



INSULATES THE FUTURE



CE  
EN 14303



Glasswool



ECO - FRIENDLY

TECHNICAL INSULATION

STARFLEX

ODE

# GLASSWOOL

## GENERAL FEATURES

It is produced by melting silica sand at high temperatures and making it fibres. It is used for the purposes of thermal insulation, sound insulation and acoustic applications and fire safety. It can be produced in different size and technical specifications according to their area and purpose of usage with different coating materials, as blanket, board, pipe section.

### TECHNICAL SPECIFICATIONS

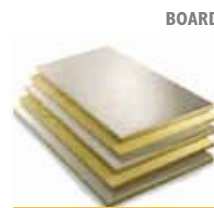
#### THERMAL CONDUCTIVITY COEFFICIENT ( $\lambda$ )

Thermal conductivity coefficient is the heat amount that transferred between 1 m surface of the insulation materials' perpendicular to each other at 1 m<sup>2</sup> distance when the temperature difference is ( $\Delta t$ ) 1°C. Its unit is W/mK. This value is the most important specialty of thermal insulation materials. In order to consider a material to be an insulation material, its thermal conductivity coefficient must be lower than 0.065 W/mK (ISO and CE Standards). The smaller material's thermal conductivity coefficient, the more resistance it shows against heat transfer. **ODE Starflex has the thermal conductivity coefficient of 0.032-0.040 W/mK (at 10°C) within the context of EN 14303 standard.**

#### WATER VAPOUR DIFFUSION RESISTANCE COEFFICIENT ( $\mu$ )

The demand of making a balance that is seen at heat transfer is also valid for partial vapour pressure. Water vapour pressure is tending to move from the environment where the pressure is high to the one where pressure is low. Every material resists vapour transfer depending on their thicknesses as the way in heat transfer. Ratio of this resistance that the materials show against the vapour diffusion resistance of the air is called water vapour resistance coefficient. Since it is a ratio it does not have a unit. **ODE Starflex has a water vapour diffusion coefficient of  $\mu=1.1$ .**

#### LAMINATION TYPES



#### DENSITY

ODE Starflex is manufactured between densities of 12 and 100 kg/m<sup>3</sup>, depending on the place of use and intended purposes.

#### USAGE TEMPERATURE

It should be known that the thermal insulation material is suitable to be used at what temperature range in order to be applied safely. **ODE Starflex can be used between -50°C and +250°C safely.**

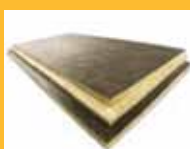
#### PASSIVE FIRE PROTECTION

The safety criteria that should be provided in order that the material considered as safe in fire;

- Ignitability
- Flame Spread
- Heat Release
- Smoke
- Smoke-Toxicity

REACTION TO FIRE (EN 13501-1)	
<b>FIRE CLASSES</b>	A1-A2-B-C-D-E-F
<b>ADDITIONAL CLASSIFICATION IN TERMS OF SMOKE</b>	s1-s2-s3
<b>ADDITIONAL CLASSIFICATION IN TERMS OF DROPPING</b>	d0-d1-d2

\* ODE Starflex is an A class incombustible insulation material according to TS EN 13501-1 Standard.



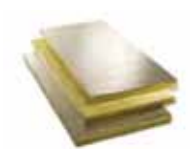
(SiCT1) - One side is faced with Black Glass Tissue  
(SiCT2) - Both sides are faced with Black Glass Tissue



(SaCT1) - One side is faced with Yellow Glass Tissue  
(SaCT2) - Both sides are faced with Yellow Glass Tissue



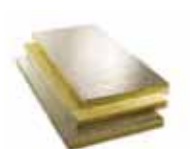
(AFH) - Not Flammable Foil



(AGK) - Alu Glass Facing



(WGF) - Woven Glass Fabric



(FSK) - Foil Scrim Kraft

# ODE STARFLEX TECHNICAL INSULATION WITH



## STARFLEX BLANKET

These are the insulating blankets, used for thermal and sound insulation of HVAC ducts from outside.

### APPLICATION AREAS

- At the insulation of rectangular or square profiled ventilation ducts from outside,

## STARFLEX BOARD

These are the insulating boards, used for thermal and sound insulation of HVAC ducts from outside.

### APPLICATION AREAS

- At the insulation of rectangular or square profiled ventilation ducts from outside
- On the walls of boiler rooms and generator rooms
  - On elevator mechanical rooms, stair enclosures
  - Used as heat insulator and reflector behind sources of heat such as radiators, stoves and ovens (Spartan)

## PREFABRICATED PIPE

- They are the pipes produced from high unit weighed glass wool for the purpose of providing thermal and sound insulation of the pipes used for heating and cooling.
- Facing types: Foil Scrim Kraft (FSK), Alu Glass Faced (Aluglass), Not Flammable Foil (AFH)

### TECHNICAL SPECIFICATIONS

PRODUCT NAME	Density (kg/m <sup>3</sup> )	Thickness (mm)	R (Thermal Resistance) (m <sup>2</sup> K/W)
Insulation Blanket	12	50-140	1,25-3,50
Insulation Blanket	14	50-180	1,25-4,50
Insulation Blanket	24	50-180	1,40-5,10

\* Please contact export department for different density, thickness and dimensions.

Thermal conductivity coefficient ( $\lambda$ ): 0.040-0.035 W/mk

### BLANKET



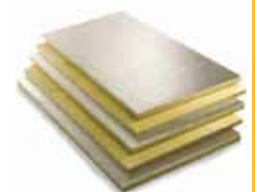
### TECHNICAL SPECIFICATIONS

PRODUCT NAME	Density (kg/m <sup>3</sup> )	Thickness (mm)	R (Thermal Resistance) (m <sup>2</sup> K/W)
Insulation Board	30	20-100	0,55-2,85
HVAC Board	50	20-100	0,60-3,10
Starpan	100	20	0,60

\* Please contact export department for different density, thickness and dimensions.

Thermal conductivity coefficient ( $\lambda$ ): 0.035-0.032 W/mk

### BOARD



### TECHNICAL SPECIFICATIONS

PRODUCT NAME	Density (kg/m <sup>3</sup> )	Thickness (mm)	Pipe Diameter (mm)	LAMINATION TYPES		
				AFK	AGK	AFH
Prefabricated Pipe	60-100	25-100	21-324	✓	✓	✓

\* Please contact export department for different density, thickness and dimensions.

Thermal conductivity coefficient ( $\lambda$ ): 0.035 W/mK

### PREFABRICATED PIPE





**INSULATES THE FUTURE**

#### **About ODE:**

Established in 1985, ODE is among the leading insulation materials manufacturer, providing its customers with high quality insulation solutions used in building and technical (HVAC) insulation. With its 4 modern production facilities spread over 120.000 m<sup>2</sup>, ODE manufactures ODE MEMBRAN - waterproofing membranes, ODE ISIPAN - XPS, thermal insulation boards, ODE R-FLEX - elastomeric rubber foam and ODE STARFLEX - glass wool insulation materials. In addition to its well established distribution network in Turkey, ODE also has a widespread network of distribution abroad and exports to 68 countries from Dubai to Uruguay and from Canada to Ghana. The head quarter of ODE is located in Istanbul and in 2013 ODE TORGLOVYA was established in Moscow / Russia with a logistics center in Rostov / Russia.

#### **All ODE products have CE certification.**

CE Certificate is the guarantee that the product respects the environment and has been supplied to the consumer in full compliance with the quality criteria and standards. According to this product standard, the manufacturing technologies should not harm the environment or the ozone layer. According to EU Construction Products Directive, the construction materials should carry the CE marking. For ensuring a sustainable future, all ODE products carry this certificate.



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