

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, UV-resistant 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:** Hulls, decks, superstructures, bulkheads, transoms, interiors stringers
- **Industrial:** Covers, containers, local reinforcements, x-ray tables, sporting goods

PROCESSING

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

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MECHANICAL PROPERTIES									
Typical properties for AIREX® T92		Unit (metrical)	Value ¹⁾	T92.80	T92.100	T92.110	T92.130	T92.200	T92.320 ³⁾
Density	ISO 845	kg/m ³	Average <i>Typ. range</i>	85 80 - 90	100 95-110	110 105-115	135 127 - 143	210 200 - 220	320 310 - 330
Compressive strength perpendicular to the plane	ISO 844	N/mm ²	Average <i>Minimum</i>	1.0 0.8	1.75 1.4	2.1 1.6	2.4 2.1	3.5 3.2	7.1 6.5
Compressive modulus perpendicular to the plane	ISO 844	N/mm ²	Average <i>Minimum</i>	70 50	90 65	110 80	140 110	180 150	280 240
Tensile strength perpendicular to the plane	ASTM C297	N/mm ²	Average <i>Minimum</i>	1.9 1.4	2.3 1.5	2.4 1.8	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>	90 80	110 90	145 100	175 130	230 190	420
Shear strength	ISO 1922	N/mm ²	Average <i>Minimum</i>	0.65 0.55	0.9 0.75	1.05 0.9	1.3 1.1	2.0 1.6	3.5 3.0
Shear modulus Parallel to welding lines Across welding lines Across welding lines	ISO 1922	N/mm ²	Average Average <i>Minimum</i>	20 17 14	26 23 19	30 27 21	34 30 25	55 50 45	110 110 90
Shear elongation at break	ISO 1922	%	Average <i>Minimum</i>	30 20	20 10	15 10	12 8	6 4	5 3
Thermal conductivity at 10°C	EN 12667	W/m.K	Average	0.030	0.034	0.035	0.037	0.045	0.066
Standard sheet	Width ²⁾	mm ± 5		610	610	610	610	610	610
	Length ²⁾	mm ± 5		1220	1220	1005	1220	1220	1220
	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⁾ Minimum values acc. DNV definition; test sample thickness 20 mm except thermal conductivity (50mm)

²⁾ Alternative width 1220 mm (1005 mm for T92.110), alternative length 2440 mm

³⁾ Preliminary data

The data provided gives approximate values for the nominal density and DNV minimum values according to DNV 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® T92		Unit (imperial)	Value ¹⁾	T92.80	T92.100	T92.110	T92.130	T92.200	T92.320 ³⁾
Density	ISO 845	lb/ft ³	Average <i>Typ.range</i>	5.3 5.0 - 5.6	6.2 5.9 - 6.9	6.9 6.6 - 7.2	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>	145 116	254 203	305 232	350 305	508 464	1'030 943
Compressive modulus perpendicular to the plane	ISO 844	psi	Average <i>Minimum</i>	10'150 7'250	13'050 9'425	15'950 11'600	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>	275 203	330 218	348 261	377 290	450 360	653
Tensile modulus perpendicular to the plane	ASTM C297	psi	Average <i>Minimum</i>	13'050 11'600	15'950 13'050	21'030 14'500	25'380 18'850	33'360 27'550	60'920
Shear strength	ISO 1922	psi	Average <i>Minimum</i>	94 80	130 109	150 131	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>	2'890 2'470 2'030	3'770 3'335 2'755	4'350 3'915 3'045	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>	30 20	20 10	15 10	12 8	6 4	5 3
Thermal conductivity at 50°F	EN 12667	Btu.in/hr.ft ² .F	Average	0.208	0.236	0.243	0.257	0.312	0.458
Standard sheet	Width ²⁾	in ± 0.2		48	39 ½	48	48	48	48
	Length ²⁾	in ± 0.2		96	96	96	96	96	96
	Thickness	in ± 0.02		¼ to 4	¼ to 4	¼ to 4	¼ to 4	¼ to 4	0.2 to 2

Finishing Options, other dimensions and closer tolerances upon request

¹⁾ Minimum values acc. DNV definition; test sample thickness 20 mm (¾") except thermal conductivity 50mm (2")

²⁾ Alternative width 24", alternative length 48" (39 ½" for T92.110)

³⁾ Preliminary data

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