

(A) FIRE RESISTANCE

ACOUSTIC INSULATION

(#) ENERGY SAVING

ERMAL INSULATION



ROCKAL ROCKWOOI Insulation Products

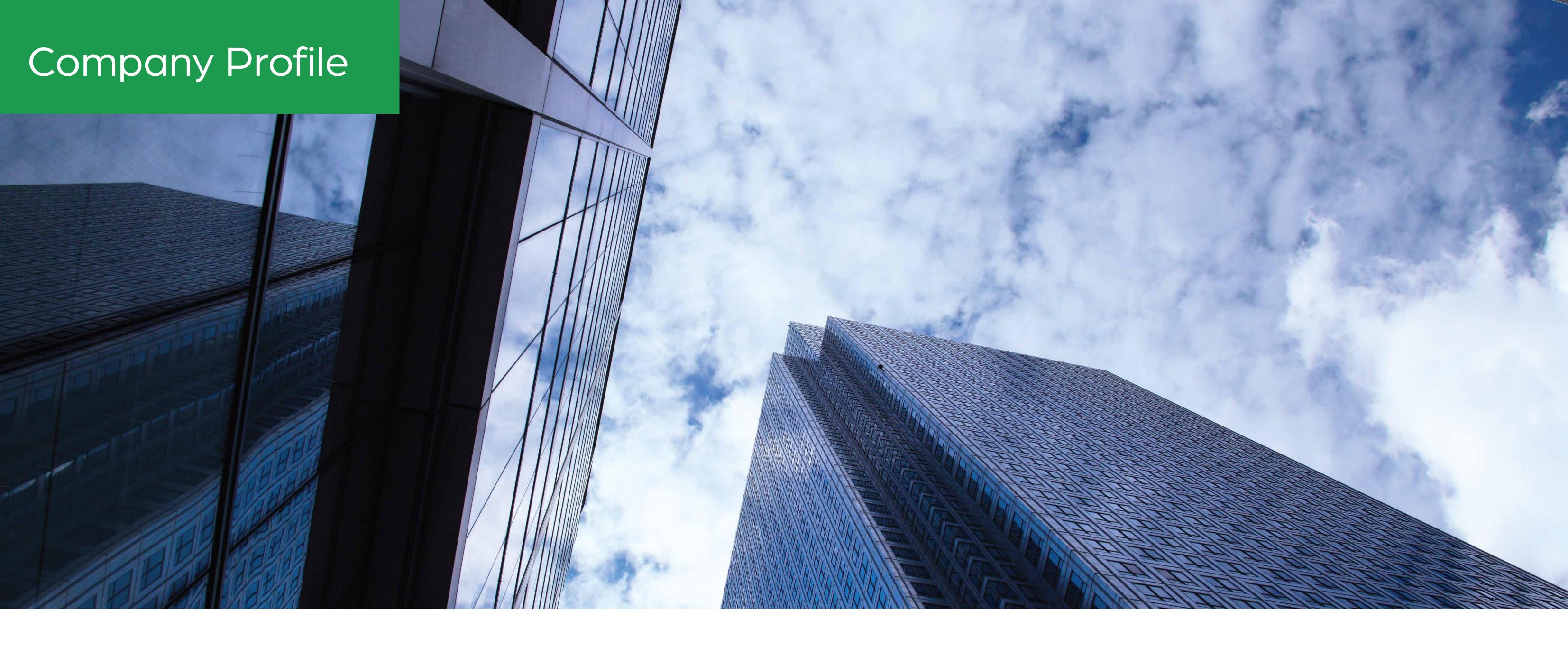












ROCKAL

Al-Alamia for Rockwool (ROCKAL) is an 100% Egyptian industrial company that specializes in manufacturing insulation building materials, Rockal was founded in 2003 as a manufacturer of stonewool or widely known as rockwool starting with two production lines of 5000 tons per year. and a new production line in 2005 of 15,000 tons.

Totaling in 20,000 tons per year,

Rockal is considered a leader of the stonewool insulation in the Middle East and Africa with exports to countries like UAE, Saudi Arabia, Bahrain, Qatar, Lebanon. in Africa like Tanzania, Nigeria, Kenya, Sudan, Libya and more.

In 2016 Rockal has started manufacturing new products like Extruded Polystyrene XPS Foam, Polyethylene Foam.

In 2017 Rockal expanded its range of products to include Flexible Duct Connection, and Duct Connector for HVAC applications.

Conformity Standards:

ASTM C-767, C-795, C-612, C-692, C-871, C-355, C-177, C-411, C-423, C-556, C-165, C-665, C-553, C-692, C-303, C-1101, C-110, C-302, C-335, C-592, C-547, C-585, C-1104, E-84, E-136, E-119.

NPFA 255, ANSI A 2.5 — 1963, NAIMA, SMACNIA, UL723, IMO Resolution, CE Mark, EN 13501-2, EN 13820:2003, EN12667, EN13162, NBN EN 823&1604&12667



Rockal Rockwool Products are tested and certified by the National Research Center, Belgian Building Research, Warrington Fire for the following properties:

- Thermal Conductivity (K-Value, R-Value)
- Chemical Analysis
- Heat Stability
- Fiber Content
- PH Value
- Linear Shrinkage
- Compressive Strength
- Water Vapor Absorption
- Odor Emission
- Flammability
- Corrosiveness to steel
- Sag Resistance

All tests and certifications are available upon request.



Our Mission

Rockal has a mission of being a major supplier & manufacturer of building materials locally & in the region to fulfill the increasing demand of building materials and specifically insulation in the region.

Business Strategy

Rockal is following an expansion based business strategy, seeking to expand production facilities to meet the market high demand, and also expanding in adding new products to the Rockal Directory of products to meet the market expectations in supplying high quality products with cost efficiency aiming at our client's total satisfaction providing totally friendly environment solutions.

Vision

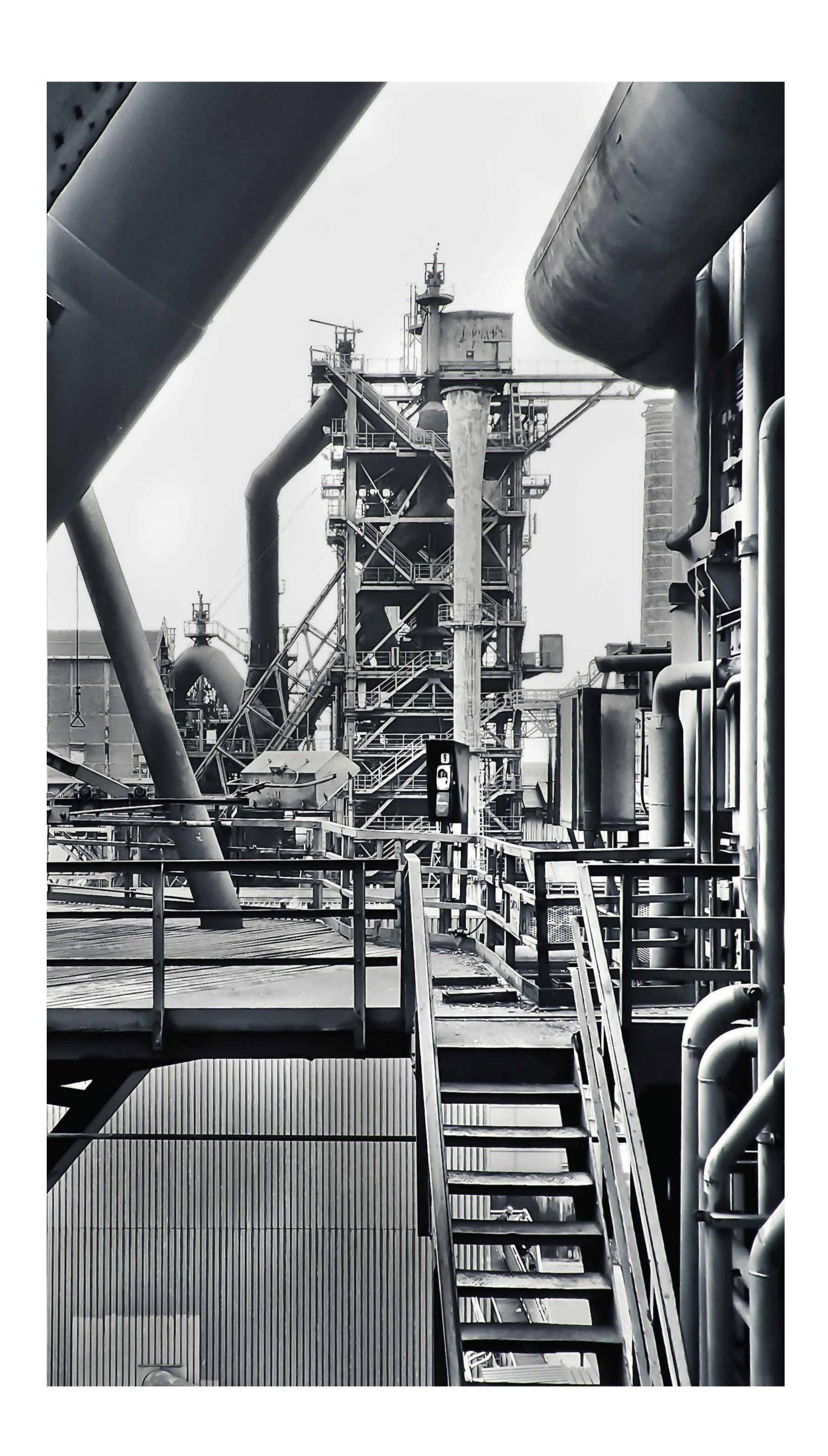
Rockal vision in 10 years since 2010 to be market leader in the stone wool sector and develop higher quality standards in the market and add 5 new production lines of new products which has already been achieved ahead of schedule.

Experience

Our Sales & Marketing teams are well trained and efficient, they are motivated to achieve our targets and deliver the right and accurate answers to our client's inquiries, and answer all the technical details concerning Rockal Products.

Quality

Rockal follows the highest quality standards worldwide by applying a lot of strategies like the 5S and LEAN. Rockal is accredited the ISO 9001, 8001, 18001. Rockal is accredited the CE mark for its stone wool products. conducting over 50 Lab tests on the stone wool products, Rockal ensures the highest quality standards when it comes to a product carrying its name.



Trust

Rockal name has implied the meaning of trust over the years through our great experience in our field we are able to gain the trust of our valued clients and become a qualified partner in their journeys of success.



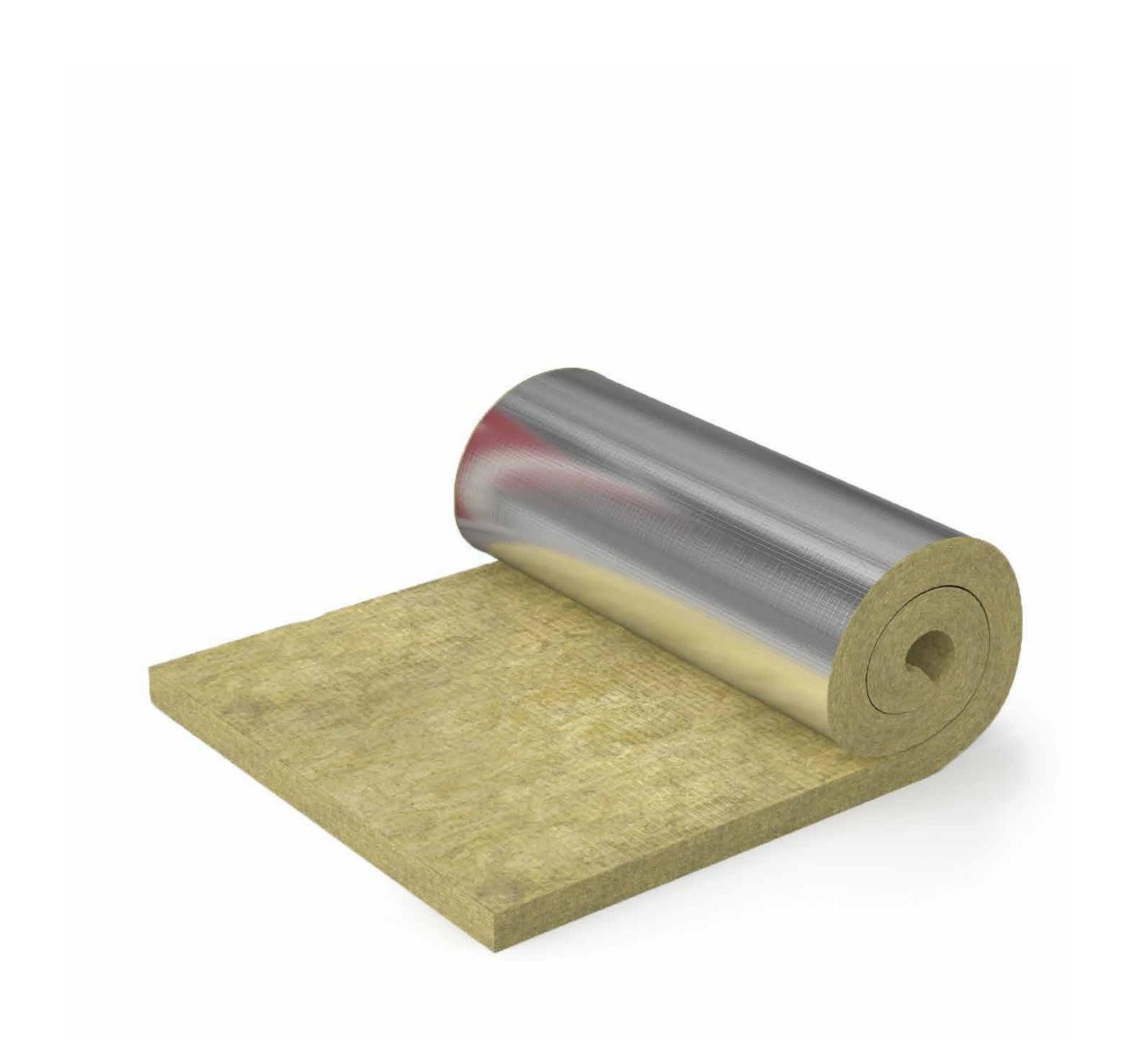
01

Rockal Duct Wrap

DW 35 - DW 40 - DW 56

Rockal Rockwool Rolls are composed of mineral rock fibers, processed from volcanic basaltic rocks, Fibers are bonded together with a thermosetting binder which gives the flexibility & resilience to the products.

Rockal Rockwool Rolls comply with ASTM C-553-92 Type VII, E-84, E-119.



Applications:

Thermal & Acoustic insulation of rectangular and round, heating, ventilation, air conditioning duct work temperature range 10°C to 600°C. Used in commercial, industrial, and residential buildings specially for small areas. Helps saving energy up to 80%, controlling heat loss or gain and condensation during system operations.



Available Products:

| Product name | Dimensions | | Density (Kg/M³) | Thickness (mm.) | Thermal Conductivity (W/m.k @ 10° C) |
|--------------|-------------|------------|-----------------|-----------------|-----------------------------------------|
| | Length (m.) | Width (m.) | | | |
| Rockal DW 35 | 12.5 | 1.0 or 1.2 | 35 | 25 to 50 | |
| Rockal DW 40 | 12.5 | 1.0 or 1.2 | 40 | 25 to 50 | 0.035 to 0.04 |
| Rockal DW 56 | 12.5 | 1.0 or 1.2 | 56 | 25 to 50 | |

N.B Any other sizes can be manufactured upon special requests.



Facing:

Rockal Duct Wrap Rolls are faced with reflective vapor barrier material (Reinforced Aluminum Foil FSK).

Thermal Conductivity: (0.028 to 0.04) W/m.k @ 10°C (ASTM C-177)

| Mean Temperature (°C) | | Thermal Conductivity (W/m.k) For the following densities in (Kg/M³) | | | | | | | |
|--------------------------|-------|---------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|
| | 35 | 40 | 50 | 70 | 100 | 128 | 140 | 160 | 200 |
| 10 | 0.036 | 0.037 | 0.037 | 0.038 | 0.037 | 0.038 | 0.038 | 0.028 | 0.028 |
| 50 | 0.048 | 0.039 | 0.040 | 0.038 | 0.037 | 0.039 | 0.035 | 0.037 | 0.037 |
| 100 | 0.046 | 0.047 | 0.047 | 0.046 | 0.046 | 0.049 | 0.039 | 0.040 | 0.040 |
| 150 | 0.054 | 0.054 | 0.055 | 0.053 | 0.054 | 0.053 | 0.041 | 0.056 | 0.057 |
| 200 | 0.066 | 0.067 | 0.068 | 0.064 | 0.060 | 0.058 | 0.049 | 0.055 | 0.059 |
| 250 | 0.081 | 0.082 | 0.084 | 0.080 | 0.081 | 0.069 | 0.056 | 0.065 | 0.067 |
| 350 | 0.112 | 0.122 | 0.124 | 0.120 | 0.121 | 0.091 | 0.084 | 0.087 | 0.088 |
| 450 | 0.131 | 0.142 | 0.146 | 0.135 | 0.136 | 0.139 | 0.132 | 0.128 | 0135 |

All tests and certifications are available upon request.



Assembly Details:

Cut the lamella roll to the right length using the following formulas:

Circular Air Ducts:

(Diameter + $2 \times insulation thickness) + 3.14$ + 30 mm

Rectangular Ducts:

Circumference + 8 x Thickness insulation + 50 mm

For ducts with flanged joints, we recommend fitting the insulation to the exact width between the flanged joints. Rockal Duct Wrap can be mechanically fixed using self-adhesive stick pins, adhesive coating or tie rods according to preference.

Wherever the is a risk of condensation on the flange, place additional loose strip all joints shall be securely taped with self-adhesive aluminum tape with a minimum width of 75 mm.



All overlaps shall be stapled at the other side of the blanket by applying adhesive tape of at least 50 mm wide.

For rectangular ducts with large section length (more than 600 mm) the roll should be adjusted with adhesive straps or washers (5 or 6 per in 2) fixed by a welded bar or hit to the duct. Follow the advices of the aluminum adhesive tapes producers to assure the needed air vapor retarding results.



| Property | Value | | | |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--|--|
| Service Temp. (Hot Side) | 400°C to 600°C | | | |
| Melting Temp. | 1500°C | | | |
| Outer Facing Temp. Range | -29°C to 66°C | | | |
| Moisture Absorption | < 1% (By weight, Water repellant, Non-Hygroscopic, Non-Capillary No Effect on Stability | | | |
| Corrosion Resistance | PH 7 or Slightly Alkaline | | | |
| Soluble Chlorides | 6 PPM | | | |
| Fungi Resistance | Doesn't encourage Fungi growth | | | |
| Noise Reduction Coefficient (NRC) | ≈ 0.85 | | | |
| Asbestos Content | Non-Toxic and not hazardous to health and Asbestos Free Does not contain: AMPHIBOLE {CA2 MG3(OH)2 SI8 O22} Nor SERPENTINE Asbestos {MG3 SI2 (OH)4 O5} | | | |
| Environment | CFC and HCFC Free | | | |
| Expansion and Contraction | Completely Stable | | | |
| Shot Content | Less then 25% | ASTM C-1335 | | |
| Condensation | The vapor diffusion of Rockal Rockwool is negligible its considered zero compared to other insulation materials | | | |



Fire Safety:

Rockal Rockwool fibers products are classified as Non-Combustible materials and follow the fire safety rating achievements:

- Class 1 Surface spread of flame in accordance to BS 476
- Class 0 in accordance to BS 476
- Class A1 in accordance to European standards
- Surface burning characteristics in accordance to ASTM E-84
- Fire Spread Index: Less than 10
- Smoke Developed Index: Less than 25

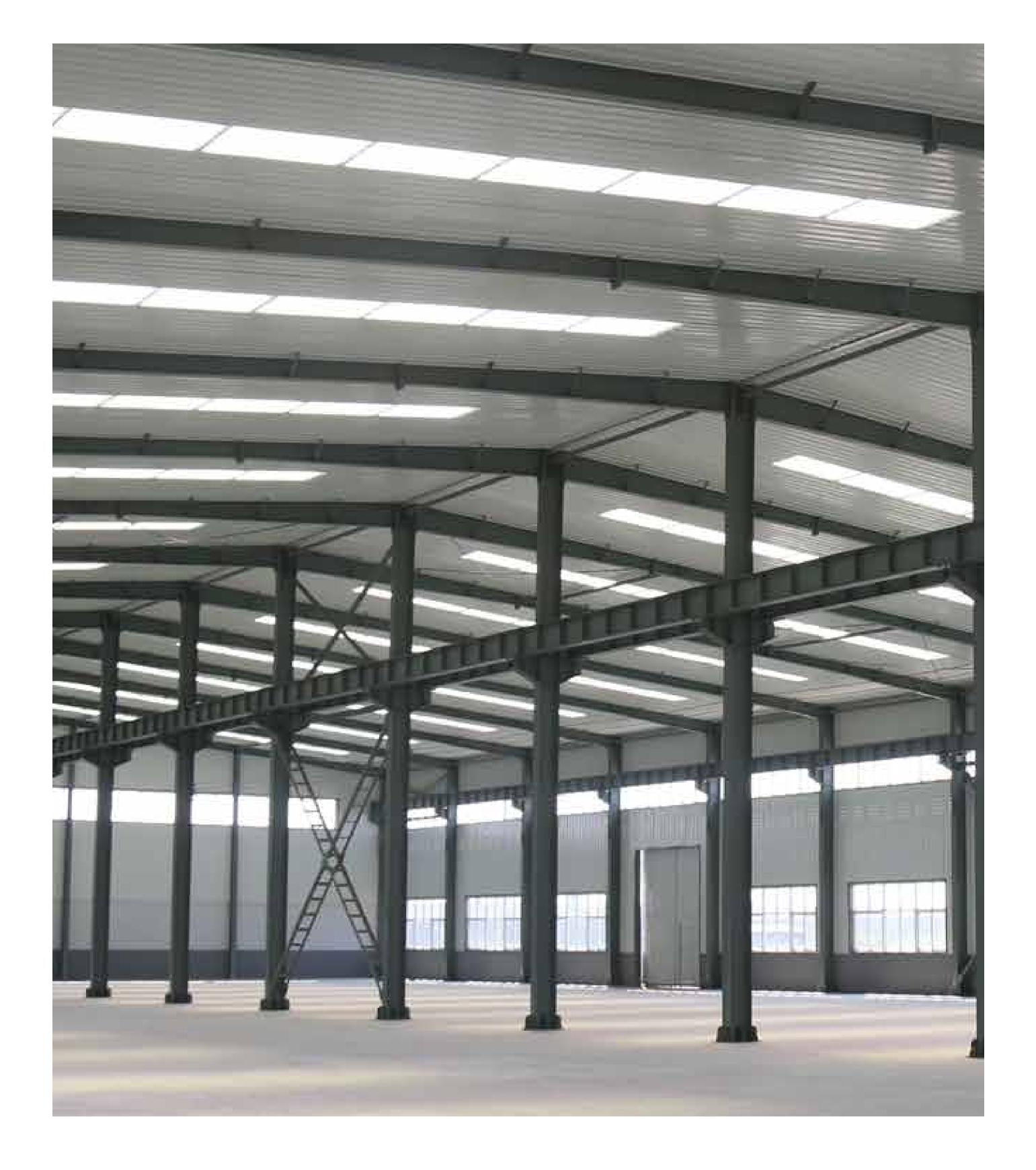


Packaging & Handling

- Each Rockal Duct Wrap Roll is packed in polyethylene bag protected from UV light rays and fixed with product specification sticker.
- Rockwool Duct Wrap Rolls shall be handled with care since its mainly consisting of fibers.
- Rockal Duct Wrap Rolls shall be stored horizontally in a dry closed area securely packaged with a maximum of cumulative height of 3 rolls to maintain the product properties.







Available Products:

02

Rockal Rockwool Low Density Rolls

LDR30 - LDR50 - LDR60

Rockal Rockwool Low Density Rolls are composed of mineral rock fibers, processed from volcanic basaltic rocks, Fibers are bonded together with a thermosetting binder which gives the flexibility & resilience to the products.

Rockal Rockwool Low Density Rolls are normally produced at low densities and comply with ASTM C-553-92

Type VII, E-84, E-119.

Applications:

Thermal and acoustic insulation for cold storages, refrigerated tanks & curved duct. Used in commercial, industrial and residential buildings especially in prefabricated housing, cavity walls, steel structure buildings under or over purlins and double cladding system sandwich panel systems, wall partitions and poultry farms and suspended ceilings. Helps in controlling heat loss or gain and condensation. Aluminum foil acts as a vapor barrier to prevent condensation.

| Product name | Dimensions | | Density (Kg/M³) | Thickness (mm.) | Thermal Conductivity (W/m.k) |
|---------------|-------------|------------|-----------------|-----------------|------------------------------|
| | Length (m.) | Width (m.) | | | |
| Rockal LDR 30 | 12.5 | 1.0 or 1.2 | 30 | 30 to 100 | |
| Rockal LDR 40 | 12.5 | 1.0 or 1.2 | 40 | 30 to 100 | 0.035 to 1.36 |
| Rockal LDR 50 | 12.5 | 1.0 or 1.2 | 50 | 30 to 100 | |
| Rockal LDR 60 | 12.5 | 1.0 or 1.2 | 60 | 30 to 100 | |

N.B Any other sizes can be manufactured upon special requests.



Facing:

Rockal Low Density Rolls are faced with reflective vapor barrier material (Reinforced Aluminum Foil FSK), or colored vinyl or BGT or BGF or Kraft Paper.

| Mean Temperature (°C) | | Thermal Conductivity (W/m.k) For the following densities in (Kg/M³) | | | | | | | |
|-----------------------|-------|---------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|
| | 35 | 40 | 50 | 70 | 100 | 128 | 140 | 160 | 200 |
| 10 | 0.036 | 0.037 | 0.037 | 0.038 | 0.037 | 0.038 | 0.038 | 0.028 | 0.028 |
| 50 | 0.048 | 0.039 | 0.040 | 0.038 | 0.037 | 0.039 | 0.035 | 0.037 | 0.037 |
| 100 | 0.046 | 0.047 | 0.047 | 0.046 | 0.046 | 0.049 | 0.039 | 0.040 | 0.040 |
| 150 | 0.054 | 0.054 | 0.055 | 0.053 | 0.054 | 0.053 | 0.041 | 0.056 | 0.057 |
| 200 | 0.066 | 0.067 | 0.068 | 0.064 | 0.060 | 0.058 | 0.049 | 0.055 | 0.059 |
| 250 | 0.081 | 0.082 | 0.084 | 0.080 | 0.081 | 0.069 | 0.056 | 0.065 | 0.067 |
| 350 | 0.112 | 0.122 | 0.124 | 0.120 | 0.121 | 0.091 | 0.084 | 0.087 | 0.088 |
| 450 | 0.131 | 0.142 | 0.146 | 0.135 | 0.136 | 0.139 | 0.132 | 0.128 | 0135 |

N.B. The R Value is 1/Thermal Conductivity or Thickness(m.)/ Thermal Conductivity

Fire Safety:

Rockal Rockwool fibers products are classified as Non-Combustible materials and follow the fire safety rating achievements:

- Class 1 Surface spread of flame in accordance to BS 476
- Class 0 in accordance to BS 476
- Class A1 in accordance to European standards
- Surface burning characteristics in accordance to ASTM E-84
- Fire Spread Index: Less than 10
- Smoke Developed Index: Less than 25



Packaging & Handling

Each Rockal Low Density Roll is packed in polyethylene bag protected from UV light rays and fixed with product specification sticker.

Rockal Low Density Rolls shall be handled with care since its mainly consisting of fibers.

Rockal Low Density Rolls shall be stored horizontally in a dry closed area securely packaged with a maximum of cumulative height of 4 rolls to maintain the product properties.



| Property | Value | | |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|--|
| Service Temp. (Hot Side) | 400°C | | |
| Melting Temp. | 1500°C | | |
| Outer Facing Temp. Range | -29°C to 66°C | | |
| Moisture Absorption | < 1% (By weight, Water repellant, Non-Hygroscopic, Non-Capillary No Effect on Stability | | |
| Corrosion Resistance | PH 7 or Slightly Alkaline | | |
| Soluble Chlorides | 6 PPM | | |
| Fungi Resistance | Doesn't encourage Fungi growth | | |
| Noise Reduction Coefficient (NRC) | ≈ 0.85 | | |
| Asbestos Content | Non-Toxic and not hazardous to h Free Does not contain: AMPHIBOLE {CA2 MG3(OH)2 SI8 O | ealth and Asbestos 22} Nor SERPENTINE Asbestos {MG3 SI2 (OH)4 O5} | |
| Environment | CFC and HCFC Free | | |
| Expansion and Contraction | Completely Stable | | |
| Shot Content | Less then 25% | ASTM C-1335 | |
| Condensation | The vapor diffusion of Rockal Rockwool is negligible its considered zero compared to other insulation materials | | |





Applications:

Thermal and acoustic insulation for heavy industrial applications where severe conditions of heat and vibration occur due to high velocities involved. Also used for large diameter piping, flanges, valves, vessels, chimney walls and furnaces. Ideal for wrapping large curved surfaces or structures.

03

Rockal Rockwool Wired Rolls

WR70 - WR80 - WR100 WR120 - WR140 - WR160

Rockal Rockwool Wired Rolls are composed of mineral rock fibers, processed from volcanic basaltic rocks, formed by stitching galvanized steel wires to hexagonal galvanized wire mesh. Fibers are bonded together with a thermosetting binder which gives the flexibility & resilience to the products. Rockal Rockwool Wired Rolls are normally produced at low densities and comply with ASTM C-592-80 Class 1, E-84, E-119.





Available Products:

| Product name | Dimen | sions | Density (Kg/M³) | Thickness (mm.) | Thermal Conductivity (W/m.k @ 10 C) |
|---------------|-------------|------------|-----------------|-----------------|----------------------------------------|
| | Length (m.) | Width (m.) | | | |
| Rockal WR 70 | 3 or 5 | 1 | 70 | 30 to 100 | |
| Rockal WR 80 | 3 or 5 | 1 | 80 | 30 to 100 | |
| Rockal WR 100 | 3 | 1 | 100 | 30 to 100 | 0.034 to 1.36 |
| Rockal WR 120 | 3 | 1 | 120 | 30 to 50 | |
| Rockal WR 140 | 3 | 1 | 140 | 30 to 50 | |
| Rockal WR 160 | 3 | 1 | 160 | 30 to 50 | |

N.B Any other sizes can be manufactured upon special requests.





Facing:

Rockal Rockwool Wired Blankets are produced with 25 mm (1 Inch) opening galvanized hexagonal wire mesh y = 0.7mm on one side. Wire mesh adds strength to the material and also forms an excellent surface for different finishing materials to be installed. Special orders for stainless steel wire mesh facing 0.7mm are available.



Packaging & Handling

- Each Rockal Wired Roll is packed in polyethylene bag protected from UV light rays and fixed with product specification sticker.
- Rockal Wired Rolls shall be handled with care since its mainly consisting of fibers.
- Rockal Wired Rolls shall be stored horizontally in a dry closed area securely packaged with a maximum of cumulative height of 4 rolls to maintain the product properties.

Thermal Conductivity:

| Mean Temperature | Thermal Conductivity (W/m.k) For the following densities in (Kg/M³) | | | | | | 'M ³) |
|------------------|---------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------------|
| (°C) | 80 | 96 | 100 | 120 | 128 | 144 | 150 |
| 50 | 0.038 | 0.037 | 0.037 | 0.038 | 0.038 | 0.039 | 0.039 |
| 100 | 0.044 | 0.043 | 0.043 | 0.045 | 0.046 | 0.046 | 0.046 |
| 150 | 0.053 | 0.050 | 0.051 | 0.051 | 0.052 | 0.051 | 0.052 |
| 200 | 0.062 | 0.059 | 0.060 | 0.060 | 0.060 | 0.059 | 0.059 |
| 250 | 0.070 | 0.068 | 0.069 | 0.070 | 0.070 | 0.069 | 0.069 |
| 300 | 0.086 | 0.081 | 0.082 | 0.083 | 0.082 | 0.082 | 0.081 |
| 350 | 0.102 | 0.095 | 0.095 | 0.091 | 0.091 | 0.091 | 0.091 |

N.B. The R Value is 1/Thermal Conductivity or Thickness(m.)/ Thermal Conductivity





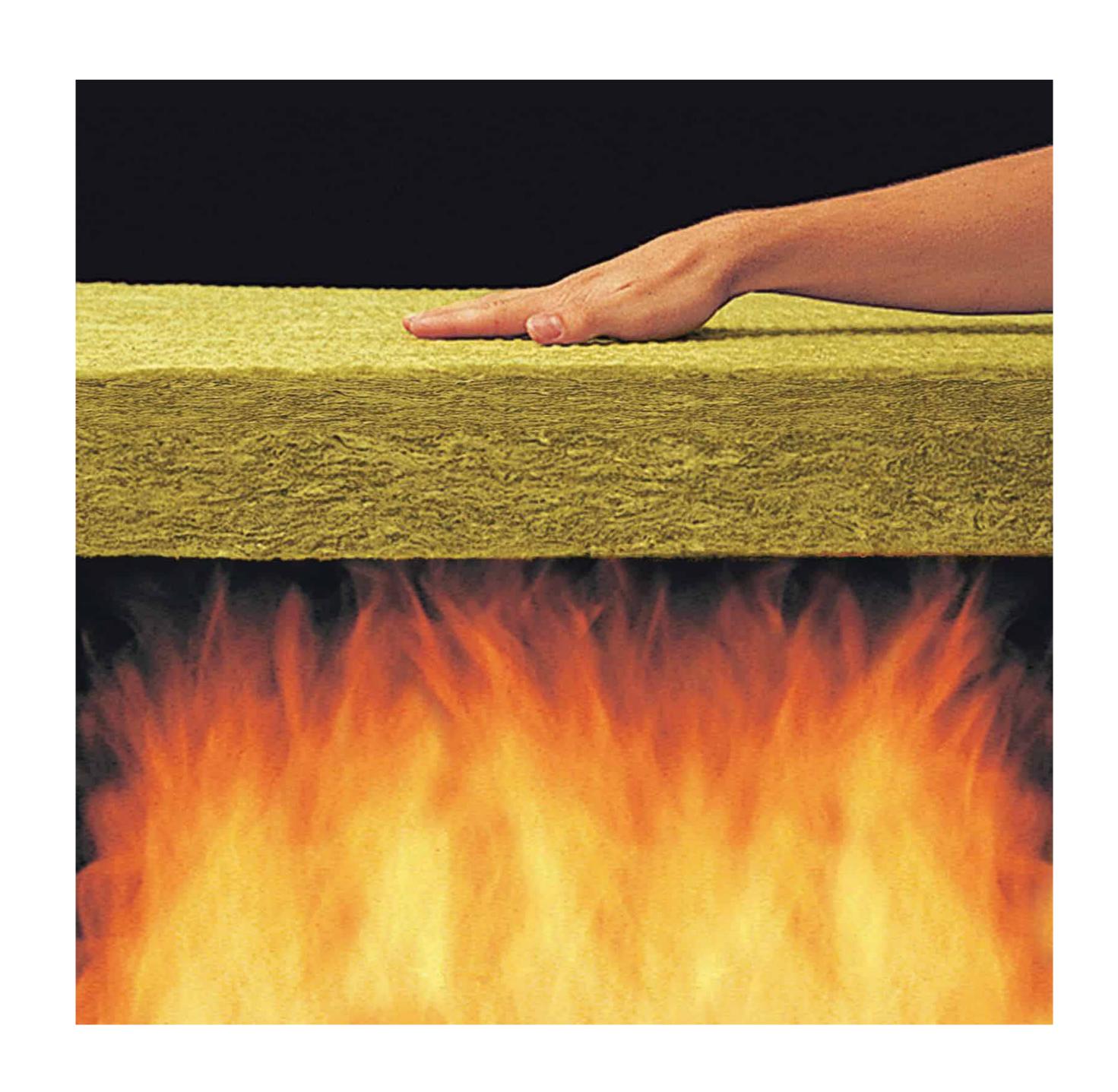
In Sabine units as. (ISO, R-354 Standard)

| Property | Value | | | |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|--|--|
| Service Temp. (Hot Side) | 400°C to 750€ | | | |
| Melting Temp. | 1500°C | | | |
| Outer Facing Temp. Range | -29°C to 66°C | | | |
| Moisture Absorption | < 1% (By weight, Water repellant, Non-Hygroscopic, Non-Capillary No Effect on Stability | | | |
| Corrosion Resistance | PH 7 or Slightly Alkaline | | | |
| Soluble Chlorides | 6 PPM | | | |
| Fungi Resistance | Doesn't encourage Fungi growth | | | |
| Noise Reduction Coefficient (NRC) | ≈ 0.85 | | | |
| Asbestos Content | Non-Toxic and not hazardous to h Free Does not contain: AMPHIBOLE {CA2 MG3(OH)2 SI8 O | nealth and Asbestos 22} Nor SERPENTINE Asbestos {MG3 SI2 (OH)4 O5} | | |
| Environment | CFC and HCFC Free | | | |
| Expansion and Contraction | Completely Stable | | | |
| Shot Content | Less then 25% | ASTM C-1335 | | |
| Condensation | The vapor diffusion of Rockal Rockwool is negligible its considered zero compared to other insulation materials | | | |
| Rigidity | Rigid | ASTM C-1101 / M | | |

Fire Safety:

Rockal Rockwool fibers products are classified as Non-Combustible materials and follow the fire safety rating achievements:

- Class 1 Surface spread of flame in accordance to BS 476
- Class 0 in accordance to BS 476
- Class A1 in accordance to European standards
- Surface burning characteristics in accordance to ASTM E-84
- Fire Spread Index: Less than 10
- Smoke Developed Index: Less than 25





Rockal Rockwool Wired Rolls are fire proof, the following figures indicate the thickness of the rolls needed for application between two flat steel structures with reference to the ISO curves.

| Density (Kg/M) ³ | RecommendedThickness (mm.) | | | |
|-----------------------------|----------------------------|---------|---------|----------|
| | 30 min. | 60 min. | 90 min. | 120 min. |
| 70 | 50 | 100 | 140 | 190 |
| 80 | 50 | 90 | 120 | 160 |
| 100 | 50 | 80 | 110 | 130 |

Installation & Assembly

Cut the wired roll length so that the roll fits the pipe with slight pre-stressing. The closing joints must be staggered at an angle of at least 30 degrees to each other.

The closing joint of the rolls (linear and circular) must be wired together using steel wire (Min. 0.5mm) or secured with matt hooks. Stainless steel pipes with a temperature of >350°C are preferably to be insulated using Rockal Rockwool Wired Rolls with stainless steel wire mesh instead.

If the rolls are assembled in multiple layers all joints and overlaps must be staggered (Masonry Bond). During installation please note that every 3 to 4 meters insulation supports shall be installed before the cladding is applied due to the limited pressure resistance of the Rockwool Rolls. The insulation finishing shall be a metalic surface (e.g. aluminum), expansion joints are provided to cater for expansion of the







the piping. Both linear and circular joints are fastened with sheet-metal screws, hard aluminum or stainless steel 1/2" with 8 pcs per meter.

Close the expansion joints with a steel tensioning wire. Connections to mountings, head and end caps etc.





Applications:

Thermal and acoustic insulation and fire barrier used in commercial, industrial, residential buildings. Mainly used for flat surfaces like rectangular tanks, building facades, studios, theaters, gypsum board portioning, ceiling, building facades and curtain walls and flooring insulation.

04

Rockal Rockwool High & Low Density Boards

LDB40 - LDB50 - LDB70 - HDB100 - HDB120

Rockal Rockwool Boards are composed of mineral rock fibers, processed from volcanic basaltic rocks, Fibers are bonded together with a thermosetting binder which gives the flexibility & resilience to the product.

Rockal Boards are especially rigid than other Rockal Rockwool products and comply with ASTM C-612.

Available Products:

| Product name | Dimensions | | Density (Kg/M³) | Thickness (mm.) | Thermal Conductivity (W/m.k) |
|----------------|-------------|------------|-----------------|-----------------|------------------------------|
| | Length (m.) | Width (m.) | | | |
| Rockal LDB 40 | 1.2 | 0.6 | 40 | 50 to 100 | |
| Rockal LDB 50 | 1.2 | 0.6 | 50 | 50 to 100 | 0.035 to 1.36 |
| Rockal LDB 70 | 1.2 | 0.6 | 70 | 25 to 100 | |
| Rockal HDB 100 | 1.2 | 0.6 | 100 | 25 to 50 | |
| Rockal HDB 120 | 1.2 | 0.6 | 120 | 30 to 50 | |

N.B Any other sizes can be manufactured upon special requests.



Facing:

Rockal Rockwool Boards can be Non-Faced or faced with reflective vapor barrier material (Reinforced Aluminum Foil FSK) or Kraft Paper, fiber glass tissue BGT or BGF.



In Sabine units **a** s. (ISO, R-354 Standard)

| Property | Value | | | |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|--|--|
| Service Temp. (Hot Side) | 400°C to 750°C | | | |
| Melting Temp. | 1500°C | | | |
| Outer Facing Temp. Range | -29°C to 66°C | | | |
| Moisture Absorption | < 1% (By weight, Water repellant, Non-Hygroscopic, Non-Capillary No Effect on Stability | | | |
| Corrosion Resistance | PH 7 or Slightly Alkaline | | | |
| Soluble Chlorides | 6 PPM | | | |
| Fungi Resistance | Doesn't encourage Fungi growth | | | |
| Noise Reduction Coefficient (NRC) | ≈ 0.85 | | | |
| Asbestos Content | Non-Toxic and not hazardous to h Free Does not contain: AMPHIBOLE {CA2 MG3(OH)2 SI8 O | ealth and Asbestos 22} Nor SERPENTINE Asbestos {MG3 SI2 (OH)4 O5} | | |
| Environment | CFC and HCFC Free | | | |
| Expansion and Contraction | Completely Stable | | | |
| Shot Content | Less then 25% | ASTM C-1335 | | |
| Condensation | The vapor diffusion of Rockal Rockwool is negligible its considered zero compared to other insulation materials | | | |
| Rigidity | Rigid | ASTM C-1101 / M | | |

Sound absorption coefficient:

| Insulation Thickness (mm.) | Sound Absorption Coefficient at Frequencies (HZ) | | | | | | | | | |
|-------------------------------|--------------------------------------------------|------|------|------|------|------|------|--|--|--|
| | 125 | 250 | 500 | 1000 | 2000 | 4000 | NRC | | | |
| | | | | NRC | | | | | | |
| 35 | 0.06 | 0.30 | 0.53 | 0.75 | 0.76 | 0.91 | 0.60 | | | |
| 40 | 0.35 | 0.60 | 0.64 | 0.89 | 0.97 | 1.00 | 0.95 | | | |
| 50 | 0.38 | 0.63 | 0.67 | 0.90 | 0.98 | 1.00 | 0.96 | | | |
| 60 | 0.38 | 0.67 | 0.83 | 0.91 | 0.99 | 1.00 | 0.96 | | | |
| 70 | 0.42 | 0.82 | 0.90 | 0.91 | 0.99 | 1.00 | 0.96 | | | |
| 80 | 0.51 | 0.83 | 0.93 | 0.93 | 0.99 | 1.00 | 0.97 | | | |





Compression Resistance:

Load in Kpa at 10% Compression

| Density (Kg/M³) | 40 | 60 | 70 | 100 | 120 |
|-----------------|-----|----|----|------|------|
| Load (kpa) | 2.8 | 5 | 6 | 10.5 | 18.8 |



Thermal Conductivity:

| Mean Temperature (°C) | Thermal Conductivity (W/m.k) For the following densities in (Kg/M³) | | | | | | | |
|--------------------------|---------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|--|
| | 35 | 40 | 50 | 70 | 100 | 128 | 140 | |
| 10 | 0.036 | 0.037 | 0.037 | 0.038 | 0.037 | 0.038 | 0.038 | |
| 50 | 0.048 | 0.039 | 0.040 | 0.038 | 0.037 | 0.039 | 0.035 | |
| 100 | 0.046 | 0.047 | 0.047 | 0.046 | 0.046 | 0.049 | 0.039 | |
| 150 | 0.054 | 0.054 | 0.055 | 0.053 | 0.054 | 0.053 | 0.041 | |
| 200 | 0.066 | 0.067 | 0.068 | 0.064 | 0.060 | 0.058 | 0.049 | |
| 250 | 0.081 | 0.082 | 0.084 | 0.080 | 0.081 | 0.069 | 0.056 | |
| 350 | 0.112 | 0.122 | 0.124 | 0.120 | 0.121 | 0.091 | 0.084 | |
| 450 | 0.131 | 0.142 | 0.146 | 0.135 | 0.136 | 0.139 | 0.132 | |

N.B. The R Value is 1/Thermal Conductivity or Thickness(m.)/ Thermal Conductivity



Packaging & Handling

- Each 8 or 4 (depending on thickness) Rockal Rockwool Board is packed in polyethylene bag protected from UV light rays and fixed with product specification sticker.
- Rockal Rockwool Boards shall be handled with care since its mainly consisting of fibers.
- Rockal Rockwool Boards shall be stored horizontally in a dry closed area securely packaged with a maximum of cumulative height of 4 packets to maintain the product properties.





05

Rockal Rockwool Pipe Section

PS128 - PS140 - PS160

Rockal Performed Pipe Section are made of rockwool fibers spun from molten basaltic rocks bonded together by a thermo-setting resin binder. The fibers are molded around the pipes of different standard diameter at the required thickness and dried to form rigid hollow cylinder insulation, which then is linearly slit to allow easy installation.

Applications:

Rockal Performed Pipe Section is used over a very wide range of temperatures to insulate all sizes of cold and hot piping. Like domestic water in buildings and chemical process such as in oil refineries, chemical and petro-chemical insulation and

and desalination plants, HVAC chilled water systems, oil pipelines. Also used as acoustic insulation of pipelines where gas fluids or solid particles are transferred in high velocities.

Available Products:

| Product name | Dimensions | | Density (Kg/M³) | Thickness (mm.) | Thermal Conductivity (W/m.k) | | |
|--------------|-------------|----------------------------------|-----------------|-----------------|------------------------------|--|--|
| | Length (m.) | Pipe size (Inch: schedule 40) | | | | | |
| Rockal PSXX | 1 | 1/2" - 24" | 100-200 | 25 to 250 | 0.037 to 0.122 | | |

N.B Any other sizes can be manufactured upon special requests.



Facing:

Rockal Rockwool Pipe Section comes Non-faced or faced with reflective vapor barrier material (Reinforced Aluminum foil FSK).



Thermal Conductivity:

| Mean Temperature (°C) | Thermal Conductivity (W/m.k) |
|-----------------------|------------------------------|
| | |
| 0° | 0.034 |
| 50° | 0.036 |
| 100° | 0.041 |
| 150° | 0.051 |
| 200° | 0.063 |
| 250° | 0.074 |
| 300° | 0.90 |
| 400° | 0.122 |

Technical Properties:

| Property | Value | |
|--------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| Service Temp. (Hot Side) | 400°C to 750°C | |
| Melting Temp. | 1500°C | |
| Outer Facing Temp. Range | -29°C to 66°C | |
| Moisture Absorption | < 1% (By weight, Water repellant, Non-Hygroscopic, Non-Capillary No Effect on Stability | |
| Corrosion Resistance | PH 7 or Slightly Alkaline | |
| Soluble Chlorides | 6 PPM | |
| Fungi Resistance | Doesn't encourage Fungi growth | |
| Noise Reduction Coefficient (NRC) | ≈ 0.85 | |
| Asbestos Content | Non-Toxic and not hazardous to h Free Does not contain: AMPHIBOLE {CA2 MG3(OH)2 SI8 O | ealth and Asbestos 22} Nor SERPENTINE Asbestos {MG3 SI2 (OH)4 O5} |
| Environment | CFC and HCFC Free | |
| Expansion and Contraction | Completely Stable | |
| Shot Content | Less then 25% | ASTM C-1335 |
| Condensation | The vapor diffusion of Rocka zero compared to other insu | l Rockwool is negligible its considered lation materials |



Steel Pipes to BS 1387, and ASI/ASTM B 36. 10–1985

| NON Mm | I.BOR inch | mm |).D inch | MM inch | | | | 100 4 |
|--------------------------------------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------|--|--|--|--------------|
| 15 20 25 32 40 50 65 80 100 125 150 200 | 1/2 3/4 1 11/4 11/2 2 21/2 3 4 5 6 8 | 21 27 43 42 48 60 76 89 114 140 166 219 | 27/32 11/16 1 1132/ 1 11/6 1 29/32 2 3/8 3 3½ 4½ 5½ 6½ 6½ 8 % | | | | | |

Installation & Assembly

Prior to the installation of Rockal Rockwool Pipe Section, it is important to consider the following notes:

Clean up and dry all surfaces to be insulated before installation of the pipe section insulation. Under no circumstances should the surface be insulated while its wet or in frosted condition. Stapling the aluminum sealing strip (overlap) and thus puncturing the vapor barrier is not permissible.



During installation, the pipe section shall be wrapped around the pipe with horizontal seem on the lower side of the pipe and the ends jointed. The self-adhesive tape is used to seal the pipe section after its snapped on the pipe. Binding wires can be used to secure insulation all around the pipe to ensure maximum safety in the event of fire. Pipe bends are insulated using the same specifications as the straight piping.



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