

DESCRIPTION



AIREX® T92 is a closed-cell, thermoplastic and recyclable polymer foam with very good mechanical properties and an outstanding price / performance ratio.

It has an extraordinary resistance to fatigue, is chemically stable and has negligible water absorption. It is thermally stable during high temperature processing and post curing without after expansion or out-gassing. T92 is designed for easy use with all resin systems and processing technologies.

AIREX® T92 is ideally suited as a core material for a wide variety of lightweight sandwich structures subjected to static and dynamic loads and/or exposed to elevated temperatures during manufacturing.

CHARACTERISTICS

- Easy to process with all types of resin and lamination processes
- High process temperature up to 150 °C (302 °F)
- Outstanding fatigue strength
- Best-in-class resin uptake
- Very high chemical stability
- Good adhesion (skin-to-core bond)
- Excellent long term thermal stability up to 100 °C (212 °F)
- No water absorption, after expansion nor out-gassing
- Recyclable and recycled material
- Highly consistent material properties
- Comprehensive material traceability (machine-readable batch information on each foam sheet)

APPLICATIONS

- **Wind energy:** Blades (shear webs & shells), nacelles
- **Marine:** Decks, hull sides, superstructures, bulkheads, transoms, interiors
- **Industrial:** Covers, containers, local reinforcements, x-ray tables, sporting goods
- **Transportation:** Truck body parts, floors

PROCESSING

- Contact molding (hand/spray)
- Vacuum infusion
- Resin infusion / injection (VARTM / RTM)
- Adhesive bonding
- Pre-preg processing
- Compression molding (GMT, SMC)
- Thermoforming

MECHANICAL PROPERTIES									
Typical properties for AIREX® T92		Unit (metric)	Value ¹⁾	T92.60	T92.80	T92.100	T92.130	T92.200	T92.320 ³⁾
Density	ISO 845	kg/m ³	Average <i>Typ. range</i>	65 60 - 70	85 80 - 90	100 95 - 105	135 127 - 143	210 200 - 220	320 310 - 330
Compressive strength perpendicular to the plane	ISO 844	N/mm ²	Average <i>Minimum</i>	0.85 0.75	1.3 1.1	1.75 1.4	2.4 2.1	3.8 3.2	7.1 6.5
Compressive modulus perpendicular to the plane	ISO 844	N/mm ²	Average <i>Minimum</i>	55 45	75 60	90 65	140 110	180 150	280 240
Tensile strength perpendicular to the plane	ASTM C297	N/mm ²	Average <i>Minimum</i>	1.5 1.3	1.9 1.4	2.3 1.5	2.6 2.0	3.1 2.5	4.5
Tensile modulus perpendicular to the plane	ASTM C297	N/mm ²	Average <i>Minimum</i>	85 75	90 80	110 90	175 130	230 190	420
Shear strength	ISO 1922	N/mm ²	Average <i>Minimum</i>	0.55 0.46	0.72 0.65	0.9 0.75	1.3 1.1	2.0 1.6	3.5 3.0
Shear modulus									
Parallel to welding lines	ISO 1922	N/mm ²	Average	15	22	26	34	55	110
Across welding lines			Average	14	19.5	23	30	50	110
Across welding lines			<i>Minimum</i>	12	16	19	25	45	90
Shear elongation at break	ISO 1922	%	Average <i>Minimum</i>	25 15	30 20	20 10	12 8	6 4	5 3
Thermal conductivity at 10 °C	EN 12667	W/m.K	Average	0.037	0.030	0.034	0.037	0.045	0.066
Standard sheet	Width ²⁾	mm ± 5		1220	1220	1220	1220	1220	1220
	Length ²⁾	mm ± 5		2440	2440	2440	2440	2440	2440
	Thickness	mm ± 0.5		5 to 100	5 to 100	5 to 100	5 to 100	5 to 100	5 to 50

Finishing Options, other dimensions and closer tolerances upon request

¹⁾ Statistical minimum values; test sample thickness 20 mm except thermal conductivity (50 mm)

²⁾ Alternative width 610 mm, alternative length 1220 mm

³⁾ Preliminary data

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.

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MECHANICAL PROPERTIES									
Typical properties for AIREX® T92		Unit (imperial)	Value ¹⁾	T92.60	T92.80	T92.100	T92.130	T92.200	T92.320 ³⁾
Density	ISO 845	lb/ft ³	Average <i>Typ.range</i>	4.1 3.7 - 4.4	5.3 5.0 - 5.6	6.2 5.9 - 6.6	8.4 7.9 - 8.9	13 12.5 - 13.7	20 19.4 - 20.6
Compressive strength perpendicular to the plane	ISO 844	psi	Average <i>Minimum</i>	123 109	188 160	254 203	350 305	551 464	1'030 943
Compressive modulus perpendicular to the plane	ISO 844	psi	Average <i>Minimum</i>	7'980 6'530	10'880 8'700	13'050 9'425	20'310 15'950	26'100 21'750	40'610 34'810
Tensile strength perpendicular to the plane	ASTM C297	psi	Average <i>Minimum</i>	218 189	275 203	330 218	377 290	450 360	653
Tensile modulus perpendicular to the plane	ASTM C297	psi	Average <i>Minimum</i>	12'330 10'880	13'050 11'600	15'950 13'050	25'380 18'850	33'360 27'550	60'920
Shear strength	ISO 1922	psi	Average <i>Minimum</i>	80 67	104 94	130 109	190 160	290 230	508 435
Shear modulus Parallel to welding lines Across welding lines Across welding lines	ISO 1922	psi	Average Average <i>Minimum</i>	2'180 2'030 1'740	3'190 2'830 2'320	3'770 3'335 2'755	4'960 4'350 3'625	7'975 7'250 6'525	15'950 15'950 13'050
Shear elongation at break	ISO 1922	%	Average <i>Minimum</i>	25 15	30 20	20 10	12 8	6 4	5 3
Thermal conductivity at 50 °F	EN 12667	Btu.in/hr.ft ² .F	Average	0.257	0.208	0.236	0.257	0.312	0.458
Standard sheet	Width ²⁾	in ± 0.2		48	48	48	48	48	48
	Length ²⁾	in ± 0.2		96	96	96	96	96	96
	Thickness	in ± 0.02		½ to 4	½ to 4	½ to 4	½ to 4	½ to 4	0.2 to 2

Finishing Options, other dimensions and closer tolerances upon request

¹⁾ Statistical minimum values; test sample thickness 20 mm (¾") except thermal conductivity 50 mm (2")

²⁾ Alternative width 24", alternative length 48"

³⁾ Preliminary data

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