FRF

مصنع الفجيرة للصوف الصخري

FUJAIRAH ROCKWOOL FACTORY

(Subsidiary of Fujairah Building Industries P.S.C. "FBICO")

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The New Fujairah Rockwool Factory

Leading Manufacturer of Rockwool Insulation Materials

global insulation
GLOBAL INSULATION PLANT OF THE YEAR 2013

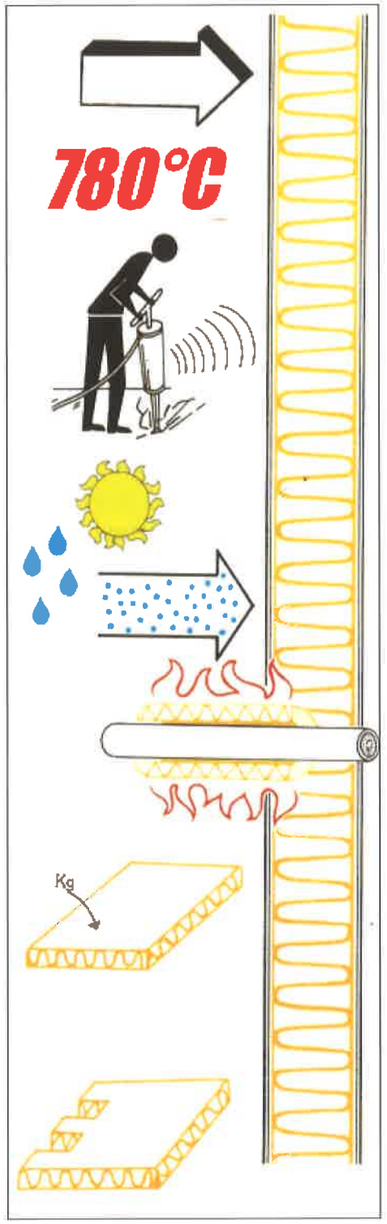
ABOUT US

Fujairah Rockwool started its operation in 1982 and soon it became the first manufacturer of Rockwool insulation product in the GCC Region. It started its tenure with 5000 metric tons and gradually expanded operations, today it is the largest manufacturer of insulation products not only in GCC but also supplies products to the Middle East, the far East and other parts of the world.

Rockwool as the name implies is made by melting basalt rock mixed with coke and limestone and converting them into fibers. Basalt rock is a pure volcanic material which is millions of years old. Rockwool is classified as an inorganic material and has excellent resistance to high temperatures and possess superior acoustic properties.

The factory utilizes highly advanced technology to melt basalt at 1400°C to make the flowing lava spin at high speed using the latest multi spun disc system to produce hairline fibers which are bound together by spraying with a heat setting resin. The fibers are spread in a conveyor using the pendulum method to achieve an even distribution of density throughout the surface of the resulting products. A special additive is impregnated to the bonded material to make it water resistant.

Fujairah Rockwool Products are used in both commercial and industrial establishments as insulation for power plants, desalination plants, petrochemical plants, refineries, offshore drilling equipment, ships and also in houses, offices, buildings, schools, factories, etc. New product applications are being discovered each year with this remarkably versatile product.



Low thermal
Conductivity

High temperature
application

High sound
absorption

Non-hygroscopic
Water resistant
Weather proof

Fire resistant
Non-combustible
Non-inflammable

Deformation resistant

Easy to handle
Easy cutting
Easy application
Non-corrosive
Non-carcinogenic
Imputrescible

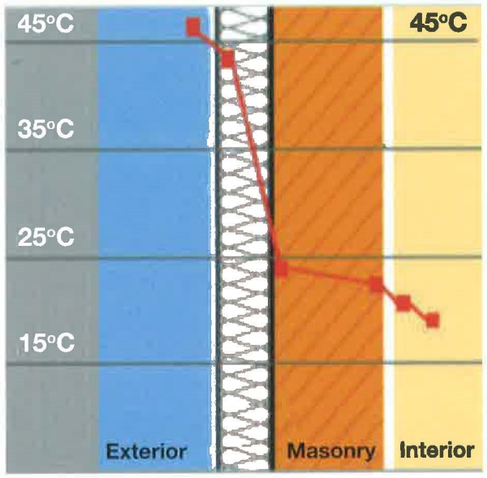
PRODUCTS

- Slab
- Blanket
- Pipe
- Loose wool

Why we have to insulate?

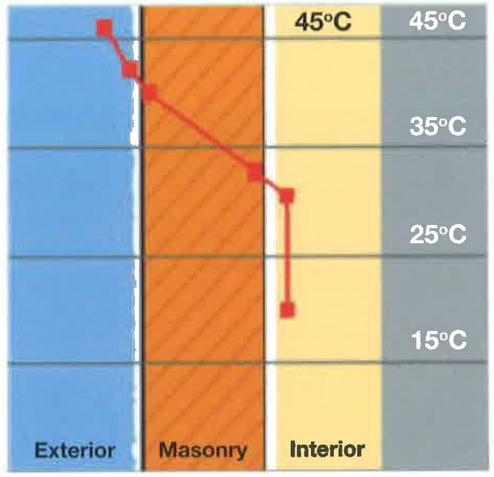
To save energy.

With heat insulation



You have to cool down 3.5 degrees

Without heat insulation



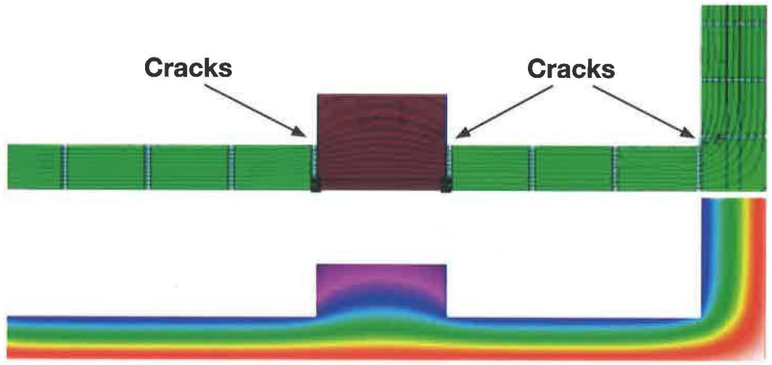
You have to cool down 10 degrees

Save more than 40% energy

FOR BETTER MAINTENANCE

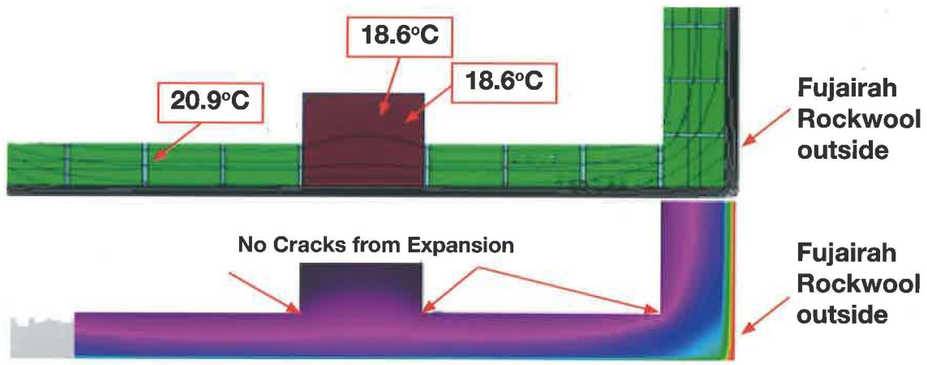
Situation of non-insulated wall with concrete column

- 25 cm solid block
- Inside Temp 18°C
- 50 cm concrete column
- Outside Temp 48°C



Situation with ROCKWOOL -no thermal bridges due to an envelope system

- 25 cm solid block
- Inside Temp 18°C
- 6 cm Rockwool
- Outside Temp 48°C
- 50 cm concrete column



TO REDUCE NOISE

TO SAVE YOUR LIFE FROM FIRE

FOAM **ROCKWOOL**

FRF SLABS

STANDARD DELIVERY

SIZE: 1.2m x 0.6m

THICKNESS: 30mm - 200mm (in steps from 10mm)

DENSITY: 30Kg/m^3 -220Kg/m^3 (in steps from 10Kg/m^3)

Other sizes, densities and thicknesses can be made upon request.

STANDARD DELIVERY FACING

Aluminum foil A1
Black ceiling veil
White ceiling veil
Kraft paper

APPLICATIONS

FRF BLANKETS

STANDARD DELIVERY

SIZE: 1.2m x 4m (WIREMESH)
1.2m x 5m (ALU. FOIL)

THICKNESS: 30mm – 150 mm (in steps from 10mm)

DENSITY: 80, 100, 128Kg/m^3

Other sizes, densities and thicknesses can be made upon request.

STANDARD DELIVERY FACING

WIREMESH GI/SS
ALUMINIUM FOIL A1

APPLICATIONS

FRF PIPES

Types

Description
Unfaced / Faced – aluminium foil A 1

Standard Delivery

Nominal Pipe Size (inches)	Fujairah Rockwool Preformed Pipe Section Inner Diameter (mm)	Standard Thickness (mm)	Standard Density (kg/m³)
½	21		
¾	27		
1	34		
1 ¼	42		
1 ½	48		
2	60		
2 ½	76	30 - 120 IN STEPS OF 10mm	100, 128,140
3	89		
4	114		
5	140		
6	168		
8	219		
9	245		
10	273		
12	324		
14	356		
16	406		
18	456		
20	508		
22	556		
24	610		

Other densities and thicknesses can be made upon request.

APPLICATIONS

FUJAIRAH LOOSE WOOL

Fujairah Rockwool loose wool is bonded loose wool used for packaging cavities of irregular dimensions.
The density of wool to be used depends on the thermal conductivity required.
Thermal conductivity will be the same as other Fujairah Rockwool products of the same density.

Standard Delivery

Packed in 25 kg per bag. Other packaging weight is available upon request.

TECHNICAL DATA

Standard Conformities:

Rockwool Slab:
ASTM C 612 and BS 3958 Part 5

Preformed Pipe Section:
ASTM C 547 and BS 3958 Part 4

Rockwool Blanket:
ASTM C 592, ASTM C553,
ASTM C 665 and BS 3958 Part 3

Loose wool:
ASTM C 764

Thermal Insulation Properties:

Thermal Conductivity

Thermal conductivity is the main product feature of any thermal insulation. Fujairah Rockwool shows low thermal conductivity values even at low densities due to its fibrous composition. As per ASTM C-335, ASTM C-177 / ASTM C-518, the coefficient of thermal conductivity shows the insulating capacity. Fujairah Rockwool products offer low thermal conductivity as tested in accordance with ASTM C-335 and ASTM C-177/ASTM C-518 (ISO 8302/ISO 8301) equivalent to BS-874 by means of guarded hot plate method.

Fujairah Rockwool Slab

Thermal conductivity

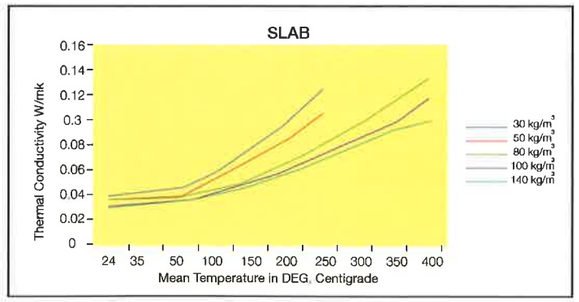
Mean Temp °C	Thermal Conductivity (W/mk) Density (kg/m³)				
	30	50	80	100	140
24	0.040	0.036	0.035	0.033	0.030
35	0.043	0.038	0.037	0.034	0.033
50	0.047	0.043	0.038	0.037	0.037
100	0.059	0.053	0.046	0.044	0.043
150	0.078	0.069	0.054	0.052	0.049
200	0.098	0.085	0.066	0.061	0.058
250	0.126	0.107	0.080	0.072	0.068
300	-	-	0.096	0.084	0.080

These are typical values subjected to normal manufacturing and testing variance. The table shows the results for their raw density in accordance with the test report.

Thermal resistance

Thickness mm	Thermal Resistance (m²K/W) @24 °C Density (kg/m³)				
	30	50	80	100	140
25	0.625	0.694	0.714	0.758	0.833
50	1.250	1.389	1.429	1.515	1.667
75	1.875	2.083	2.143	2.273	2.500
100	2.500	2.778	2.857	3.030	3.333
125	3.125	3.472	3.571	3.788	4.167
150	3.750	4.167	4.286	4.545	5.000
175	4.375	4.861	5.000	5.303	5.833
200	5.000	5.556	5.714	6.061	6.667

The thermal resistance is calculated based on the typical thermal conductivity and thickness of corresponding density.



Fujairah Rockwool Blanket

Thermal conductivity

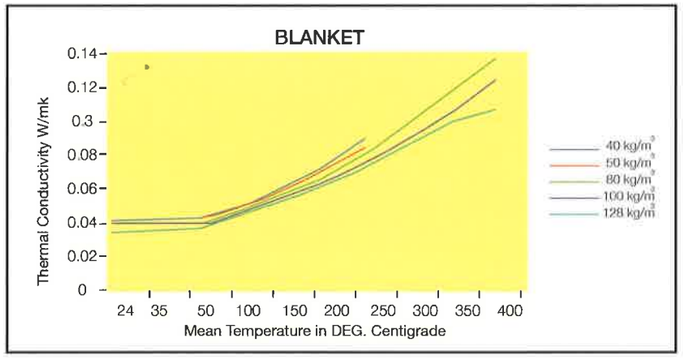
Mean Temp °C	Thermal Conductivity (W/mk) Density (kg/m³)				
	40	60	80	100	128
24	0.037	0.036	0.035	0.034	0.032
35	0.038	0.037	0.037	0.035	0.033
50	0.039	0.038	0.038	0.037	0.034
100	0.047	0.046	0.044	0.043	0.042
150	0.058	0.056	0.052	0.051	0.050
200	0.070	0.067	0.063	0.060	0.058
250	0.085	0.081	0.077	0.072	0.070
300	-	-	0.092	0.085	0.081

These are typical values subjected to normal manufacturing and testing variance. The table shows the results for their raw density in accordance with the test report. These results are not binding because they were converted.

Thermal resistance

Thickness mm	Thermal Resistance (m²K/W) @24 °C Density (kg/m³)				
	40	60	80	100	128
25	0.676	0.694	0.714	0.735	0.781
50	1.351	1.389	1.429	1.471	1.563
75	2.027	2.083	2.143	2.206	2.344
100	2.703	2.778	2.857	2.941	3.125
125	3.378	3.472	3.571	3.676	3.906
150	4.054	4.167	4.286	4.412	4.688
175	4.730	4.861	5.000	5.147	5.469
200	5.405	5.556	5.714	5.882	6.250

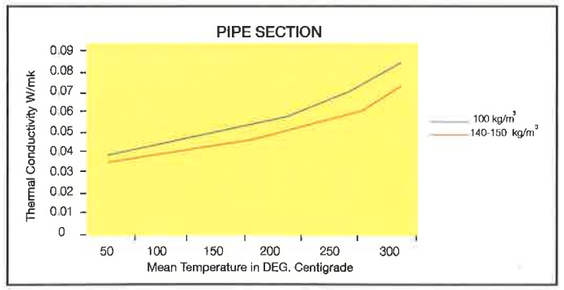
The thermal resistance is calculated based on the typical thermal conductivity and thickness of corresponding density.



Fujairah Rockwool Performed Pipe Section

Mean Temp °C	K-value W/mk 100 kg/m³	K-value W/mk 140-150 kg/m³
25	0.033	0.032
50	0.035	0.033
75	0.037	0.035
100	0.044	0.041
125	0.052	0.048
150	0.061	0.056
175	0.072	0.065
200	0.084	0.078

These are typical values subjected to normal manufacturing and testing variance. The table shows the results for their raw density in accordance with the test report. These results are not binding because they were converted.



Acoustic Insulation Properties:

Acoustical Properties

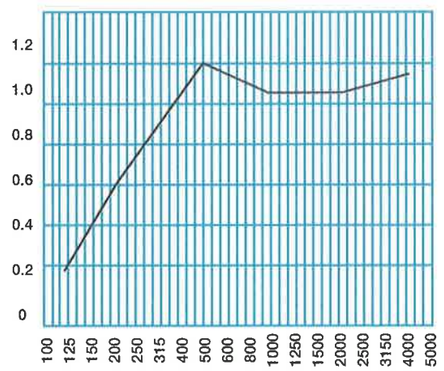
Typical sound absorption figures are shown below in accordance with BS 3638 & ISO 0354 and equivalent ASTM C423.We have test certificate for 70 kg/m³ and 100 kg/m³ nominal densities. The table shows the test results for their raw density in accordance with the test report. These results are not binding because they were converted.

Hz	30 kg/m³	50 kg/m³	80 kg/m³	100 kg/m³	140 kg/m³
125	0.22	0.22	0.23	0.23	0.22
250	0.60	0.62	0.64	0.66	0.66
500	0.86	0.88	0.98	1.05	1.05
1000	0.92	0.95	1.04	1.07	1.06
2000	0.99	1.02	1.03	1.05	1.01
4000	0.98	0.99	0.98	0.97	0.96
NRC	0.80	0.85	0.90	0.95	0.95

Note that components of the whole system should be considered for the Sound Absorption requirement.

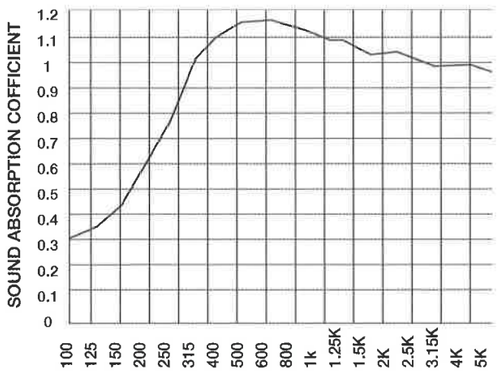
Sound Absorption

Due to the stiffness of the fiber structure, air flow resistance and porosity, Fujairah Rockwool products exhibit exceptional sound absorption properties with an NRC value of 1.0. This test was conducted by AIRO Acoustic Laboratories in accordance with BS 3638 and ISO 354, and by Riverbank Acoustical Laboratories in accordance with ASTM C 423-07a and E-795-05.



Issued on 31 August 1984 Frequency (Hz)

By Airo Acoustic Laboratories



Issued on 20 August 2007 Frequency (Hz)

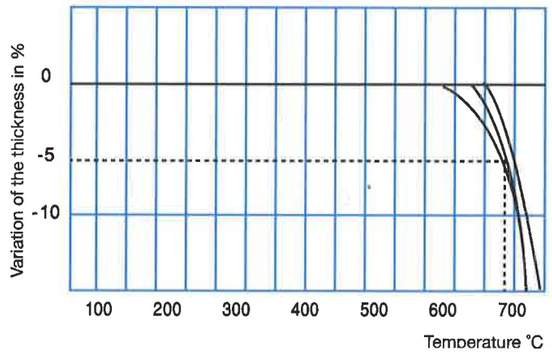
By Riverbank Acoustical Laboratories

Fire Protection Properties:

Service Temperature

Fujairah Rockwool insulation has a melting point greater than 1000°C. It can achieve a maximum service temperature of up to 780°C as shown in the test for 80 mm thick, 100 kg/m^3 density in accordance with DIN 52271. However, there is possible deviation for lower densities. The products are bonded with special heat setting resin that can resist high temperatures.

As tested in accordance with DIN 52271, Fujairah Rockwool products can be used at continuous working temperature up to 780°C without losing any of its insulating properties. Figures are shown below.



Some Rockwool products are faced with different facing materials. For facing material information, product data sheets can be referred to.

The user is advised that it is possible that the maximum use temperature of the facings and adhesive is lower than the maximum use temperature of the insulation. The user shall ensure that sufficient thickness shall be installed so none of these accessories items facing and adhesive are exposed to temperatures above their maximum use temperature.

Fire Safety Performance

Combustion Characteristic : Non-combustible as per ASTM E 136, BS 476 Part 4, ISO 1182

Burning Characteristics : Rockwool unfaced and with aluminum facing classified as class A in accordance with ASTM E 84 with flame spread index less than 25 and smoke developed index less than 50.

Fire Resistance: Fire resistant and will not ignite under any condition. Fire rated when tested in accordance with BS 476 Part 20 and ASTM E 119. Fujairah Rockwool Slab unfaced with 64 kg/m^3 density achieved 120 min. Fire resistance rating when tested as per ASTM E 1966-07; Standard test method for fire resistive joint system and ASTM E 119-a; Standard Test Methods for Fire Building Construction and Materials. Test done by Thomas Bell-Wright Laboratory (Dubai).

Product Performance

Chemical Properties

Fujairah Rockwool fibers are inorganic and composed mainly of silica and alumina. The oxide contents rectify and strengthen the stability of Rockwool at higher temperatures. For a complete analysis the chemical composition can be referred to.

Chemical Composition

The full chemical analysis can be given upon request.

Chemical Neutrality

Rockwool fibers are chemically inert, with a chemically neutral pH value of 7-8 when tested as per BS-2972 : Section 22. It will neither cause nor promote corrosion. It meets the requirements of ASTM C-795, the standard specification for thermal insulation for use in contact with authentic stainless steel when measured according to standard methods of ASTM C 692 (corrosion test) and ASTM C 871 (Chemical Analysis) it contains low chlorides when tested in accordance with ASTM C 871, BS 2972: Section 21 and AGI Q 135.

Biological Properties

Rot-proof, non-hygroscopic, will not sustain vermin and will not encourage growth of bacteria, mold or fungi.

Physical Properties

Asbestos free with very low non-fibrous (shot) content when tested in accordance with ASTM C 1335 and BS 2972: Section 14.

Compression Resistance

Table below shows typical data of compression resistance in accordance with ASTM C-165 @10% compression:

Density Kg/m^3	30	50	60	80	100	140
Compressive resistance KPa	1.2	2.5	3.5	6.0	12.0	24.0

Resistance to Water

Fujairah Rockwool products are water resistant. It contains water repellent additives and is non-capillary so it will not absorb moisture from the air. Even when soaked in water, Rockwool is not damaged because the water fully evaporates leaving Rockwool with its original insulating properties. Water vapor sorption test certificates as well as water absorption test certificate in accordance with ASTM C 1104/ C 1104M and BS 2972: Section 12 and ASTM C 209 are available upon request.

Deformation Resistance

As per ASTM C-356 and ASTM C-165, Fujairah Rockwool products when subjected to loads do not expand or shrink under varied climactic conditions.

Compatibility

Fujairah Rockwool is compatible with all other forms of material with which it is likely to come in contact in normal building and industrial application.

Environmental

Fujairah Rockwool insulation materials are manufactured free from CFCs or HCFCs, with zero ozone depletion potential (ODP) and Global Warming Potential (GWP) <5 and the material is chlorine free. Formaldehyde content is < 0.01 ppm tested as per BS-EN-717-1:2004. They represent no threat to the environment.

Handling and Storage

Easy to cut, fit and handle, it is light weight and can be cut into various shapes and sizes by knife. It should be stored in closed shed for long term protection. When stored outside, must be kept in pallets and covered with tarpaulins or water proof coverings

LIST OF CERTIFICATIONS

1. ISO 9001:2008 - Quality Management System
2. ISO 14001:2004- Environmental Management System
3. Certificate Of Product Conformity As Per ASTM C 612-10
4. Certifire Certificate Of Approval No.CF 762
5. Llyod›s Register Certificate Of Fire Approval
6. Dubai Civil Defense Certificate
7. Abu Dhabi Civil Defense Certificate
8. Fujairah Civil Defense Certificate

FIND YOUR PRODUCT

	Blanket	Slab	Loose Wool	Performed Pipe Sections
Thermal Insulation				
Process Pipe Lines	▼			▼
Steam Pipe Lines	▼			▼
Heating Pipe Lines	▼			▼
Tank Walls	▼	▼		
Tank Roofs	▼	▼		
Tank Roofs with traffic		▼		
Ovens	▼		▼	
Heaters	▼		▼	
Kilns	▼		▼	
Domestic Boilers	▼			
Steam Power Plants	▼	▼	▼	▼
Heat Exchanges	▼			
Turbines	▼	▼	▼	
Chimneys/Stacks	▼			▼
Irregular Cavities			▼	
Round Ducts	▼	▼		▼
Rectangular Ducts	▼	▼		
Building Insulation				
External Walls		▼		
Internal Walls		▼		
Floors		▼		
Flat Roofs	▼	▼		
Pitched Roof	▼	▼		
Doors		▼		
Ceilings	▼	▼		
Pipes/Ducts	▼	▼		▼
Fire Protection				
Pipe Lines	▼			▼
Steel Structures	▼	▼		
Round Air Ducts	▼			▼
Rectangular Air Ducts	▼	▼		
Fire Wall & Fire Door		▼		
Ship Decks & Buckheads	▼	▼		
General Ships-Offshore	▼	▼	▼	
Fire Protection				
Pipelines & Ducts	▼	▼		▼
Flat Surfaces	▼	▼		

This product selector is only a general guide to Fujairah Rockwool products and its applications. Fujairah Rockwool Sales Department will be happy to advise you on any particular application, whether listed or not.

ORDERS AND DELIVERY

- Inquiries for Rockwool Insulation can be sent via e-mail or fax.
- The following specifications are to be indicated when placing an inquiry:

- Types of Rockwool insulations required (Blankets, Slabs / Boards, Performed Pipe, Loose
- The dimensions of the insulation, i.e., Thickness (MM), Density (KG/M3), Size such as the Length and Width (MTR), while for PREFORMED PIPE mention the inner and outer Diameter (MM / INCH).
- Specify the type of facing material required (For e.g.: Aluminimum Foil, etc.).
- The total approximate quantity of requirement.
- Any special packing such as Palletization and other documentation, if not based on our stan dard delivery.
- Prices are on Ex-works basis. However, transportation can be arranged upon request, i.e., On-Site basis.

- Based on the given requisite, FRF sales team shall send the offer via e-mail / fax.
- Once the order is placed, the order will be checked and a proforma invoice shall be sent for processing the payment.
- The order is requested to be placed with the required delivery date.
- Upon confirmation, the order will be processed for production. When the production starts, the customer shall be informed and no alterations can be made.
- Delivery shall be within the agreed delivery schedule.
- For placing inquiries, please feel free to send an e-mail at sales@frf.ae, fax 00971-9-2222573.
- For further assistance, contact us on 00971-9-2222297.

FRF PROJECTS

DOHA INTERNATIONAL AIRPORT, QATAR

MAFRAQ HOSPITAL, ABU DHABI

DRAGON MART, DUBAI

BAB AL BAHR HOTEL, AJMAN

IMG THEME PARK, DUBAI

MUSCAT INTERNATIONAL AIRPORT