

High Specific Properties

DATA SHEET 06.2021 - Replaces 04.2020

DESCRIPTION



AIREX® C70 is a closed cell, cross-linked polymer foam that combines excellent stiffness and strength to weight ratios with superior toughness.

It is non-friable, contains no CFC's, has negligible water absorption, and provides an excellent resistance to chemicals. The fine cell structure offers an excellent bonding surface.

Compatible with most resins and manufacturing processes **AIREX® C70** is ideally suited as a core material for a wide variety of sandwich structures subjected to both static and dynamic loads. Thanks to its unique lightness (properties vs. density) C70 is the material of choice for applications where lightweight is a priority.

CHARACTERISTICS

- Outstanding strength and stiffness to weight ratios
- Good impact strength
- Low resin absorption
- High fatigue resistance
- Good fire performance (self-extinguishing)
- High sound and thermal insulation
- Good styrene resistance

APPLICATIONS

- **Marine:** Hulls, decks, bulkheads, superstructures, interiors
- **Automotive and Rail:** Roof panels, interiors, floors, doors, partition walls, side skirts, front-ends
- **Renewable energy:** Rotor blades, nacelles, turbine generator housings
- **Aerospace:** Interiors, radomes, galley carts, general aviation (fuselage and wing)
- **Industrial:** Tooling, tanks, ductwork, containers, covers, applications for recreation and sports

PROCESSING

- Contact molding (hand/spray)
- Vacuum infusion
- Resin injection (RTM)
- Adhesive bonding
- Pre-preg processing
- Thermoforming

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MECHANICAL PROPERTIES							
Typical properties for AIREX® C70		Unit (metric)	Value ¹⁾	C70.55	C70.75	C70.90	C70.130
Density	ISO 845	kg/m ³	Average <i>Typ. range</i>	60 <i>54 - 69</i>	80 <i>72 - 92</i>	100 <i>90 - 115</i>	130 <i>120 - 150</i>
Compressive strength perpendicular to the plane	ISO 844	N/mm ²	Average <i>Minimum</i>	0.90 <i>0.75</i>	1.45 <i>1.10</i>	2.0 <i>1.7</i>	3.0 <i>2.6</i>
Compressive modulus perpendicular to the plane	DIN 53421	N/mm ²	Average <i>Minimum</i>	69 <i>55</i>	104 <i>80</i>	130 <i>110</i>	170 <i>145</i>
Tensile strength in the plane	ISO 527 1-2	N/mm ²	Average <i>Minimum</i>	1.3 <i>1.0</i>	2.0 <i>1.6</i>	2.7 <i>2.2</i>	4.0 <i>3.0</i>
Tensile modulus in the plane	ISO 527 1-2	N/mm ²	Average <i>Minimum</i>	45 <i>35</i>	66 <i>50</i>	84 <i>65</i>	115 <i>95</i>
Shear strength	ISO 1922	N/mm ²	Average <i>Minimum</i>	0.85 <i>0.70</i>	1.2 <i>1.0</i>	1.7 <i>1.4</i>	2.4 <i>2.1</i>
Shear modulus	ASTM C393	N/mm ²	Average <i>Minimum</i>	22 <i>18</i>	30 <i>24</i>	40 <i>34</i>	54 <i>45</i>
Shear elongation at break	ISO 1922	%	Average <i>Minimum</i>	16 <i>10</i>	18 <i>10</i>	23 <i>12</i>	30 <i>20</i>
Thermal conductivity at room temperature	ISO 8301	W/m.K	Average	0.031	0.033	0.035	0.039
Standard sheet	Width	mm ± 5		1150	1020	950	850
	Length	mm ± 5		2450 ²⁾	2180	2050	1900
	Thickness	mm ± 0.5		5 to 70	3 to 68	3 to 60	5 to 50

Finishing Options, other dimensions and closer tolerances upon request

¹⁾ Minimum values acc. DNV-GL definition; test sample thickness 20 mm except tensile properties (10 mm) and compressive modulus (40 mm)

²⁾ Half-size plane sheets for thickness ≤ 9 mm ex-Sins; full-size sheets ex-China

The data provided gives approximate values for the nominal density and DNV-GL minimum values according to DNV-GL type approval certificate.

The information contained herein is believed to be correct and to correspond to the latest state of scientific and technical knowledge. However, no warranty is made, either expressed or implied, regarding its accuracy or the results to be obtained from the use of such information. No statement is intended or should be construed as a recommendation to infringe any existing patent.

MECHANICAL PROPERTIES							
Typical properties for AIREX® C70		Unit (imperial)	Value ¹⁾	C70.55	C70.75	C70.90	C70.130
Density	ISO 845	lb/ft ³	Average <i>Typ. range</i>	3.7 3.4 - 4.3	5.0 4.5 - 5.7	6.2 5.6 - 7.2	8.1 7.5 - 9.4
Compressive strength perpendicular to the plane	ISO 844	psi	Average <i>Minimum</i>	130 109	210 160	290 247	435 377
Compressive modulus perpendicular to the plane	DIN 53421	psi	Average <i>Minimum</i>	10'000 7'975	15'080 11'600	18'850 15'950	24'650 21'025
Tensile strength in the plane	ISO 527 1-2	psi	Average <i>Minimum</i>	190 145	290 232	390 319	580 435
Tensile modulus in the plane	ISO 527 1-2	psi	Average <i>Minimum</i>	6'530 5'075	9'600 7'250	12'200 9'425	16'680 13'775
Shear strength	ISO 1922	psi	Average <i>Minimum</i>	123 102	175 145	247 203	348 305
Shear modulus	ASTM C393	psi	Average <i>Minimum</i>	3'190 2'610	4'350 3'480	5'802 4'930	7'830 6'525
Shear elongation at break	ISO 1922	%	Average <i>Minimum</i>	16 10	18 10	23 12	30 20
Thermal conductivity at room temperature	ISO 8301	BTU.in/ft ² .hr.°F	Average	0.21	0.23	0.24	0.27
Standard sheet	Width	in ± 0.2		45.3	40.2	37.4	33.5
	Length	in ± 0.2		96.5 ²⁾	85.8	80.7	74.8
	Thickness	in ± 0.02		0.2 to 2.8	³ / ₈ to 2.7	³ / ₈ to 2.4	0.2 to 2

Finishing Options, other dimensions and closer tolerances upon request

¹⁾ Minimum values acc. DNV-GL definition; test sample thickness 20 mm (³/₄" except tensile properties 10 mm (³/₈" and compressive modulus 40 mm (1 ¹/₂"

²⁾ Half-size plane sheets for thickness <= 9 mm (0.354") ex-Sins; full-size sheets ex-China

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