



Arabian Fiberglass Insulation Company Ltd.
J.V. of Zamil Industrial & Owens Corning Corp.



Thermacon Mechanical Board Insulation

Technical Data Sheet
Product Code: **MBD**



DESCRIPTION

Thermacon Mechanical Board Insulation is composed of fine, stable and uniformly textured inorganic glass fibers bonded together by a non water soluble and fire retardant thermosetting and heat resistant resin, and formed into semi-rigid and rigid rectangular boards or slabs. It is free from coarse fibers and shot due to its mineral composition.

FACING

Thermacon Mechanical Board Insulation is available unfaced or with one side factory-applied Aluminum Foil Reinforced Kraft Paper Laminate (FRK), or a white All Service Jacket (ASJ) to give a pleasing appearance vapor barrier. The facings have UL fire resistant ratings.

APPLICATION

Thermacon Mechanical Board Insulation is intended for use in commercial, institutional, industrial and residential construction as thermal and acoustic insulation for the exterior of duct work and mechanical, air handling equipment, vessels and tanks where abuse resistance is required.

The semi-rigid boards with densities from 24 to 48 kg/m³, (1.5 - 3.0 lb/ft³) are flexible insulation boards for application over irregularly shaped surfaces where board-like properties are desired. The rigid boards with densities from 56 to 120 kg/m³, 3.5 - 7.5 lb/ft³ are even more rigid for strength, abuse resistance and a flat appearance.

STANDARD AVAILABLE PRODUCTS

Nominal Manufacturing Specifications.
Check for availability of other dimensions and densities.

NOMINAL THERMAL CONDUCTIVITY

W/m.°C-Btu.in./ft².hr°F (ASTM C 518) (BS 874)
"K" or "λ" value at mean temperatures

| Product Type MB | Density | | Thickness | | Width | | Length | | 0°C | 32°F | 10°C | 50°F | 24°C | 75°F | 50°C | 122°F | 75°C | 167°F | 100°C | 212°F |
|-----------------|-------------------|--------------------|-----------|-------|-------|----|--------|----|-------|------|-------|------|-------|------|-------|-------|-------|-------|-------|-------|
| | kg/m ³ | lb/ft ³ | mm | inch | m | ft | m | ft | | | | | | | | | | | | |
| 240 | 24 | 1.5 | 25 | 1 | 1.2 | 4 | 1 | 3 | 0.031 | 0.21 | 0.032 | 0.22 | 0.035 | 0.24 | 0.039 | 0.27 | 0.043 | 0.30 | 0.047 | 0.33 |
| | | | 38 | 1 1/2 | | | | | | | | | | | | | | | | |
| | | | 50 | 2 | | | | | | | | | | | | | | | | |
| 320 | 32 | 2.0 | 25 | 1 | 1.2 | 4 | 1 | 3 | 0.030 | 0.20 | 0.031 | 0.22 | 0.033 | 0.23 | 0.037 | 0.25 | 0.040 | 0.27 | 0.044 | 0.30 |
| | | | 38 | 1 1/2 | | | | | | | | | | | | | | | | |
| | | | 50 | 2 | | | | | | | | | | | | | | | | |
| 400 | 40 | 2.5 | 25 | 1 | 1.2 | 4 | 1 | 3 | 0.029 | 0.20 | 0.031 | 0.21 | 0.032 | 0.22 | 0.036 | 0.25 | 0.039 | 0.27 | 0.043 | 0.30 |
| | | | 38 | 1 1/2 | | | | | | | | | | | | | | | | |
| | | | 50 | 2 | | | | | | | | | | | | | | | | |
| 480* | 48 | 3.0 | 25 | 1 | 1.2 | 4 | 1 | 3 | 0.029 | 0.20 | 0.030 | 0.21 | 0.031 | 0.22 | 0.035 | 0.24 | 0.037 | 0.26 | 0.041 | 0.29 |
| | | | 38 | 1 1/2 | | | | | | | | | | | | | | | | |
| | | | 50 | 2 | | | | | | | | | | | | | | | | |
| 560 | 56 | 3.5 | 25 | 1 | 1.2 | 4 | 1 | 3 | 0.030 | 0.21 | 0.031 | 0.21 | 0.032 | 0.23 | 0.036 | 0.24 | 0.038 | 0.26 | 0.042 | 0.29 |
| | | | 38 | 1 1/2 | | | | | | | | | | | | | | | | |
| | | | 50 | 2 | | | | | | | | | | | | | | | | |
| 640* | 64 | 4.0 | 25 | 1 | 1.2 | 4 | 1 | 3 | 0.030 | 0.21 | 0.031 | 0.21 | 0.032 | 0.22 | 0.036 | 0.24 | 0.038 | 0.26 | 0.043 | 0.29 |
| | | | 38 | 1 1/2 | | | | | | | | | | | | | | | | |
| | | | 50 | 2 | | | | | | | | | | | | | | | | |
| 720 | 72 | 4.5 | 25 | 1 | 1.2 | 4 | 1 | 3 | 0.030 | 0.21 | 0.031 | 0.21 | 0.032 | 0.22 | 0.036 | 0.24 | 0.038 | 0.26 | 0.043 | 0.29 |
| | | | 38 | 1 1/2 | | | | | | | | | | | | | | | | |
| | | | 50 | 2 | | | | | | | | | | | | | | | | |
| 800 | 80 | 5.0 | 25 | 1 | 1.2 | 4 | 1 | 3 | 0.030 | 0.21 | 0.031 | 0.21 | 0.032 | 0.22 | 0.036 | 0.25 | 0.039 | 0.27 | 0.043 | 0.30 |
| | | | 38 | 1 1/2 | | | | | | | | | | | | | | | | |
| | | | 50 | 2 | | | | | | | | | | | | | | | | |
| 960* | 96 | 6.0 | 25 | 1 | 1.2 | 4 | 1 | 3 | 0.030 | 0.21 | 0.031 | 0.21 | 0.032 | 0.22 | 0.036 | 0.25 | 0.039 | 0.27 | 0.043 | 0.30 |
| | | | 38 | 1 1/2 | | | | | | | | | | | | | | | | |
| | | | 50 | 2 | | | | | | | | | | | | | | | | |

* Standard Products and Sizes



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Performance & Physical Characteristics

Working Temperature Limitations (ASTM C 411)

-51°C to + 450°C. At Excessive temperatures, a limited migration of binder may occur in the insulation in contact with the hot surface. This in no way impairs the performance of the insulation.

Alkalinity

pH 9

Corrosiveness (ASTM C 665)

Chemically inert. Will not cause or accelerate corrosion of steel, stainless steel, copper or aluminum, due to its particular inorganic and mineral composition.

Mold Growth (ASTM D 2020, UL 181)

Does not breed or sustain mold, fungus, bacteria or rodents.

Moisture Absorption (ASTM D-07 B, ASTM C 553)

In conditions of 95% relative humidity at 49°C for 96 hours, moisture absorption is less than 0.2% by volume, when tested in accordance with ASTM C 533. **Thermacon** fiberglass products do not absorb moisture from the ambient air nor water by capillary attraction, only water under pressure can enter the insulation products but that will quickly dry out owing to the material's open cell structure.

Vapor Permeability (ASTM E 96 A)

FRK 0.02 PERM (U.S. Federal Specification HH-B-100 B TYPES I)
ASJ 0.02 PERM

Surface Burning Characteristics (UL 723, ASTM E 84, ASTM E 136)

Base glass fiber is non-combustible when tested to ASTM E 84.

| Facing | Flame Spread | Smoke Developed | Fuel Contributed |
|--------|--------------|-----------------|------------------|
| FRK | 0 | 0 | 0 |
| ASJ | 5 | 10 | 0 |

Compressive Strength

| Type | 240 | 320 | 400 | 480 | 560 | 640 | 720 | 800 | 960 |
|------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| PSF at 10% Deformation | 12 | 16 | 20 | 25 | 40 | 60 | 100 | 150 | 200 |
| PSF at 25% Deformation | 40 | 60 | 80 | 90 | 150 | 225 | - | - | - |

Fire Properties

B.S 476 Part 4 – Non-combustible
B.S 476 Part 5 – Ignitability
B.S 476 Part 6 – Fire Propagation
B.S 476 Part 7 – Surface Spread of Flame
Class "O" fire rating to the building regulations section E15

Specification Compliance

Thermacon Mechanical Board Insulation complies with the property requirements of the following specifications:

- U.S. Federal Specification HH-I-558B, Form A, Class I: Form B Type I, Class 7.
- US Federal Specification HH-1-558 B, Form B, Class 1 and 2.
- ASTM C 612, Classes 1 and 2
- ASTM C 553, Type III
- DCL ASTM - C 533 - C 547 - C 612 - C 665
- CE-EN 13162

Puncture Resistance (ASTM D 781)

FRK 25 Units
ASJ 50 Units

Thermal Resistance "R" Value (Excluding Facings) (ASTM C 167)

"R" is a measure of the resistance to heat flow of a material of any given thickness. ("R" = m². °C/W or hr. ft². °F/Btu.)

$$R = \frac{T}{K} \quad \text{where "T" = thickness} \\ \text{and "K" or "λ" = thermal conductivity}$$



Performance & Physical Characteristics

Sound Absorption Coefficients (ASTM C 384)

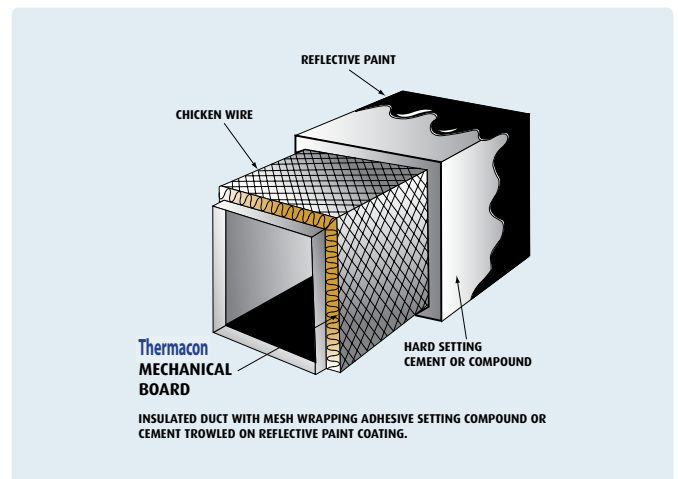
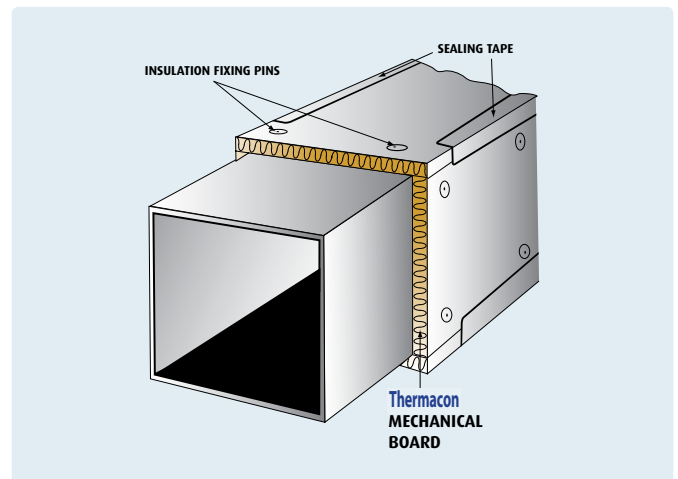
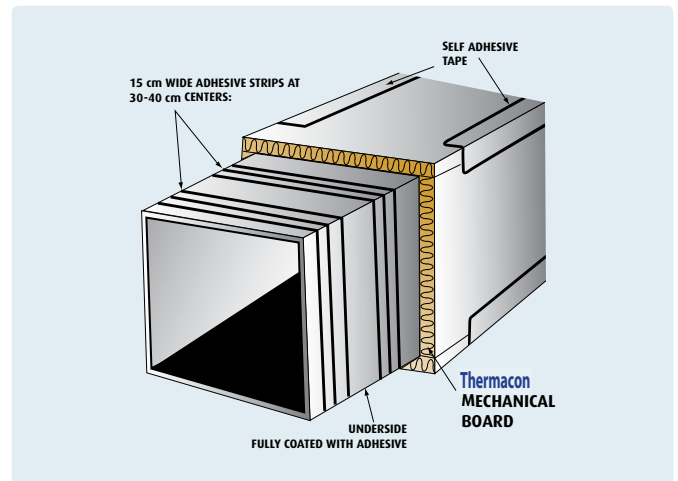
| Impedance Tube Method | Sound Absorption Coefficient at Frequencies (Hz) Octave Band Center Frequencies, Hz | | | | | |
|-----------------------------|--|------|------|------|------|------|
| | 125 | 250 | 500 | 1000 | 2000 | NRC |
| Insulation Thickness | | | | | | |
| Rigid | | | | | | |
| 25mm (1in) | 0.12 | 0.32 | 0.52 | 0.84 | 0.93 | 0.65 |
| 38mm (1½in) | 0.22 | 0.36 | 0.58 | 0.92 | 0.94 | 0.70 |
| 50mm (2in) | 0.31 | 0.44 | 0.73 | 0.92 | 0.95 | 0.75 |

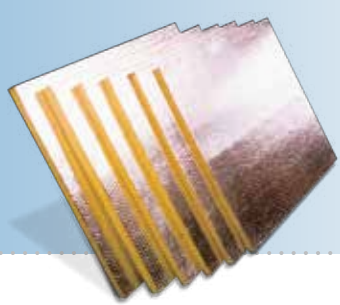
Sound Absorption Coefficient Reverberation Chamber Method (Unfaced)

| Insulation | Sound Absorption Coefficient at Frequencies (Hz) Octave Band Center Frequencies, Hz | | | | | | |
|-------------------|--|------|------|------|------|------|------|
| | 125 | 250 | 500 | 1000 | 2000 | 4000 | NRC |
| Thickness | | | | | | | |
| Flexible | | | | | | | |
| 25mm (1in) | 0.14 | 0.27 | 0.53 | 0.69 | 0.84 | 0.91 | 0.60 |
| Semi-rigid | | | | | | | |
| 25mm (1in) | 0.09 | 0.26 | 0.64 | 1.05 | 0.93 | 1.10 | 0.70 |
| 50mm (2in) | 0.28 | 0.80 | 1.12 | 1.18 | 1.12 | 1.10 | 1.05 |
| Rigid | | | | | | | |
| 25mm (1in) | 0.10 | 0.26 | 0.69 | 0.99 | 1.11 | 1.08 | 0.75 |
| 50mm (2in) | 0.26 | 0.75 | 1.17 | 1.14 | 1.06 | 1.07 | 1.05 |

Installation Recommendation

Thermacon Mechanical Board Insulation products can be cut with a knife and neatly fitted into irregularly shaped areas. They can be applied using mechanical fasteners, such as weld pins or stick clips, and/or adhesive. Pin spacing along a duct should be no greater than 300mm on centers. Fasteners should be located no less than 75mm from each edge or corner of the board. When installing faced boards, apply vapor-seal FRK or ASJ pressure sensitive patches and joint sealing tape. A 75mm wide tape should be used on flat surfaces or where edges are shiplapped and stapled.





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MAINTENANCE

No maintenance is required. **Thermacon Mechanical Board Insulation** have a high resistance to accidental damage from knocks and handling during installation and maintenance. Dimensionally stable under varying conditions of temperature and humidity, rot-proof, odourless, non-hygroscopic and will not sustain vermin or fungus due to its inorganic and mineral compositions.

The product will maintain its thermal properties throughout the lifetime of the construction and will not age. **Thermacon** fibreglass is non toxic and not hazardous to health.

STORAGE

To avoid moisture in the building construction, **Thermacon** insulation products stored outside must be kept dry. We recommend **Thermacon** products to be always stored in covered and dry areas. **Thermacon** is not liable for the damage resulting from inadequate utilization, loading and off loading and mishandling of its products.

WARRANTY

See manufacturer's General Terms and Conditions of Sale. As **Thermacon** and/or OC has no control over installation design, installation workmanship, accessory materials, or conditions of application, **Thermacon** and/or OC does not warrant the performance or results of any installation containing their products. This warranty disclaimer includes all implied warranties, including the warranties or merchantability and fitness for a particular purpose.

Arabian Fibreglass Insulation Company **Thermacon** reserves the right to alter product specifications without prior notice, as part of its policy of continued development and improvement. The installation methods described in this leaflet are not compulsory. The choice of **Thermacon** materials and methods of fixing are the decision of the specifier, consultant or contractor. For further information or advice on specification of **Thermacon** products, contact your local sales office.

AVAILABILITY

Manufactured by **Arabian Fibreglass Insulation Company, Ltd.** (AFICO), member of **Zamil Industrial**, with headquarters and production facilities located in Dammam, Saudi Arabia, under license from and utilizing the manufacturing specifications and technology of **Owens-Corning Corporation** (OC), Toledo, Ohio, U.S.A.

Marketed throughout Saudi Arabia, the G.C.C. countries, the Middle East and the Far East. **Thermacon** products are available directly from **Thermacon** as well as through a vast and reliable network of local distributors.

Special products are manufactured on request.

Thermacon PRODUCTS

PRODUCTS CODE

| | |
|--|------------|
| Acoustical Ceiling Panels | ACP |
| Blanket Insulation | BKT |
| HD Series Blanket Insulation | HDB |
| Board Insulation | BD |
| Roof Insulation | RI |
| Roof Deck Board Insulation | RD |
| Cavity Wall Insulation | CWI |
| Pre-engineered Metal Building Insulation | MBI |
| Faced Duct Wrap | FDW |
| Duct Liner | DL |
| Duct Liner Board | DLB |
| Mechanical Board Insulation | MBD |
| Heavy Density Pipe Insulation | PI |
| Pipe Wrap Insulation | PWI |
| Thermal Insulating Wool | TIW |
| Quiet Liner | AQL |
| Woven Facing | AWF |
| Prefabricated Duct Board | PDB |

For more information call the insulation professionals:



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ISO 14001

AFICO is committed to a greener, cleaner environment. AFICO have responded to this call for conservation by increasing the amounts of recycled materials in our products.

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