

# KIMMCO RIGID PIPE COVERING (K450)



[www.kimmcoinsulation.com](http://www.kimmcoinsulation.com)

# KIMMCO

means insulation!

MANUFACTURED  
UNDER LICENSE TO  
**ISOVER**  
SAINT-GOBAIN

A subsidiary of  
**Alghanim**  
INDUSTRIES 

# Company Profile

KIMMCO (Kuwait Insulating Material Manufacturing Co.), a subsidiary of Alghanim Industries was established in Kuwait in 1977. It has become leading insulation solution provider in the Middle East, Africa, the Far East and other Asian countries.

As a licensee of Saint Gobain, Isover, the world leader in fiberglass insulation, KIMMCO provides insulation solutions for HVAC, building (roofs, walls, floors, metallic buildings) and technical/industrial applications. With an annual production capacity of 35,000 MT, KIMMCO is certified to ISO 9001, ISO 14001 and OHSAS 18001, and is compliant with ISO, ASTM, DIN, BS and other international standards.

KIMMCO products are used in private, commercial, government and industrial projects for floors, walls, roofs, air-conditioning and piping as well as process and petrochemical industries. KIMMCO also provides Stonewool insulation products manufactured by its subsidiary Rockwool India Ltd. ALGHANIM INSULATION GROUP announced the opening in 2014 of a 'state of the art' stonewool plant in Yanbu Al-Sinaiyah, Saudi Arabia. A joint venture with Saint Gobain international. The plant will have an annual capacity of 64000 MT.

KIMMCO insulation products contribute to green building and sustainability requirements of projects to achieve points for

LEED and ESTIDAMA Certification. KIMMCO has supplied to the prestigious projects in the region such as Dubai Metro, Burj Khalifa, Princess Nora University, Kuwait Al Hamra tower etc. KIMMCO also boasts as being one of the approved vendors to the prestigious Masdar city, Abu Dhabi.

With a strong commitment to the environment, health and safety of the people and surrounding communities, KIMMCO actively collaborates with international organizations and is compliant with best-in-class international environmental standards.

## KIMMCO COMMITMENT

KIMMCO commitment to achieve Green Building & Sustainability goes well beyond certifications, standards and testing. KIMMCO believes it is uniquely positioned, as an insulation manufacturer, to offer products that help protect and preserve the environment.

On-going efforts to provide innovative, eco-friendly and energy-efficient insulation solutions, KIMMCO achieve its goal of becoming the regional leader in developing environmentally-friendly building solutions.

KIMMCO's firm commitment to environmentally- friendly building standards and its low carbon «footprint» were recognized when the company was selected as an insulation supplier and collaborator for Masdar City in Abu Dhabi, the world's first green, zero-carbon city.



# KIMMCO Rigid Pipe (K450)

## APPLICATIONS

Thermal insulation of steel, copper or plastic pipes operating in temperature up to 230 °C (450 °F) of KIMMCO Rigid Pipe.

## DESCRIPTION

Pre-Formed sections of glass fibers bonded with a heat resistant resin, free from shot and coarse fiber, light, damage resistant, easy to handle, cut and fit. The sections are split along their lengths to provide a hinge for ease of fitting.

### Facings

KIMMCO Rigid Pipe Coverings can be supplied plain or with Glass Reinforced Aluminum Foil/Kraft Paper laminate (FSK), white ASJ, Canvas.

### Standard Length

1.2 m

### Nominal Density

KRS	kg/m <sup>3</sup>	Lbs/ft <sup>3</sup>
64	64	4.0
72	72	4.5
80	80	5.0
96	96	6.0
120	120	7.5

Other densities are available on request



## DURABILITY

KIMMCO Rigid Pipe Coverings are rot proof, they resist the effects of moisture and will not decompose through continual exposure of the elements. They will not shrink due to the age or temperature variations. They will maintain their thermal properties through the lifetime of the construction.

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## PIPE SIZES

### STEEL PIPES TO BS 1387, BS 3600 AND ANSI / ASTM B 36.10 -1985

PIPE SIZE				NOMINAL WALL THICKNESS															
NOM. BORE		O.D.		mm	20	25	30	40	50	60	75	100							
mm	inch	mm	inch	inch	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4							
10	3/8	17	11/16	*	*	*	*	*	*	*	*	*							
15	1/2	21	27/32	*	*	*	*	*	*	*	*	*							
20	3/4	27	1 1/16	*	*	*	*	*	*	*	*	*							
25	1	34	1 11/32	*	*	*	*	*	*	*	*	*							
32	1 1/4	42	1 11/16	*	*	*	*	*	*	*	*	*							
40	1 1/2	48	1 29/32	*	*	*	*	*	*	*	*	*							
50	2	60	2 3/8	*	*	*	*	*	*	*	*	*							
65	2 1/2	76	3	*	*	*	*	*	*	*	*	*							
80	3	89	3 1/2	*	*	*	*	*	*	*	*	*							
90	3 1/2	102	4	*	*	*	*	*	*	*	*	*							
100	4	114	4 1/2	-	*	*	*	*	*	*	*	*							
114	4 1/2	127	5	-	*	*	*	*	*	*	*	*							
125	5	140	5 1/2	-	*	*	*	*	*	*	*	*							
150	6	166	6 1/2	-	*	*	*	*	*	*	*	*							
200	8	219	8 5/8	-	*	*	*	*	*	*	*	*							
250	10	273	10 3/4	-	*	*	*	*	*	*	*	*							
300	12	324	12 3/4	-	*	*	*	*	*	*	*	*							
350	14	356	14	-	*	*	*	*	*	*	*	*							
400	16	406	16	-	*	*	*	*	*	*	*	*							
450	18	457	18	-	*	*	*	*	*	*	*	*							
500	20	508	20	-	*	*	*	*	*	*	*	*							
550	22	559	22	-	*	*	*	*	*	*	*	*							
600	24	610	24	-	*	*	*	*	*	*	*	*							
Up to	36	914	36	-	*	*	*	*	*	*	*	*							

### COPPER TUBES TO BS 2871, ASTM B88M

PIPE SIZE				NOMINAL WALL THICKNESS															
NOM. BORE		O.D.		mm	20	25	30	40	50	60	75	100							
mm	inch	mm	inch	inch	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4							
-	1/2	15	0.596	*	*	*	*	*	*	*	*	*							
-	3/4	22	0.846	*	*	*	*	*	*	*	*	*							
-	1	28	1.112	*	*	*	*	*	*	*	*	*							
-	1 1/4	35	1.362	*	*	*	*	*	*	*	*	*							
-	1 1/2	42	1.612	*	*	*	*	*	*	*	*	*							
-	2	54	2.128	*	*	*	*	*	*	*	*	*							
-	2 1/2	67	2.628	*	*	*	*	*	*	*	*	*							
-	3	76	3.000	*	*	*	*	*	*	*	*	*							
-	3	80	3.144	*	*	*	*	*	*	*	*	*							
-	3 1/2	93	3.660	-	*	*	*	*	*	*	*	*							
-	4	108/105	4.184	-	*	*	*	*	*	*	*	*							
-	5	133/130	5.184	-	*	*	*	*	*	*	*	*							
-	6	159/156	6.208	-	*	*	*	*	*	*	*	*							
Up to 12 inch																			

#### Note: Steel & Copper Pipes

1. Other thickness and bores subject to special enquiry.
2. The section thickness is nominal radial thickness subject to manufacturing tolerance and is exclusive of surface finish.

## RECOMMENDED THICKNESS

### Chilled Pipes

Condensation may take place on piping with temperature below ambient, when sufficient moisture is present in the air. To prevent condensation occurring within the thickness of the insulation, it is necessary to provide vapour check to the warm surface of the insulation. Recommended minimum wall thicknesses of glass fiber pipe insulation for chilled cold water supplies, with vapor barrier applied, are given below:

Pipe Temperature		Ambient Conditions 90% R.H. & 25 °C			
°F	°C	Pipe Sizes		Thickness of Pipe Covering	
		inch	mm	inch	mm
35 - 49	1.5 - 9	Up to 2	Up to 50	1.5	40
		2 1/2 - 14	60 - 350	2.5	60
50 - 70	10 - 21	Up to 3/4	Up to 20	1	25
		1 - 14	25 - 350	1.5	40

### Heated Pipes

Recommended minimum thickness of KIMMCO Rigid Pipe Covering for process pipe work. Extracted from table 15 of BS 5422

Thicknesses given are nearest commercial thicknesses higher than those given in the original table. For thickness over 100 mm, multiple layering should be used with staggered joints.

Nom. Bore (mm)	O.D. (mm)	Thickness (mm)	
		100 °C	200 °C
10	17	25	40
15	21	25	50
20	27	30	50
32	42	40	60
40	48	40	60
50	60	50	60
65	76	50	70
80	89	50	75
90	102	50	80
100	114	55	80
150	168	60	90
250	273	70	100
300	324	70	110

## PERFORMANCE

### Thermal Conductivity

Test in accordance with ASTM C335.

Mean Temperature	Thermal Conductivity in W/m.K for the following densities in kg/m <sup>3</sup>				
°C	64	72	80	96	120
10	0.029	0.029	0.030	0.031	0.032
25	0.030	0.030	0.032	0.032	0.033
50	0.032	0.032	0.033	0.035	0.036
100	0.040	0.041	0.039	0.038	0.039
150	0.050	0.050	0.047	0.044	0.045

Mean Temperature	Thermal Conductivity in BTU.in/ft <sup>2</sup> h.F for the densities in lbs/ft <sup>3</sup>				
°F	4.0	4.5	5.0	6.0	7.5
50	0.205	0.205	0.210	0.210	0.225
77	0.210	0.210	0.220	0.220	0.232
122	0.225	0.225	0.230	0.240	0.254
212	0.270	0.270	0.270	0.265	0.270
302	0.340	0.340	0.330	0.310	0.317

These are typical values subject to normal manufacturing and testing variances.

### No Corrosion

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

### Fire Classification

KIMMCO Rigid Pipe Coverings have been tested and listed by the Underwriters Laboratory according to UL 723, ASTM E 84 (File 9704).

Classification (UL 723)	Unfaced	FSK Faced
Flame spread	not over 25	not over 25
Smoke developed	not over 50	not over 50

### Vapor Permeability

FSK and ASJ faced KIMMCO Rigid Pipe Coverings comply with ASTM E96 Desiccant Method. Permeance not to exceed 0.02 perms (HH - B -100 B Type 1).

### Linear Shrinkage

KIMMCO Rigid Pipe Coverings shrinkage is negligible when tested in accordance with ASTM C356.

### Specific Heat

837.4 J/kg.K

### Flexibility

KIMMCO Rigid Pipe Coverings will permit expansion and contractions of the pipe without cracking or shrinking.

## CONFORMITY TO STANDARDS

### American Standards

ASTM C168, 302, 303, 335, 356, 411, 547 (class 1), 585, 665 § 13.8 & 13.9, 680, 871, 1045, 1104/1104M, 1136 (Type 1&2), 1335, 1338; E 84, 96

UL 723

F.S. HH - B - 100B (type 1), HH-558B

NFPA 255

ASHRAE 90.1 requirements

### British Standards

BS 476 (part 4), 874, 1387, 2871, 2972, 3533, 3600, 3958 (part 4), 5422, 5643, 5970

### German Standards

DIN 18165, 52612

### ISO

161 (part 1), 274, 4200, 8497, 9229, 9291

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## TYPICAL INSTALLATION PROCEDURE

### A. Straight Pipes

- Make sure the pipe surface to be insulated is clean and dry from dust, oil or grease.
- Apply one coat of adhesive over the pipe surface, as per Adhesive manufacturers Instruction.
- Fix the preformed rigid section by opening snap on side enough to insert over the pipe.
- Press the section all over to achieve bonding between pipe and insulation.
- Keep the over lap over the section.
- Apply a light coat of adhesive on down part of overlap and fix it over the section - take care no wrinkles are formed.
- Wipe out any adhesive spill over by using a dry cotton cloth - make sure the surface is dry off adhesive.
- Fix 75 mm suitable tape (Aluglass tape for ALUGLASS facing; Aluminium tape for FSK facing) preferably UL Listed centric to lap and section surface of long seam and joints between section.
- Press the tape using smooth edged plastic card (used telephone cards also found ok) - make sure there are no wrinkles formed in the process of fixing the tape.
- While fixing the next length make sure a coat of adhesive is applied on any face on either of section of continuous joint.
- Fix suitable tape (Aluglass tape for ALUGLASS facing; Aluminium tape for FSK facing) preferably UL Listed equally centered between two sections.

### B. Joints at Support Insert

Fix the sections from either side of insert using coat of adhesive at each faces of substrate and make sure the insulation is friction fit.

- Apply suitable tape (Aluglass tape for ALUGLASS facing; Aluminium tape for FSK facing) centric to the insert allowing equal tape lap over insulation on both side.

### NOTE

Other fixing details for 90 degree bends, flange - joints, valve curves etc are available on request.

# Commitment to Quality

## Properties of KIMMCO Glasswool Products

- Excellent thermal performance
- Superior acoustic performance
- Excellent fire safety
- Environmentally friendly: made from abundantly available, non-strategic materials like sand and up to 80% recycled glass.
- Suitable for a wide variety of applications (flexible, semi-rigid, rigid and extra-rigid)
- Address a variety of performance requirements (wide range of facing materials)
- Easy to cut and install, minimum wastage on site
- Comparatively light weight
- Dimensionally stable
- No sagging or settling
- Complies with international standards

## Our Commitment to Quality

Our Glasswool products are manufactured under license of Saint-Gobain ISOVER, a leading insulation provider headquartered in France.

Further, we have a strong commitment to quality, as recognized by our certification by international bodies such as ISO.

## Our Commitment to the Environment

KIMMCO was selected as the sole insulation supplier and official collaborator with MASDAR city, the world's first zero-carbon, zero-waste city, in Abu Dhabi. We have a strong commitment to the environment, health and safety of our people, and surrounding communities, and actively collaborate with local and international environmental agencies.

Further, KIMMCO Glasswool products help developers achieve green building rating certifications such as LEED, Estidama and QSAS.

Further, we are members of the following industry associations:

- Emirates Green Building Council (EGBC)
- Qatar Green Building Council (QGBC)
- MASDAR (The Future Build)
- Middle East Mineral Wool Insulation Manufacturers Association (MEMIMA)

## Our Product Listing & Certification

- CE
- UL
- BV
- ABS
- DCL (Dubai Central Laboratory)



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## **KIMMCO**

Kuwait Insulating Material Manufacturing Co.

P.O. Box 10042 Shuaiba, 65451 Kuwait

Tel : +965 188 1111

Fax : +965 2326 1251

| [kimmco@alghanim.com](mailto:kimmco@alghanim.com) |  
| [www.kimmcoinsulation.com](http://www.kimmcoinsulation.com) |



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**Fonoblok<sup>®</sup>**

**ACOUSTIC INSULATION FOR DRAIN PIPELINES**



Fonoblok® is a sheath of expanded polyethylene. It is fire resistant, flexible, easy to install and relatively inexpensive.

**Fonoblok® is in full compliance with the European Standards.**

These rules state that the noise from drain pipelines must not exceed 35 dB in the adjoining areas. The tests carried out in Fraunhofer-Institut für Bauphysik in Stuttgart, Germany (P-BA 75/1997) demonstrated that with the rate of flow of 2 litres per second of turbulent water, the noise level of pipeline remained well under the level required by the law. This was possible only by correctly installing/protecting the pipes with Fonoblok®.

**Fonoblok® saves money and time**

Due to the fast and easy installation, Fonoblok® saves your money and time. Moreover, this product is manufactured at a fully automated plant and is produced in large quantities. This helps in reducing the production costs and allows a budget to be spent towards more research and development of this and related products, thus making Fonoblok® excellent value for money.

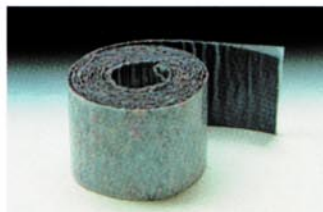
**Fonoblok® guarantees the quality**

Fonoblok® is a product of the Armstrong Insulation Products who for more than 80 years have been the vanguard of technological research in fire-resistant, flexible and acoustic insulation products.



Acoustic insulation sheath Fonoblok®

Adhesive sound-absorbing tape

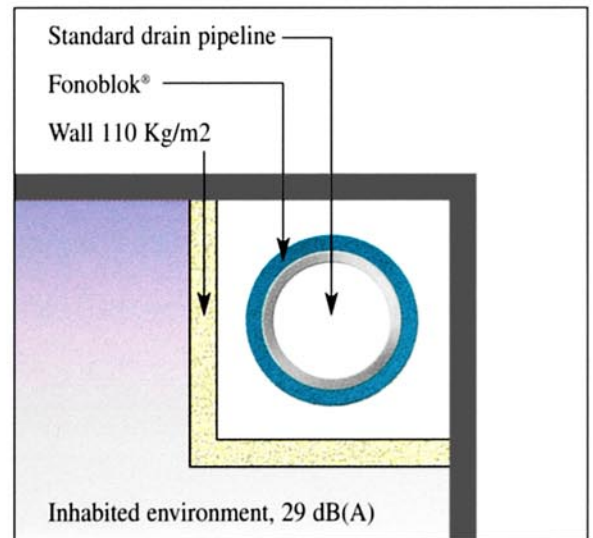


# Armacell guarantees complete compliance in all applications

## STANDARD VERTICAL DRAIN PIPELINE WITHIN A 110Kg/m2 WALL

Original noise level of standard drain pipeline	61 dB(A)
Increase of noise level in the shaft	+10 dB(A)
Mitigation with Fonoblok®	-10 dB(A)
Mitigation of the 110 Kg/m2 wall	-32 dB(A)
<b>Final result</b>	<b>29 dB(A)</b>
<b>Highest noise level allowed</b>	<b>35 dB(A)</b>

**Description of specifications:** Standard drain pipeline is sheathed by 5 mm thick acoustic insulation Fonoblok®, produced by the Armstrong Insulation Products. Joints, curves and conjunctions are sealed by sound-absorbing tape FNK WF 070. The system is enclosed in a shaft by 110 Kg/m2 walls. Fixing girdles of the drain pipes are installed over the Fonoblok® sheath and covered by sound-absorbing tape FNK WF 070.

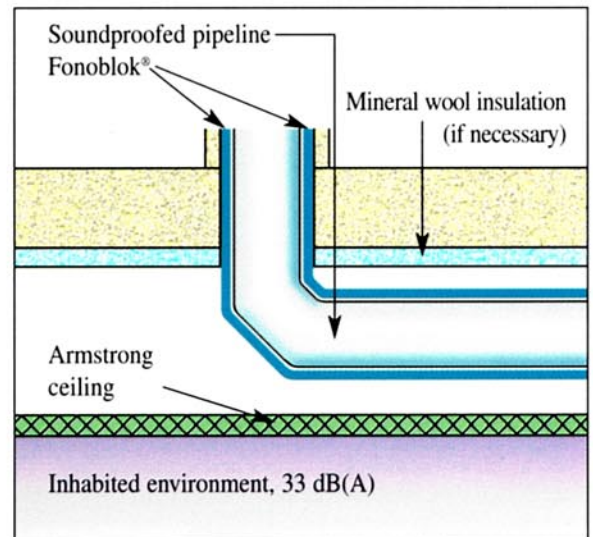


## SOUNDPROOFED DRAIN PIPELINE ABOVE CEILING

Original noise level of soundproofed drain pipeline	51 dB(A)
Mitigation with Fonoblok®	-10 dB(A)
Mitigation of Armstrong ceiling*	-8 dB(A)
<b>Final result</b>	<b>33 dB(A)</b>
<b>Highest noise level allowed</b>	<b>35 dB(A)</b>

\* It is mineral fibres ceiling

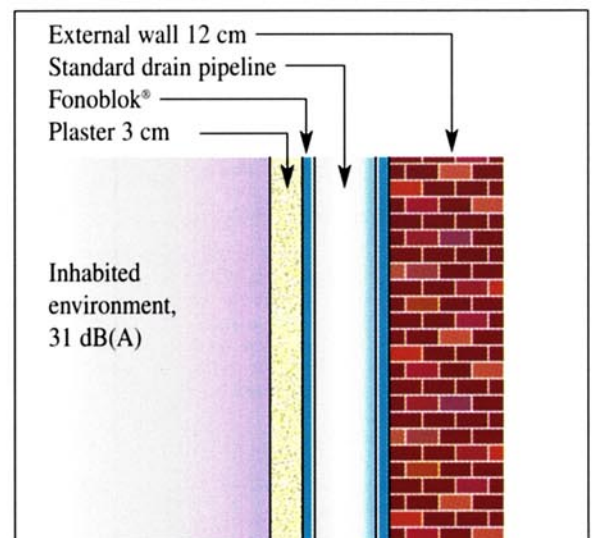
**Description of specifications:** Soundproofed drain pipeline (51 dB(A)) is sheathed by 5 mm thick acoustic insulation Fonoblok®, produced by the Armstrong Insulation Products. Joints, curves and conjunctions are sealed by sound-absorbing tape FNK WF 070. The system is protected by acoustically insulated Armstrong ceiling. Fixing girdles of the drain pipes are installed over the Fonoblok® sheath and covered by sound-absorbing tape FNK WF 070.



## VERTICAL STANDARD DRAIN PIPELINE SEMI-PROTECTED BY EXTERIOR WALL

Original noise level of standard drain pipeline	61 dB(A)
Mitigation with Fonoblok®	-10 dB(A)
Mitigation by plaster, 3 cm	-20 dB(A)
<b>Final result</b>	<b>31 dB(A)</b>
<b>Highest noise level allowed</b>	<b>35 dB(A)</b>

**Description of specifications:** Standard drain pipeline is sheathed by 5 mm thick acoustic insulation Fonoblok®, produced by the Armstrong Insulation Products. Joints, curves and conjunctions are sealed by sound-absorbing tape FNK WF 070. The system is enclosed in the wall and protected by 3-cm-thick plaster. Fixing girdles of the drain pipes are installed over the Fonoblok® sheath and covered by sound-absorbing tape FNK WF 070.



# Fonoblok<sup>®</sup>, acoustic insulation system for drain pipelines

## Product range

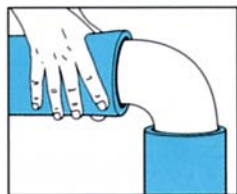
PE, PP, and PVC pipelines est. diameter mm	Code Fonoblok AR	Thickness Fonoblok mm	Contents/ box metres	Number of rolls per box	Length/ roll
50	FNK AR 50	5	135	9	15
63/75	FNK AR 70	5	105	7	15
90/110	FNK AR 100	5	75	5	15
125	FNK AR 125	5	60	4	15

Our self-adhesive felt tape to cover joints and insulation

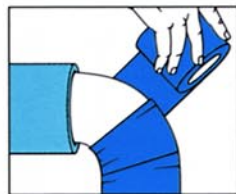
Product code	Width mm	Thickness mm	Roll length metres	Number of rolls per package	Number of packages per box
FNK WF 070	70	2	3,6	14	16
FNK WF 070/1	70	2	3,6	14	1

## How to install Fonoblok<sup>®</sup>

### INSULATING STRAIGHT AND CURVING PIPELINES.

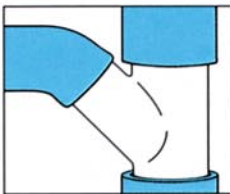


1. The straight sections are simply sheathed before installing the pipeline.



2. A curve is insulated by wrapping a double layer of adhesive tape FNK WF 070 around it, covering the edges of straight Fonoblok pipelines, to ensure the continuity of the insulation.

### INSULATING A STRAIGHT PIPELINE WITH CONJUNCTION.

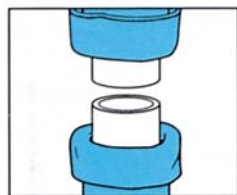


1. Fonoblok is inserted up to the conjunction.

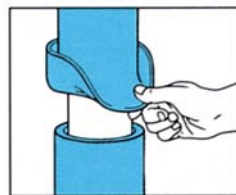


2. The conjunction is insulated by wrapping two layers of adhesive tape FNK WF 070 over it, making sure the edges of Fonoblok are completely covered.

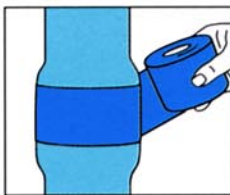
### INSULATING DRAIN PIPELINES IN WELDED POLYETHYLENE.



1. After sheathing the pipeline, Fonoblok is turned up to reveal the joint to be welded.



2. After a few seconds, as soon as the pipeline has cooled down, Fonoblok is rolled back in place, overlaying the edges.



3. The edges are fixed together by the adhesive tape, wrapped around the entire circumference of the pipeline.

### EXPANSION BEND

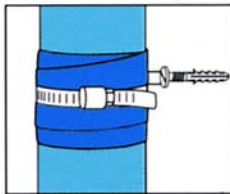
Fonoblok insulation over the joint protects it from dust and grime, thus granting a satisfying functioning of the system, and improving the insertion of the pipeline into the joint.

### INSULATING PRE-EXISTENT DRAIN PIPELINES.



A size of Fonoblok that is slightly larger than the pipeline to be insulated is chosen. A roll of Fonoblok is cut open vertically, then wrapped around the drain pipeline. The edges are overlaid, and sealed with adhesive tape FNK WF 070.

### HOW TO INSTALL A FIXING GIRDLE



The fixing girdle has to be installed over Fonoblok. For even better results, first cover Fonoblok with a layer of adhesive tape FNK WF 070, to eliminate all potential vibrations. We recommend you to wrap a layer of adhesive tape over the fixing girdle as well.

Authorized dealer

Armacell Italia S.p.A.  
Via Venezia, 4  
20060 Trezzano Rosa (Mi)  
Tel. 02 90 96 73 00  
Fax 02 90 96 93 75  
E-mail: info.it@armacell.com

 **armacell**  
advanced insulation and engineered foams

THE MAKERS OF  
**Armaflex**  
**Tubolit**  
**Oka - Products**