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AIREX® R63
DAMAGE TOLERANT FOAM

Description

A closed-cell, linear, thermoplastic foam with extremely high damage tolerance. This one of a kind formula combines very high elongation and excellent bond strength. It is cold formable to simple shapes and thermoformable to complex 3-dimensional curves, and is non-friable. It is an exceptional core material for dynamically loaded and shock absorbing sandwich structures.

Applications

- **Marine**
  hull bottoms, hull sides
- **Road and Rail**
  front-ends, side skirts, crash belts
- **Aircraft**
  explosion proof cargo containers
- **Recreation**
  surfboards, canoes, kayaks
- **Industrial**
  containers, shelters, helmets

Characteristics

- **extraordinary impact strength (non-brittle failure mode)**
- **easy to thermoform**
- **dimensionally stable**
- excellent fatigue resistance
- outstanding adhesion
- non biodegradable
- good sound and thermal insulation

Processing

- contact molding (hand/spray)
- adhesive bonding
- thermoforming
- pre-preg processing
- vacuum infusion

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Typical properties for AIREX® R63			**R63.50**	**R63.80**	**R63.140**
Apparent nominal density	ISO 845	kg/m³ lb/ft³	60 3.7	90 5.6	140 8.7
Compressive strength perpendicular to the plane	ISO 844	N/mm² psi	0.38 55	0.90 130	1.6 230
Compressive modulus perpendicular to the plane	DIN 53421	N/mm² psi	30 4350	56 8120	110 16000
Tensile strength in the plane	ISO 527-2	N/mm² psi	0.90 130	1.4 200	2.4 350
Tensile modulus in the plane	ISO 527-2	N/mm² psi	30 4350	50 7250	90 13100
Shear strength	ISO 1922	N/mm² psi	0.50 72	1.0 145	1.85 270
Shear modulus	ASTM C393	N/mm² psi	11 1600	21 3050	37 5370
Shear elongation at break	ISO 1922	%	70	75	80
Impact strength	DIN 53453	kJ/m² ft.lb/in²	4.0 1.9	5.0 2.4	6.5 3.12
Thermal conductivity at room temperature	ISO 8301	W/m.K BTU.in/ft².hr.°F	0.034 0.24	0.037 0.26	0.039 0.27
Plain sheet width length thickness**		mm ± 10 in mm ± 10 in mm ± 0.5 in	1300 to 1400 51 to 55 2900 to 3100 114 to 122 5 to 50 0.197 to 1.97	1200 47.25 2700 106.3 3* to 30 0.118 to 1.18	1050 41.3 2400 94.5 3* to 20 0.118 to 0.78
Contoured width length thickness		mm ± 5 in mm ± 5 in mm ± 0.5 in	on request	520 20.5 1200 47.25 10 to 25 0.38 to 1	on request
Color			brownish yellow	brownish yellow	brownish yellow

Other dimensions, configurations, and closer tolerances upon request

* Tolerance for 3 mm: +0.8mm / - 0.2mm
**thicker sheets can be laminated

The data provided gives approximate values for the nominal density. Due to density variations these values can be lower than indicated above. Minimum values to calculate sandwich constructions can be provided upon request.
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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