



Insulation is our love

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Low thermal conductivity coefficient
Operating temperature -50°C/ +250°C
Incombustible A class material within the
scope of EN 13501-1 standards,
supervised quality according to
EN 13162 and ISO 9001:2000
standards, with CE marking.
**IDEAL THERMAL INSULATION MATERIAL
for HVAC APPLICATION**



ODE STARFLEX PREFABRICATED PIPE (SPP)

Glasswool Pipe Insulation

STARFLEX



PREFABRICATED PIPE

These are prefabricated pipes produced from thermal and sound insulation of pipes.



AREAS OF USAGE

- Central heating systems
- Solar energy systems
- Protection of pipes from freezing
- Against sound and vibration in pressure water pipes and in many other mechanical and industrial systems

ADVANTAGES

- One side being cut lengthways causes get through the pipes to be insulated easily and the insulation of the pipe line is provided in a very short period of time.
- It does not lose its wall thickness with the other material that will be covered on it as the density is high.
- In the applications covered with aluminium foil, self adhesive bands provide savings in time, material and labor.
- Ode Starflex pipes do not have loss during application, all parts can be utilized.
- With the glasswool, the transmission of noise and vibration to other places is prevented.
- In case of maintenance or a breakdown in the system, it can easily be taken off and afterwards can be put back with no damage given to the system.

TECHNICAL SPECIFICATION OF THE PRODUCT

FACINGS



Unfaced



(FSK) Aluminium Foil Faced



(AGC) Alu Glass Faced

DIMENSIONS

Pipe Type Product Range	Density (kg/m ³)	Thickness (mm)	Diameter
Ode Starflex Prefabricated Pipe	60-100	25-100	1/4" -14"

***Other dimension and/or thickness upon request

PIPE SECTIONS

Nominal bore pipe sizes (Inch)	Outer diameter of pipes (mm)	Insulation thicknesses* (mm)						
		25	30	40	50	60	80	100
1/2"	21	*	*	*	*	*		
3/4"	27	*	*	*	*	*		
1"	33	*	*	*	*	*		
1 1/4"	42	*	*	*	*	*		
1 1/2"	48	*	*	*	*	*		
2"	60	*	*	*	*	*	*	
2 1/2"	76	*	*	*	*	*	*	*
3"	89	*	*	*	*	*	*	*
4"	102	*	*	*	*	*	*	*
4"	114		*	*	*	*	*	*
5"	140		*	*	*	*	*	*
6"	169		*	*	*	*	*	*
8"	219		*	*	*	*	*	*
10"	273		*	*	*	*	*	*
12"	323		*	*	*	*	*	*

***Please contact our company for pipe sizes and insulation thicknesses not included in this list.

TECHNICAL CHARACTERISTICS

• **Thermal Conductivity Coefficient (λ)**

ODE Starflex Prefabricated Pipe has a thermal coefficient of 0,033 W/mK at 26 °C.

• **Thermal Conductivity**

These thermal conductivity values refer to the material in a dry state installed as pipe insulation and are related to the mean temperature of the specimen (DIN EN ISO 8497).

Mean Temperature (°C)	50	100	150	200	250	300
Thermal Conductivity (W/mK)	0.036	0.044	0.054	0.067	0.084	0.104

• **Operating Temperature**

It should be known that the thermal insulation material is suitable to be used at what temperature range in order to be applied.

ODE Starflex Prefabricated Pipe can be used between -50°C and +250°C (EN 14707)

HEATING PIPES

HEATING SYSTEMS Minimum Insulation Thicknesses														
Pipe Ambient Temperature °C	Inner Diameter (The outer diameter of the pipe to be coated) mm													
	15	21	27	33	42	48	60	76	89	114	140	169	219	273
	Recommended Pipe Thicknesses (mm)													
100°C	25	25	30	40	40	40	50	50	50	50	60	60	60	60
200°C	40	50	50	50	50	50	60	80	80	80	80	80	80	80
300°C	50	60	60	60	60	60	80	100	100	100	100	100	100	100

COOLING PIPES

COOLING SYSTEMS Minimum Insulation Thicknesses		
Ambient Pipe Temperature °C	Relative Humidity of 60%	
	Pipe diameter (inches)	Insulation thickness (mm)
(-18°C)-(+1°C)	up to 1	50
	1 1/8-10	60
	5-10	80
(+2°C)-(+9°C)	up to 2	40
	2 1/8-4	50
(+10°C)-(+21°C)	up to 1 1/4	30
	1-10	40

• **Water Vapour Diffusion Resistance Coefficient (μ)**

ODE Starflex Prefabricated Pipe has a water vapour coefficient of $\mu=1,1$

• **Determination of Water Soluble Chlorides**

The average value of the chloride content of the investigated specimens is 9.3 mg/kg (EN 13468).

Percentage weight of chloride in the insulant: $w = \frac{(b_1 - b_2) \cdot V}{m}$ in mg/kg

V: applied water volume for boiling out (0.4 l)

• **Fire Classification**

Tests are carried out according to fire classification as follows.

Fire Classes According to EN 13501-1 Standard	
A1	Incombustible materials
A2	The materials that don't contribute significantly to fire load or fire development
B	The materials that provide better conditions than C class
C	The materials that provide better conditions than D class
D	The materials that show resistance for a long time
E	The materials that show resistance for a short time
F	The materials that do not have a class for fire performance

Experiment Methods	
Non Combustibility EN ISO 1182	A1-A2
Heat Combustion EN ISO 1716	A1-A2
Single Burning Item EN 13823	A2-B-C-D-E
Single Flame Tourcing EN ISO 11925-2	B-C-D-E

ODE Starflex Prefabricated Pipes are classified as "A1 Class" incombustible according to EN 13501-1. "Class O" according to BS 476:6 and BS 476:7

• **Vapor Permeability**

FSK and AGC faced rigid coverings comply with ASTM E 96 Desiccant Method.

• **Non Corrosion**

Does not cause or accelerate corrosion of steel, copper or aluminium.

• **Disclaimer**

ODE reserves the right to amend product specifications without prior notice. The technical data provided is given in good faith and applies to uses described. Recommendations for use should be verified as to the sustainability and compliance with actual requirements, specifications and any applicable laws and regulations. Please consult ODE for advise on application, specification and to ensure technical data is up to date.

STANDARDS

- DIN EN ISO 8497 : Thermal conductivity of glass fibre insulation
- EN 14707 : Determination of the behavior at high temperatures
- EN 13468 : Determination of water soluble chlorides
- EN 13501 : Incombustible when tested in accordance with this standard "A1 class"

CONFORMITY TO STANDARDS



TUV ISO 9001:2000



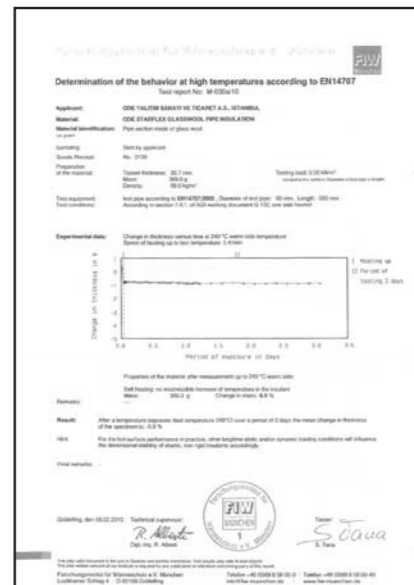
TSE Turkish Standarts



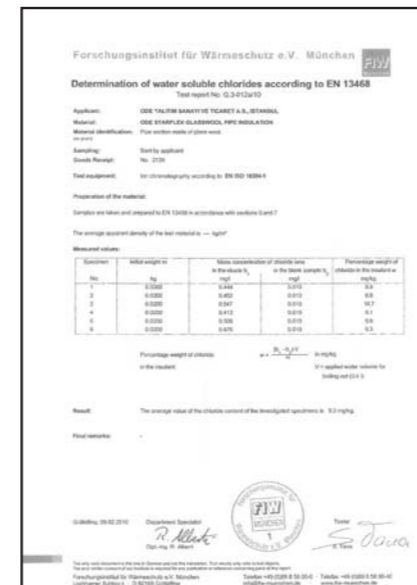
Biosoluble Certification



Test Report (DIN EN ISO 8497)



Test Report (EN 14707)



Test Report (EN 13468)

PREFABRICATED PIPE



TECHNICAL DATA SHEET

Product name	STARFLEX - PREFABRICATED PIPES FSK 114/30								
Standard	Thermal Insulation-Bonded preformed man-made mineral fibre pipe sections - Specificaiton								
Description	Glasswool - bonded with a thermosetting resin, flexible, for thermal and sound insulation								
Surface facing	Al-Foil faced								
Product performance	Technical Characteristics	Test Method	Units	Value or statement					
	Average Inner Diameter	ISO 8302 or ISO 8497	mm	114					
			(Tolerances)	112,86-116,28					
	Average Outer Diameter	ISO 8302 or ISO 8497	mm	174					
			(Tolerances)	172,26-177,48					
	Thickness	ISO 8302 or ISO 8497	mm	30					
			(Tolerances)	27,0-33,0					
	Lenght	ISO 8302 or ISO 8497	mm	1200					
			(Tolerances)	1195-1205					
	Density	ISO 8302 or ISO 8497	kg/m ³	77					
			(Tolerances) ±15%	65,45-88,55					
	Thermal Conductivity - λ _D	ISO 8302	°C	50	100	150	200	250	300
		DIN EN ISO 8497	W/(m.K)	0,036	0,044	0,054	0,067	0,084	0,104
	Thermal Resistance - R _D		(m ² .K)/W	0,8	0,65	0,5	0,4	0,35	0,25
	Fire Resistance Class	EN 13501-1	Euroclass	NPD					
Maximum Service Temperature	ISO 8302 or ISO 8497	°C	250						
Squareness	ISO 8302 or ISO 8497	-	max.4 mm						
Packing	Pipe in package	5							
	(m/package)	6							
Storage	Store in dry and well ventilated area prior to insulation								
	Protect from water, physical damage and direct flame sources								