

K-FLEX ST

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K-FLEX ST is closed cell, flexible elastomeric foam use in thermal and acoustic applications. K-FLEX ST is a Factory Mutual Approved, Class “0” fire rating (based on 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 fourteen production facilities around the world, including Poland, France, China, India, Korea, Malaysia, Dubai, Egypt, the UK and the USA some 2,500 employees develop and manufacture outstanding product solutions for thermal and acoustic insulation.

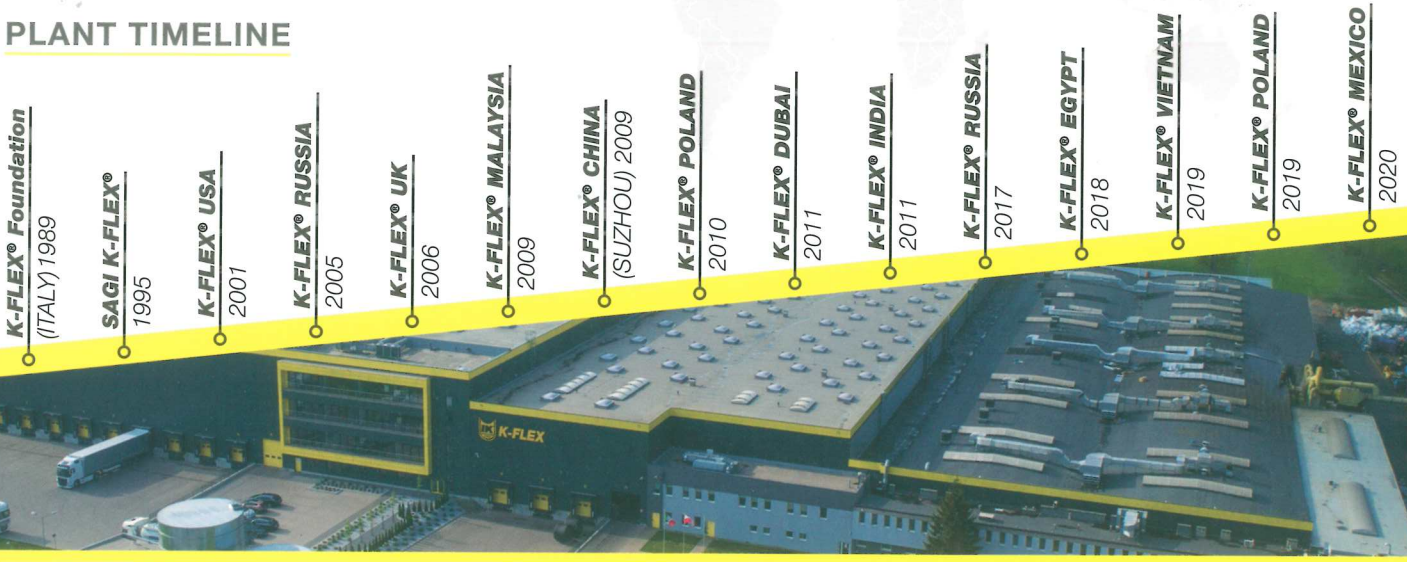
K-FLEX is committed to ensuring its products comply with the fire safety and industry-wide safety standards.

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 12 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 μ , 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

| | | |
|--|---|---|
| Brief description | Flexible elastomeric foam, closed-cell insulation material | |
| Material type | Nitrile Butadiene Rubber | |
| Colour | Black | |
| Assembly | Light weight and flexible. Closed cell structure means no additional vapour barrier is required. | |
| Property | Value/Assessment | Special Remark |
| Temperature Range | Max. service temperature: +116 °C Min. service temperature: -200 °C | Tested acc.to EN 14706, EN 14707 and EN 14304 |
| Thermal Conductivity | $\lambda \leq 0.034$ 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 according to DIN EN 12667, EN ISO 8497 |
| Water vapour diffusion resistance | 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 |
| Fire performance | Surface Spread of Flames: Class 1 Fire Propagation: Total Index Performance (I) ≤ 12 Sub Index (I1) ≤ 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 |
| Other Fire Class | 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 |
| Chemical behaviour | Excellent resistance to ozone, oil and chemicals (consult product test list). | |
| Other certificates | Anti microbial Greenguard Singapore Green Building Products Low VOC | Tested acc. To ASTM G21 Tested acc. To ISO 17025 Approved Tested acc. To ISO 16000 part -3, -6, -9, -11 |
| Density | 48 to 70 kg/m ³ | |
| UV resistance | 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% | 10 mm | 13 mm | 13 mm | 13 mm |
| 70% | 19 mm | 19 mm | 19 mm | 25 mm |
| 80% | 25 mm | 32 mm | 32 mm | 32 mm |
| Ambient Temperature: 33°C Medium Temperature: 12°C Relative Humidity 60% | 10 mm | 10 mm | 10 mm | 13 mm |
| 70% | 13 mm | 13 mm | 19 mm | 19 mm |
| 80% | 19 mm | 25 mm | 25 mm | 25 mm |
| Ambient Temperature: 33°C Medium Temperature: -50°C Relative Humidity 60% | 32 mm | 40 mm | 40 mm | 50 mm |
| 70% | 50 mm | 50 mm | 60 mm | 60 mm |
| 80% | 63 mm | 75 mm | 90 mm | 100 mm |

SHEET INSULATION THICKNESS RECOMMENDATIONS

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

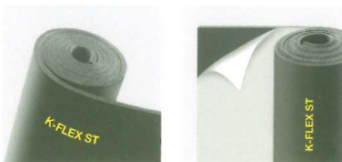
| Copper Pipe | | Iron Pipe | | 6 • 1/4" | | 9 • 3/8" | | 13 • 1/2" | | 19 • 3/4" | | 25 • 1" | | 32 • 1 • 1/4" | | 40 • 1 • 1/2" | | 50 • 2" | |
|-------------|---------|------------|---------|----------|-------|----------|-------|-----------|-------|-----------|-------|---------|-------|---------------|-------|---------------|-------|---------|-------|
| OC Inches | ø OD mm | LPS 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 | 288 | 13x6 | 160 | 19x6 | 100 | | | | | | | | |
| 3/8" | 10 | 1/6" | 10.2 | | | 9x10 | 240 | 13x10 | 152 | 19x10 | 80 | 25x10 | 60 | | | | | | |
| 1/2" | 12 | | | | | 9x13 | 180 | 13x13 | 128 | 19x13 | 72 | 25x13 | 50 | | | | | | |
| 5/8" | 15 | 1/4" | 13.5 | 6x16 | 266 | 9x16 | 168 | 13x16 | 112 | 19x16 | 60 | 25x16 | 50 | | | | | | |
| 3/4" | 20 | | | 6x19 | 180 | 9x19 | 136 | 13x19 | 104 | 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 | 40 | 32x25 | 24 | 40x25 | 16 | 50x25 | 10 |
| 1•1/8" | 28 | 3/4" | 26.9 | 6x28 | 130 | 9x28 | 98 | 13x28 | 78 | 19x28 | 48 | 25x28 | 32 | 32x28 | 24 | 40x28 | 16 | 50x28 | 10 |
| 1•3/8" | 35 | 1" | 33.7 | 6x35 | 100 | 9x35 | 76 | 13x35 | 58 | 19x35 | 36 | 25x35 | 24 | 32x35 | 18 | 40x35 | 16 | 50x35 | 8 |
| 1•5/8" | 42 | 1•1/4" | 42.4 | 6x42 | 90 | 9x42 | 60 | 13x42 | 48 | 19x42 | 32 | 25x42 | 22 | 32x42 | 16 | 40x42 | 12 | 50x42 | 8 |
| 1•7/8" | 48 | 1•1/2" | 48.3 | | | 9x48 | 50 | 13x48 | 40 | 19x48 | 24 | 25x48 | 18 | 32x48 | 14 | 40x48 | 10 | 50x48 | 8 |
| 2•1/8" | 54 | | | | | 9x54 | 46 | 13x54 | 34 | 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 | 10 | 40x60 | 8 | 50x60 | 8 |
| 3" | 76 | 2•1/2" | 76.1 | | | 9x76 | 40 | 13x76 | 26 | 19x76 | 18 | 25x76 | 10 | 32x76 | 8 | 40x76 | 8 | 50x76 | 6 |
| 3•1/2" | 89 | 3" | 88.9 | | | 9x89 | 36 | 13x89 | 24 | 19x89 | 14 | 25x89 | 8 | 32x89 | 8 | 40x89 | 8 | 50x89 | 6 |
| 4•1/2" | 114 | 4" | 114.3 | | | 9x114 | 22 | 13x114 | 18 | 19x114 | 12 | 25x114 | 6 | 32x114 | 6 | 40x114 | 6 | 50x114 | 6 |
| | | 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 ² /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

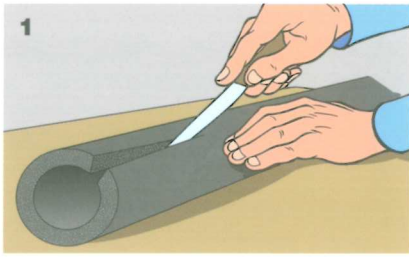


K-FLEX ST Sheets

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

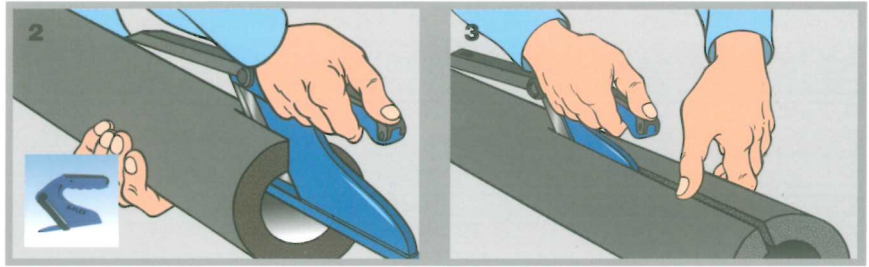
Measurements:
0.5m x 1.23m

INSTALLATION ► FITTED PIPES

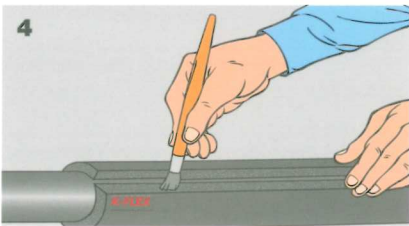


Use only the sharpest knife for cutting - this makes the subsequent glueing far easier.

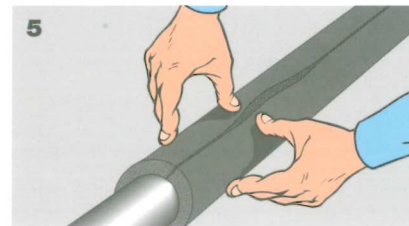
We recommend using the K-FLEX cutter which is ideal for longitudinal cuts.



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.

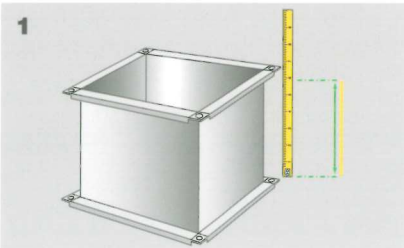


Position the tube so that the edges are separated, and apply an even layer of K-FLEX K-996 glue.



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

INSTALLATION ► INSULATION DUCTINGS

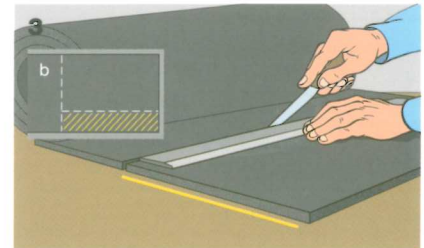


There are considerable advantages in using K-FLEX ST ROLL SHEET for ducting, which has the same height as the sheeting.

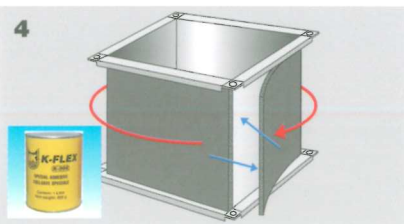
Take the measurements of the ducting section to be lagged.



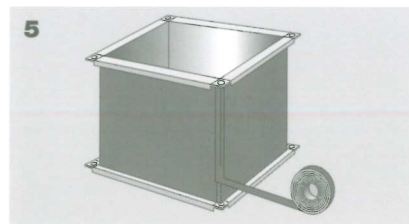
Use thinner to thoroughly clean the surface to be insulated. Insulation is not recommended where there is incrustation or other flaws which could prevent the sheeting from sticking perfectly.



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 @ Kulim
 Intel KM1
 Keppel Factory
 Hospital Tanjung Karang

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 ► INDONESIA

Akmani Hotel, Legian – Bali
 All Season Hotel – Nusa Dua, Bali
 Pullman Hotel, Central Park – Jakarta
 Cavington Hotel – Jogya
 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 ► 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

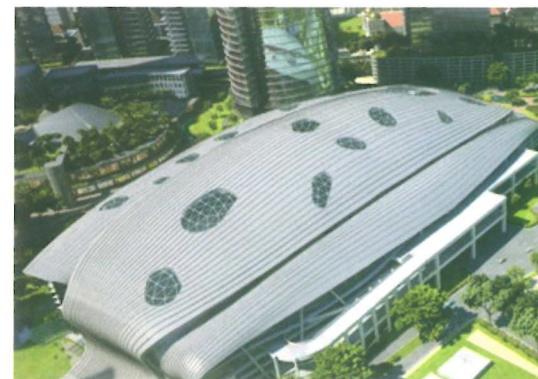
First Solar Factory
 Nipro
 DenEast Milk
 Pepsico Suntory Factory
 Cai Lan International Container Terminal
 Intel
 Olympus
 Marigot Vietnam
 Lotte Centre Ha Noi
 Hyatt Regency Apartment
 Hue Hospital
 Intercontinental Resort and Spa
 Bitexco Financial Center
 Hilton Saigon Hotel
 JW Marriott

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

PROJECT ► PHILIPPINES

Filinvest Plaza E
 BPO-Araneta
 Winford Hotel
 Citadine
 Northgate DCS
 Circuit BPO
 Texas Instruments
 Novotel Aqua
 World Commerce Place
 Palawan International Airport
 Robinson's Naga
 National Museum – Philippines
 81 Newport
 Studio A
 Batasan Congress

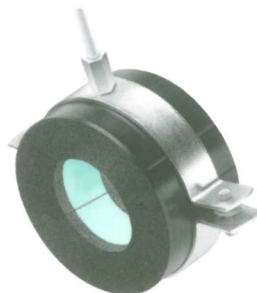


ACCESSORIES

SELF ADHESIVE FOAM TAPES



PIPE SUPPORT



K 996 GLUE



ALUMINIUM TAPE

