILWAY VEHICLES	UNI EN 45545-2	<b>HL2 (HAZARD LEVEL)</b> (10 - 25mm)  Class certification Nr. 358634	<b>ALUSTEP FN</b>  Aramid paper panel with skins in fiberglass impregnated with phenolic resin.  Meets requirements for applications  <b>R2</b> suspended ceilings, countertop <b>R1</b> partitions
RAILWAY VEHICLES	UNI EN 45545-2	<b>HL3 (HAZARD LEVEL)</b> (4-25mm)  Class certification Nr. 355811	<b>ALUSTEP FN</b>  Aramid paper panel with skins in fiberglass impregnated with phenolic resin.  Meets requirements for applications  <b>R10</b> floors