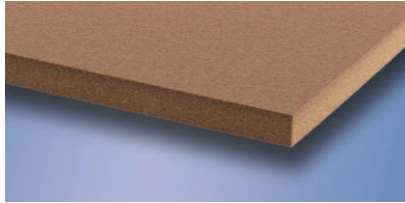


DESCRIPTION



AIREX[®] R63 is a closed-cell, linear, thermoplastic polymer foam with extremely high damage tolerance.

This one of a kind formula combines very high elongation and excellent bond strength. **AIREX[®] R63** is cold formable to simple shapes and thermoformable to complex three-dimensional curves, and is non-friable.

AIREX[®] R63 is an exceptional core material for dynamically loaded and shock absorbing sandwich structures.

CHARACTERISTICS

- Extraordinary impact strength (non-brittle failure mode)
- Very easy to form (cold and hot)
- Dimensionally stable
- Excellent fatigue resistance
- Outstanding core-to-skin adhesion
- Non biodegradable
- Good sound and thermal insulation

APPLICATIONS

- **Marine:** Hull bottoms, hull sides
- **Road and Rail:** Front-ends, side skirts, crash belts
- **Aircraft:** Explosion proof cargo containers
- **Recreation:** Surf boards, canoes, kayaks
- **Industrial:** Containers, shelters, helmets

PROCESSING

- Contact molding (hand/spray)
- Adhesive bonding
- Thermoforming
- Vacuum infusion

| MECHANICAL PROPERTIES | | | | | | |
|---|-------------|------------------------|------------------------------|-----------------|-----------------------|-------------------------|
| Typical properties for AIREX® R63 | | Unit (metrical) | Value¹⁾ | R63.50 | R63.80 | R63.140 |
| Density | ISO 845 | kg/m ³ | Average <i>Typ. Range</i> | 60 | 90 <i>80 - 120</i> | 140 <i>125 - 170</i> |
| Compressive strength perpendicular to the plane | ISO 844 | N/mm ² | Average <i>Minimum</i> | 0.38 | 0.90 <i>0.70</i> | 1.6 <i>1.3</i> |
| Compressive modulus perpendicular to the plane | DIN 53421 | N/mm ² | Average <i>Minimum</i> | 30 | 56 <i>46</i> | 110 <i>100</i> |
| Tensile strength in the plane | ISO 527 1-2 | N/mm ² | Average <i>Minimum</i> | 0.90 | 1.4 <i>1.2</i> | 2.4 <i>2.2</i> |
| Tensile modulus in the plane | ISO 527 1-2 | N/mm ² | Average <i>Minimum</i> | 30 | 50 <i>45</i> | 90 <i>80</i> |
| Shear strength | ISO 1922 | N/mm ² | Average <i>Minimum</i> | 0.50 | 1.0 <i>0.8</i> | 1.85 <i>1.60</i> |
| Shear modulus | ASTM C393 | N/mm ² | Average <i>Minimum</i> | 11 | 21 <i>18</i> | 37 <i>35</i> |
| Shear elongation at break | ISO 1922 | % | Average <i>Minimum</i> | 70 | 75 <i>70</i> | 80 <i>75</i> |
| Impact strength | DIN 53453 | kJ/m ² | Average | 4.0 | 5.0 | 6.5 |
| Thermal conductivity at room temperature | ISO 8301 | W/m.K | Average | 0.034 | 0.037 | 0.039 |
| Standard sheet | Width | mm ± 5 | | 1300 to 1400 | 1200 ²⁾ | 1050 ²⁾ |
| | Length | mm ± 5 | | 2900 to 3100 | 2700 ²⁾ | 2400 ²⁾ |
| | Thickness | mm ± 0.5 | | 5 to 50 | 3 to 30 ³⁾ | 3 to 20 ³⁾ |
| Color | | | | brownish yellow | brownish yellow | brownish yellow |

Finishing Options, other dimensions and closer tolerances upon request

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

²⁾ Tolerance for thickness 3 - 9 mm: +/- 10 mm

³⁾ Thicker sheets can be laminated

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® R63 | | Unit (imperial) | Value¹⁾ | R63.50 | R63.80 | R63.140 |
| Density | ISO 845 | lb/ft ³ | Average <i>Typ. Range</i> | 3.7 | 5.6 5.0 - 7.5 | 8.7 7.8 - 10.6 |
| Compressive strength perpendicular to the plane | ISO 844 | psi | Average <i>Minimum</i> | 55 | 130 102 | 230 189 |
| Compressive modulus perpendicular to the plane | DIN 53421 | psi | Average <i>Minimum</i> | 4'350 | 8'120 6'670 | 16'000 14'500 |
| Tensile strength in the plane | ISO 527 1-2 | psi | Average <i>Minimum</i> | 130 | 200 174 | 350 319 |
| Tensile modulus in the plane | ISO 527 1-2 | psi | Average <i>Minimum</i> | 4'350 | 7'250 6'525 | 13'100 11'600 |
| Shear strength | ISO 1922 | psi | Average <i>Minimum</i> | 72 | 145 116 | 270 232 |
| Shear modulus | ASTM C393 | psi | Average <i>Minimum</i> | 1'600 | 3'050 2'610 | 5'370 5'075 |
| Shear elongation at break | ISO 1922 | % | Average <i>Minimum</i> | 70 | 75 70 | 80 75 |
| Impact strength | DIN 53453 | ft.lb/in ² | Average | 1.9 | 2.4 | 3.12 |
| Thermal conductivity at room | ISO 8301 | BTU.in/ft ² .hr.°F | Average | 0.24 | 0.26 | 0.27 |
| Standard sheet | width | mm ± 5 | | 1300 to 1400 | 1200 ²⁾ | 1050 ²⁾ |
| | length | mm ± 5 | | 2900 to 3100 | 2700 ²⁾ | 2400 ²⁾ |
| | thickness | mm ± 0.5 | | 5 to 50 | 3 to 30 ³⁾ | 3 to 20 ³⁾ |
| Color | | | | brownish yellow | brownish yellow | brownish yellow |

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

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