GLASSWOOL INSULATION

Manufacturing facility in Taiwan
(Owens Corning licensee)
An ISO 9002 enterprise

In view of the current energy crisis, one of the major challenges facing mankind is how we can effectively manage our diminishing energy resources. As a result, insulation materials are playing an increasingly important role in conserving energy, and glasswool stands out amongst all insulating materials.

Glasswool products have many applications in the insulation of residential and commercial buildings, factories, and warehouses. It is also used in heating, ventilation, and air-conditioning (HVAC), petrochemical pipelines, and in the insulation of industrial equipment. Because of its superior properties as a heat insulator and sound barrier, glasswool can not only reduce fuel and electricity usage, but also creates a comfortable and quiet living environment.

Although glasswool technology is a product of the twentieth century, as long ago as 4,000 BC, the ancient Egyptians invented an insulation material for buildings which was somewhat similar to glasswool. Their experience provided the fundamental technology on the manufacture of glasswool and the use of glasswool as an insulation material.

In 1938, the first glasswool production line was constructed by Owens Corning Fiberglass Corporation. This marks the official beginning of the commercial development of glasswool and for over 50 years, glasswool has proven to be a safe and effective insulation material in domestic, commercial and industrial applications.

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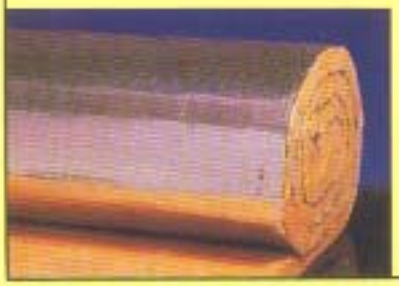
Thermal and acoustic insulation products

Building Insulations



Building Insulations are lightweight, flexible and resilient. They provide excellent thermal insulation for flat or low-pitched roofs using metal decking or asbestos-cement roofing sheets. In places where condensation exists, Building Blankets must be faced with a reflective aluminum foil vapor barrier.

Width	1200 (mm)
Length	7.5, 15, 20 (mtr.)
Thickness	25, 50, 75, 100, 150 (mm)
Density	14, 16, 20, 24, 32, 48, 56 (kg/m^3)
Conductivity	0.031 - 0.037 (W/mk)

Other specs. are available upon request

Underslab Roof Insulation

Underslab Roof Insulation is designed to insulate the underside of concrete roofing decks. It may be supplied faced with a reflective aluminum foil vapor barrier.

Size	1200x1200x25, 1200x1200x50 (mm)
Density	28 (kg/m^3)
Conductivity	0.034 (W/mk)

Other specs. are available upon request

Ceiling panels

Ideal Ceiling Panels are highly effective thermal insulation and acoustical boards that add an air of elegance to any interior. They prevent heat from getting in through the ceiling and also absorb noise for a quiet and comfortable atmosphere. Possessing high moisture resistance, Ideal Ceiling Panels guarantee durability.

Size	1210x1210, 1210x605, 605x605 (mm)
Thickness	15, 20, 25 (mm)
Conductivity	0.035 (W/mk)

Other specs. are available upon request

Rigid Pipe Insulation

Rigid Pipe Insulation consists of lightweight cylindrical insulating sections. These sections are one-piece units with a single slit along one wall length which opens for quick application and closes tight once in place. They provide excellent thermal insulation and are designed for use on pipes operating from -120 °F to 900 oF (-85 °C to 480 °C). Rigid pipe insulation is available bare for hot piping, with a factory applied calico scrim jacket as a base for cement or paint finish, and with aluminum foil jackets for use on cold piping where a vapor barrier is required.

Length	1000 (mm)
Thickness	25, 40, 50, 65, 75, 100 (mm)
Density	56, 64, 96 (kg/m^3)
Conductivity	0.031 - 0.032 (W/mk)

Other specs. are available upon request

Pipe Wrap Insulation

Pipe Wrap Insulation is manufactured from a board cut into strips the width of which is equivalent to the finished insulation thickness. The strips are turned so that the fiber orientation is vertical, and then adhered to a vapor barrier. Designed for use as external thermal insulation for pipes and vessels, Pipe Wrap has the flexibility of blanket insulation combined with a high compressive strength.

Size	7500x1200 (mm)
Thickness	38, 50, 75 (mm)
Density	64 - 80 (kg/m^3)
Conductivity	0.031 - 0.032 (W/mk)

Other specs. are available upon request

Thermal and acoustic insulation products

Sound Attenuation Insulation
(R products)

Sound Attenuation Insulation are lightweight, flexible and resilient. The products are designed for use in drywall partition to reduce sound transmission. They also provide superior thermal performance which plays a vital role in conserving energy and operating cost savings in airconditioning systems. They have been tested in accordance with ASTM procedures for 1 hour fire rated 1/2" type "x" gypsum drywall assembly.

Standard products	R4, R5, R6, R8, R11, R13, R19
Thickness	38, 45, 50, 64, 89, 100, 150 (mm)
Length	5 - 20 (mtr.)
Width	400, 600, 1200 (mm)

Other specs. are available upon request

Airconditioning Insulation

Airconditioning Insulation consists of lightweight batts, blankets, or boards which provide excellent thermal insulation and sound absorption. Designed for internal or external applications, they can be bonded directly to the duct walls, held in place with metal sections, or impaled on spot-welded or adhered pins. Insulation applied externally to ducts can be held in place with a wrapped vapor barrier or by wire mesh. Three types are available :

Flexible Duct Insulation

Width	1200 (mm)
Length	7.5, 15, 20, 30 (mtr.)
Thickness	25, 38, 50 (mm)
Density	12, 16, 24, 32, 48 (kg/m^3)
Conductivity	0.033 - 0.037 (W/mk)

Other specs. are available upon request

Semi-Rigid Duct Insulation

Width	1200 (mm)
Length	2, 2.3 (mtr.)
Thickness	25, 38, 50, 65, 75 (mm)
Density	32, 48, 64 (kg/m^3)
Conductivity	0.031 - 0.033 (W/mk)

Other specs. are available upon request

Matt-Faced Duct Liner

Width	1200 (mm)
Length	30 (mtr.)
Thickness	15, 25, 38, 50 (mm)
Density	24, 32, 48, 64, 80 (kg/m^3)
Conductivity	0.031 - 0.033 (W/mk)

Other specs. are available upon request

Equipment Insulation

Equipment Insulation is available in the form of boards and blankets. Three types are available for different applications (contact factory for assistance) :

Lightweight Insulation
(-120°F to 650°F)

Width	1200 (mm)
Length	10 (mtr.)
Thickness	25, 38, 50 (mm)
Density	28 - 32 (kg/m^3)
Conductivity	0.033 (W/mk)

Also available in board form

Other specs. are available upon request

Intermediate Density Insulation
(-120°F to 850°F)

Width	1200 (mm)
Length	2 (mtr.)
Thickness	25, 38, 50 (mm)
Density	48 (kg/m^3)
Conductivity	0.031 (W/mk)

Also available in blanket form

Other specs. are available upon request

High Density Insulation
(-120°F to 650°F)

Width	1200 (mm)
Length	2 (mtr.)
Thickness	25, 38, 50 (mm)
Density	80, 96, 100, 120 (kg/m^3)
Conductivity	0.031 - 0.035 (W/mk)

Other specs. are available upon request

Glasswool Manufacturing

The process by which glasswool is produced is as follows :

A glass batch incorporating about fifteen raw components such as sand, soda ash, limestone, etc., are stored in silos, weighed, mixed, and poured into the furnace by a batch feeder. The melting process of the vitrifiable mix takes place in a flame furnace heated to about 2550 °F. (1400 °C). The molten glass is then temperature conditioned in the forehearth before being fiberised into the final glass fibers. After being coated with binder, the fibers are laid up in a thick pack on a moving conveyor. The variable speed of the conveyor belt permits the manufacture of different densities of the finished products. The conveyor carries the resin-impregnated fibers into the curing oven where the resin is cured. After curing the resin, the product is trimmed, split, chopped to length and faced as required. At the exit of the curing oven, the uneven edges are trimmed with circular saws. The manufacturing process is completed with the possible adhesion of either vapor barrier aluminum facing or a bonded mat, and final cutting of the product to required length.

How Insulation Works

Insulation is a means of controlling an environment by providing an efficient barrier to heat and noise. Insulation for preventing heat loss or gain is referred to as THERMAL INSULATION. Sound insulation is referred to as ACOUSTIC INSULATION.

THERMAL INSULATION works by minimizing heat flow and preventing extreme changes in temperature. The key principle is that still air trapped in the space between the glass fibers is a very good insulator. Glasswool can be used in domestic, commercial and industrial applications to provide safe and comfortable conditions by controlling heat loss or gain. When installed correctly, thermal insulation plays a vital role in conserving energy and allows capital cost savings on mechanical and electrical equipment.

ACOUSTIC INSULATION works by absorbing sound and vibration energy. The key principle is to convert sound energy into kinetic energy. Glasswool is a good sound insulator because the flexing action of the fibers absorbs the sound and dissipates it in a form of heat energy of such low intensity as to be virtually undetectable. Glasswool has excellent sound absorption characteristics, and with complementary building materials, it enhances the performance of a structure by minimizing the passage of sound. Acoustic irritation is reduced and hearing protected.

IDEAL Glasswool Insulation Properties

General properties :

Property	Performance	Test method
Fire Hazard Classification	Flame Spread : 0 Smoke developed : 10	ASTM E 84
Maximum Service Temperature Range	350°F	ASTM C 411
Moisture Absorption	< .1% by volume	ASTM C 1104
Alkalinity	pH 9 (neutral is pH 7)	BS 2972-1975

Acoustical performance :

Specification		Sound absorption coefficients @ Octave band frequencies (Hz) (Tested in accordance with ASTM C 423)						
Density	Thickness	125	250	500	1000	2000	4000	NRC
24 kg/m³	1"	.10	.28	.50	.70	.82	.83	.60
	1 1/2"	.20	.40	.71	.86	.91	.85	.70
	2"	.22	.49	.83	.89	.89	.91	.80
32 kg/m³	1/2"	.04	.10	.24	.41	.56	.73	.35
	1"	.10	.29	.53	.72	.83	.84	.60
	1 1/2"	.20	.42	.80	.93	.93	.88	.75
	2"	.24	.57	.90	.95	.95	.96	.85
48 kg/m³	1/2"	.05	.12	.29	.51	.68	.80	.40
	1"	.05	.25	.57	.78	.87	.89	.60
	1 1/2"	.20	.46	.82	.94	.95	.91	.80
	2"	.27	.72	1.04	1.02	.96	.92	.95