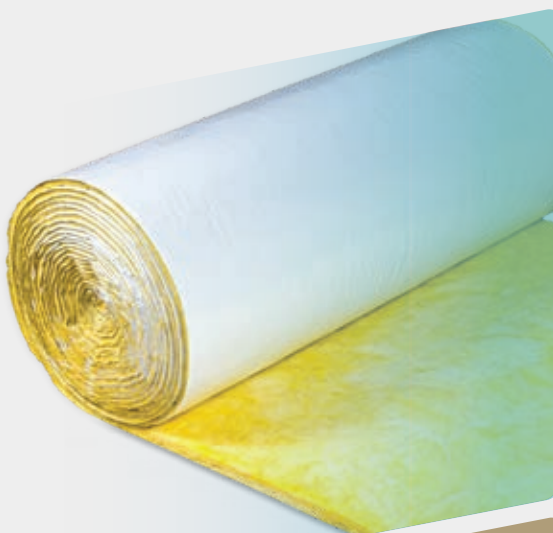


INNOVATION IN INSULATION



SAINT-GOBAIN AT A GLANCE



INSULATION

Started in 1937

World leader in mineral wool
(Isover)

Presence in 29 countries

10,000+ employees

INSULATION BUSINESS IN INDIA

Formed through
acquisition of



2 Stone Wool
Factories

2 Glass Wool
Factories



Silvassa



Ambernath
(near Mumbai)



Kaveli
(near Hyderabad)



Sikandrabad
(near Delhi)



WHY INSULATION

1

Thermal Insulation

- Very low thermal conductivity, K value
- High thermal resistance, R value

Benefits




-  Thermal comfort
-  Energy savings

2

Acoustic Insulation

- Good sound absorption, NRC
- Low sound transmission, STC
- High impact sound insulation, IIC

Benefits



-  Quieter ambience
-  Acoustic privacy
-  Better for ear health

3

Fire Safety

- Non-combustible
- Least fire and flame propagation
- Least smoke emission

Benefits


-  Gives occupants time to escape
-  Low smoke / Toxic gases

4

Personnel Protection

- Prevents contact injuries and skin burns when working in vicinity of hot pipe and equipment surfaces

Benefits

-  Enhances employees' safety

KEY TECHNICAL FACTORS



Building

ECBC compliant

- Roof: $U < 0.33 \text{ W/m}^2\cdot\text{K}$
- Wall: $U < 0.4 \text{ W/m}^2\cdot\text{K}$

NBC 2016 (building material, thermal insulation, all buildings)

- Non-combustible
- No toxic smoke

PEB

- R: 0.64 to $3.33 \text{ m}^2\cdot\text{K/W}$
- Least Fire Spread: Class A, Class 0/Class 1
- FM Approved

Infrastructure building

- U : 0.261 to $0.3 \text{ W/m}^2\cdot\text{K}$
- STC: 39 to 48 dB



Industry

IS 8183

- Thermal conductivity, K value :
 - $K < 0.078 \text{ W/m}\cdot\text{K}$ at 200°C
 - $K < 0.11 \text{ W/m}\cdot\text{K}$ at 300°C
- Max. Service Temperature: Up to 750°C
- Shot Content $< 25\%$ including 500, 250 and 150 micron
- Sulphur Content $< 0.2\%$
- Corrosion under insulation (CUI) : Chloride Content $< 10 \text{ ppm}$
- Moisture Content $< 2\%$

For personal protection

Exposed surface $< 60^\circ\text{C}$

Water absorption

By mass $< 0.5 \text{ Kg/m}^2$ (BS 2972)



Mobility

Fire safety for Trains

- HL3 compliance (EN 45545-2)

Interior wall acoustic

STC $> 45 \text{ dB}$

Metro coaches

- Water absorption $< 2\%$

Vibration and Jolting

- Fiber settlement $< 3\%$



HVAC

ECBC compliant

- Supply duct: $R > 1.4 \text{ m}^2\cdot\text{K/W}$
- Return duct: $R > 0.6 \text{ m}^2\cdot\text{K/W}$
- Pipe : 0.7 to $1.2 \text{ m}^2\cdot\text{K/W}$
- FM Approved for duct wrap

NBC 2016 (Duct insulation)

- Non-combustible
- No toxic smoke

PRODUCT RANGE

Rockinsul™

Twigainsul®



Wide range of mineral wool insulation



Suited across applications



Solution for thermal, acoustic and fire insulation



Maximum Service Temperature

Glass Wool : upto 230°C

Stone Wool : upto 750°C

LRB Mattress (Wired Mat)

High density,
low binder based
semi-flexible mat for
high temperature
applications



Range

Density	:	70 to 160 Kg/m ³
Thickness	:	25 to 100 mm
Width	:	1.22 m
Length	:	1.52 to 5 m
Facing	:	GI Wire Mesh, SS Wire Mesh

Application

Industry / OEM:	Steam Pipe
	Boiler
	Furnace
	Tank
	Other hot applications

RB Slab

Rigid, strong
and durable slab :
plain or with factory
applied facings



Range

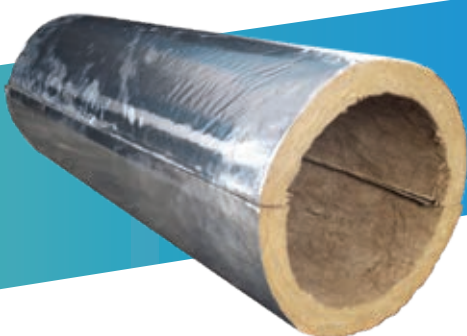
Density	:	40 to 144 Kg/m ³
Thickness	:	25 to 150 mm
Width	:	0.6 m
Length	:	0.6 to 1.2 m
Facing	:	Aluminium : FSK, Aluglass

Application

Building	:	Metal building (roof, wall), RCC underdeck, Overdeck, Masonry wall, Drywall, Facade
HVAC	:	Fire duct
Industry/OEM	:	Furnace, Tank, Boiler, Appliance, Acoustic enclosure

Pipe Section

Pre-formed product
for easy installation
on pipe : plain and with
factory applied facing



Range

Density	:	100 to 160 Kg/m ³
Thickness	:	25 to 100 mm
Diameter	:	15 to 600 mm (NB)
Length	:	1.2 to 1.25 m
Facing	:	FSK

Application

Industry / OEM:	Steam pipeline, Process pipeline (medium to high temperature)
HVAC	: Chilled water pipe

Tuffinsul slab

Slab with high
compressive
strength suitable for
load bearing application



Range

Density	:	80 to 150 Kg/m ³
Thickness	:	50 to 100 mm
Width	:	0.6 m
Length	:	1 to 1.2 m

Application

Building	:	Overdeck application Floor insulation Sandwich panels
-----------------	---	---

Tuffinsul Lamella Bat

Rigid bat used
as the core of fire
rated sandwich panel



Range

Density	: 80 to 150 Kg/m ³
Thickness	: 25 to 110 mm
Width	: 100 to 110 mm
Length	: 1 to 1.2 m

Application

Building	: Sandwich panel, Fire door
----------	-----------------------------

Building Roll

Long and flexible
blanket : plain
or with factory
applied facings



Range

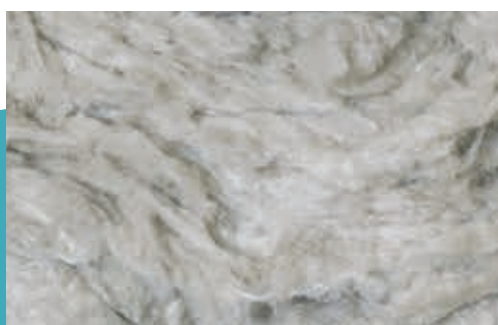
Density	: 40 to 80 Kg/m ³
Thickness	: 50 to 100 mm
Width	: 1.1 to 1.2 m
Length	: 5 to 10 m
Facing	: Aluminium : FSK, Aluglass

Application

Building	: Metal building (roof, wall) RCC underdeck Drywall Masonry wall
HVAC	: Fire duct

Loose wool

Loose stone wool fibers for in-fill applications in the Industry



Range

Unbonded stone wool fibers without any specific density or thickness

Suitable for high temperature applications where shape or contour of the process equipments, valves etc. are complex

Application

Industry : Oven, Tile manufacturing,
Brake pad, Casting riser,
Valves insulation, In-fill to insulate
complex shape / irregular surface

Roll

Long, resilient and flexible blankets : plain or with factory applied facings



Range

Density	:	10 to 48 Kg/m ³
Thickness	:	25 to 130 mm
Width	:	1.1 to 1.2 m
Length	:	7.5 to 30 m
Facing	:	Aluminium : FSK, Aluglass Polypropylene : WMP 10, WMP 50

Tissue : FGT, BGT

Application

Building	:	Metal building (roof, wall) RCC underdeck Masonry wall Drywall
HVAC	:	Duct thermal, Duct acoustic
Industry/OEM	:	Cryogenic/Low temperature applications Geyser, Solar water heater
Mobility	:	Bus body insulation

Board

Rigid and semi-rigid product in short and long sizes



Range

Density	:	32 to 120 Kg/m ³
Thickness	:	15 to 100 mm
Width	:	0.6 m
Length	:	1.2 m
Facing	:	Aluminium : FSK, Aluglass Polypropylene : WMP 10, WMP 50 Tissue : FGT, BGT Glass Cloth : WGC, BGC

Application

Building	:	RCC underdeck Masonry wall, Facade & spandrel insulation Drywall
HVAC	:	Duct thermal, Duct acoustic, AHU room
Industry/OEM	:	Cold storage, Small furnaces
Mobility	:	Train coach

Pipe Insulation

Preformed Pipe section
and Lamella mat



Range

Density	:	80 Kg/m ³
Thickness	:	25 to 75 mm
Diameter	:	Pipe-Section : 25 to 450 mm (NB) Lamella Mat : 350 to 1400 mm (NB)
Length	:	Pipe section : 1.2 m Lamella Mat : 0.9 m
Facing	:	Aluminium : FSK

Application

HVAC	:	Chilled water line Hot water line
------	---	--------------------------------------

Flexible Duct

Insulated and
Uninsulated



Range

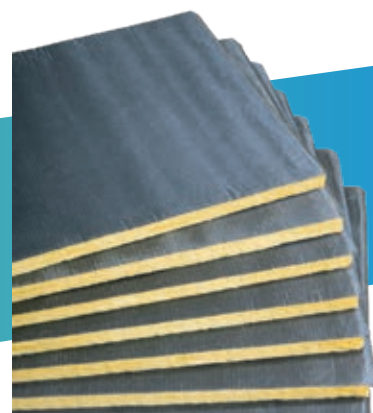
Inner Core	:	Double laminated film on coated wire helix
Outer jacket	:	Alu or Met foil with reinforcement
Insulation	:	Glass wool : 16 to 32 kg/m ³
Diameter	:	4 to 20 inch
Length	:	10 to 25 ft

Application

HVAC	:	Connect Grills and diffuser with Metal ducts
-------------	---	--

Acoustic Board

Rigid board with
textile facings for
acoustic sensitive area



Range

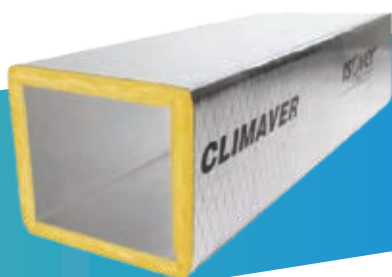
Density	:	70 to 80 Kg/m ³
Thickness	:	25 and 50 mm
Width	:	0.6 and 1.2 m
Length	:	1.2 and 2.5 m
Facing	:	Aluminium: FSK Glass Cloth: BGC

Application

Building	:	Underdeck False Ceiling Masonry wall
HVAC	:	AHU room, Duct acoustic
Industry/OEM	:	Genset Crash testing pit (Automotive lab)
Mobility	:	AC Ducts in metro train coaches

CLIMAVER PLUS R

Climaver Plus R is a pre-insulated non-metallic duct, with superior thermal performance, conforming to the highest standards of rigidity and reaction to fire as per EN 13403.



Range

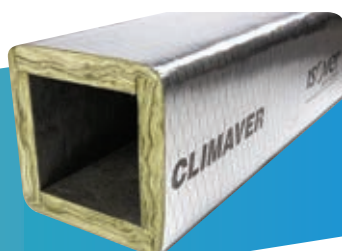
Thickness	: 25 mm
Width	: 1.19 m
Length	: 2.9 m
Outer Facing	: Aluminum Composite FSK
Inner Facing	: Aluminum FSK
Working Pressure	: 800 Pascal (tested up to 2000 Pascal)
Air Velocity	: 18 m/s

Application

HVAC	: Thermal Pre-Insulated Duct
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CLIMAVER NETO

Climaver NETO is a pre-insulated non-metallic duct, with superior thermal and acoustic performance, conforming to the highest standards of rigidity and reaction to fire as per EN 13403.



Range

Thickness	: 25 mm
Width	: 1.19 m
Length	: 2.9 m
Outer Facing	: Aluminum Composite FSK
Inner Facing	: Black Glass Cloth
Working Pressure	: 800 Pascal (tested up to 2000 Pascal)
Air Velocity	: 18 m/s
NRC	: 0.75

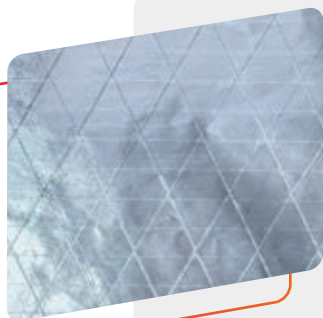
Application

HVAC	: Thermal + Acoustic Pre-Insulated Duct
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FACING PRODUCT FOR INSULATION

- Aluminium
- Polypropylene
- Acoustic
- Industry

ALUMINIUM



Foil-Scrim-Kraft, FSK

Description

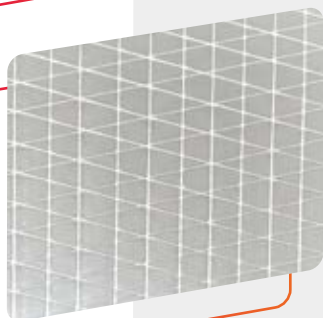
Multi-purpose aluminium facing

Utility

Duct insulation, Underdeck, Pipe insulation, wall insulation

Strength

Up to 7.6 KN/m



MRSG

Description

Silver coloured foil with reinforcement

Utility

PEB roof and wall

Strength

Up to 3 KN/m



DOUBLE SIDED FSK

Description

Double sided foil

Utility

Metro train coaches

Strength

Up to 5.5 KN/m



ALU GLASS CLOTH

Description

Aluminium and glass cloth based high strength facing

Utility

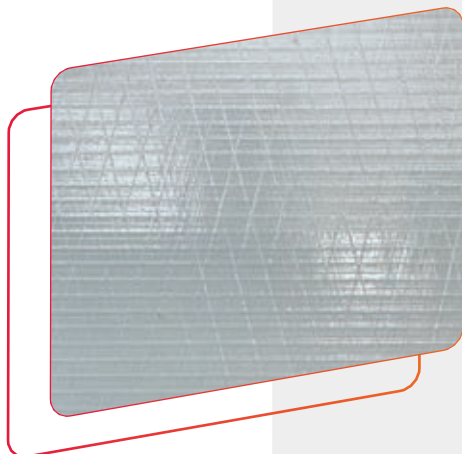
PEB roof and wall

Strength

Up to 16 KN/m

POLYPROPYLENE

White Metalized Polypropylene, WMP



WMP 50

Description

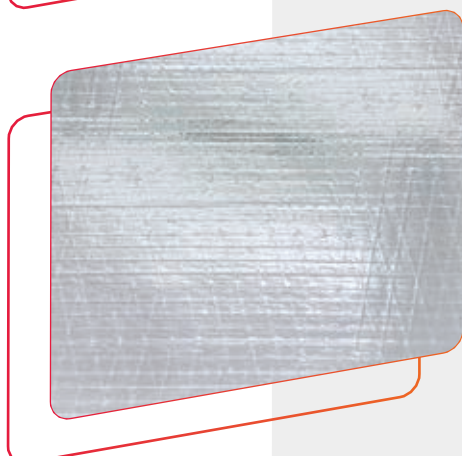
High strength white polypropylene with reinforcement, kraft and metalized polyester

Utility

PEB roof and wall -weld mesh free application

Strength

Up to 11 KN/m



WMSG 10

Description

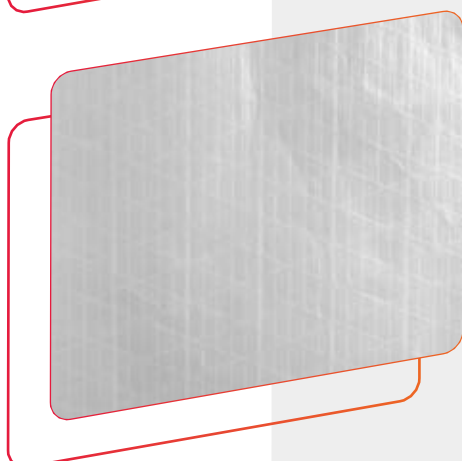
White kraft backed polypropylene facing

Utility

PEB roof and wall

Strength

Up to 6.8 KN/m



WMSG 50

Description

High strength white polypropylene with reinforcement, kraft and aluminium foil

Utility

PEB roof and wall-weld mesh free application

Strength

Up to 9.1 KN/m



BLACK GLASS CLOTH, BGC

Description

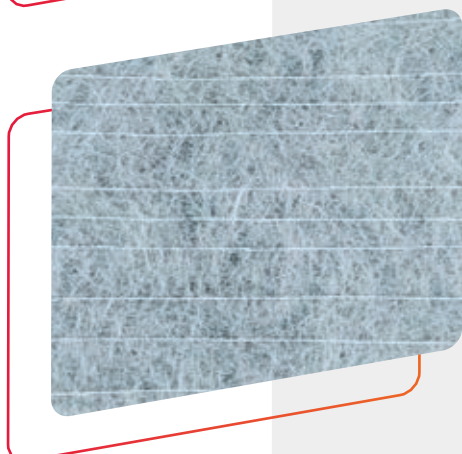
Black coloured textile made of glass yarns

Utility

Acoustic sensitive area
e.g AHU room,
home studio

Advantage

Perforated metal covering not required



FIBERGLASS TISSUE, FGT

Description

Lightweight white fiberglass tissue

Utility

Used as acoustic lamination in duct lining and AHU room, corrosion protection for pipeline, Waterproofing

Advantage

Can be used in versatile applications



BLACK GLASS TISSUE, BGT

Description

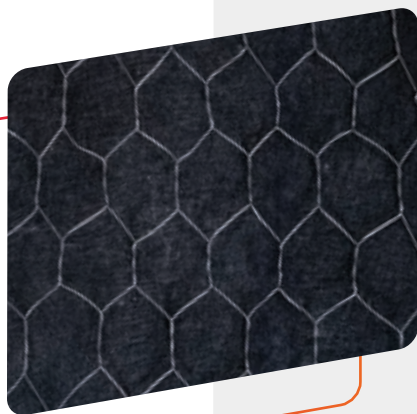
Lightweight black fiberglass tissue

Utility

Used as acoustic lamination in duct lining and AHU room behind the perforated metal sheet

Advantage

Aesthetic, can be used for various acoustic applications



HEXAGONAL WIREMESH- GI

Description

Used with LRB mattress for high temperature application

Utility

All major industrial application

Advantage

Durable facing for high density insulation



HEXAGONAL WIREMESH- SS

Description

Used with LRB mattress for high temperature application

Utility

All major industrial application

Advantage

Durable facing for high density insulation with least risk of corrosion

MAJOR CERTIFICATION



Fire safety certification
for Metal building
and Duct wrap



BIS License
in conformance
with IS 8183 standard



Health safe
fibers: Certification on
Bio-solubility



Singapore Green
Building Council: Green
Product certification



Indian Green Building
Council: Green Product
certification



The Energy Resource
Institute: Green
Product certification

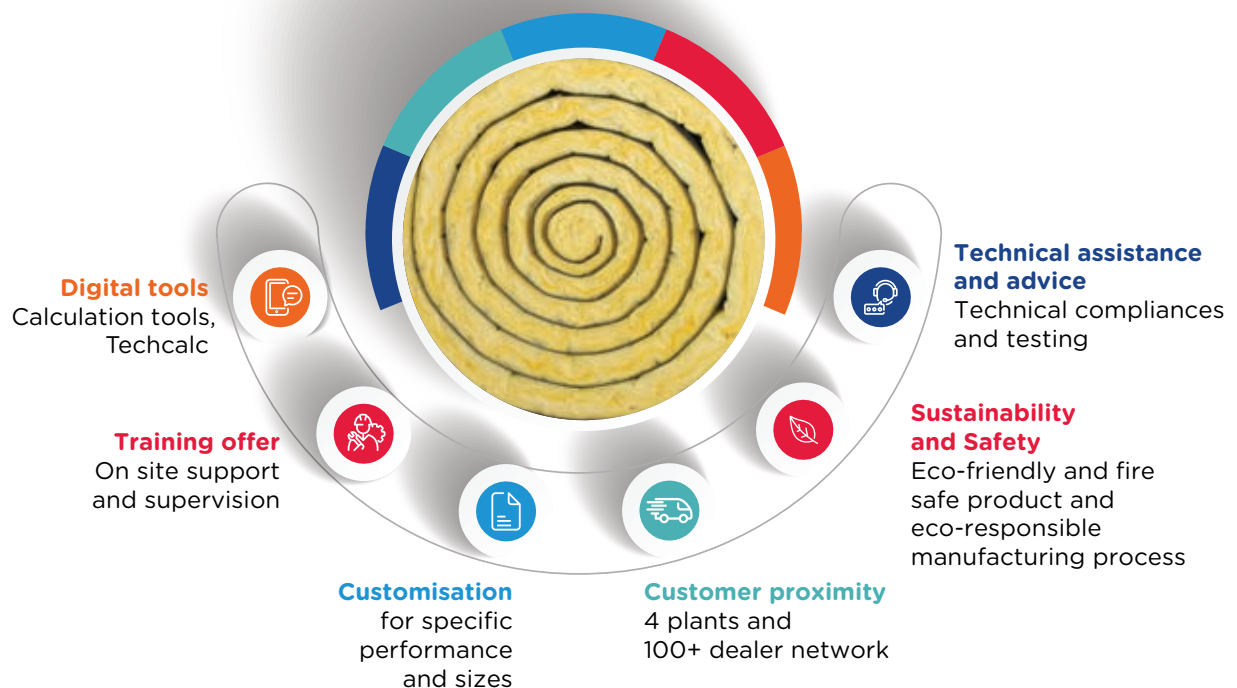


Product quality
certification to
supply in Malaysia



Fire safety certification
on Flame spread and
Smoke development
criteria (UL 723)

WHY SAINT-GOBAIN INSULATION



OUR PRESENCE



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Andheri-Kurla road,
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Maharashtra 400 059, India



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