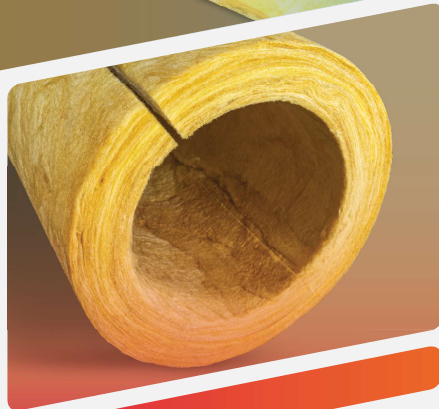
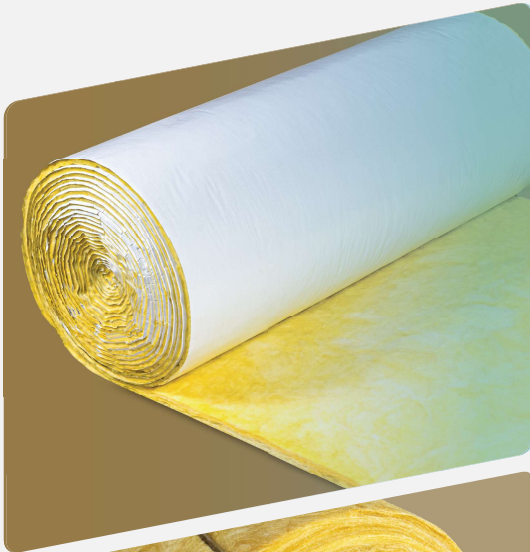
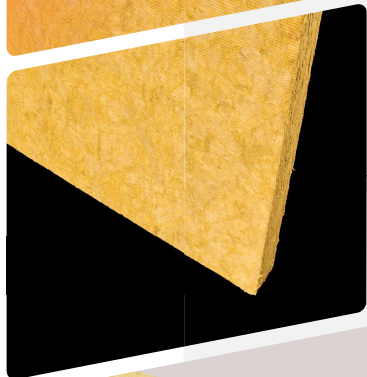
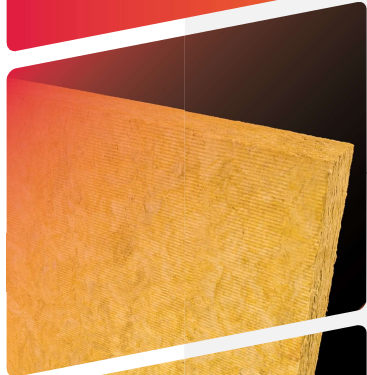


Rockinsul™

Twigainsul®

## INNOVATION IN INSULATION



# SAINT-GOBAIN AT A GLANCE



## INSULATION

- Started in 1937
- Presence in 32 countries
- World leader in mineral wool (Isover)
- 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:  $U < 0.33 \text{ W/m}^2\text{.K}$
- Wall:  $U < 0.4 \text{ W/m}^2\text{.K}$

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

- Non-combustible
- No toxic smoke

### PEB

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

### Infrastructure building

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



## Industry

### IS 8183

- Thermal conductivity, K value :
  - $K < 0.078 \text{ W/m.K}$  at  $200^\circ\text{C}$
  - $K < 0.11 \text{ W/m.K}$  at  $300^\circ\text{C}$
- Max. Service Temperature: Up to  $750^\circ\text{C}$
- 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:  $R > 1.4 \text{ m}^2\text{.K/W}$
- Return duct:  $R > 0.6 \text{ m}^2\text{.K/W}$
- Pipe :  $0.7$  to  $1.2 \text{ m}^2\text{.K/W}$
- 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

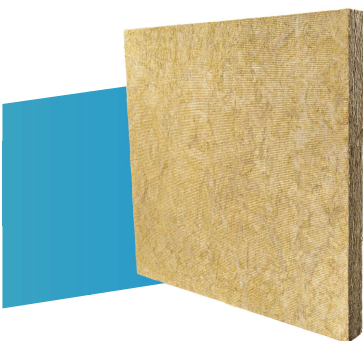
Density	:	70 to 160 Kg/m <sup>3</sup>
Thickness	:	25 to 100 mm
Width	:	1.22 m
Length	:	1.52 to 5 m
Facing	:	GI Wire Mesh, SS Wire Mesh

#### 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 180 Kg/m <sup>3</sup>
Thickness	:	25 to 150 mm
Width	:	0.6 m
Length	:	0.6 to 1.2 m
Facing	:	Aluminium : FSK, Aluglass Tissue: BGT

#### 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 <sup>3</sup>
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

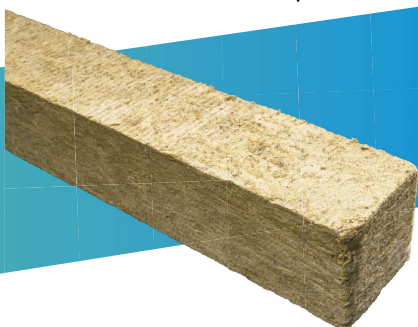
Density	:	80 to 150 Kg/m <sup>3</sup>
Thickness	:	50 to 100 mm
Width	:	0.6 m
Length	:	1 to 1.2 m

### 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 <sup>3</sup>
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

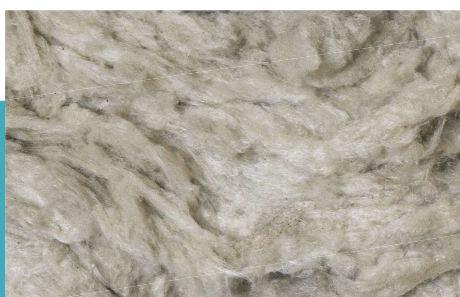
Density	:	40 to 80 Kg/m <sup>3</sup>
Thickness	:	50 to 100 mm
Width	:	1.1 to 1.2 m
Length	:	5 to 10 m
Facing	:	Aluminium : FSK, Aluglass

#### 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

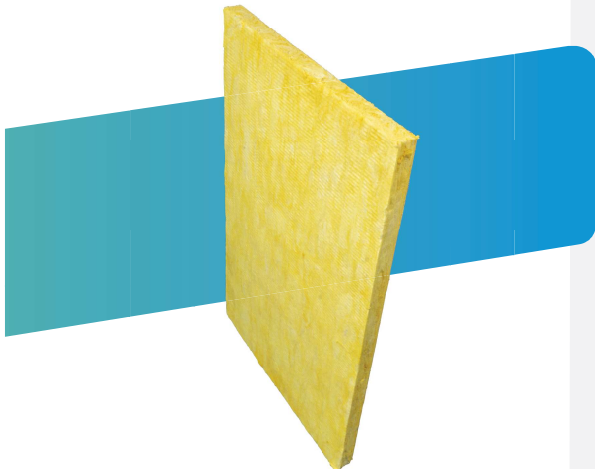
<b>Density</b>	:	10 to 48 Kg/m <sup>3</sup>
<b>Thickness</b>	:	25 to 130 mm
<b>Width</b>	:	1.1 to 1.2 m
<b>Length</b>	:	7.5 to 30 m
<b>Facing</b>	:	Aluminium : FSK, R 3035 HD, Aluglass Polypropylene : WMP 10, WMP 50, WMP VR R Plus Tissue : FGT, BGT

### Application

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

## Board

Rigid and semi-rigid product in short and long sizes



### Range

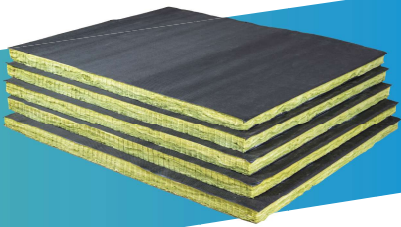
<b>Density</b>	:	32 to 120 Kg/m <sup>3</sup>
<b>Thickness</b>	:	15 to 100 mm
<b>Width</b>	:	0.6 m
<b>Length</b>	:	1.2 m
<b>Facing</b>	:	Aluminium : FSK, R 3035 HD, Aluglass Polypropylene : WMP 10, WMP 50, WMP VR R Plus Tissue : FGT, BGT Glass Cloth : WGC, BGC

### Application

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



Soft product with  
green binder in roll  
and board form



## Boards

## Application

## Pipe Insulation

Preformed Pipe section  
and Lamella mat



HVAC : Chilled water line  
Hot water line



## Flexible Duct

Insulated and  
Uninsulated



### Range

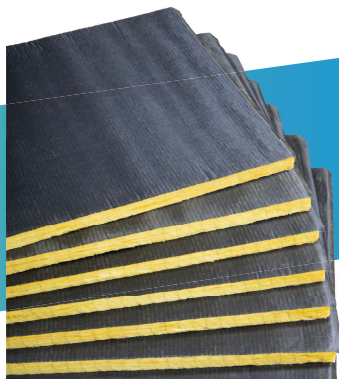
<b>Inner Core</b>	:	Double laminated film on coated wire helix
<b>Outer jacket</b>	:	Alu or Met foil with reinforcement
<b>Insulation</b>	:	Glass wool : 16 to 32 kg/m <sup>3</sup>
<b>Diameter</b>	:	4 to 20 inch
<b>Length</b>	:	10 to 25 ft

### Application

<b>HVAC</b>	:	Connect Grills and diffuser with Metal ducts
-------------	---	--

## Acoustic Board

Rigid board with  
textile facings for  
acoustic sensitive area



### Range

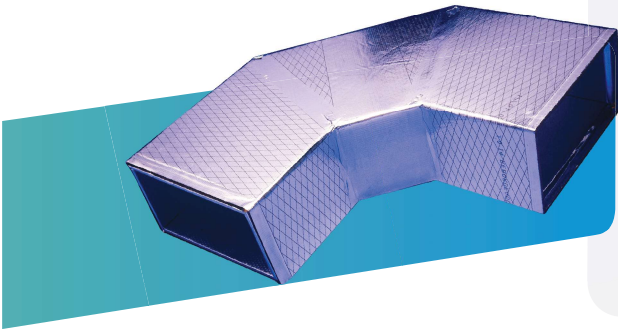
<b>Density</b>	:	70 to 80 Kg/m <sup>3</sup>
<b>Thickness</b>	:	25 and 50 mm
<b>Width</b>	:	0.6 and 1.2 m
<b>Length</b>	:	1.2 and 2.5 m
<b>Facing</b>	:	Aluminium: FSK Glass Cloth: BGC

### Application

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

## Duct Board

Long insulation boards with both face laminated and having profiled edges. These boards are converted to duct pieces and duct network for comfort air conditioning systems



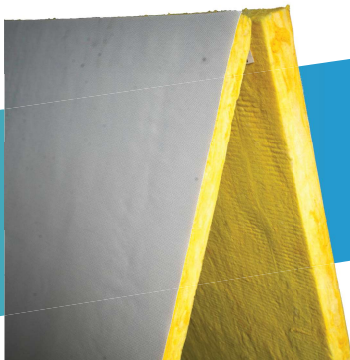
### Range

<b>Density</b>	: 70 to 80 Kg/m <sup>3</sup> (120 at profiled edges)
<b>Thickness</b>	: 25 mm
<b>Width</b>	: 1.19 m
<b>Length</b>	: 2.5 to 3 m
<b>Facing</b>	: External: Aluminium+FGT Internal: Aluminium+FGT BGC+FGT

### Application

<b>HVAC</b>	: Duct thermal, duct acoustic
-------------	-------------------------------

## Mineral Fiber Marine Board (MFMB)



### Range

<b>Density</b>	: 56 Kg/m <sup>3</sup>
<b>Thickness</b>	: 25 to 75 mm
<b>Width</b>	: 0.6 m
<b>Length</b>	: 0.9 m
<b>Facing</b>	: Glass Cloth: WGC

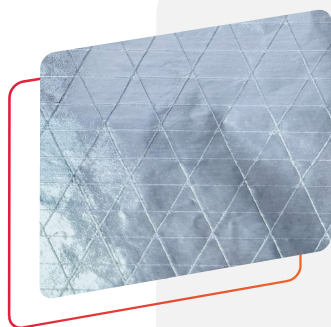
<b>Application</b>	: Ship building
--------------------	-----------------

# FACING PRODUCT FOR INSULATION

- Aluminium
- Polypropylene
- Acoustic
- Industry



# ALUMINIUM



## Foil-Scrim-Kraft, FSK

### Description

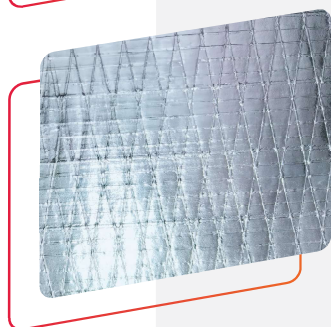
Multi-purpose aluminium facing

### Utility

Duct insulation, Underdeck, Pipe insulation, wall insulation

### Strength

Up to 7.6 KN/m



## R 3035 HD

### Description

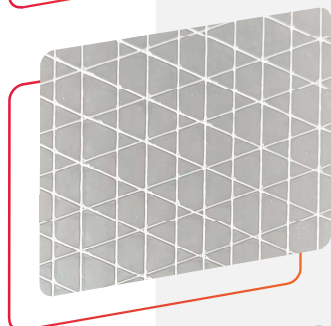
High strength FSK

### Utility

PEB roof and wall

### Strength

Up to 9.6 KN/m



## MRSG

### Description

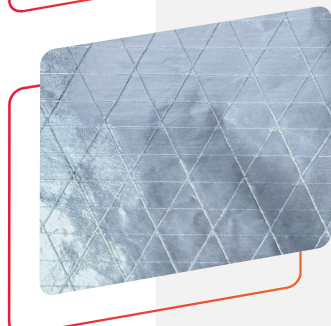
Silver coloured foil with reinforcement

### 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

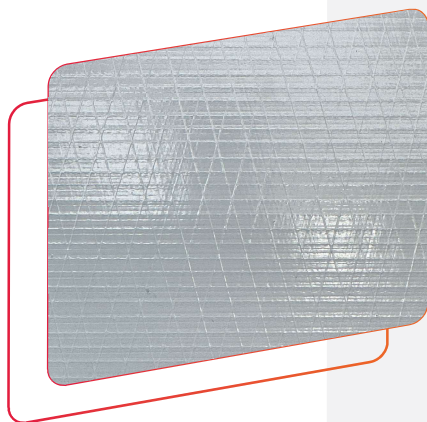
PEB roof and wall

### 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

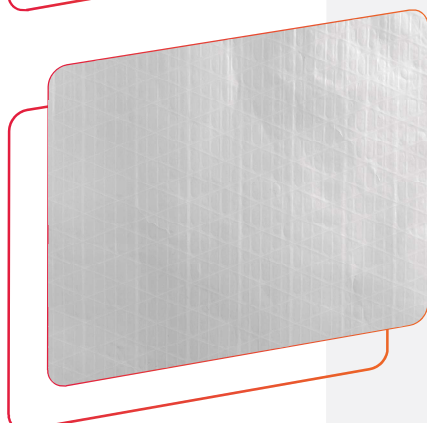
White kraft backed polypropylene facing

### Utility

PEB roof and wall

### Strength

Up to 6.8 KN/m



## WMSG 50

### Description

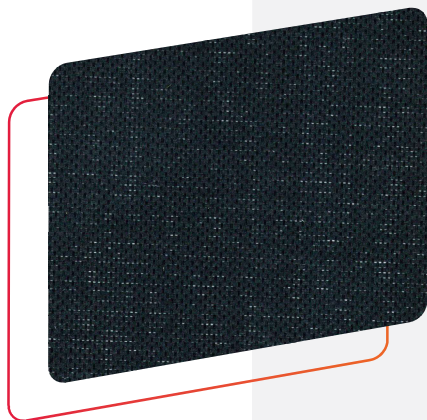
High strength white polypropylene with reinforcement, kraft and aluminium foil

### 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

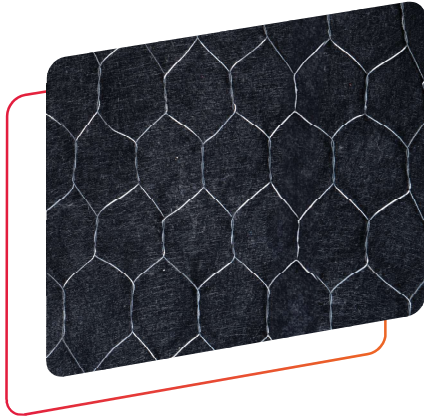
Lightweight black fiberglass tissue

### 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

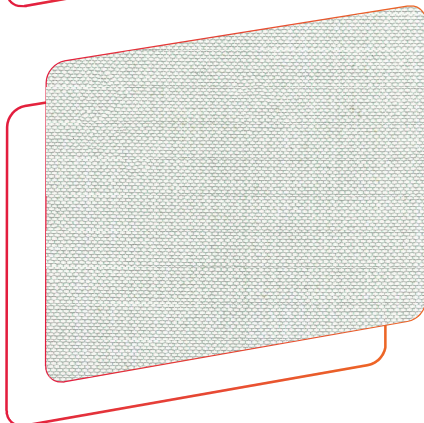
Used with LRB mattress for high temperature application

### Utility

All major industrial application

### Advantage

Durable facing for high density insulation with least risk of corrosion



## WHITE GLASS CLOTH

### Description

White and paintable glass cloth for marine application

### Utility

Bulkhead, deck and duct application in ships

### Advantage

Durable facing, superior aesthetic and fire safe



## 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

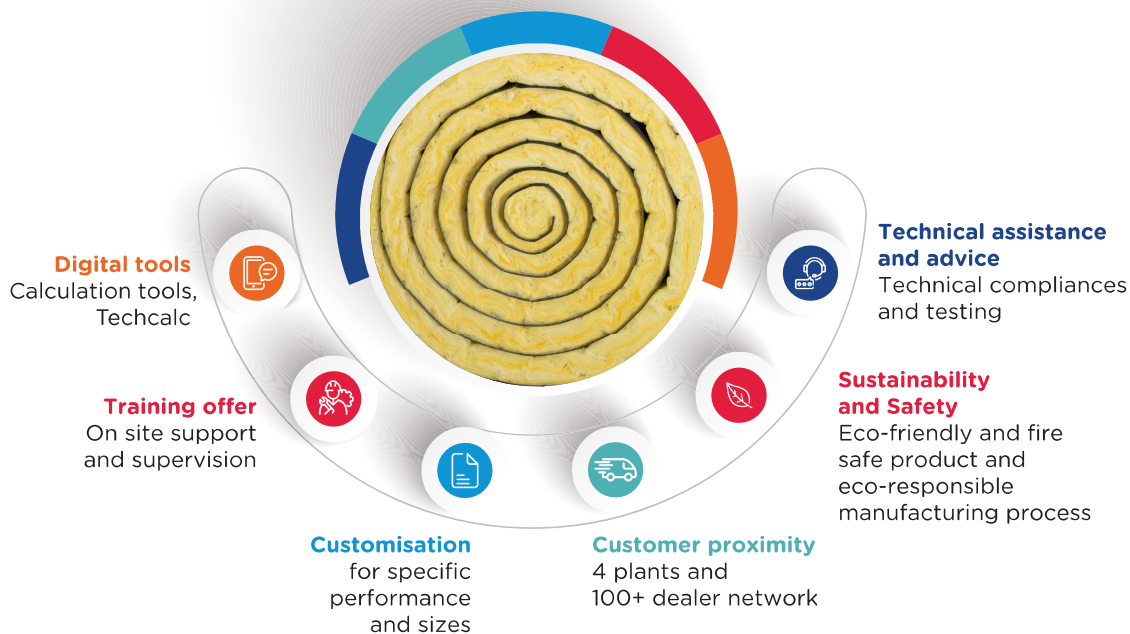


Product quality  
certification to  
supply in Malaysia



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

## WHY SAINT-GOBAIN INSULATION



# OUR PRESENCE



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5th Floor, Leela Business Park,  
Andheri-Kurla road,  
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