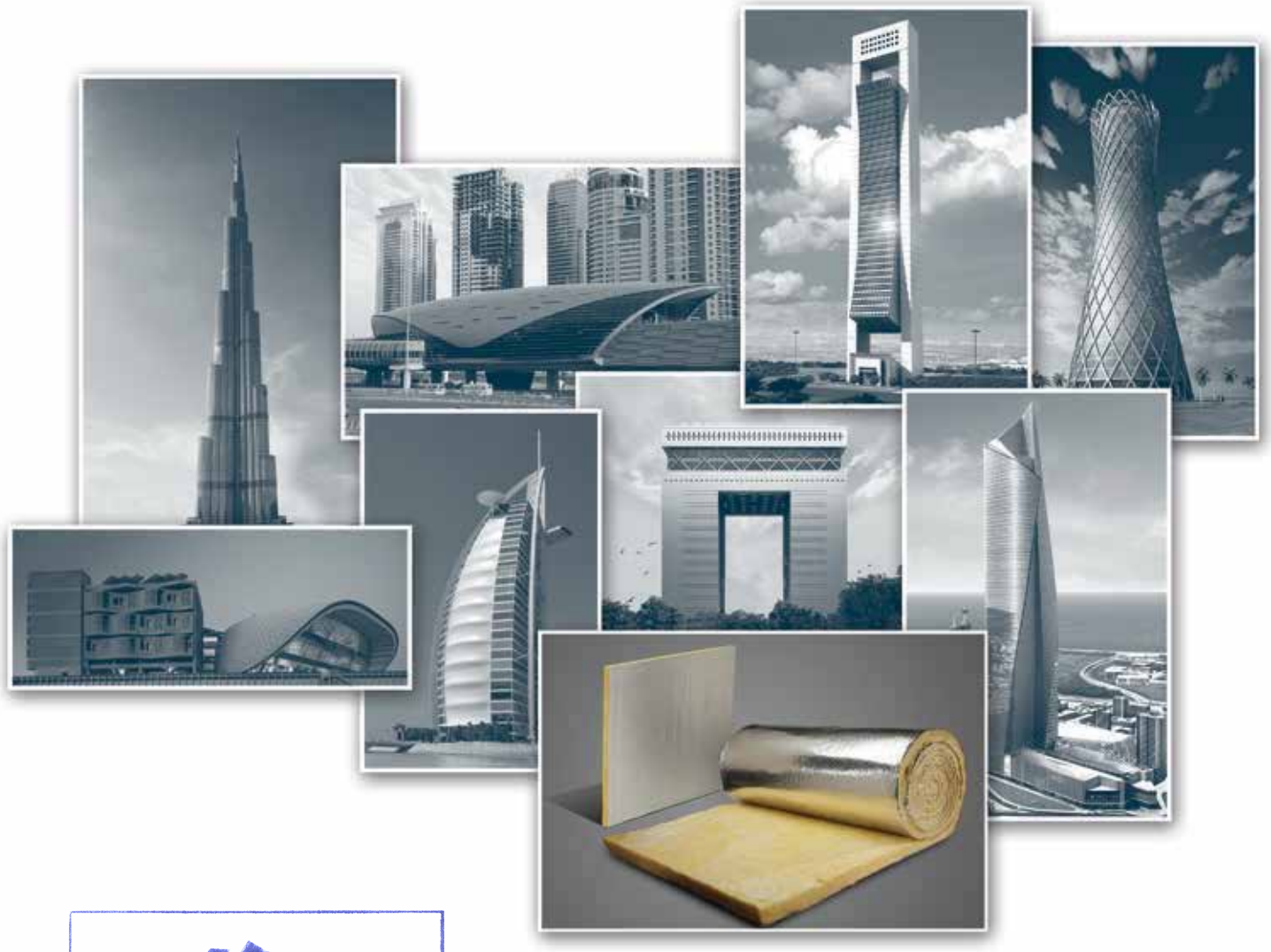
# KIMMCO-ISOVER
# Duct Insulation (KDI)

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KIMMCO ISOVER
SAINT-GOBAIN

# About Us

Alghanim Industries and French construction giant Saint-Gobain ISOVER join forces together after the recent launch of their new stone wool plant in Yanbu Saudi Arabia and the integration of KIMMCO in Kuwait.

With a 40 year track record in manufacturing, technology and supply of insulation materials and solutions to the Middle East markets, KIMMCO and Saint-Gobain ISOVER now offer their full range of glass wool and stone wool products and solutions under the brand KIMMCO-ISOVER.

Alghanim INDUSTRIES

- Alghanim Industries is one of the largest privately –owned companies in the Gulf region
- A heritage of over 100 years as a successful commercial enterprise in the Gulf region
- Operations in over 40 countries and employing
- Over 14,000 employees
- A multi-billion dollar company with more than 30 businesses.

SAINT-GOBAIN

World leader in sustainable habitat and construction market.

Saint-Gobain designs, manufactures and distributes material and solution which are key ingredients in the wellbeing of each of us and the future of all.

- Founded in 1665
- Nearly 179,000 employees
- Operates in 67 countries
- Close to 400 patents filed each year

# KIMMCO-ISOVER Duct Insulation (KDI)

## APPLICATIONS

External insulation of rectangular and circular air ducting and air handling equipment.

## DESCRIPTION

KDI is in the form of flexible rolls, semi-rigid and rigid slabs manufactured from stable glass fibers bonded with thermo-setting resins, and free from coarse fibers and shot. Easy to handle and cut to fit rectangular ducts and air handling equipment.

### Facings

KDI is available unfaced or with a glass reinforced aluminum foil/kraft laminate facing (FSK) which combines a pleasing appearance with excellent vapor resistance.

### Standard Dimensions

| Availability | Thickness (mm) | Width (m) | Length (m) |
|---|---|---|---|
| Rolls | 25, 40, 50, 75, 100 | 0.4, 0.6, 1.0, 1.2 | 10 to 45 according to the thickness & density |
| Slabs | 25, 40, 50, 75, 100 | 1.2 | 1.0 to 2.4 |

Other dimension and/or thickness upon request

### Nominal Density

| KDI | kg/m$^3$ | Lbs/ft$^3$ | Availability |
|---|---|---|---|
| 10 | 10 | 0.625 | Rolls |
| 12 | 12 | 0.75 | Rolls |
| 16 | 16 | 1 | Rolls |
| 18 | 18 | 1.125 | Rolls |
| 20 | 20 | 1.25 | Rolls |
| 24 | 24 | 1.5 | Rolls or Slabs |
| 32 | 32 | 2 | Rolls* or Slabs |
| 36 | 36 | 2.25 | Rolls* or Slabs |
| 48 | 48 | 3 | Rolls* or Slabs |
| 64 | 64 | 4 | Slabs |
| 72 | 72 | 4.5 | Slabs |
| 80 | 80 | 5 | Slabs |
| 96 | 96 | 6 | Slabs |

*Rolls according to the thickness

## PERFORMANCE

### Operating Temperature

Fibre upto 232 °C (450 °F)

Facing 100 °C (212 °F)

### Permanence

KDI has a high resistance to accident 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.

### Combustibility

Base fibers are non combustible when tested in accordance with BS 476 (part 4), ASTM E136.

### Surface Burning Characteristics

When tested as per ASTM E84 / NFPA 255 / UL 723.

Flame spread index : Not over 25
Smoke developed index : Not over 50

### Moisture Absorption

Less than 1% by volume when tested in accordance with ASTM C1104.

KDI does 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.

FSK faced KDI comply with ASTM E 96 Desiccant Method. Permeance not to exceed 0.02 perms (Federal Standard HH-B-100 B Type 1- superseded by ASTM C1136)

## NON TOXIC

**KDI is not hazardous to health (See KIMCO-ISOVER MSDS)**

## No Corrosion

Does not cause or accelerate corrosion of steel, copper or aluminum.

## Thermal Conductivity

The low thermal conductivity of fiberglass products is due to the fact that they consist of more than 95% air which is trapped and kept stationary by the thin fibers below test values are tested as per ASTM C518.

| Mean Temperature °F | Thermal Conductivity in Btu.in/ft²h.F for the following densities in lbs/ft³ | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **0.625** | **0.750** | **1.000** | **1.125** | **1.250** | **1.500** | **1.875** | **2.000** | **2.250** | **3.000** | **3.750** | **4.000** | **4.500** |
| 32 | 0.26 | 0.25 | 0.23 | 0.23 | 0.22 | 0.21 | 0.21 | 0.20 | 0.20 | 0.20 | 0.21 | 0.21 | 0.21 |
| 50 | 0.28 | 0.27 | 0.25 | 0.24 | 0.23 | 0.22 | 0.22 | 0.22 | 0.21 | 0.21 | 0.21 | 0.23 | 0.23 |
| 77 | 0.31 | 0.29 | 0.27 | 0.26 | 0.25 | 0.24 | 0.23 | 0.23 | 0.22 | 0.22 | 0.23 | 0.23 | 0.23 |
| 122 | 0.38 | 0.34 | 0.31 | 0.30 | 0.28 | 0.27 | 0.26 | 0.25 | 0.25 | 0.24 | 0.24 | 0.24 | 0.24 |
| 167 | 0.45 | 0.41 | 0.35 | 0.34 | 0.32 | 0.30 | 0.28 | 0.27 | 0.27 | 0.26 | 0.26 | 0.26 | 0.26 |
| 212 | 0.51 | 0.45 | 0.40 | 0.37 | 0.36 | 0.33 | 0.31 | 0.30 | 0.30 | 0.29 | 0.29 | 0.29 | 0.29 |

| Mean Temperature °C | Thermal Conductivity in W/m.K for the following densities in kg/m³ | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **10** | **12** | **16** | **18** | **20** | **24** | **30** | **32** | **36** | **48** | **60** | **64** | **72** |
| 0 | 0.038 | 0.036 | 0.034 | 0.033 | 0.032 | 0.031 | 0.030 | 0.030 | 0.029 | 0.029 | 0.030 | 0.030 | 0.030 |
| 10 | 0.040 | 0.038 | 0.036 | 0.035 | 0.034 | 0.032 | 0.032 | 0.031 | 0.030 | 0.030 | 0.031 | 0.031 | 0.031 |
| 25 | 0.044 | 0.041 | 0.039 | 0.038 | 0.036 | 0.035 | 0.034 | 0.033 | 0.032 | 0.031 | 0.032 | 0.032 | 0.032 |
| 50 | 0.055 | 0.048 | 0.044 | 0.043 | 0.041 | 0.039 | 0.037 | 0.037 | 0.036 | 0.035 | 0.036 | 0.036 | 0.036 |
| 75 | 0.064 | 0.059 | 0.051 | 0.048 | 0.046 | 0.043 | 0.041 | 0.040 | 0.039 | 0.037 | 0.038 | 0.038 | 0.038 |
| 100 | 0.074 | 0.065 | 0.057 | 0.053 | 0.051 | 0.047 | 0.045 | 0.044 | 0.043 | 0.041 | 0.042 | 0.043 | 0.043 |

These are typical values subject to normal manufacturing and testing variances

# CONFORMITY TO STANDARDS

| American Standards | | British Standards | ISO | Other Standards |
|---|---|---|---|---|
| C 165 | C 1045 | BS 476 (part 4, 6 & 7) | 8301 | UL 723 |
| C 167 | C 1101/ 1101M | BS 874 | 8302 | NFPA 255<br>NFPA 90A & 90B |
| C 168 | C 1104 / 1104M | BS 2972 | 9229 | NAIMA Standards |
| C 177 | C 1136 (Type 1 & 2) | BS 3533 | 9291 | ASHRAE 90.1 & 90.2 requirements |
| C 303 | C 1290 (Type 3) | BS 3958 (part 5), | | SMACNA Standards |
| C 411 | C1304 | BS 5422 | | F.S. HH-B-100B (Type 1) superseded by ASTM C1136)<br>F.S. HH-1-521F(superseded by ASTM C665)<br>F.S. HH-1-558B(superseded by ASTM C612) |
| C553 | C1338 | BS 5643 | | |
| C 612(Type I & II | E84 | BS 6676 (Part 1) | | |
| C 665 & 13.8 & 13.9 | E96 | | | |
| C 686 | E136 | | | German Standards<br>DIN 18165, DIN 52612 |

ONLINE CERTIFICATIONS DIRECTORY

# BKNV.R9703
# Batts and Blankets

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## Batts and Blankets

See General Information for Batts and Blankets

KUWAIT INSULATING MATERIAL MFG CO
BEHIND MINA ABDULLAH POLICE STATION
P.O.BOX 10042
65451 SHUAIBA, KUWAIT

R9703

Glass fiber batts and blankets with and without facings on one surface.

The following products are eligible to bear the Laboratories Classification Marking incorporating the designation "FHC 25/50" instead of the individual Surface Burning Characteristic values for flame spread and smoke developed:

Unfaced Blankets

Aluminum Foil Faced Blankets

Foil-Scrim-Kraft Faced Blankets

Black Glass Fabric Faced Blankets

Glass fiber batts and blankets with and without facings on one surface and Rock wool batts and blankets without facings.

| | Basic Blanket | Foil-Scrim Kraft Facing | Vinyl Film Facing | Aluminum Foil Facing | Rock Wool Blanket | Black Glass Fabric |
|---|---|---|---|---|---|---|
| Flame Spread | 15 | 15 | 25 | 15 | 0 | 25 |
| Smoke Developed | 0 | 0 | 80-105 | 0 | 0 | 5 |

| | Basic Blanket |
|---|---|
| Flame Spread | 0 |
| Smoke Developed | 0 |

Last Updated on 2015-07-02

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## Duct Wrap Installation Procedures

### Step 1

Wear Protection tools (dust mask & hand gloves)

### Step 2

Ensure that air duct service is free of oil, grease, or water and tightly sealed at all the joints.

### Step 3

Measure the dimension of the duct. Width of insulation needed shall be

**Width = (2 x height)+ (2 x width) +8 x thickness of insulation**

### Step 4

With the foil side of the insulation facing up, Wrap the insulation around the duct ensuring that the ends are butted tightly together.

### Step 5

Tape every joint completely with pressure sensitive aluminum tape along the seam where insulation butts together.

**Important Remarks:**

- Self-adhesive aluminum foil tapes should, ideally, be reinforced and a minimum 75mm in width and have a thickness of at least 30 microns to ensure adequate adhesion
- For circular and rectangular ductwork the use of tie wires, lacing wire and clips are the most common methods.
- It is not recommended that an overlap method of installation is used. The overlap of material causes greater stress to be placed on the self-adhesive aluminum foil tape. This can result in delamination, breaking the vapor barrier provided by the tape.
- Self-adhesive aluminum foil tape should not be used as a mechanical fixing. Its function is to provide a vapor barrier between the foil surface and the separate foil faced insulation.
- Rectangular duct of 600mm width and greater shall be tighten with metal seam to avoid insulation sagging

# Commitment to Quality

## Properties of KIMMCO-ISOVER Products

- Excellent thermal performance
- Superior acoustic performance
- Excellent fire safety
- Environmentally friendly: made from abundantly available, non-strategic materials.
- Suitable for a wide variety of applications (flexible, semi-rigid, rigid and extra-rigid)
- Address a variety of performance requirements (wide range of facing materials)
- Easy to cut and install, minimum wastage on-site
- Comparatively light in weight
- Dimensionally stable
- No sagging or settling
- Complies with international standards

## Further, we are members of the following industry associations:

- Emirates Green Building Council (EGBC)
- Kuwait Green Building Council (KGBC)
- Qatar Green Building Council (QGBC)
- Singapore Green Building Council (SGBC)
- MASDAR (The Future Build)
- Middle East Mineral wool Insulation Manufacturers Association (MEMIMA)

## Our Commitment to the Environment

KIMMCO-ISOVER was selected as the sole insulation supplier and official collaborator with MASDAR city, the world's first zero-carbon, zero-waste city, in Abu Dhabi. We have a strong commitment to the environment, health and safety of our people, and surrounding communities, and actively collaborate with local and international environmental agencies. Further, KIMMCO-ISOVER products help developers achieve green building rating certifications such as LEED, Estidama and QSAS

## Our Product Listing & Certification

- DCL
- UL
- CE
- BV
- ABS

## Our Commitment to Quality

we have a strong commitment to quality, as recognized by our certification by international bodies such as ISO.

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