



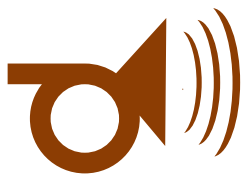
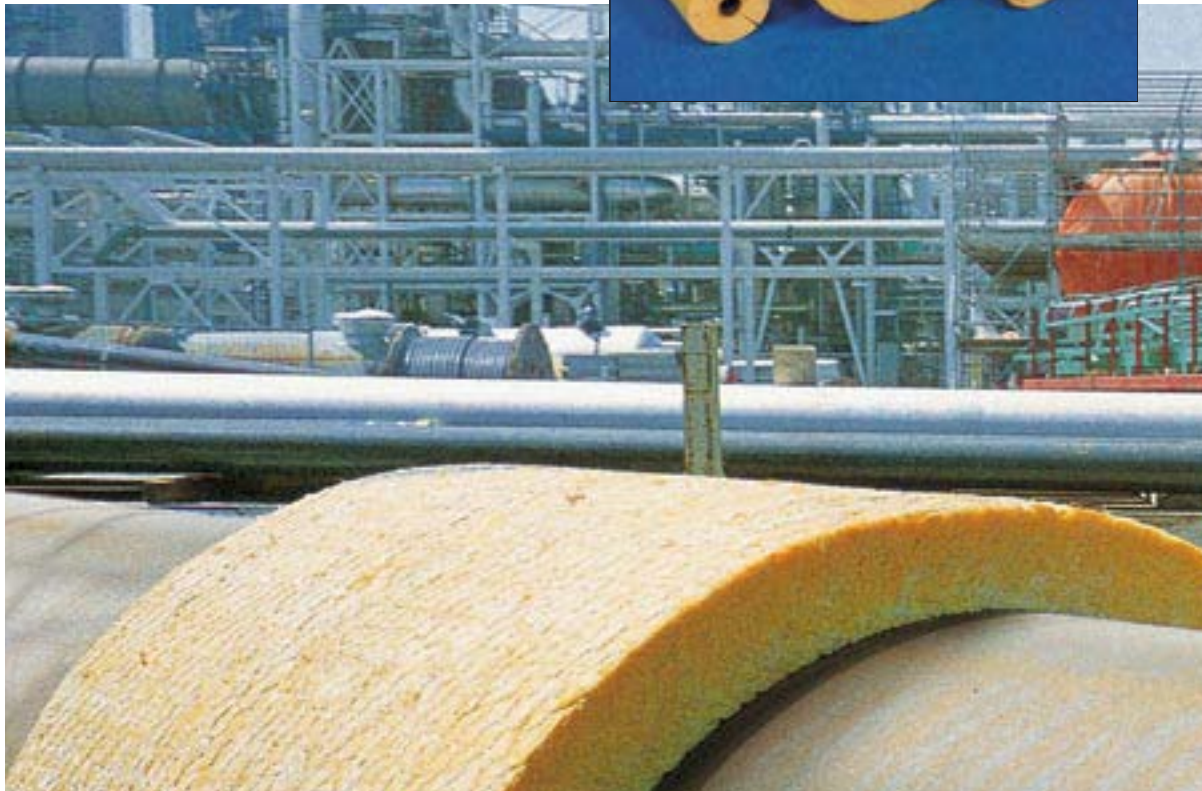
**KIMMCO**

KUWAIT INSULATING MATERIAL  
MANUFACTURING CO. S.A.K. (Closed)

ISO 9001, ISO 14001  
& OHSAS 18001 CERTIFIED



# RIGID PIPE COVERING (K450)



MANUFACTURED  
UNDER LICENCE OF  
**ISOVER**  
SAINT-GOBAIN

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## RIGID PIPE COVERING (K450)



### APPLICATIONS

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

### DESCRIPTION

Preformed 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 life time of the construction.

## 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	in	mm	in	in	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	in	mm	in	in	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 in.

Note: Steel & Copper Pipes

1. Other thickness and bores subject to special enquiry.
2. The section thickness are nominal radial thickness subject to manufacturing tolerance and are 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 thickness 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	
		in	mm	in	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 24 BS5422 - 1990

Thicknesses given are nearest commercial thicknesses higher than those given in the original table. For thickness over 100mm, 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

## PERFORMANCES

### THERMAL CONDUCTIVITY:

MEAN TEMPERATURE °C	THERMAL CONDUCTIVITY IN W/m.K FOR THE BELOW DENSITIES IN Kg/m <sup>3</sup>					MEAN TEMPERATURE °F	THERMAL CONDUCTIVITY IN Btu.in/ft <sup>2</sup> h.F FOR THE BELOW DENSITIES IN Lbs/ft <sup>3</sup>				
	64	72	80	96	120		4.0	4.5	5.0	6.0	7.5
10	0.029	0.029	0.030	0.031	0.032	50	0.205	0.205	0.210	0.210	0.225
25	0.030	0.030	0.032	0.032	0.033	77	0.210	0.210	0.220	0.220	0.232
50	0.032	0.032	0.033	0.035	0.036	122	0.225	0.225	0.230	0.240	0.254
100	0.040	0.041	0.039	0.038	0.039	212	0.270	0.270	0.270	0.265	0.270
150	0.050	0.050	0.047	0.044	0.045	302	0.340	0.340	0.330	0.310	0.317

Test in accordance with ASTM C 335. 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 R 9073).

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 rigid pipe coverings comply with ASTM E 96 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 C 356.

### 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

KIMMCO Rigid Pipe Coverings comply with the following Standards:

### AMERICAN STANDARDS

ASTM C 168, 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-I-558B

NFPA 255

ASHARE 90.1 requirements

### BRITISH STANDARDS

B.S. 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



**A few projects supplied with KIMMCO Rigid Pipe Covering**



AL KHAWARIZMI CENTRE - ABU DHABI



AL KHALEEJ SUGAR REFINERY - JABAL ALI, U.A.E.



GULF CABLE FACTORY - KUWAIT



ZADCO - GASCO H.Q. - ABU DHABI



AL ADASANI PIPE FACTORY - KUWAIT



YAAS CAR SHOWROOM - KUWAIT