

# K-FLEX ST

## K-FLEX ST

K-FLEX ST is a closed-cell, flexible elastomeric foam use in thermal and acoustic applications. K-FLEX ST is a Factory Mutual Approved, Class “0” fire rating (tested in accordance with BS476 Part 6 & 7), Anti-Microbial, Clean Room Approved insulation without CFCs, HCFs, HCFCs, Formaldehyde, Green Guard Approved, Singapore Green Mark Approved (GBI) and Fiber free. K-FLEX ST insulation is also available with pressure sensitive adhesive and aluminium foil for faster installation process.



## K-FLEX ST

“K-FLEX is the world’s leading manufacturer of elastomeric insulation systems. In seventeen production facilities around the world, including Poland, France, China, India, Korea, Malaysia, Dubai, Egypt, the UK and the USA some 3,500 employees develop and manufacture outstanding product solutions for thermal and acoustic insulation.

K-FLEX is committed to ensuring its products comply with the fire safety and industry-wide safety standards.

K-FLEX has 63 sales offices on five continents, offering premium service to more than 50,000 customers.

As the world’s fastest-growing company in the industry, K-FLEX is also a global player in the target markets of building services, refrigeration, air conditioning and ventilation, rail, shipping, automotive and beverage industries as well as the solar industry and OEM businesses.

K-FLEX has ISO 9001 and ISO 14001 certification.”

## PLANT TIMELINE



K-FLEX ST is a multi purpose flexible elastomeric thermal insulation with a built-in vapour barrier and a closed cell structure, this make K-FLEX insulation a high resistance to water vapour transmission which in turn enable the material to maintain a high level of energy conservation efficiency.

K-FLEX ST is a dust and fibre free insulation that make it an ideal product for apartments, commercial buildings, industrial plants, oil & gas industry, marine and offshore applications.

K-FLEX ST is the ideal choice for:

- Refrigeration pipework
- Hot water piping system
- Ducting system
- Large pipe and tanks
- Chilled water piping system
- Drainage system

With 17 plants worldwide, K-FLEX can uniquely provide On-Time Delivery, Consistent Product Quality and a Highly Competitive Price.

## ADVANTAGES



### Low flame spread

When fire tested K-FLEX ST, it does not generate flaming droplets, and has a low fire propagation index. These combined meet the fire performance requirement of class “0” as defined in Building Regulations. Further guarantee is given by supervision contracts with independent European laboratories.



### High water vapour diffusion resistance

K-FLEX ST closed cell elastomeric insulation has a high water vapour diffusion resistance factor  $\mu$ , that minimizes water vapour penetration, giving excellent long term performance.



### Very low thermal conductivity

K-FLEX ST thermal conductivity is  $\lambda 0^{\circ}\text{C} = 0.032\text{W}/(\text{m}\cdot\text{K})$ . The thermal conductivity coefficient is the most important factor in calculation focused on energy saving.



## TECHNICAL DATA

<b>Brief description</b>	Flexible elastomeric foam, closed-cell insulation material
<b>Material type</b>	Nitrile Butadine Rubber
<b>Colour</b>	Black
<b>Assembly</b>	Light weight and flexible. Closed cell structure means no additional vapour barrier is required.

Property	Value/Assessment	Special Remark
<b>Temperature Range</b>	Max. service temperature: +116 °C Min. service temperature: -200 °C	Tested acc.to EN 14706, EN 14707 and EN 14304
<b>Thermal Conductivity</b>	$\lambda \leq 0.034$ W/(m.K) at +20 °C $\lambda \leq 0.032$ W/(m.K) at 0 °C $\lambda \leq 0.028$ W/(m.K) at -50 °C	Tested acc. to DIN EN 12667, EN ISO 8497
<b>Water vapour diffusion resistance</b>	Water vapour diffusion resistance: $\mu \geq 10,000$ Water Absorption: 0.2% by volume	Tested acc. To EN 12086, EN 13469 Test acc to ASTM C 209
<b>Fire performance</b>	Surface Spread of Flames: Class 1 Fire Propagation: Total Index Performance (I) $\leq 12$ Sub Index (i1) $\leq 6$ Fire Performance: Class 0	Surface Spread of Flame: tested according to BS 476 Part 7:1997 Self-extinguishing, does not drip, does not spread flames Fire Propagation: tested according to BS 476 Part 6:1989
<b>Other Fire Class</b>	FM-approved V0, 5VA Flame spread index (FSI): 25 Smoke develop index (SDI): 30 Ignitability index: 0 Spread of flame index: 0 Heat evolved index: 0 Smoke develop index: 3	Tested acc.to Class No.4924 UL 94 Tested acc. To ASTM E84  Tested acc. To AS/NZS 1530.3 - 1999
<b>Chemical behaviour</b>	Excellent resistance to ozone, oil and chemicals (consult product test list).	
<b>Other certificates</b>	Anti microbial Greenguard Low VOC Singapore Green Building Products	Tested acc. To ASTM G21 Tested acc. To ISO 17025 Tested acc. To ISO 16000 part -3, -6, -9, -11 Approved
<b>Density</b>	48 to 70 kg/m <sup>3</sup>	
<b>UV resistance</b>	For UV protection K-FLEX finish paint required	

For temperatures below -50 °C please contact our Customer Service Center to request for the corresponding technical information.

The reaction to fire classification is valid on metal or solid, mineral surfaces.

Further documents such as test certificates, approvals and the like can be requested using the registration number given.

**K-FLEX** reserves the right to change data and technical requirements without notice.

### PIPE INSULATION THICKNESS RECOMMENDATIONS

Conditions	Pipe Size			
	6mm - 28mm	28mm - 60mm	60mm - 114mm	114mm - 168mm
Ambient Temperature: 33°C Medium Temperature: 6°C Relative Humidity 60% 70% 80%	10 mm 19 mm 25 mm	13 mm 19 mm 32 mm	13 mm 19 mm 32 mm	13 mm 25 mm 32 mm
Ambient Temperature: 33°C Medium Temperature: 12°C Relative Humidity 60% 70% 80%	10 mm 13 mm 19 mm	10 mm 13 mm 25 mm	10 mm 19 mm 25 mm	13 mm 19 mm 25 mm
Ambient Temperature: 33°C Medium Temperature: -50°C Relative Humidity 60% 70% 80%	32 mm 50 mm 63 mm	40 mm 50 mm 75 mm	40 mm 60 mm 90 mm	50 mm 60 mm 100 mm

### SHEET INSULATION THICKNESS RECOMMENDATIONS

Conditions	Ducts - Tanks - Vessels - Equipment Metal
Ambient Temperature: 33°C Medium Temperature: 6°C Relative Humidity 60% 70% 80%	13 mm 25 mm 40 mm
Ambient Temperature: 33°C Medium Temperature: 12°C Relative Humidity 60% 70% 80%	13 mm 19 mm 32 mm
Ambient Temperature: 33°C Medium Temperature: -50°C Relative Humidity 60% 70% 80%	50 mm 75 mm 125 mm



K-FLEX ST tube is available in 2 meters length. In sheet form, K-FLEX ST is available in roll or pre-cut sheet. All sheet material is available with or without self adhesive and/or self adhesive and aluminium foil.

## RANGE ▶ K-FLEX ST TUBES (2 METRES)

Copper Pipe		Iron Pipe		6 • 1/4"		9 • 3/8"		13 • 1/2"		19 • 3/4"		25 • 1"		32 • 1 • 1/4"		40 • 1 • 1/2"		50 • 2"		
OC Inches	ø OD mm	IPS Inches	ø OD mm	size	m/box	size	m/box	size	m/box	size	m/box	size	m/box	size	m/box	size	m/box	size	m/box	
1/4"	6					9x6	316	13x6	200	19x6	100	25x6	60							
3/8"	10	1/6"	10.2			9x10	220	13x10	152	19x10	80	25x10	52							
1/2"	12					9x13	200	13x13	128	19x13	72	25x13	50							
5/8"	15	1/4"	13.5	6x16	266	9x16	188	13x16	112	19x16	72	25x16	50							
3/4"	20			6x19	180	9x19	136	13x19	100	19x19	60	25x19	40	32x19	32					
7/8"	22	1/2"	21.3	6x22	180	9x22	128	13x22	98	19x22	60	25x22	38	32x22	24	40x22	18	50x22	12	
1"	25			6x25	152	9x25	108	13x25	80	19x25	50	25x25	32	32x25	24	40x25	16	50x25	10	
1.1/8"	28	3/4"	26.9	6x28	130	9x28	98	13x28	72	19x28	48	25x28	32	32x28	24	40x28	16	50x28	10	
1.3/8"	35	1"	33.7	6x35	100	9x35	76	13x35	58	19x35	40	25x35	30	32x35	18	40x35	16	50x35	8	
1.5/8"	42	1.1/4"	42.4	6x42	90	9x42	60	13x42	50	19x42	32	25x42	24	32x42	18	40x42	12	50x42	8	
1.7/8"	48	1.1/2"	48.3			9x48	50	13x48	40	19x48	28	25x48	22	32x48	16	40x48	10	50x48	8	
2.1/8"	54					9x54	46	13x54	40	19x54	24	25x54	18	32x54	14	40x54	10	50x54	8	
2.3/8"	60	2"	60.3			9x60	46	13x60	32	19x60	22	25x60	18	32x60	12	40x60	8	50x60	8	
3"	76	2.1/2"	76.1			9x76	40	13x76	30	19x76	18	25x76	12	32x76	8	40x76	8	50x76	6	
3.1/2"	89	3"	88.9			9x89	36	13x89	24	19x89	18	25x89	12	32x89	8	40x89	8	50x89	6	
4.1/2"	114	4"	114.3			9x114	30	13x114	24	19x114	14	25x114	8	32x114	6	40x114	6	50x114	4	
		5"	139.8													40x140	4	50x140	4	
		6"	165.2													40x168	4	50x168	4	

## RANGE ▶ K-FLEX ST SHEET IN ROLLS

Type	Thickness		Sheet 1.14 metre wide	
	mm	inches	format	m <sup>2</sup> /box
PL/RO 06	6	1/4"	30 x 1.14	34.20
PL/RO 10	10	3/8"	20 x 1.14	22.80
PL/RO 13	13	1/2"	14 x 1.14	15.96
PL/RO 16*	16	5/8"	12 x 1.14	13.68
PL/RO 19	19	3/4"	10 x 1.14	11.40
PL/RO 25	25	1"	8 x 1.14	9.12
PL/RO 32	32	1.1/4"	6 x 1.14	6.84
PL/RO 40	40	1.1/2"	4 x 1.14	4.56
PL/RO 50	50	2"	4 x 1.14	4.56

\* 16mm only available upon received Purchase Order from customer.  
\* 1.22m width will be available upon request.



Self adhesive sheets available in all sizes.

## PACKAGING ▶ K-FLEX ST TUBES AND SHEETS

### K-FLEX ST Tubes



Measurements:  
2.1m x 0.394m x 0.32m

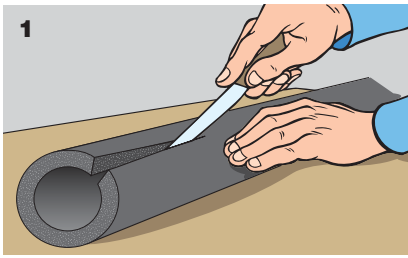


### K-FLEX ST Sheets

Polyethylene bags  
The bags allows for outdoor storage during the sorting stage.

Measurements:  
0.5m x 1.23m

## INSTALLATION ▶ FITTED PIPES

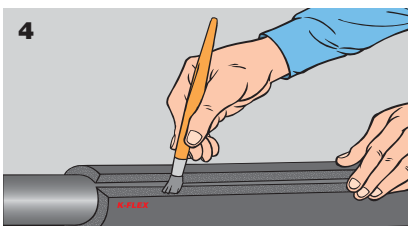
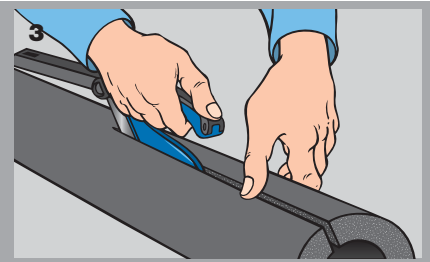


Use only the sharpest knife for cutting - this makes the subsequent gluing far easier.

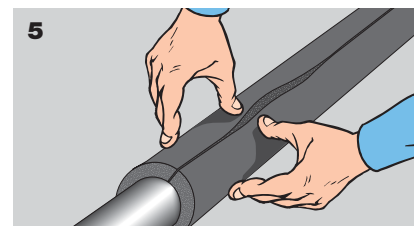
We recommend using the K-FLEX cutter which is ideal for longitudinal cuts.



The use of the cutter is illustrated in these two diagrams. Let the blade run along the tube without the tool's surfaces touching it to get a neat, clean cut.

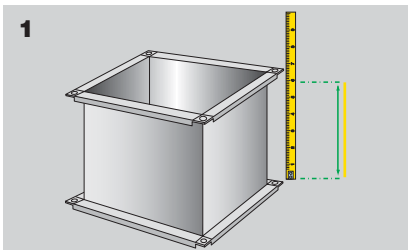


Position the tube so that the edges are separated, and apply an even layer of K-FLEX K-414 glue.



Once the glue has dried, reseal the tube, pressing the edges firmly together.

## INSTALLATION ▶ INSULATION DUCTINGS

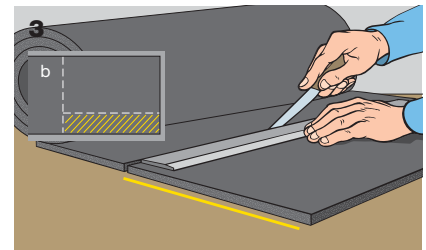


There are considerable advantages in using K-FLEX ST ROLL SHEET for ducting, which has the same height as the sheeting.

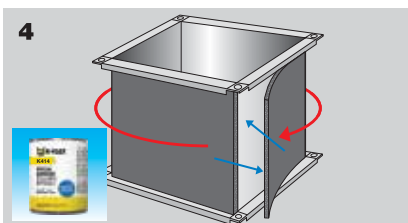
Take the measurements of the ducting section to be lagged.



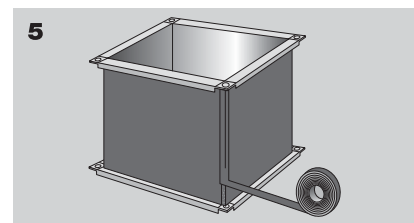
Use thinner to thoroughly clean the surface to be insulated. Insulation is not recommended where there is incrustation or other flaws which could prevent the sheeting from sticking perfectly.



Cut the corresponding portion out of the roll. There is an obvious saving in material by cutting the sheeting along its height (a) rather than along the length of the 1000 mm sheeting (b).



Glue the side of the sheeting to be stuck to the conduit and glue the conduit surface, then apply the sheeting, keeping it taut at the corners.



Cover the corner where the edges join with adhesive insulating tape. Compared to a similar operation carried out with 1000 mm sheeting, as well as the saving in material, there has only been one cut in the application.



## PROJECT ► MALAYSIA

Hospital Putrajaya  
 Boston Scientific  
 Osram @ Kulim  
 IKEA Penang  
 Nation Cate  
 Hospital Cyberjaya  
 Central World @ I-City  
 Sandisk  
 Celestica Johor Bahru  
 Celestica Penang  
 Jabil Penang  
 Micron @ BT Kawan  
 Intel KM1  
 Keppel Factory  
 Hospital Tanjung Karang

## PROJECT ► INDONESIA

Akmani Hotel, Legian – Bali  
 All Season Hotel – Nusa Dua, Bali  
 Pullman Hotel, Central Park – Jakarta  
 Cavington Hotel – Jogja  
 Novotel Hotel – Tangerang  
 Sol Marina Hotel – Serpong  
 Mercure Hotel – Surabaya  
 Pakubuwono The View Apartment – Jakarta  
 Coca-Cola Factory – Surabaya  
 Australia Embassy Office – Jakarta  
 Istana Presiden Bogor  
 The East Office – Jakarta  
 Wisma Soho Office – Jakarta  
 The Peak Apartment – Jakarta  
 XXL Cinema All Outlet – Indonesia

## PROJECT ► CAMBODIA

Cho Ray Phnom Penh Hospital  
 Almond Hotel  
 Olypia City  
 Calmette Hospital  
 City Tower  
 The Bridge Showroom  
 Toyoko Inn Hotel  
 Thai Villiage Restaurant  
 Cazameridian Twin Tower  
 Era Phnom Penh Hotel  
 Era Siem Reap Hotel  
 Tela Gase Station Head Office  
 Mazda Showroom  
 Marriott Hotel  
 The Parkland

## ACCESSORIES

### SELF ADHESIVE FOAM TAPES



### PIPE SUPPORT



### K 414 GLUE



## PROJECT ► THAILAND

Mahanakhon Tower  
 Marriott Surawong  
 Palladium Hotel  
 Maya Chiangmai  
 Central Embassy Chiangmai  
 Promenada Chiangmai  
 Four Wing Grand Hotel  
 Dusit Hotel  
 Four Point Hotel  
 Best Western Hotel  
 Holiday Inn Hotel  
 Vana Belle Hotel  
 Paradise Park  
 The Nine Community Mall  
 The Walk



## PROJECT ► SINGAPORE

Changi Water Reclamation Plant  
 Marina Band Sands  
 Norvatis Plant @ Tuas  
 Glory  
 Rio Casa Condominium  
 Mayflower Primary School  
 Biopolis Centre  
 NUS Laboratory  
 UMCi @ Pasir Ris  
 Sony A&A  
 40 Gul Circle  
 St Joseph Institution International School  
 Crystal Plant @ Jurong Island  
 Singapore General Hospital  
 Sime Darby Centre

## PROJECT ► VIETNAM

First Solar Factory  
 Nipro  
 DenEast Milk  
 Pepsico Suntory Factory  
 Cai Lan International Container Terminal  
 Intel  
 Olympus  
 Marigot Vietnam  
 Lotte Centre Ha Noi  
 Hyatt Regency Apartment  
 Hue Hospital  
 Intercontinental Resort and Spa  
 Bitexco Financial Center  
 Hilton Saigon Hotel  
 JW Marriott

