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Product Overview

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Tel: 01626 201092



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Application areas

Application areas															
Product	Page	Refrigeration	Chilled water applications	Air conditioning / Ventilation	HVAC	Heating / Plumbing	Covering systems	Solar hot water	Fire protection	Heat pumps	Food Industries	Chemical & Pharmaceutical Industries	Ship Building	Process Industries	Acoustics
Kaiflex ST / STplus	13	•	•	•	•	•			•	•	•	•	•	•	•
Kaiflex KKplus s3 Connect	25		•		•				•					•	
Kaiflex EPDMplus	29	•		•	•			•			•	•	•	•	•
Kaiflex HFplus s2	35			•							•	•	•	•	•
Kaifoam PE	39		•			•									
Kaiflex TC	43	•		•	•		•			•	•	•			
Kaiflex Protect Alu-TEC	49						•				•	•	•	•	
Kaiflex Protect Alu-NET	53				•		•								
Kaiflex Protect F-BLACK	57						•					•	•	•	
Kaiflex Protect F-ALU	61											•	•	•	
Kaiflex Solar EPDMplus 2in2	65							•							
Kaiflex Pyrostar	69				•				•						
Kaisound	71													•	•
Kaiflex RT-ST	75	•	•	•							•	•	•	•	
Accessories	81	•	•	•	•	•	•	•	•	•	•	•	•	•	•

WE CREATE SOLUTIONS

For more than 55 years Kaimann has looked to build for the future. The success of the company has always been based on a reputation for innovation, outstanding quality and commitment to establishing fair, long-term business partnerships with all our customers.

Since Kaimann was founded in 1959, the company has been driven by the aspiration to enhance the performance and quality of its products; as well as design market services focused on the needs of our customers. Following decades of development under this vision, our manufacturing hub in Hövelhof has become one of the most modern and technologically advanced facilities for the development and production of flexible elastomeric foam and polyethylene insulation products in Europe. Becoming a part of the Saint-Gobain group at the end of 2018 reinforces our aspiration to engineer highly efficient insulation products being fit to fulfil the energy challenges of the future.

Kaiflex, our main insulation brand, is known as the leading flexible insulation for air-conditioning, refrigeration, heating, hot water and solar hot water applications. Utilising Kaimann's precision engineering technology, Kaiflex offers consistently high-performance, time after time.



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Knowledge and innovation

Achieving even greater energy savings and further reductions in Carbon Dioxide emissions requires product innovation and technical expertise. Kaimann's experienced team of expert research and development chemists work closely with industry stakeholders to determine and realise the insulation solutions of tomorrow.

Engineering performance

For Kaimann engineering insulation is a true passion and our state-of-the-art manufacturing facilities are the beating heart of the company. Our advanced pallet feed process is the culmination of years of development and represents a fine-tuned technology, which enables us to deliver insulation manufactured to the highest standards.

Quality management

Kaimann is an ISO 9001 compliant quality manufacturer and to us this means more than just supplying quality products every time. Managing quality means ensuring that every customer receives the same level of care and attention. We are constantly building upon customer feedback to offer continual improvement in every aspect of our business, so that we can offer our products in the best condition via a process that works for you.

Environmental management

Manufacturing should be sustainable and non-polluting which is why Kaimann is dedicated to minimising the environmental impact associated with manufacturing Kaiflex. An environmental management system in accordance with ISO 14001 commits Kaimann to pursuing excellence in this field.

Energy management

Kaiflex saves so much energy over its lifespan, that it offsets the energy used in its manufacturing many times over. This comes from years of development, reducing energy consumption across all stages of manufacturing, packaging and logistics. This focus is now formally recognised as Kaimann operates an ISO 50001 certified energy management system and commits Kaimann to reducing energy use each year.

Clean Efficiency

Insulation is amongst the most cost-effective energy saving measures available and technical insulation materials like Kaiflex can also prevent condensation, ensuring that pipes remain dry and free from corrosion throughout the life of the mechanical system.

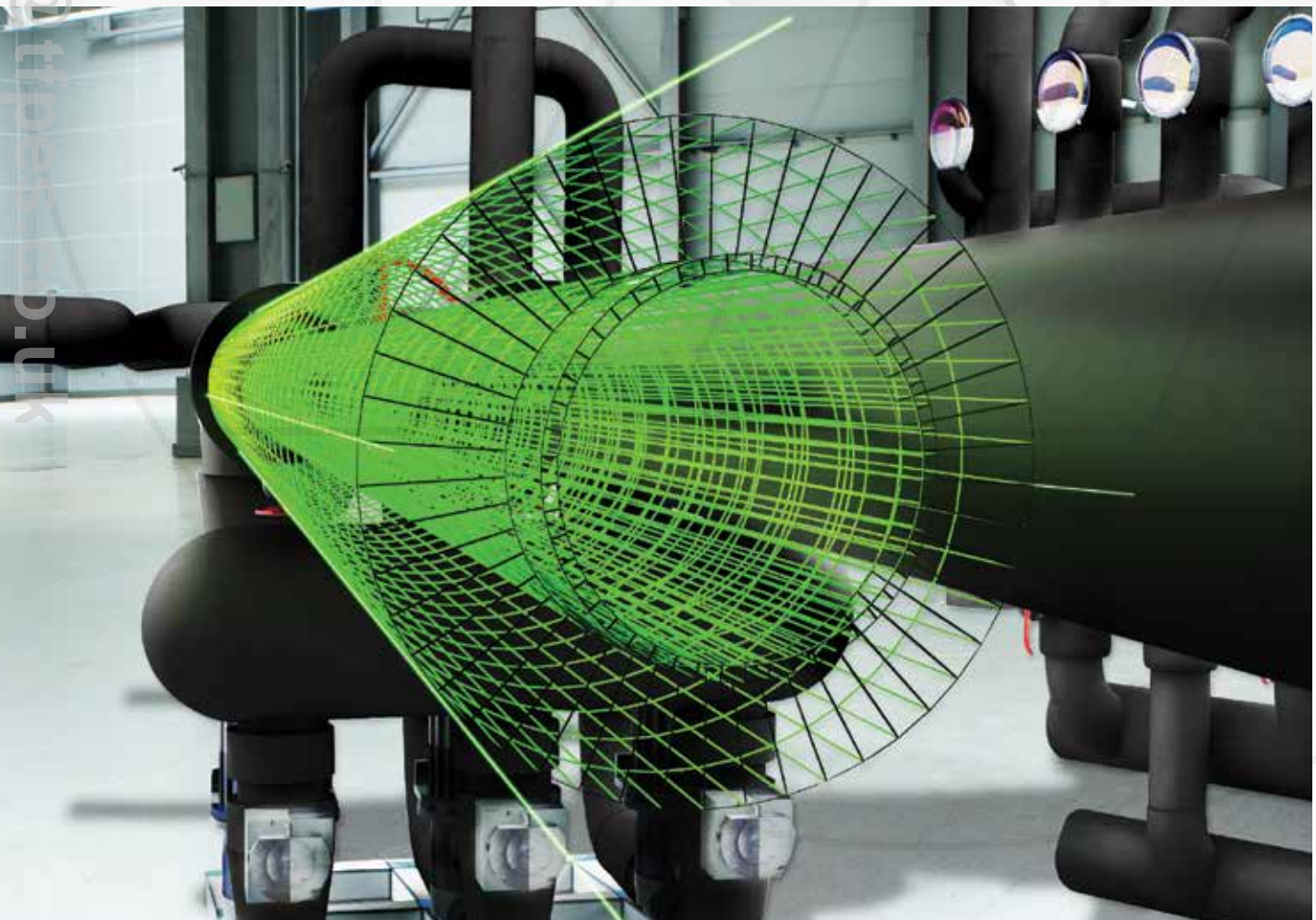
Over many decades, Kaiflex insulation has been continually re-engineered

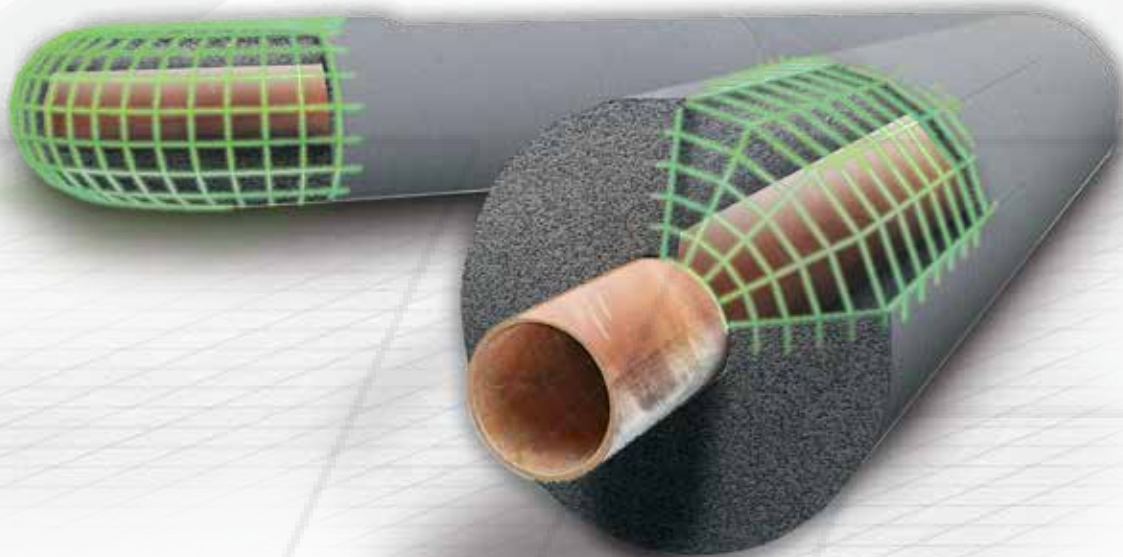
and improved to meet all of your requirements for saving energy without compromising on material quality safety or the indoor environment. At the heart of this is the closed cell structure of Kaiflex that traps air within the insulating foam, while keeping moisture out.

This makes Kaiflex durable and long lasting, but also ensures a secure

insulation system free from dust and fibres that can be used in almost any building, without any adverse impact on the indoor environment.

That's what we call
Clean Efficiency.





Flexible nature

Kaiflex is a highly flexible rubber foam that makes it easy to insulate complex pipe runs with many bends or irregular fixtures.



Inherent resistance to microbial growth

By effectively preventing moisture ingress, Kaiflex is inherently resistant to the microbial and mould growth that otherwise compromise indoor air quality.



Closed cell structure with in-built water vapour barrier

Formed from thousands of independently water resistant cells, Kaiflex insulation is naturally resistant to moisture ingress and requires no additional water vapour barrier.



Long-term thermal performance

With low conductivity and high resistance values that do not noticeably diminish over time, Kaiflex is highly effective insulation for a wide range of purposes and applications.



Inherently resistant to corrosion

With an inherent resistance to moisture ingress Kaiflex insulation keeps pipes dry and helps to prevent corrosion under insulation.



Dust and fibre free

Dust & fibres can aggravate respiratory conditions and create an additional site hazard. Kaiflex is dust and fibre free making installation easier and healthier.



Local service and expertise

Kaimann has a long-established presence in the UK & Ireland and operates a dedicated sales office and warehouse. Highly trained and responsive, your local Kaimann service team is intensely focused on ensuring that customers throughout the UK & Ireland receive a level of involved support that most other companies can't match.

Dedicated expertise

Business culture varies from region to region, even within the UK & Ireland. Kaimann is a company that appreciates this and embraces local differences, which is why Kaimann employs a team of local representatives and

technical experts. Kaimann literature presents advice and information drawn from the accumulated knowledge of technical insulation experts with vast experience in the UK insulation industry. Driven by a philosophy to make this knowledge available to all, Kaimann's experienced technical service team can provide support and advice to our customers free of charge.

Professional customer service team

Kaimann customers benefit from a dedicated sales & customer service team covering the whole of the UK & Ireland. Customer enquiries and orders are handled from our sales office

in Oldham, Greater Manchester and in each region Kaimann representatives are constantly working to further develop the market for Kaiflex products.

Local warehousing and logistics

We also operate our own warehouse in the heart of the country, and this gives us the flexibility to offer fast & reliable delivery on a wide range of products. With a large range stocked locally, Kaimann can offer next day delivery throughout the UK for many Kaiflex sheet, tube and coils sizes. Furthermore, the scale of our business in the UK & Ireland means that we regularly draw additional stock from our state-

of-the-art central logistics centre in Germany, enabling us to offer shorter lead times for non-standard items.

Technical support and guidance

As a highly technical product, selecting the correct mechanical service insulation is about more than just technical values. Kaimann's experienced UK technical service team can provide all the expert advice needed to make the right decisions free of charge.

Professional installation

Nothing can substitute for working hands on with Kaiflex, which is why

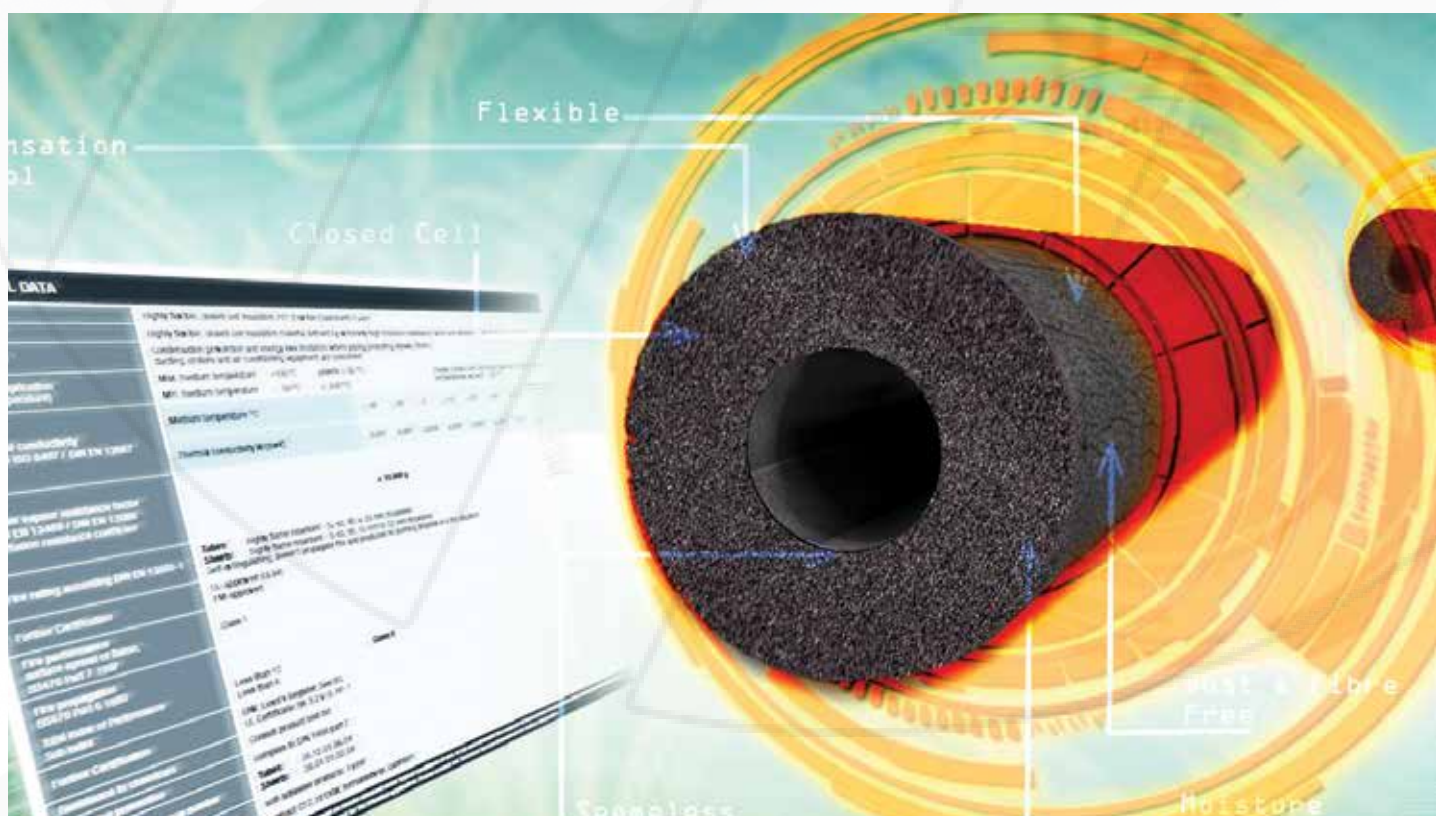
Kaimann offers application training for all Kaiflex products and accessories, both on-site and at our training facility. Together with a range of detailed installation guides, techniques and videos, Kaimann is committed to ensuring that customers can get the very best performance possible out of Kaiflex insulation.

Digital service tools 24/7

In an always-connected digital world, Kaimann understands the importance of providing customer support 24 hours a day, 7 days a week. Our sophisticated suite of online services and support tools are available when you need them, wherever you may be.

Solutions customised for local needs

The dedication of Kaimann to the local market extends beyond literature, sales and customer support. Traditional insulation practice in the UK & Ireland is subtly different from that in continental Europe and energy saving legislation is implemented in unique ways. With this in mind, the Kaiflex range of flexible insulation has been specifically tailored to the needs of UK & Irish consultants, contractors and wholesalers, with tubes and sheets sized to meet local demand. Kaimann is also constantly looking to introduce innovative new thermal and acoustic products and solutions that meet the insulation challenges facing the UK & Ireland.



Design considerations for **heating** **applications**

Taken together, domestic and commercial buildings account for around 40 % of all the energy we use. Although this includes the use of electricity for lighting, computers and other devices, the biggest single area of use is space heating.

Pipes and ducts carry heat around a building and are an essential element of any central heating system. Heat lost from pipes and ducts rarely plays any role in heating the building. so using insulation to stop this waste is an important part of maximising energy efficiency. Selecting the right material means considering a number of things.



Long term thermal efficiency

An insulation that offers true thermal efficiency not only exhibits low thermal conductivity values, these values also remain consistent over long periods of time.

Fire performance

Pipe insulation used inside a non-residential building must be shown to resist flame spread when tested in accordance with the new European fire test regulations.

Indoor air quality

Making the right material choice can help to keep the air in a building healthy. Utilising insulation free from dust and fibres means there's no potential for fibre migration while closed cell materials are also engineered to stop mould and bacterial growth.

Design considerations for **air-conditioning & refrigeration applications**



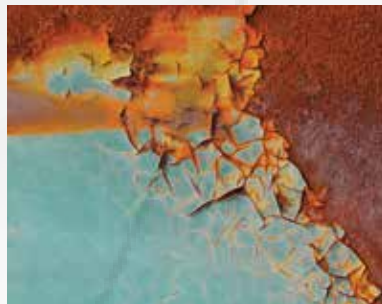
Pipes that carry mechanically chilled water or cooled liquid refrigerants throughout a building often suffer from condensation and associated problems, such as pipe corrosion or mould growth that can cause damage to the fabric of the building.

Only by controlling the temperature of surfaces exposed to the ambient air can condensation be averted. Insulating pipes is the best way to do this. Selecting the right material is not just about thermal performance - an insufficient water vapour barrier will render even the best insulation ineffective.



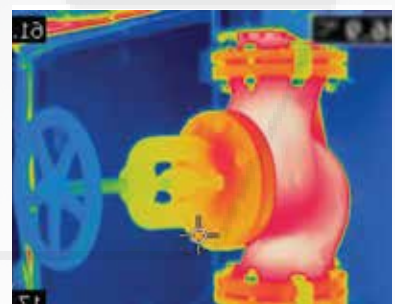
Corrosion resistance

Since corrosion can only occur in the presence of moisture, water resistant closed cell insulation can form a critical part of any anti-corrosion system, by keeping the pipework dry. The best corrosion-inhibiting materials go one step further and have neutral acidity so that they won't easily react when in direct contact with metal pipes.



Water vapour resistance

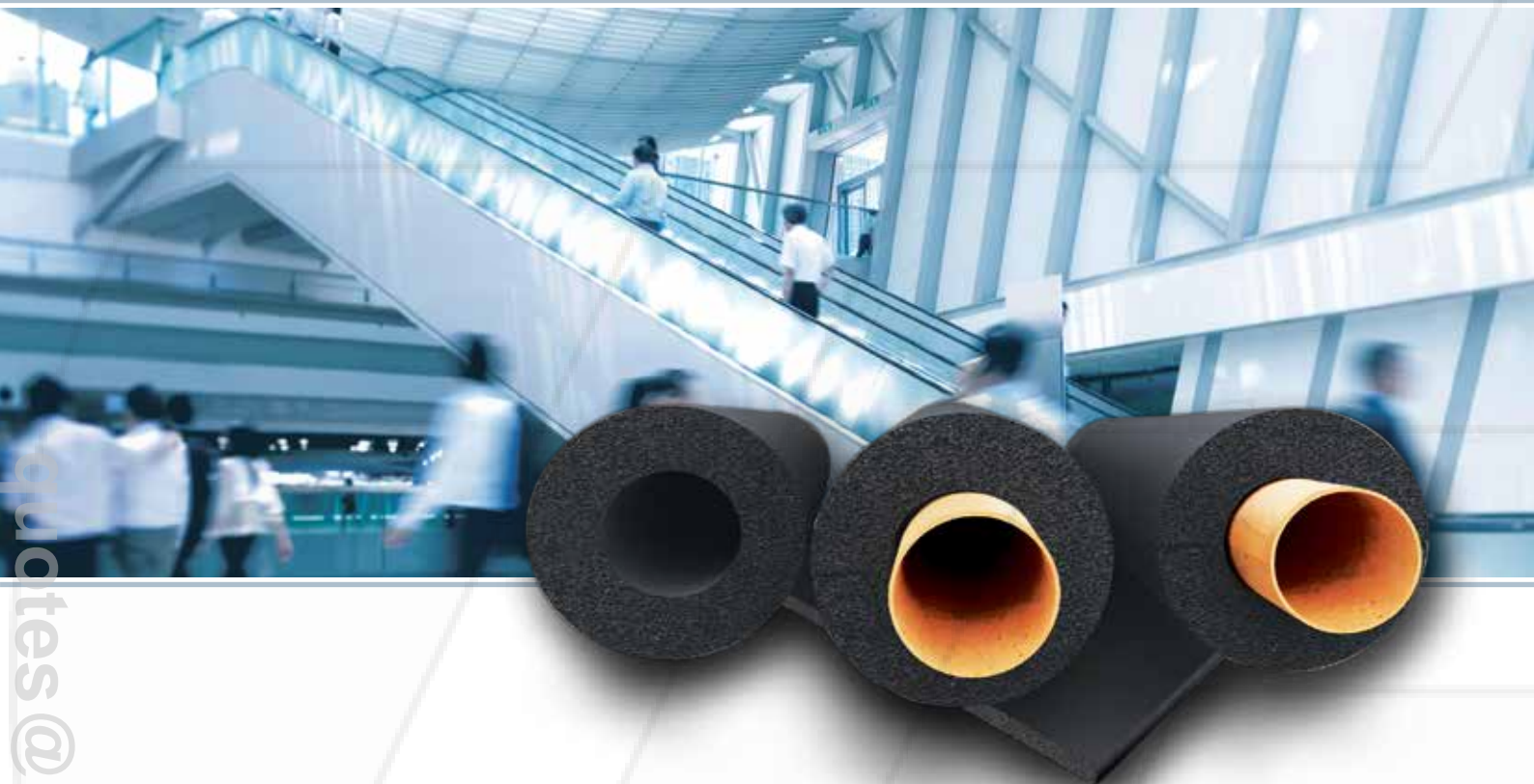
The most reliable water barriers are engineered into the structure of the insulation itself. Closed cell materials, formed from thousands of independently water-resistant cells, stop the passage of water vapour, even if the surface is damaged.



Reduce thermal bridging

Where small details such as pipe hangers, valves, flanges and bends are left uninsulated thermal bridging accounts for a very significant level of energy loss. These are also points where condensation and corrosion are most likely. The best insulation systems are installed seamlessly with no weak points.

kaiflex[®] ST / kaiflex[®] ST_{plus}



Excellent fire resistance and thermal efficiency

Kaiflex ST/STplus is a flexible, closed cell, elastomeric insulation material that reliably prevents condensation from forming and cuts energy losses. Euroclass B_s-s3, d0 in accordance with DIN EN 13501-1 guarantees a very high level of safety in case of a fire. Thanks to its sound-absorbing properties, dust and fibre free structure and antimicrobial characteristics, Kaiflex ST/STplus is especially suitable for use in public buildings.

Kaiflex STplus tubes are available in the handy length 1.20 m. The insulation material can thus be transported, stored and processed easily and efficiently.

- Class 0 Certified
- Euroclass B_s-s3, d0 in acc. with DIN EN 13501-1 for additional safety in a case of fire
- Reduces energy losses, $\lambda \leq 0.034 \text{ W/(m·K)}$ at 0 °C
- In-built vapour barrier for long lasting protection against corrosion, $\mu \geq 10000$
- Inherent resistance to microbial growth, dust and fibre free
- Reliable long term performance
- Suitable for use in public buildings

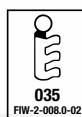
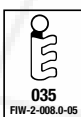
Kaiflex ST Technical Data

Material		Elastomeric foam based on synthetic rubber. Flexible Elastomeric Foam (FEF) in acc. to EN 14304	
Cell structure		Closed cell	
Colour		Black	
Upper temperature limit	Pipe Flat surfaces	+110 °C +85 °C	
Lower temperature limit		-50 °C (-200 °C)	See remark (1)
Thermal conductivity	λ_{10} at -10 °C at 0 °C at +10 °C	$0.034 + 7.2 \cdot 10^{-5} \vartheta + 1.2 \cdot 10^{-6} \vartheta^2$ $\leq 0.033 \text{ W/(m·K)}$ $\leq 0.034 \text{ W/(m·K)}$ $\leq 0.035 \text{ W/(m·K)}$	Test acc. to DIN EN ISO 8497 DIN EN 12667
Water vapour permeability	Moisture resistance factor μ	≥ 10000 No separate vapour barrier required	Test acc. to DIN EN 13469 DIN EN 12086
EuroClass [°]	Tubes Sheets	B _L -s3, d0 B-s3, d0	Test acc. to DIN EN 13501-1
Practical fire behaviour		Self-extinguishing, no drips, does not support flame spread	
Fire performance		Class 0	In acc. with UK building regulations
Surface spread of Flame		Class 1	Test acc. to BS 476-7
Fire propagation	Total index of performance Sub Index 1	<12 <6	Test acc. to BS 476-6
Corrosion resistance		Satisfies requirements	In acc. to DIN 1988
Insulation material index number acc. to AGI	Tubes Sheets	36.12.02.05.04 36.07.02.05.04	
Health aspects		Dust & fibre free Heavy metal (e.g. cadmium, lead) and formaldehyde free	
Resistance to	Mould and bacteria	no growth	In acc. with VDI 6022
Other attributes	pH-Value	CE marked Neutral	
Other certificates / approvals		FIW-audited (European Insulation Keymark Scheme for Thermal Insulation Products) UL-approved (UL94) FM-approved DNV, Lloyd's Register, See BG	Tubes: 035-FIW-2-008.0-05 Sheets: 035-FIW-2-008.0-02 In acc. with UL94 V-0, HF-1
Shelf life	Self-adhesive products	1 year	Store in a dry room at a typical relative humidity (between 50 % and 70 %) and room temperature (between 0 °C and +35 °C)
Tolerances		In acc. with DIN EN 14304:2013-04	
Outdoor applications		Needs protection against UV-radiation	See remark (2)

Remark (1) For temperatures below -50 °C please contact our Technical Support Team for advice.

Remark (2) To protect against UV-induced deterioration Kaiflex should be either painted using Kaifinish Color paint or covered with a suitable UV resistant cladding system within 1 day of being installed outdoors.

[°] The Euroclass rating applies to metallic or solid mineral substrates.





Kaiflex ST Tube

Colour: Black • Length: 2 m

Copper pipe Cu			Iron & steel pipe Fe			6 mm Insulation thickness			9 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
	1/4	6.0			7.0	ST-06x006	4001188	600	ST-09x006	4001200	360
	3/8	10.0			11.0	ST-06x010	4001190	430	ST-09x010	4001202	320
3/8	1/2	12.0			13.0	ST-06x012	4001191	350	ST-09x012	4001203	280
1/2	5/8	15.0			16.0	ST-06x015	4001192	300	ST-09x015	4001204	240
5/8	3/4				21.0	ST-06x020	4001194	250	ST-09x020	4001206	160
3/4	7/8	22.0	1/2	21.3	23.0	ST-06x022	4001195	216	ST-09x022	4001207	156
1	1 1/8	28.0	3/4	26.9	29.0	ST-06x028	4001197 *	150	ST-09x028	4001209	124
1 1/4	1 3/8	35.0	1	33.7	36.0				ST-09x035	4001212	92
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5				ST-09x042	4001214	70
			1 1/2	48.3	49.5				ST-09x048	4001216	60
2	2 1/8	54.0		54.0	55.0				ST-09x054	4001217	60
			2	60.3	61.5				ST-09x060	4001219	60

Copper pipe Cu			Iron & steel pipe Fe			13 mm Insulation thickness			19 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
	1/4	6.0			7.0	ST-13x006	4001232	240	ST-19x006	4001266	126
	3/8	10.0			11.0	ST-13x010	4001234	190	ST-19x010	4001267	106
3/8	1/2	12.0			13.0	ST-13x012	4001235	172	ST-19x012	4001268	100
1/2	5/8	15.0			16.0	ST-13x015	4001236	154	ST-19x015	4001269	86
5/8	3/4				21.0	ST-13x020	4001238	120	ST-19x020	4001271	76
3/4	7/8	22.0	1/2	21.3	23.0	ST-13x022	4001239	110	ST-19x022	4001272	74
1	1 1/8	28.0	3/4	26.9	29.0	ST-13x028	4001241	86	ST-19x028	4001274	58
1 1/4	1 3/8	35.0	1	33.7	36.0	ST-13x035	4001244	76	ST-19x035	4001277	48
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	ST-13x042	4001246	56	ST-19x042	4001279	40
			1 1/2	48.3	49.5	ST-13x048	4001248	48	ST-19x048	4001281	30
2	2 1/8	54.0		54.0	55.0	ST-13x054	4001249	46	ST-19x054	4001282	30
			2	60.3	61.5	ST-13x060	4001251	40	ST-19x060	4001284	28
2 1/2	2 5/8	67.0			68.5	ST-13x067	4001253	40	ST-19x067	4001286	28
2 13/16	3	76.1	2 1/2	76.1	77.0	ST-13x076	4001255	34	ST-19x076	4001288	28
3	3 1/8	80.0			81.0	ST-13x080	4001256 *	30	ST-19x080	4001289 *	26
			3	88.9	90.5	ST-13x089	4001257 *	30	ST-19x089	4001290 *	22
4	4 1/4	108.0			109.5	ST-13x108	4001259 *	28	ST-19x108	4001292 *	20
			4	114.3	116.0	ST-13x114	4001260 *	28	ST-19x114	4001293 *	18

* No stock item, delivery time on request.

9 mm tubes are available upon request for the pipe dimensions: 9 x 64, 9 x 70, 9 x 76, 9 x 80, 9 x 89, 9 x 102, 9 x 108, 9 x 114, 9 x 125, 9 x 133, 9 x 140 and 9 x 160.

13 mm tubes are available upon request for the pipe dimensions: 13 x 125, 13 x 133, 13 x 140 and 13 x 160 mm.

19 mm tubes are available upon request for the pipe dimensions: 19 x 125, 19 x 133, 19 x 140 and 19 x 160 mm.

All tubes are available as slit items. For ordering slit items add "-SLIT" to the reference codes above (example: ST-13x076-SLIT).

Kaiflex ST Tube



Colour: Black · Length: 2 m

Copper pipe Cu			Iron & steel pipe Fe			25 mm Insulation thickness			32 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
3/8	1/2	12.0			13.0	ST-25x012	4001301	60	ST-32x012	4001346	36
1/2	5/8	15.0			16.0	ST-25x015	4001302	60	ST-32x015	4001347	32
5/8	3/4				21.0	ST-25x020	4001304	50			
3/4	7/8	22.0	1/2	21.3	23.0	ST-25x022	4001305	42	ST-32x022	4001349	32
1	1 1/8	28.0	3/4	26.9	29.0	ST-25x028	4001307	40	ST-32x028	4001351	24
1 1/4	1 3/8	35.0	1	33.7	36.0	ST-25x035	4001309	32	ST-32x035	4001352	24
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	ST-25x042	4001311	24	ST-32x042	4001353	22
			1 1/2	48.3	49.5	ST-25x048	4001312	24	ST-32x048	4001354	18
2	2 1/8	54.0		54.0	55.0	ST-25x054	4001313	22	ST-32x054	4001355	18
			2	60.3	61.5	ST-25x060	4001314	22	ST-32x060	4001357	16
2 1/2	2 5/8	67.0			68.5	ST-25x067	4001316	18	ST-32x067	4001359	14
2 13/16	3	76.1	2 1/2	76.1	77.0	ST-25x076	4001318	18	ST-32x076	4001361	12
			3	88.9	90.5	ST-25x089	4001320 *	14	ST-32x089	4001363	10
4	4 1/4	108.0			109.5	ST-25x108	4001322 *	10	ST-32x108	4001365	8
			4	114.3	116.0	ST-25x114	4001323 *	10	ST-32x114	4001366	8

Copper pipe Cu			Iron & steel pipe Fe			40 mm Insulation thickness			50 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
3/4	7/8	22.0	1/2	21.3	23.0	ST-40x022	4001373	22	ST-50x022	4001393 *	14
1	1 1/8	28.0	3/4	26.9	29.0	ST-40x028	4001375	16	ST-50x028	4001395 *	10
1 1/4	1 3/8	35.0	1	33.7	36.0	ST-40x035	4001376	16	ST-50x035	4001396 *	8
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	ST-40x042	4001377	16	ST-50x042	4001397 *	8
			1 1/2	48.3	49.5	ST-40x048	4001378	12	ST-50x048	4001398 *	8
2	2 1/8	54.0		54.0	55.0	ST-40x054	4001379	10	ST-50x054	4001399 *	8
			2	60.3	61.5	ST-40x060	4001380	10	ST-50x060	4001400 *	8
2 13/16	3	76.1	2 1/2	76.1	77.0	ST-40x076	4001382	10	ST-50x076	4001402 *	6
			3	88.9	90.5	ST-40x089	4001384	10	ST-50x089	4001403 *	6
			4	114.3	116.0	ST-40x114	4001387	6	ST-50x114	4001406 *	4

* No stock item, delivery time on request.

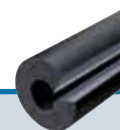
25 mm tubes are available upon request for the pipe dimensions: 25 x 140 mm.

32 mm tubes are available upon request for the pipe dimensions: 32 x 133, 32 x 140 and 32 x 160 mm.

40 and 50 mm tubes are available upon request for the pipe dimensions: 40 x 140, 40 x 160, 40 x 168, 50 x 140, 50 x 160 and 40 x 168 mm.

All tubes are available as slit items. For ordering slit items add "-SLIT" to the reference codes above (example: ST-13x076-SLIT).

Kaiflex ST SK Tube · self-adhesive · with tangential cut



Colour: Black · Length: 2 m

Copper pipe Cu			Iron & steel pipe Fe			9 mm Insulation thickness			13 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
1/2	5/8	15.0			16.0	ST-09x015-SK	4001649	240	ST-13x015-SK	4001661	154
3/4	7/8	22.0	1/2	21.3	23.0	ST-09x022-SK	4001651	156	ST-13x022-SK	4001663	110
1	1 1/8	28.0	3/4	26.9	29.0	ST-09x028-SK	4001652	124	ST-13x028-SK	4001664	86
1 1/4	1 3/8	35.0	1	33.7	36.0	ST-09x035-SK	4001653	92	ST-13x035-SK	4001665	76
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	ST-09x042-SK	4001654	70	ST-13x042-SK	4001666	56
			1 1/2	48.3	49.5	ST-09x048-SK	4001655	60	ST-13x048-SK	4001667	48
2	2 1/8	54.0		54.0	55.0	ST-09x054-SK	4001656	60	ST-13x054-SK	4001668	46
			2	60.3	61.5	ST-09x060-SK	4001657	60	ST-13x060-SK	4001669	40
2 1/2	2 5/8	67.0			68.5						
2 13/16	3	76.1	2 1/2	76.1	77.0				ST-13x076-SK	4001671	34
			3	88.9	90.5				ST-13x089-SK	4001673	30

Copper pipe Cu			Iron & steel pipe Fe			19 mm Insulation thickness			25 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
1/2	5/8	15.0			16.0	ST-19x015-SK	4001674	86	ST-25x015-SK	4001687 *	60
3/4	7/8	22.0	1/2	21.3	23.0	ST-19x022-SK	4001676	74	ST-25x022-SK	4001688 *	42
1	1 1/8	28.0	3/4	26.9	29.0	ST-19x028-SK	4001677	58	ST-25x028-SK	4001689 *	40
1 1/4	1 3/8	35.0	1	33.7	36.0	ST-19x035-SK	4001678	48	ST-25x035-SK	4001690 *	32
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	ST-19x042-SK	4001679	40	ST-25x042-SK	4001691 *	24
			1 1/2	48.3	49.5	ST-19x048-SK	4001680	30	ST-25x048-SK	4001692 *	24
2	2 1/8	54.0		54.0	55.0	ST-19x054-SK	4001681	30	ST-25x054-SK	4001693 *	22
			2	60.3	61.5	ST-19x060-SK	4001682	28	ST-25x060-SK	4001694 *	22
2 1/2	2 5/8	67.0			68.5	ST-19x067-SK	4001684	28	ST-25x067-SK	4007422 *	18
2 13/16	3	76.1	2 1/2	76.1	77.0	ST-19x076-SK	4001685	28	ST-25x076-SK	4001695 *	18
			3	88.9	90.5	ST-19x089-SK	4001686	22	ST-25x089-SK	4001696 *	14

* No stock item, delivery time on request.

32 mm tubes are available upon request.

Kaiflex ST Tube · endless · pre-chalked · coils in square box



Colour: Black

Copper pipe Cu			Iron & steel pipe Fe		Min ID mm	9 mm Insulation thickness			13 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm		Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
	1/4	6.0			7.0	ST-09x006-E	4005707	40	ST-13x006-E	4009264	26
	3/8	10.0			11.0	ST-09x010-E	4009258	34	ST-13x010-E	4005711	23
3/8	1/2	12.0			13.0	ST-09x012-E	4009259	31	ST-13x012-E	4009265	18
1/2	5/8	15.0			16.0	ST-09x015-E	4009260	27	ST-13x015-E	4006627	17
5/8	3/4				21.0	ST-09x020-E	4006623	23	ST-13x020-E	4005712	15
3/4	7/8	22.0	1/2	21.3	23.0	ST-09x022-E	4009261	19	ST-13x022-E	4006628	14
1	1 1/8	28.0	3/4	26.9	29.0	ST-09x028-E	4009262	14	ST-13x028-E	4005713	10

Kaiflex ST Tube · endless · pre-chalked · individually packaged in plastic bags



Colour: Black · Length: 15 m

Copper pipe Cu			Iron & steel pipe Fe		Min ID mm	9 mm Insulation thickness				13 mm Insulation thickness			
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm		Reference	Order No.	coils/ carton	m/ carton	Reference	Order No.	coils/ carton	m/ carton
	1/4	6.0			7.0	ST-09x006-E15	4001629	20	300	ST-13x006-E15	4001636	13	195
	3/8	10.0			11.0	ST-09x010-E15	4001630	15	225	ST-13x010-E15	4001637	10	150
3/8	1/2	12.0			13.0	ST-09x012-E15	4001631	14	210	ST-13x012-E15	4001638	9	135
1/2	5/8	15.0			16.0	ST-09x015-E15	4001632	13	195	ST-13x015-E15	4001639	8	120
5/8	3/4				21.0	ST-09x020-E15	4001633	12	180	ST-13x020-E15	4001640	7	105
3/4	7/8	22.0	1/2	21.3	23.0	ST-09x022-E15	4001634	9	135	ST-13x022-E15	4001641	6	90
1	1 1/8	28.0	3/4	26.9	29.0	ST-09x028-E15	4001635	8	120	ST-13x028-E15	4001642	6	90

Kaiflex ST Sheet · continuous

Colour: Black

Insulation thickness mm	Sheet · continuous 1 m width · OD coil: 40 cm · in carton			Sheet · continuous · self-adhesive 1 m width · OD coil: 40 cm · in carton		
	Reference	Order No.	m ² /carton	Reference	Order No.	m ² /carton
6	ST-06-RL-S	4012754	18	ST-06-RL-SK-S	4012757	18
10	ST-10-RL-S	4001584	10	ST-10-RL-SK-S	4001588	10
13	ST-13-RL-S	4001585	8	ST-13-RL-SK-S	4001589	8
19	ST-19-RL-S	4001586	6	ST-19-RL-SK-S	4001590	6
25	ST-25-RL-S	4012756	4	ST-25-RL-SK-S	4012759	4
32	ST-32-RL-S	4001587	3	ST-32-RL-SK-S	4012760	3

Insulation thickness mm	Sheet · continuous 1 m width · OD coil: 53 cm · in carton			Sheet · continuous · self-adhesive 1 m width · OD coil: 53 cm · in carton		
	Reference	Order No.	m ² /carton	Reference	Order No.	m ² /carton
6	ST-06-RL-XL	4001537	30	ST-06-RL-SK-XL	4001563	30
10	ST-10-RL-XL	4001539	20	ST-10-RL-SK-XL	4001564	20
13	ST-13-RL-XL	4001540	14	ST-13-RL-SK-XL	4001565	14
19	ST-19-RL-XL	4001542	10	ST-19-RL-SK-XL	4001567	10
25	ST-25-RL-XL	4001543	8	ST-25-RL-SK-XL	4001568	8
32	ST-32-RL-XL	4001544	6	ST-32-RL-SK-XL	4001569	6
40	ST-40-RL-XL	4012596	5.5	ST-40-RL-SK-XL	4012597	5.5
50	ST-50-RL-XL	4012226	4	ST-50-RL-SK-XL	4012594	4

Kaiflex ST Sheet · flat

Colour: Black

Insulation thickness mm	Sheet · flat 2.0 x 1.0 m			Sheet · flat 2.0 x 1.0 m		
	Reference	Order No.	m ² /carton	Reference	Order No.	m ² /carton
50	ST-50-PL10	4001561	6	ST-50-PL10-SK	4001583	6

Kaiflex ST_{plus} Technical Data

Material		Elastomeric foam based on synthetic rubber. Flexible Elastomeric Foam (FEF) in acc. to EN 14304	
Cell structure		Closed cell	
Colour		Black	
Upper temperature limit	Pipe	+110 °C	
Lower temperature limit		-50 °C (-200 °C)	See remark (1)
Thermal conductivity	λ_0 at -10 °C at 0 °C at +10 °C	$0.034 + 7.2 \cdot 10^{-5} \vartheta + 1.2 \cdot 10^{-6} \vartheta^2$ $\leq 0.033 \text{ W/(m·K)}$ $\leq 0.034 \text{ W/(m·K)}$ $\leq 0.035 \text{ W/(m·K)}$	Test acc. to DIN EN 12667
Water vapour permeability	Moisture resistance factor μ	≥ 10000 No separate vapour barrier required	Test acc. to DIN EN 13469
Euroclass [°]		B _L -s3, d0	Test acc. to DIN EN 13501-1
Practical fire behaviour		Self-extinguishing, no drips, does not support flame spread	
Fire performance		Class 0	In acc. with UK building regulations
Corrosion resistance		Satisfies requirements	In acc. with DIN 1988
Health aspects		Dust & fibre free Heavy metal (e.g. cadmium, lead) and Formaldehyde free	
Other attributes	pH-Value	CE marked Neutral	
Other certificates / approvals		FM-approved	
Shelf life	Self-adhesive products	1 year	Store in a dry room at a typical relative humidity (between 50 % and 70 %) and room temperature (between 0 °C and +35 °C)
Tolerances		In acc. with DIN EN 14304:2013-04	
Outdoor applications		Needs protection against UV-radiation	See remark (2)

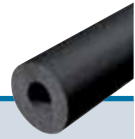
Remark (1) For temperatures below -50 °C please contact our Technical Support Team for advice.

Remark (2) To protect against UV-induced deterioration Kaiflex should be either painted using Kaifinish Color paint or covered with a suitable UV resistant cladding system within 1 day of being installed outdoors.

[°] The Euroclass rating applies to metallic or solid mineral substrates.



Kaiflex ST_{plus} Tube



Colour: Black • Length: 1.2 m

Copper pipe Cu			Iron & steel pipe Fe			9 mm Insulation thickness			13 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
1/2	5/8	15.0			16.0	STp-09x015-1,2	4002892	158.4	STp-13x015-1,2	4002913 *	108.0
3/4	7/8	22.0	1/2	21.3	23.0	STp-09x022-1,2	4002894	112.8	STp-13x022-1,2	4002915 *	80.4
1	1 1/8	28.0	3/4	26.9	29.0	STp-09x028-1,2	4002895	90.0	STp-13x028-1,2	4002916 *	62.4
1 1/4	1 3/8	35.0	1	33.7	36.0	STp-09x035-1,2	4002896	69.6	STp-13x035-1,2	4002917 *	50.4
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	STp-09x042-1,2	4002897 *	57.6	STp-13x042-1,2	4002918 *	42.0
			1 1/2	48.3	49.5	STp-09x048-1,2	4002898 *	50.4	STp-13x048-1,2	4002919 *	38.4
2	2 1/8	54.0		54.0	55.0	STp-09x054-1,2	4002899 *	45.6	STp-13x054-1,2	4002920 *	36.0
			2	60.3	61.5	STp-09x060-1,2	4002900 *	43.2	STp-13x060-1,2	4002921 *	28.8
2 13/16	3	76.1	2 1/2	76.1	77.0				STp-13x076-1,2	4002923 *	27.6
			3	88.9	90.5				STp-13x089-1,2	4002924 *	24.0

Copper pipe Cu			Iron & steel pipe Fe			19 mm Insulation thickness			25 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
1/2	5/8	15.0			16.0	STp-19x015-1,2	4002933	67.2			
3/4	7/8	22.0	1/2	21.3	23.0	STp-19x022-1,2	4002935	49.2	STp-25x022-1,2	4002951	30.0
1	1 1/8	28.0	3/4	26.9	29.0	STp-19x028-1,2	4002936	39.6	STp-25x028-1,2	4002952	24.0
1 1/4	1 3/8	35.0	1	33.7	36.0	STp-19x035-1,2	4002937	34.8	STp-25x035-1,2	4002953	21.6
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	STp-19x042-1,2	4002938	28.8	STp-25x042-1,2	4002954	19.2
			1 1/2	48.3	49.5	STp-19x048-1,2	4002939 *	27.6	STp-25x048-1,2	4002955 *	16.8
2	2 1/8	54.0		54.0	55.0	STp-19x054-1,2	4002940 *	21.6	STp-25x054-1,2	4002956 *	16.8
			2	60.3	61.5	STp-19x060-1,2	4002941 *	21.6	STp-25x060-1,2	4002957 *	15.6
2 13/16	3	76.1	2 1/2	76.1	77.0	STp-19x076-1,2	4002943 *	16.8	STp-25x076-1,2	4002959 *	12.0
			3	88.9	90.5	STp-19x089-1,2	4002944 *	16.8	STp-25x089-1,2	4002960 *	9.6

* No stock item, delivery time on request.

For further dimensions please contact our customer service.

Kaiflex ST_{plus} SK Tube · self-adhesive · with tangential cut



Colour: Black · Length: 1.2 m

Copper pipe Cu			Iron & steel pipe Fe			9 mm Insulation thickness			13 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
1/2	5/8	15.0			16.0	STp-09x015-1,2-SK	4003002 *	158.4	STp-13x015-1,2-SK	4003004 *	108.0
3/4	7/8	22.0	1/2	21.3	23.0	STp-09x022-1,2-SK	4003003 *	112.8	STp-13x022-1,2-SK	4003005 *	80.4
1	1 1/8	28.0	3/4	26.9	29.0	STp-09x028-1,2-SK	4006747 *	90.0	STp-13x028-1,2-SK	4003006 *	62.4
1 1/4	1 3/8	35.0	1	33.7	36.0	STp-09x035-1,2-SK	4005862 *	69.6	STp-13x035-1,2-SK	4005864 *	50.4
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	STp-09x042-1,2-SK	4006748 *	57.6	STp-13x042-1,2-SK	4005865 *	42.0
			1 1/2	48.3	49.5	STp-09x048-1,2-SK	4009480 *	50.4	STp-13x048-1,2-SK	4005866 *	38.4
2	2 1/8	54.0		54.0	55.0	STp-09x054-1,2-SK	4006749 *	45.6	STp-13x054-1,2-SK	4005867 *	36.0
			2	60.3	61.5	STp-09x060-1,2-SK	4005863 *	43.2	STp-13x060-1,2-SK	4005868 *	28.8
2 13/16	3	76.1	2 1/2	76.1	77.0				STp-13x076-1,2-SK	4005869 *	27.6
			3	88.9	90.5				STp-13x089-1,2-SK	4012822 *	24.0

Copper pipe Cu			Iron & steel pipe Fe			19 mm Insulation thickness			25 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
1/2	5/8	15.0			16.0	STp-19x015-1,2-SK	4006752 *	67.2			
3/4	7/8	22.0	1/2	21.3	23.0	STp-19x022-1,2-SK	4005870 *	49.2	STp-25x022-1,2-SK	4012825 *	30.0
1	1 1/8	28.0	3/4	26.9	29.0	STp-19x028-1,2-SK	4003007 *	39.6	STp-25x028-1,2-SK	4012826 *	24.0
1 1/4	1 3/8	35.0	1	33.7	36.0	STp-19x035-1,2-SK	4010417 *	34.8	STp-25x035-1,2-SK	4012827 *	21.6
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	STp-19x042-1,2-SK	4010717 *	28.8	STp-25x042-1,2-SK	4012828 *	19.2
			1 1/2	48.3	49.5	STp-19x048-1,2-SK	4012823 *	27.6	STp-25x048-1,2-SK	4012829 *	16.8
2	2 1/8	54.0		54.0	55.0	STp-19x054-1,2-SK	4010871 *	21.6	STp-25x054-1,2-SK	4012830 *	16.8
			2	60.3	61.5	STp-19x060-1,2-SK	4012824 *	21.6	STp-25x060-1,2-SK	4012831 *	15.6
2 13/16	3	76.1	2 1/2	76.1	77.0	STp-19x076-1,2-SK	4010872 *	16.8	STp-25x076-1,2-SK	4012832 *	12.0
			3	88.9	90.5	STp-19x089-1,2-SK	4010873 *	16.8	STp-25x089-1,2-SK	4012833 *	9.6

* No stock item, delivery time on request.

For further dimensions please contact our customer service.

Kaifix ECplus Easy Connect · self-adhesive R-FORCE disks · for Kaiflex STplus tubes



Colour: Black

Copper pipe Cu			Iron & steel pipe Fe			9 mm Insulation thickness			13 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	pcs/ carton	Reference	Order No.	pcs/ carton
1/2	5/8	15.0			16.0	EC+ns-09x015	4005018	132	EC+ns-13x015	4005039	90
3/4	7/8	22.0	1/2	21.3	23.0	EC+ns-09x022	4005020	94	EC+ns-13x022	4005041	72
1	1 1/8	28.0	3/4	26.9	29.0	EC+ns-09x028	4005021	75	EC+ns-13x028	4005042	52
1 1/4	1 3/8	35.0	1	33.7	36.0	EC+ns-09x035	4005022	58	EC+ns-13x035	4005043	42
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	EC+ns-09x042	4005023	48	EC+ns-13x042	4005044	35
			1 1/2	48.3	49.5	EC+ns-09x048	4005024	42	EC+ns-13x048	4005045	32
2	2 1/8	54.0		54.0	55.0	EC+ns-09x054	4005025	38	EC+ns-13x054	4005046	30
			2	60.3	61.5	EC+ns-09x060	4005026	36	EC+ns-13x060	4005047	24
2 13/16	3	76.1	2 1/2	76.1	77.0	EC+ns-09x076	4005028	30	EC+ns-13x076	4005049	23
			3	88.9	90.5	EC+ns-09x089	4005029	24	EC+ns-13x089	4005050	20

Copper pipe Cu			Iron & steel pipe Fe			19 mm Insulation thickness			25 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	pcs/ carton	Reference	Order No.	pcs/ carton
1/2	5/8	15.0			16.0	EC+ns-19x015	4005059	56			
3/4	7/8	22.0	1/2	21.3	23.0	EC+ns-19x022	4005061	43	EC+ns-25x022	4005079	25
1	1 1/8	28.0	3/4	26.9	29.0	EC+ns-19x028	4005062	33	EC+ns-25x028	4005080	23
1 1/4	1 3/8	35.0	1	33.7	36.0	EC+ns-19x035	4005063	29	EC+ns-25x035	4005081	20
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	EC+ns-19x042	4005064	24	EC+ns-25x042	4005082	16
			1 1/2	48.3	49.5	EC+ns-19x048	4005065	23	EC+ns-25x048	4005083	14
2	2 1/8	54.0		54.0	55.0	EC+ns-19x054	4005066	18	EC+ns-25x054	4005084	14
			2	60.3	61.5	EC+ns-19x060	4005067	18	EC+ns-25x060	4005085	13
2 13/16	3	76.1	2 1/2	76.1	77.0	EC+ns-19x076	4005069	14	EC+ns-25x076	4005087	10
			3	88.9	90.5	EC+ns-19x089	4005070	14	EC+ns-25x089	4005088	8

For further dimensions please contact our customer service.

Kaifix ECplus Application guide



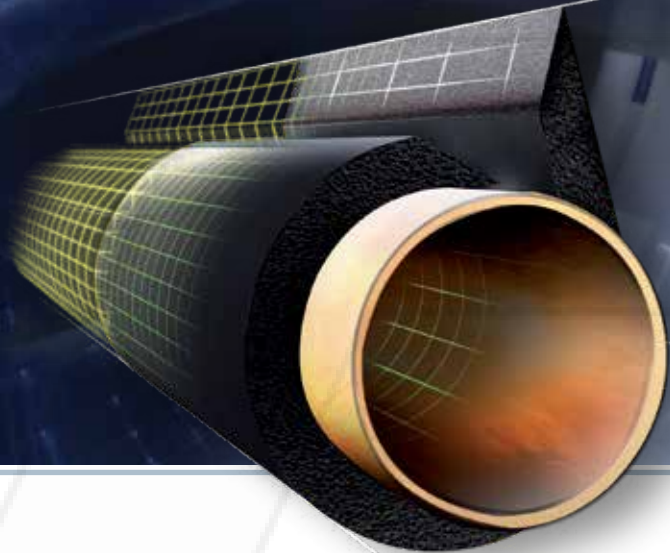
Remove foil.



Apply on one end.



Stick together.



Designed to save time for large diameter pipework

Flexible closed cell sheets designed specifically for larger diameter pipes and ducts, Kaiflex KKplus s3 Connect is a unique insulation system that combines the same exceptional condensation controlling and energy saving technical values for which Kaiflex has always been known together with a streamlined application process.

Kaiflex KKplus s3 Connect sheets are sheets of Kaiflex KKplus s3 cut exactly to size with a special tangential cut that minimises seam tension and maximises the strength of adhesion. Being already cut to size means that Kaiflex KKplus s3 Connect doesn't require precise on-site measurements, making it easier to install insulation in locations where workspace is limited.

Self-adhesive strips along the seam, together with a secondary self-adhesive overlap, make installing Kaiflex KKplus s3 Connect as easy as peeling a self-adhesive release tape.

- Reliably prevents condensation, $\mu \geq 10000$
- High thermal efficiency, $\lambda \leq 0.033 \text{ W/(m}\cdot\text{K)}$ at 0 °C
- Ease of application reduces cost and time of installation
- Reliable long term performance
- In-built anti-microbial resistance

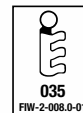
Kaiflex KKplus s3 Connect Technical Data

Material		Elastomeric foam based on synthetic rubber. Flexible Elastomeric Foam (FEF) in acc. to EN 14304	
Cell structure		Closed cell	
Colour		Black	
Upper temperature limit	Flat surfaces	+85 °C	
Lower temperature limit		-50 °C (-200 °C)	See remark (1)
Thermal conductivity	λ_0 at -10 °C at 0 °C at +10 °C	$0.033 + 7.2 \cdot 10^{-5} \vartheta + 1.2 \cdot 10^{-6} \vartheta^2$ $\leq 0.032 \text{ W/(m·K)}$ $\leq 0.033 \text{ W/(m·K)}$ $\leq 0.034 \text{ W/(m·K)}$	Test acc. to DIN EN ISO 8497 DIN EN 12667
Water vapour permeability	Moisture resistance factor μ	≥ 10000	Test acc. to DIN EN 13469 DIN EN 12086
Euroclass °		B-s3, d0	Test acc. to DIN EN 13501-1
Practical fire behaviour		Self-extinguishing, no drips, does not support flame spread	
Fire resistance classification in acc. with DIN 4102-11		R 90 / R 120	(ABP) Nr.: P-3552/436/09-MPA BS
Corrosion resistance		Satisfies requirements	In acc. to DIN 1988
Insulation material index number acc. to AGI		36.07.02.05.10	
Health aspects		Dust & fibre free Heavy metal (e.g. cadmium, lead) and formaldehyde free	
Resistance to	Mould and bacteria	no growth	In acc. with VDI 6022
Other attributes	pH-Value	CE marked Neutral	
Other certificates / approvals		FIW-audited (European Insulation Keymark Scheme for Thermal Insulation Products) FM-approved DNV, Lloyd's Register, See BG	035-FIW-2-008.0-01
Shelf life	Self-adhesive products	1 year	Store in a dry room at a typical relative humidity (between 50 % and 70 %) and room temperature (between 0 °C and +35 °C)
Tolerances		In acc. with DIN EN 14304:2013-04	
Outdoor applications		Needs protection against UV-radiation	See remark (2)

Remark (1) For temperatures below -50 °C please contact our Technical Support Team for advice.

Remark (2) To protect against UV-induced deterioration Kaiflex should be either painted using Kaifinish Color paint or covered with a suitable UV resistant cladding system within 1 day of being installed outdoors.

° The Euroclass rating applies to metallic or solid mineral substrates.



Kaiflex KKplus s3 Connect

Colour: Black • Length: 1 m




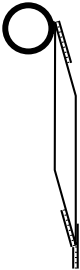
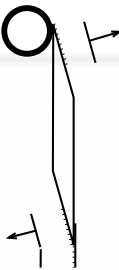
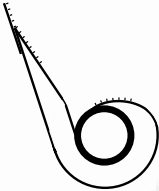


Copper pipe Cu			Iron & steel pipe Fe			13 mm Insulation thickness			19 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
		114.0	4	114.3	114.0	CON-KK+s3-13x114	4000656 *	25	CON-KK+s3-19x114	4000665 *	18
		125.0		125.0	125.0	CON-KK+s3-13x125	4000657 *	25	CON-KK+s3-19x125	4000666 *	18
		133.0			133.0	CON-KK+s3-13x133	4000658 *	25	CON-KK+s3-19x133	4000667 *	18
		140.0	5	139.7	140.0	CON-KK+s3-13x140	4005577 *	25	CON-KK+s3-19x140	4000668 *	18
		160.0			161.0	CON-KK+s3-13x160	4000659 *	25	CON-KK+s3-19x160	4000670 *	18
		168.0	6	168.3	168.0	CON-KK+s3-13x168	4000660 *	25	CON-KK+s3-19x168	4000671 *	18
		219.0	8	219.1	220.0	CON-KK+s3-13x219	4000661 *	25	CON-KK+s3-19x219	4000673 *	18
		273.0	10	273.0	274.0	CON-KK+s3-13x273	4005578 *	25	CON-KK+s3-19x273	4000674 *	18

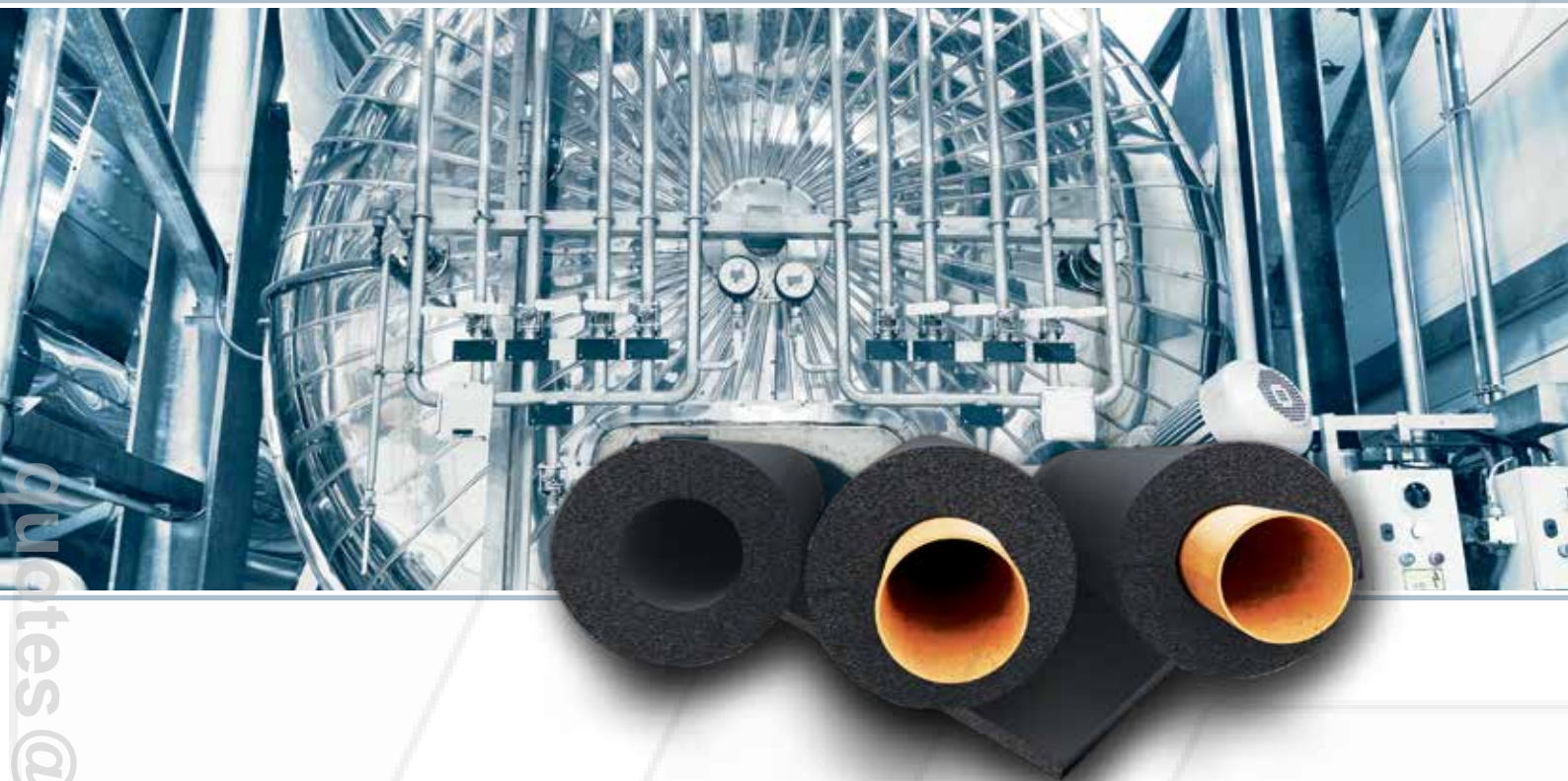
Copper pipe Cu			Iron & steel pipe Fe			25 mm Insulation thickness			32 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
		114.0	4	114.3	114.0	CON-KK+s3-25x114	4000677 *	13	CON-KK+s3-32x114	4007358 *	11
		125.0		125.0	125.0	CON-KK+s3-25x125	4007357 *	13	CON-KK+s3-32x125	4000681 *	11
		133.0			133.0	CON-KK+s3-25x133	4005581 *	13	CON-KK+s3-32x133	4007359 *	11
		140.0	5	139.7	140.0	CON-KK+s3-25x140	4000678 *	13	CON-KK+s3-32x140	4000682 *	11
		160.0			161.0	CON-KK+s3-25x160	4006527 *	13	CON-KK+s3-32x160	4007360 *	11
		168.0	6	168.3	168.0	CON-KK+s3-25x168	4000679 *	13	CON-KK+s3-32x168	4000683 *	11
		219.0	8	219.1	220.0	CON-KK+s3-25x219	4005582 *	13	CON-KK+s3-32x219	4000684 *	11
		273.0	10	273.0	274.0	CON-KK+s3-25x273	4005583 *	13	CON-KK+s3-32x273	4000685 *	11

* No stock item, delivery time on request.

For further dimensions please contact our customer service.

Kaiflex KKplus s3 Connect Application guide

		
Remove the plastic film from the reverse side of the Kaiflex Connect.	Affix the Kaiflex Connect to the pipe.	Remove the remaining plastic films.
		
Wrap the Kaiflex Connect around the pipe.	Firstly, close the inside of the material together firmly.	Then press down the overlapping adhesive strip.



Designed to resist high temperatures and UV radiation

Durable UV resistant rubber insulation for higher temperatures, Kaiflex EPDMplus is an insulation material with a closed cell structure that provides an inherent water vapour barrier, which ensures Kaiflex EPDMplus can be used to prevent condensation and pipe corrosion.

Resisting temperatures of up to +150 °C makes Kaiflex EPDMplus appropriate for use on low pressure steam pipework, and also the in-built water vapour barrier of Kaiflex EPDMplus means that the material can also be used on pipework that is operated at very low temperatures or pipework and equipment that intermittently cycles between hot and cold.

Kaiflex EPDMplus is naturally resistant to moisture and chemicals. Together these properties make Kaiflex EPDMplus ideally suited for use in demanding industrial process environments where salt water, chemical vapours and high temperatures combine to accelerate corrosion.

- Rated for temperatures from +150 °C to –50 °C (–200 °C)
- In-built vapour barrier for long lasting protection against corrosion
- High thermal efficiency, $\lambda \leq 0.038 \text{ W/(m}\cdot\text{K)}$ at 0 °C
- No flaming droplets when burning

Kaiflex EPDM_{plus} Technical Data

Material		EPDM	
Cell structure		Closed cell	
Colour		Black	
Upper temperature limit	Tubes & Sheets Tape	+150 °C +90 °C	
Lower temperature limit		-50 °C (-200 °C)	See remark (1)
Thermal conductivity	λ_{10} at -10 °C at 0 °C at +10 °C	$0.038 + 8.0 \cdot 10^{-5} \vartheta + 7.0 \cdot 10^{-7} \vartheta^2$ $\leq 0.037 \text{ W/(m·K)}$ $\leq 0.038 \text{ W/(m·K)}$ $\leq 0.039 \text{ W/(m·K)}$	Test acc. to DIN EN ISO 8497 DIN EN 12667
Water vapour permeability	Moisture resistance factor μ	≥ 4500	Test acc. to DIN EN 12086
Euroclass [°]		E _L /E	Test acc. to DIN EN 13501-1
Practical fire behaviour		Self-extinguishing, no drips, does not support flame spread	
Environmental aspects		ODP Zero GWP Zero	
Insulation material index number acc. to AGI	Tubes Sheets	36.12.03.06.04 36.07.03.06.04	
Health aspects		Dust & fibre free Heavy metal (e.g. cadmium, lead) and formaldehyde free	
Resistance to	UV	Excellent	
Other attributes	pH-Value	CE marked Neutral	
Shelf life	Self-adhesive products	1 year	Store in a dry room at a typical relative humidity (between 50 % and 70 %) and room temperature (between 0 °C and +35 °C)
Tolerances		In acc. with DIN EN 14304:2013-04	
Outdoor applications		No additional protection against UV-radiation required	

Remark (1) For temperatures below -50 °C please contact our Technical Support Team for advice.

[°] The Euroclass rating applies to metallic or solid mineral substrates.

Kaiflex EPDM_{plus} Tube



Colour: Black • Length: 2 m

Copper pipe Cu			Iron & steel pipe Fe			10 mm Insulation thickness			13 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
	3/8	10.0			11.0	EPDMp-10x010	4003230 *	220	EPDMp-13x010	4003245 *	152
3/8	1/2	12.0			13.0	EPDMp-10x012	4003231 *	190	EPDMp-13x012	4003246 *	136
1/2	5/8	15.0			16.0	EPDMp-10x015	4003232 *	172	EPDMp-13x015	4003247	120
					19.0	EPDMp-10x018	4003233 *	136	EPDMp-13x018	4003248	106
3/4	7/8	22.0	1/2	21.3	23.0	EPDMp-10x022	4003234 *	112	EPDMp-13x022	4003249	84
1	1 1/8	28.0	3/4	26.9	29.0	EPDMp-10x028	4003235 *	84	EPDMp-13x028	4003250	72
1 1/4	1 3/8	35.0	1	33.7	36.0	EPDMp-10x035	4003237 *	60	EPDMp-13x035	4003251	50
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	EPDMp-10x042	4003238 *	50	EPDMp-13x042	4003252	40
			1 1/2	48.3	49.5	EPDMp-10x048	4003239 *	40	EPDMp-13x048	4003253	36
2	2 1/8	54.0		54.0	55.0	EPDMp-10x054	4003240 *	36	EPDMp-13x054	4003254	32
			2	60.3	61.5	EPDMp-10x060	4003242 *	32	EPDMp-13x060	4003256	24
2 13/16	3	76.1	2 1/2	76.1	77.0	EPDMp-10x076	4003243 *	20	EPDMp-13x076	4003257	18
			3	88.9	90.5	EPDMp-10x089	4003244 *	18	EPDMp-13x089	4003258	16

Copper pipe Cu			Iron & steel pipe Fe			19 mm Insulation thickness			25 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
	3/8	10.0			11.0						
3/8	1/2	12.0			13.0	EPDMp-19x012	4003259 *	78	EPDMp-25x012	4003273 *	50
1/2	5/8	15.0			16.0	EPDMp-19x015	4003260 *	72	EPDMp-25x015	4003274 *	50
					19.0	EPDMp-19x018	4003261	60	EPDMp-25x018	4003275	40
3/4	7/8	22.0	1/2	21.3	23.0	EPDMp-19x022	4003262	56	EPDMp-25x022	4003276	36
1	1 1/8	28.0	3/4	26.9	29.0	EPDMp-19x028	4003263	40	EPDMp-25x028	4003277	32
1 1/4	1 3/8	35.0	1	33.7	36.0	EPDMp-19x035	4003264	36	EPDMp-25x035	4003278	24
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	EPDMp-19x042	4003265	32	EPDMp-25x042	4003279	22
			1 1/2	48.3	49.5	EPDMp-19x048	4003266	24	EPDMp-25x048	4003280	18
2	2 1/8	54.0		54.0	55.0	EPDMp-19x054	4003267	22	EPDMp-25x054	4003281	18
			2	60.3	61.5	EPDMp-19x060	4003269	18	EPDMp-25x060	4003283	16
2 13/16	3	76.1	2 1/2	76.1	77.0	EPDMp-19x076	4003270	16	EPDMp-25x076	4003285	12
			3	88.9	90.5	EPDMp-19x089	4003271	12	EPDMp-25x089	4003287	12

* No stock item, delivery time on request.

For further References please contact our customer service.



Kaiflex EPDMplus Tube

Colour: Black • Length: 2 m

Copper pipe Cu			Iron & steel pipe Fe			32 mm Insulation thickness					
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton			
1/2	5/8	15.0			16.0	EPDMp-32x015	4003290 *	32			
					19.0	EPDMp-32x018	4003291	24			
3/4	7/8	22.0	1/2	21.3	23.0	EPDMp-32x022	4003292	24			
1	1 1/8	28.0	3/4	26.9	29.0	EPDMp-32x028	4003293	22			
1 1/4	1 3/8	35.0	1	33.7	36.0	EPDMp-32x035	4003294	18			
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	EPDMp-32x042	4003295	18			
			1 1/2	48.3	49.5	EPDMp-32x048	4003296	14			
2	2 1/8	54.0		54.0	55.0	EPDMp-32x054	4003297	12			
			2	60.3	61.5	EPDMp-32x060	4003299	12			
2 13/16	3	76.1	2 1/2	76.1	77.0	EPDMp-32x076	4003301	8			
			3	88.9	90.5	EPDMp-32x089	4003302	8			

* No stock item, delivery time on request.

For further References please contact our customer service.

Kaiflex Solar EPDM Tube · endless



Colour: Black											
Copper pipe Cu			Iron & steel pipe Fe			13 mm Insulation thickness			19 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
1/2	5/8	15.0			16.0	EPDM-SOLAR-13x015-E	4003220 *	18	EPDM-SOLAR-19x015-E	4003225 *	14
					19.0	EPDM-SOLAR-13x018-E	4003221 *	16	EPDM-SOLAR-19x018-E	4003226 *	12
3/4	7/8	22.0	1/2	21.3	23.0	EPDM-SOLAR-13x022-E	4003222 *	15	EPDM-SOLAR-19x022-E	4003227 *	10
1	1 1/8	28.0	3/4	26.9	29.0	EPDM-SOLAR-13x028-E	4003223 *	11	EPDM-SOLAR-19x028-E	4003228 *	8
1 1/4	1 3/8	35.0	1	33.7	36.0	EPDM-SOLAR-13x035-E	4003224 *	10	EPDM-SOLAR-19x035-E	4003229 *	6

* No stock item, delivery time on request.

Kaiflex EPDMplus Sheet · continuous



Colour: Black			
Insulation thickness mm	Sheet · continuous 1 m width		
	Reference	Order No.	m²/ carton
6	EPDMp-06-RL	4003333	18
10	EPDMp-10-RL	4003334	10
13	EPDMp-13-RL	4003336	8
19	EPDMp-19-RL	4003338	6
25	EPDMp-25-RL	4003340	4
32	EPDMp-32-RL	4003341	3



Halogen-free complete solution for reliable fire and corrosion protection

As a halogen-free solution, Kaiflex HFplus s2 is the ideal solution for the technical insulation of buildings, industrial and specialist applications. Classified as s2, it simultaneously provides a high level of safety in the event of fire and reliable corrosion protection. Kaiflex HFplus s2 is therefore particularly well suited for the insulation of stainless steel pipes and meets the required safety standards even in demanding environments.

Kaiflex HFplus s2 is free of PVC, chlorides and brominated flame retardants. Depending on the configuration, it complies with the Green Building standards and can therefore be safely used in sustainable buildings.

All the components are ideally matched to each other and form a halogen-free complete system.

- Halogen-free insulation system – including all components
- Ideal solution for buildings, industrial and specialist applications
- Classified as s2, it complies with the exacting European smoke specifications
- Free of PVC, chlorides and brominated flame retardants
- Safe to use in sustainable buildings

Kaiflex HFplus s2 Technical Data

Material		Elastomeric foam based on synthetic rubber. Flexible Elastomeric Foam (FEF) in acc. to EN 14304	
Cell structure		Closed cell	
Colour		Black/Anthracite	
Upper temperature limit	Pipe Flat surfaces	+110 °C +85 °C	
Lower temperature limit		-40 °C	See remark (1)
Thermal conductivity	λ_{θ} at -10 °C at 0 °C at +10 °C	$0.040 + 8.0 \cdot 10^{-5} \theta + 7.0 \cdot 10^{-7} \theta^2$ $\leq 0.039 \text{ W/(m·K)}$ $\leq 0.040 \text{ W/(m·K)}$ $\leq 0.041 \text{ W/(m·K)}$	Test acc. to DIN EN ISO 8497 DIN EN 12667
Water vapour permeability	Moisture resistance factor μ	≥ 2000	Test acc. to DIN EN 12086 DIN EN 13469
Euroclass [°]	Tubes Sheets	D _L -s2, d0 (corresponds to RF3 in acc. with VdF Fire protection guidelines) D-s2, d0 (corresponds to RF3 in acc. with VdF Fire protection guidelines)	Test acc. to DIN EN 13501-1
Practical fire behaviour		Self-extinguishing, no drips, does not support flame spread	
Environmental aspects		ODP Zero GWP Zero	
Health aspects		Dust & fibre free Halogen free (chlorine, bromine, PVC etc.) Heavy metal (e.g. cadmium, lead) and formaldehyde free	
Other attributes	pH-Value	CE marked Neutral	
Other certificates / approvals		Lloyds Register Type Approved Bureau Veritas Type Approved DNV Type Approved ABS Type Approval IMO MSC.61(67) MED Modul B & D	
Shelf life	Self-adhesive products	1 year	Store in a dry room at a typical relative humidity (between 50 % and 70 %) and room temperature (between 0 °C and +35 °C)
Tolerances		In acc. with DIN EN 14304:2013-04	
Outdoor applications		Needs protection against UV-radiation	See remark (2)

Remark (1) For temperatures below -40 °C please contact our Technical Support Team for advice.

Remark (2) To protect against UV-induced deterioration Kaiflex should be either painted using Kaifinish Color paint or covered with a suitable UV resistant cladding system within 1 day of being installed outdoors.

[°] The Euroclass rating applies to metallic or solid mineral substrates.

Kaiflex HF_{plus} s2 Tube · uncoated



Colour: Black / Anthracite · Length: 1.2 m

Copper pipe Cu			Iron & steel pipe Fe			9 mm Insulation thickness			13 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
	3/8	10.0			11.0	HF+s2-09x010-1,2	4000807 *	228.0	HF+s2-13x010-1,2	4000820 *	134.4
	3/8	1 1/2			13.0	HF+s2-09x012-1,2	4000808 *	192.0	HF+s2-13x012-1,2	4000821 *	120.0
	1/2	5/8			16.0	HF+s2-09x015-1,2	4000809 *	158.4	HF+s2-13x015-1,2	4000822	108.0
					19.0	HF+s2-09x018-1,2	4000810 *	144.0	HF+s2-13x018-1,2	4000823 *	88.8
	3/4	7/8			23.0	HF+s2-09x022-1,2	4000811 *	112.8	HF+s2-13x022-1,2	4000824	80.4
1	1 1/8	28.0	3/4	26.9	29.0	HF+s2-09x028-1,2	4000812 *	90.0	HF+s2-13x028-1,2	4000825	57.6
1 1/4	1 3/8	35.0	1	33.7	36.0	HF+s2-09x035-1,2	4000813 *	69.6	HF+s2-13x035-1,2	4000826	50.4
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	HF+s2-09x042-1,2	4000814 *	57.6	HF+s2-13x042-1,2	4000827	42.0
			1 1/2	48.3	49.5	HF+s2-09x048-1,2	4000815 *	50.4	HF+s2-13x048-1,2	4000828	38.4
2	2 1/8	54.0		54.0	55.0	HF+s2-09x054-1,2	4000816 *	45.6	HF+s2-13x054-1,2	4000829	28.8
			2	60.3	61.5	HF+s2-09x060-1,2	4000817 *	43.2	HF+s2-13x060-1,2	4000830	28.8
2 13/16	3	76.1	2 1/2	76.1	77.0	HF+s2-09x076-1,2	4000818 *	36.0	HF+s2-13x076-1,2	4000831	25.2
			3	88.9	90.5	HF+s2-09x089-1,2	4000819 *	28.8	HF+s2-13x089-1,2	4000832	24.0

Copper pipe Cu			Iron & steel pipe Fe			19 mm Insulation thickness			25 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
	3/8	10.0			11.0	HF+s2-19x010-1,2	4000833 *	86.4			
	3/8	1 1/2			13.0	HF+s2-19x012-1,2	4000834 *	72.0			
	1/2	5/8			16.0	HF+s2-19x015-1,2	4000835 *	67.2	HF+s2-25x015-1,2	4000846 *	39.6
					19.0	HF+s2-19x018-1,2	4000836 *	50.4	HF+s2-25x018-1,2	4000847	36.0
	3/4	7/8			23.0	HF+s2-19x022-1,2	4000837	49.2	HF+s2-25x022-1,2	4000848	30.0
1	1 1/8	28.0	3/4	26.9	29.0	HF+s2-19x028-1,2	4000838	39.6	HF+s2-25x028-1,2	4000849	27.6
1 1/4	1 3/8	35.0	1	33.7	36.0	HF+s2-19x035-1,2	4000839	30.0	HF+s2-25x035-1,2	4000850	24.0
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	HF+s2-19x042-1,2	4000840	26.4	HF+s2-25x042-1,2	4000851	19.2
			1 1/2	48.3	49.5	HF+s2-19x048-1,2	4000841	22.8	HF+s2-25x048-1,2	4000852 *	16.8
2	2 1/8	54.0		54.0	55.0	HF+s2-19x054-1,2	4000842	21.6	HF+s2-25x054-1,2	4000853	16.8
			2	60.3	61.5	HF+s2-19x060-1,2	4000843	19.2	HF+s2-25x060-1,2	4000854	14.4
2 13/16	3	76.1	2 1/2	76.1	77.0	HF+s2-19x076-1,2	4000844	14.4	HF+s2-25x076-1,2	4000855	12.0
			3	88.9	90.5	HF+s2-19x089-1,2	4000845	12.0	HF+s2-25x089-1,2	4000856	9.6

* No stock item, delivery time on request.

For further dimensions please contact our customer service.

Kaiflex HFplus s2 Tube · uncoated



Colour: Black / Anthracite · Length: 1.2 m

Copper pipe Cu		Iron & steel pipe Fe		32 mm Insulation thickness					
OD mm	Nom width DN	Inch	OD mm	Nom width DN	Reference	Order No.	m/ carton		
10.0	8	1/8	10.2	6					
12.0	10		12.5						
15.0	10	1/4	13.5	8	HF+s2-32x015-1,2	4000857 *	21.6		
18.0	15	3/8	17.2	10	HF+s2-32x018-1,2	4000858 *	21.6		
22.0	20	1/2	21.3	15	HF+s2-32x022-1,2	4000859 *	21.6		
28.0	25	3/4	26.9	20	HF+s2-32x028-1,2	4000860 *	19.2		
35.0	32	1	33.7	25	HF+s2-32x035-1,2	4000861 *	18.0		
42.0	40	1 1/4	42.4	32	HF+s2-32x042-1,2	4000862 *	14.4		
		1 1/2	48.3	40	HF+s2-32x048-1,2	4000863 *	13.2		
54.0	50		54.0		HF+s2-32x054-1,2	4000864 *	10.8		
		2	60.3	50	HF+s2-32x060-1,2	4000865 *	10.8		
76.1	65	2 1/2	76.1	65	HF+s2-32x076-1,2	4000866 *	8.4		
88.9	80	3	88.9	80	HF+s2-32x089-1,2	4000867 *	7.2		

* No stock item, delivery time on request.

For further dimensions please contact our customer service.

Kaiflex HFplus s2 Sheet · uncoated · continuous



Colour: Black / Anthracite

Insulation thickness mm	Sheet · continuous 1.2 m width · OD coil: 40 cm · in carton				Sheet · continuous · self-adhesive 1.2 m width · OD coil: 40 cm · in carton			
	Reference	Order No.	rm/ roll	m²/ roll	Reference	Order No.	rm/ roll	m²/ roll
6	HF+s2-06-RL40-1,2	4000868 *	18	21.6	HF+s2-06-RL40-1,2-SK	4000874 *	18	21.6
10	HF+s2-10-RL40-1,2	4000869 *	10	12.0	HF+s2-10-RL40-1,2-SK	4000875 *	10	12.0
13	HF+s2-13-RL40-1,2	4000870	8	9.6	HF+s2-13-RL40-1,2-SK	4000876	8	9.6
19	HF+s2-19-RL40-1,2	4000871	6	7.2	HF+s2-19-RL40-1,2-SK	4000877	6	7.2
25	HF+s2-25-RL40-1,2	4000872	4	4.8	HF+s2-25-RL40-1,2-SK	4000878	4	4.8
32	HF+s2-32-RL40-1,2	4000873	3	3.6	HF+s2-32-RL40-1,2-SK	4000879	3	3.6

* No stock item, delivery time on request.

For further dimensions please contact our customer service.



Saves energy and offsets pipe freezing in domestic applications

Kaifoam PE is a high-quality, easy-to-process polyethylene insulation material for heating and sanitary facilities. With its low thermal conductivity and minimised energy loss, it is capable of sustainably reducing CO₂ emissions. The material also prevents the formation of condensation on cold water pipes.

Kaifoam PE Technical data

Material		Polyethylene	
Cell structure		Closed cell	
Upper temperature limit	Tubes and floor sleeve PE strips	+100 °C +85 °C	
Lower temperature limit		As typical for Heating and Plumbing installations	
Thermal conductivity	λ_{θ} at +30 °C at +40 °C at +50 °C	$0.036 + 8.0 \cdot 10^{-5} \theta + 7.0 \cdot 10^{-7} \theta^2$ $\leq 0.039 \text{ W/(m·K)}$ $\leq 0.040 \text{ W/(m·K)}$ $\leq 0.041 \text{ W/(m·K)}$	Test acc. to DIN EN ISO 8497
Euroclass[°]		E _L	Test acc. to DIN EN 13501-1
Sound level with insulation	Installed sound level L	at flow rate 1.0 l/s at flow rate 2.0 l/s	25 dB(A) 28 dB(A)
Sound level without insulation	Installed sound level L	at flow rate 1.0 l/s at flow rate 2.0 l/s	33 dB(A) 37 dB(A)
Shelf life	Self-adhesive products	1 year	Store in a dry room at a typical relative humidity (between 50 % and 70 %) and room temperature (between 0 °C and +35 °C)
Tolerances		In acc. with DIN EN 14313:2013-04	

[°] The Euroclass rating applies to metallic or solid mineral substrates.

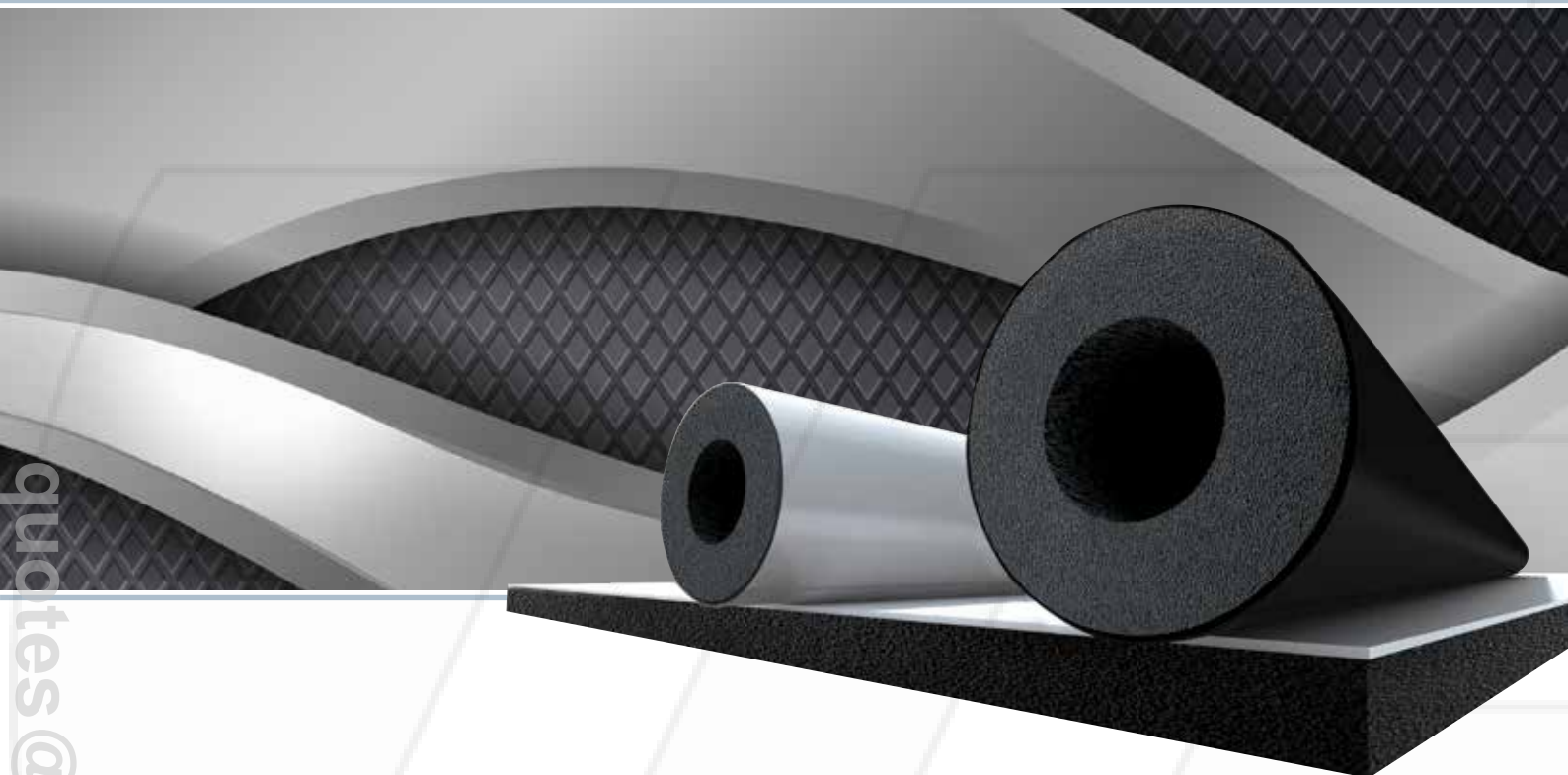


Kaifoam PE Insulation

Colour: Grey • Length: 2 m

Copper pipe Cu			Iron & steel pipe Fe			9 mm Insulation thickness			13 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
3/8	1/2	12.0			13.0	PE-09x012	4002556	456	PE-13x012	4002583	300
1/2	5/8	15.0			16.0	PE-09x015	4002557	380	PE-13x015	4002584	256
3/4	7/8	22.0	1/2	21.3	23.0	PE-09x022	4002559	250	PE-13x022	4002586	180
1	1 1/8	28.0	3/4	26.9	29.0	PE-09x028	4002560	190	PE-13x028	4002587	140
1 1/4	1 3/8	35.0	1	33.7	36.0	PE-09x035	4002561	150	PE-13x035	4002588	120
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	PE-09x042	4002562	110	PE-13x042	4002589	90
			1 1/2	48.3	49.5	PE-09x048	4002563	90	PE-13x048	4002590	70
2	2 1/8	54.0		54.0	55.0	PE-09x054	4002564	70	PE-13x054	4002591	66
			2	60.3	61.5	PE-09x060	4002566	66	PE-13x060	4002592	48
2 13/16	3	76.1	2 1/2	76.1	77.0				PE-13x076	4002593	40
			4	114.3	116.0				PE-13x114	4002596	22

Copper pipe Cu			Iron & steel pipe Fe			20 mm Insulation thickness			25 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
3/8	1/2	12.0			13.0						
1/2	5/8	15.0			16.0	PE-20x015	4002597	134	PE-25x015	4002611	90
3/4	7/8	22.0	1/2	21.3	23.0	PE-20x022	4002599	108	PE-25x022	4002613	70
1	1 1/8	28.0	3/4	26.9	29.0	PE-20x028	4002600	96	PE-25x028	4002614	66
1 1/4	1 3/8	35.0	1	33.7	36.0	PE-20x035	4002601	70	PE-25x035	4002615	56
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	PE-20x042	4002602	60	PE-25x042	4002616	48
			1 1/2	48.3	49.5	PE-20x048	4002603	48	PE-25x048	4002617	40
2	2 1/8	54.0		54.0	55.0	PE-20x054	4002604	48			
			2	60.3	61.5	PE-20x060	4002605	40			
2 13/16	3	76.1	2 1/2	76.1	77.0	PE-20x076	4002606	26			
			4	114.3	116.0						



Designed to be tough and durable

Nitrile rubber tubes and sheet with a tough PVC coating pre-applied, Kaiflex TC prevents energy loss and condensation whilst providing the waterproof rubber foam insulation with protection against the weather, impact, vandalism and UV damage.

Kaiflex TC is durable and visually attractive. The finish resists dirt and makes Kaiflex TC ideal for use in food production and clean room locations. With inherent UV resistance Kaiflex TC can be used outdoors without the need for additional paint or cladding. Kaiflex TC can even be used on pipework buried in shallow soil, on pipe connecting mains cold water to houses and on sections of ground source heat loops which require insulation.

Available in pure white or black films, on rolls or pre-bonded to Kaiflex tubes and sheet, Kaiflex TC is particularly easy to install with application times minimised.

- Closed cell structure with in-built water vapour barrier
- Inherent resistance to microbial growth
- Weather & UV resistant for outdoor use
- Durable protective covering
- Clean surface for food production locations

Kaiflex Protect TC Technical Data

Polymer		NBR Foam	
Covering		Polymer (PVC)	
Cell structure		Closed cell	
Colour	Covering	Black or white	
Upper temperature limit		+80 °C	See remark (1)
Lower temperature limit		-10 °C	See remark (2)
Thermal conductivity	λ_{10} at -10 °C at 0 °C at +10 °C	$0.034 + 8.0 \cdot 10^{-5} \vartheta + 7.0 \cdot 10^{-7} \vartheta^2$ $\leq 0.033 \text{ W/(m·K)}$ $\leq 0.034 \text{ W/(m·K)}$ $\leq 0.035 \text{ W/(m·K)}$	Test acc. to DIN EN ISO 8497 DIN EN 12667
Water vapour permeability	Moisture resistance factor μ	≥ 10000 No separate vapour barrier required	Test acc. to DIN EN 13469 DIN EN 12086
EuroClass °		E	Test acc. to DIN EN 13501-1
Practical fire behaviour		Self-extinguishing, no drips, does not support flame spread	
Surface spread of Flame		Class 1	Test acc. to BS 476-7
Environmental aspects		ODP Zero GWP Zero	
Health aspects		Dust & fibre free Heavy metal (e.g. cadmium, lead) and formaldehyde free	
Resistance to	UV Mould and bacteria	Excellent no growth	In acc. with VDI 6022
Shelf life	Self-adhesive products	1 year	Store in a dry room at a typical relative humidity (between 50 % and 70 %) and room temperature (between 0 °C and +35 °C)
Tolerances		In acc. with DIN EN 14304:2013-04	
Outdoor applications		No additional protection required	

Remark (1) For temperatures above +80 °C please contact our Technical Support Team for advice.

Remark (1) For temperatures below -10 °C please contact our Technical Support Team for advice.

° The Euroclass rating applies to metallic or solid mineral substrates.

Kaiflex TC ST-tube · TC pre-covered

Colour: Black · Length: 1 m

Copper pipe Cu			Iron & steel pipe Fe			13 mm Insulation thickness			19 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
	1/4	6.0			7.0	TC-ST13x006-BK	4009304	120			
	3/8	10.0			11.0	TC-ST13x010-BK	4009305	95	TC-ST19x010-BK	4010760	53
3/8	1/2	12.0			13.0	TC-ST13x012-BK	4009306	86	TC-ST19x012-BK	4001866	50
1/2	5/8	15.0			16.0	TC-ST13x015-BK	4001854	77	TC-ST19x015-BK	4001867	43
5/8	3/4				21.0	TC-ST13x020-BK	4009307	60	TC-ST19x020-BK	4001868	38
3/4	7/8	22.0	1/2	21.3	23.0	TC-ST13x022-BK	4001855	55	TC-ST19x022-BK	4001869	37
1	1 1/8	28.0	3/4	26.9	29.0	TC-ST13x028-BK	4001856	43	TC-ST19x028-BK	4001870	29
1 1/4	1 3/8	35.0	1	33.7	36.0	TC-ST13x035-BK	4001857	38	TC-ST19x035-BK	4001871	24
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	TC-ST13x042-BK	4001858	28	TC-ST19x042-BK	4001872	20
			1 1/2	48.3	49.5	TC-ST13x048-BK	4001859	24	TC-ST19x048-BK	4009309	15
2	2 1/8	54.0		54.0	55.0	TC-ST13x054-BK	4001860	23	TC-ST19x054-BK	4001873	15
			2	60.3	61.5	TC-ST13x060-BK	4001861	20	TC-ST19x060-BK	4001874	14
2 1/2	2 5/8	67.0			68.5	TC-ST13x067-BK	4001862	20	TC-ST19x067-BK	4001875	14
2 13/16	3	76.1	2 1/2	76.1	77.0	TC-ST13x076-BK	4001863	17	TC-ST19x076-BK	4001876	14
3	3 1/8	80.0			81.0	TC-ST13x080-BK	4001864	15	TC-ST19x080-BK	4001877	13
			3	88.9	90.5	TC-ST13x089-BK	4001865	15	TC-ST19x089-BK	4001878	11
4	4 1/4	108.0			109.5	TC-ST13x108-BK	22613108	14	TC-ST19x108-BK	4012752	10
			4	114.3	116.0	TC-ST13x114-BK	22613114	14	TC-ST19x114-BK	22619114	8

Copper pipe Cu			Iron & steel pipe Fe			25 mm Insulation thickness					
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton			
3/8	1/2	12.0			13.0	TC-ST25x012-BK	4009310	30			
1/2	5/8	15.0			16.0	TC-ST25x015-BK	4009311	30			
5/8	3/4				21.0	TC-ST25x020-BK	4001880	25			
3/4	7/8	22.0	1/2	21.3	23.0	TC-ST25x022-BK	4001881	21			
1	1 1/8	28.0	3/4	26.9	29.0	TC-ST25x028-BK	4001882	20			
1 1/4	1 3/8	35.0	1	33.7	36.0	TC-ST25x035-BK	4001883	16			
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	TC-ST25x042-BK	4009312	12			
			1 1/2	48.3	49.5	TC-ST25x048-BK	22613048	12			
2	2 1/8	54.0		54.0	55.0	TC-ST25x054-BK	4001884	11			
			2	60.3	61.5	TC-ST25x060-BK	4001885	11			
2 13/16	3	76.1	2 1/2	76.1	77.0	TC-ST25x076-BK	4012716	9			
			3	88.9	90.5	TC-ST25x089-BK	22613089	7			
4	4 1/4	108.0			109.5	TC-ST25x108-BK	22613108	5			
			4	114.3	116.0	TC-ST25x114-BK	22613114	5			

For further dimensions please contact our customer service.

Delivery for all Kaiflex TC products: 10 working days

Kaiflex TC ST-tube · TC pre-covered

Colour: White · Length: 1 m





Copper pipe Cu			Iron & steel pipe Fe			13 mm Insulation thickness			19 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
	1/4	6.0			7.0	TC-ST13x006-WH	4012750	120			
	3/8	10.0			11.0	TC-ST13x010-WH	4009313	95	TC-ST19x010-WH	4009315	53
3/8	1/2	12.0			13.0	TC-ST13x012-WH	4012751	86	TC-ST19x012-WH	22719012	50
1/2	5/8	15.0			16.0	TC-ST13x015-WH	22713015	77	TC-ST19x015-WH	22719015	43
5/8	3/4				21.0	TC-ST13x020-WH	4009314	60	TC-ST19x020-WH	22719020	38
3/4	7/8	22.0	1/2	21.3	23.0	TC-ST13x022-WH	22713022	55	TC-ST19x022-WH	4009316	37
1	1 1/8	28.0	3/4	26.9	29.0	TC-ST13x028-WH	4001887	43	TC-ST19x028-WH	22719028	29
1 1/4	1 3/8	35.0	1	33.7	36.0	TC-ST13x035-WH	22713035	38	TC-ST19x035-WH	22719035	24
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	TC-ST13x042-WH	22713042	28	TC-ST19x042-WH	22719042	20
			1 1/2	48.3	49.5	TC-ST13x048-WH	22713048	24	TC-ST19x048-WH	22719048	15
2	2 1/8	54.0		54.0	55.0	TC-ST13x054-WH	4001888	23	TC-ST19x054-WH	22719054	15
			2	60.3	61.5	TC-ST13x060-WH	22713060	20	TC-ST19x060-WH	22719060	14
2 1/2	2 5/8	67.0			68.5	TC-ST13x067-WH	4001889	20	TC-ST19x067-WH	22719067	14
2 13/16	3	76.1	2 1/2	76.1	77.0	TC-ST13x076-WH	22713076	17	TC-ST19x076-WH	22719076	14
3	3 1/8	80.0			81.0	TC-ST13x080-WH	22713080	15	TC-ST19x080-WH	22719080	13
			3	88.9	90.5	TC-ST13x089-WH	22713089	15	TC-ST19x089-WH	22719089	11
4	4 1/4	108.0			109.5	TC-ST13x108-WH	22713108	14	TC-ST19x108-WH	22719108	10
			4	114.3	116.0	TC-ST13x114-WH	22713114	14	TC-ST19x114-WH	22719114	8

Copper pipe Cu			Iron & steel pipe Fe			25 mm Insulation thickness					
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton			
3/8	1/2	12.0			13.0	TC-ST25x012-WH	4009318	30			
1/2	5/8	15.0			16.0	TC-ST25x015-WH	4009319	30			
5/8	3/4				21.0	TC-ST25x020-WH	22713020	25			
3/4	7/8	22.0	1/2	21.3	23.0	TC-ST25x022-WH	22713022	21			
1	1 1/8	28.0	3/4	26.9	29.0	TC-ST25x028-WH	4001890	20			
1 1/4	1 3/8	35.0	1	33.7	36.0	TC-ST25x035-WH	22713035	16			
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	TC-ST25x042-WH	4005780	12			
			1 1/2	48.3	49.5	TC-ST25x048-WH	22713048	12			
2	2 1/8	54.0		54.0	55.0	TC-ST25x054-WH	22713054	11			
			2	60.3	61.5	TC-ST25x060-WH	22713060	11			
2 13/16	3	76.1	2 1/2	76.1	77.0	TC-ST25x076-WH	22713076	9			
			3	88.9	90.5	TC-ST25x089-WH	22713089	7			
4	4 1/4	108.0			109.5	TC-ST25x108-WH	22713108	5			
			4	114.3	116.0	TC-ST25x114-WH	22713114	5			

For further dimensions please contact our customer service.

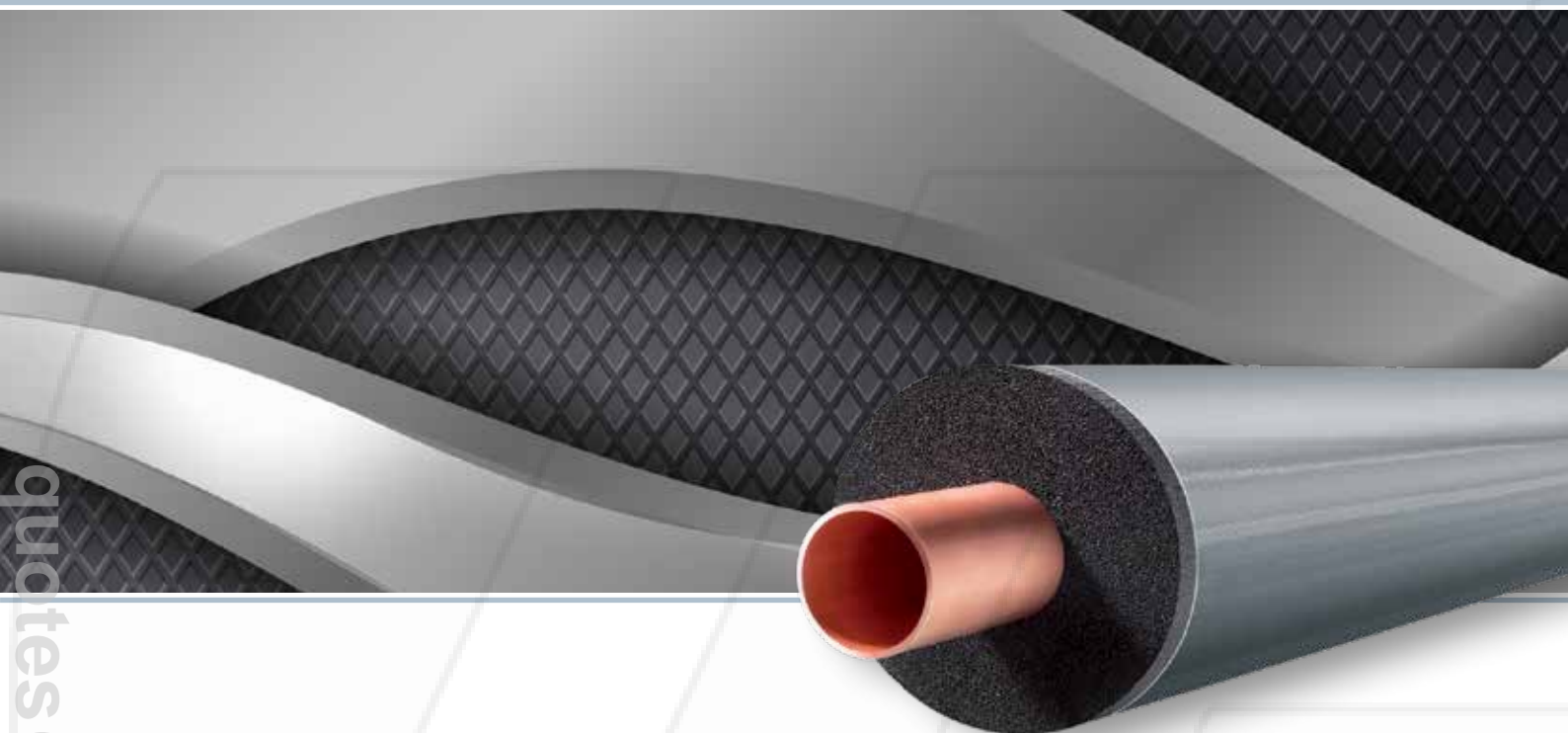
Delivery for all Kaiflex TC products: 10 working days

Kaiflex TC Accessories

	Description	Order No.	Colour	pcs/ carton
	Sealing compound · content: 290 ml *	4004680	Transparent	12
		4004679	Black	12
	Description	Order No.	Width mm	m ² / roll
	Coating · 25 m Length · Colour: Black	4012204 *	1000	25
	Coating · 25 m Length · Colour: White	259TCW100 *	1000	25
	Description	Order No.	Width mm	rolls/ carton
	TC Tape · 50 m Length · Colour: Black	4004687 *	50	4
	TC Tape · 50 m Length · Colour: White	4004689 *	50	4

* No stock item, delivery time on request.

kaiflex[®] **PROTECT ALU-TEC**



Rigid PVC cladding with a bright surface finish

Semi-rigid PVC pipe covering with permanent curl characteristics, Kaiflex Protect Alu-TEC protects insulation from damage whilst providing a durable anti-static surface finish.

Kaiflex Protect Alu-TEC gives a visually attractive surface resembling a brightly polished Aluminium pipe, providing all of the advantages of a metallic cladding but with the added benefits of an anti-static surface finish that cannot corrode.

- Non-metallic covering system
- Weather- & UV-resistant for outdoor use
- Non-metallic system for safer use
- Protects against impact
- Self-adhesive strips ensure faster installation

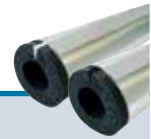
Kaiflex Protect Alu-TEC Technical Data

Covering		Flexible hard foil cladding with a weatherproof aluminum bright surface finish	
Colour		Silver	
Thickness		230 µm	
Upper temperature limit		+80 °C	
Lower temperature limit		-30 °C	See remark (1)
Euroclass [°]		E _L / E	Test acc. to DIN EN 13501-1
Water vapour permeability		<0.028 g/m² x d	Test acc. to ISO 15106-2
Weight		340 g/m²	Test acc. to EN 22286
Tensile Strength	MD	200 N/15 mm	Test acc. to EN ISO 527-3
	CD	175 N/15 mm	See remark (2)
Elongation	MD	45 %	Test acc. to EN ISO 527-3
	CD	51 %	See remark (2)
Tear Strength	MD	70 N	Test acc. to EN ISO 527-3
	CD	28 N	See remark (2)
Puncture resistance	Ø 0.3 mm	23 N	Test acc. to prEN 14477
	Ø 0.8 mm	87 N	
Resistance to	UV	Excellent	
	Mechanical impact	Very good	
	Sea water	Good	
Shelf life	Self-adhesive products	1 year	Store in a dry room at a typical relative humidity (between 50 % and 70 %) and room temperature (between 0 °C and +35 °C)
Outdoor applications		No additional protection required	

Remark (1) For temperatures below -30 °C please contact our Technical Support Team for advice.

Remark (2) MD: Machine Direction · CD: Cross Direction

[°] The Euroclass rating applies to metallic or solid mineral substrates.



Kaiflex Protect Alu-TEC ST-tube · Alu-TEC pre-covered · self-adhesive

Colour: Silver · Length: 1 m

Copper pipe Cu			Iron & steel pipe Fe			13 mm Insulation thickness			19 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
1/2	5/8	15.0			16.0	AT-ST13x015	4000739 *	77	AT-ST19x015	4000754 *	43
5/8	3/4				21.0						
3/4	7/8	22.0	1/2	21.3	23.0	AT-ST13x022	4000741 *	55	AT-ST19x022	4000755 *	37
1	1 1/8	28.0	3/4	26.9	29.0	AT-ST13x028	4000742 *	43	AT-ST19x028	4000757 *	29
1 1/4	1 3/8	35.0	1	33.7	36.0	AT-ST13x035	4000743 *	38	AT-ST19x035	4000758 *	24
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	AT-ST13x042	4000744 *	28	AT-ST19x042	4000759 *	20
			1 1/2	48.3	49.5	AT-ST13x048	4000745 *	24	AT-ST19x048	4000760 *	15
2	2 1/8	54.0		54.0	55.0	AT-ST13x054	4000746 *	23	AT-ST19x054	4000761 *	15
			2	60.3	61.5	AT-ST13x060	4000748 *	20	AT-ST19x060	4000762 *	14
2 13/16	3	76.1	2 1/2	76.1	77.0	AT-ST13x076	4000750 *	17	AT-ST19x076	4000765 *	14
3	3 1/8	80.0			81.0	AT-ST13x080	4005602 *	15	AT-ST19x080	4000766 *	13
			3	88.9	90.5	AT-ST13x089	4000751 *	15	AT-ST19x089	4000767 *	11
4	4 1/4	108.0			109.5						
			4	114.3	116.0	AT-ST13x114 °	4000752 *	14	AT-ST19x114 °	4000768 *	9

Copper pipe Cu			Iron & steel pipe Fe			25 mm Insulation thickness					
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton			
1/2	5/8	15.0			16.0	AT-ST25x015	4000769 *	30			
5/8	3/4				21.0						
3/4	7/8	22.0	1/2	21.3	23.0	AT-ST25x022	4000770 *	21			
1	1 1/8	28.0	3/4	26.9	29.0	AT-ST25x028	4000771 *	20			
1 1/4	1 3/8	35.0	1	33.7	36.0	AT-ST25x035	4000772 *	16			
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	AT-ST25x042	4000773 *	12			
			1 1/2	48.3	49.5	AT-ST25x048	4000774 *	12			
2	2 1/8	54.0		54.0	55.0	AT-ST25x054	4000775 *	11			
			2	60.3	61.5	AT-ST25x060	4000776 *	11			
2 13/16	3	76.1	2 1/2	76.1	77.0	AT-ST25x076	4000778 *	9			
3	3 1/8	80.0			81.0						
			3	88.9	90.5	AT-ST25x089	4000779 *	7			
4	4 1/4	108.0			109.5	AT-ST25x108 °	4005608 *	5			
			4	114.3	116.0	AT-ST25x114 °	4007394 *	5			

* No stock item, delivery time on request.

° Slit (without self-adhesive seal)

For further dimensions please contact our customer service.





Kaiflex Protect Alu-TEC ST-Sheet · Alu-TEC pre-covered · continuous

Colour: Silver

Insulation thickness mm	Sheet · continuous 1 m width			Sheet · continuous · self-adhesive 1 m width		
	Reference	Order No.	m ² /carton	Reference	Order No.	m ² /carton
10	AT-ST10-RL	4000794	20	AT-ST10-RL-SK	4002761	20
13	AT-ST13-RL	4000795	14	AT-ST13-RL-SK	4002762	14
19	AT-ST19-RL	4000796	10	AT-ST19-RL-SK	4002763	10
25	AT-ST25-RL	4000797	8	AT-ST25-RL-SK	4002764	8
32	AT-ST32-RL	4000798	6	AT-ST32-RL-SK	4002765	6

For insulation of ductwork and vessels - may be used for pipe work with a diameter > 323 mm

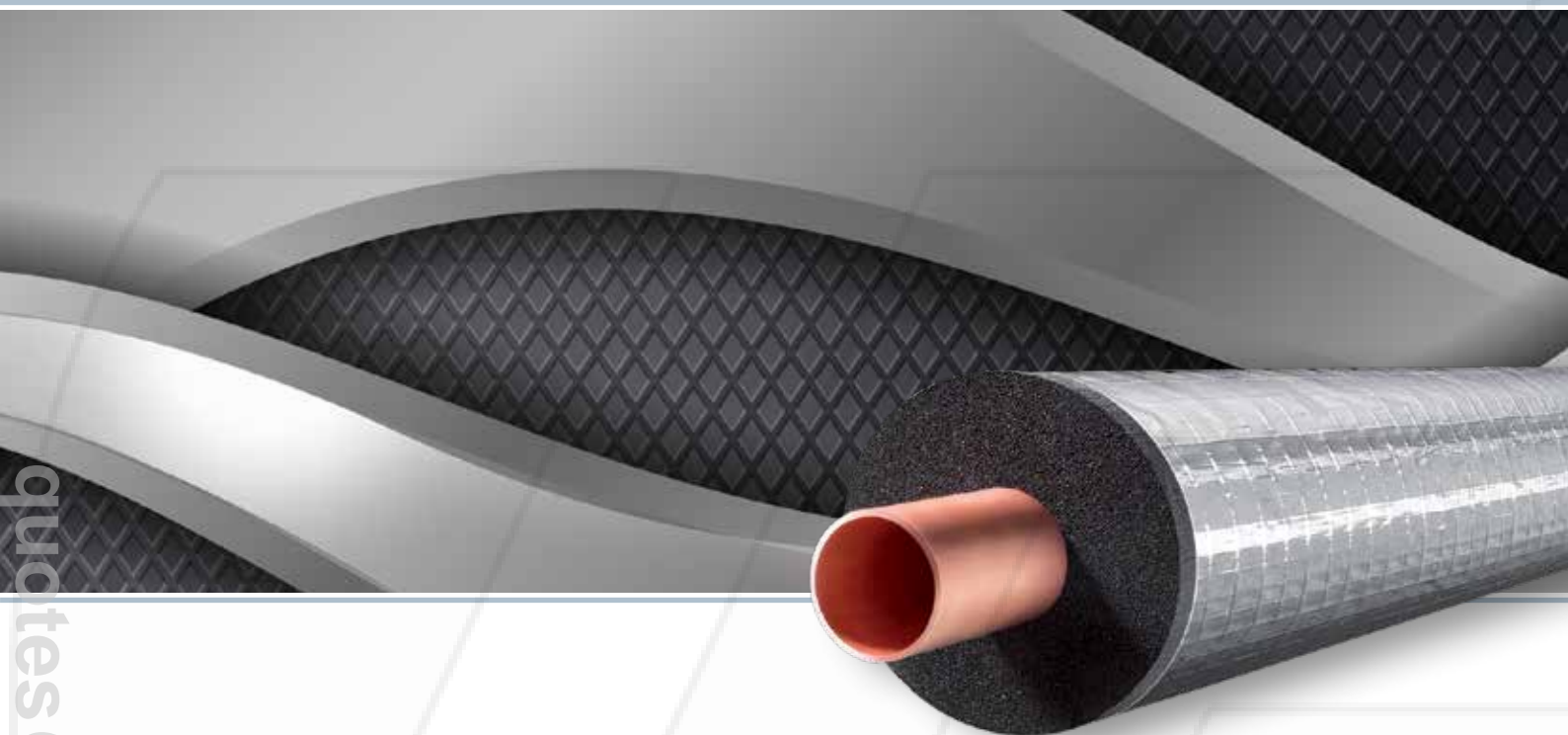
Kaiflex Protect Alu-TEC Accessories

	Description	Order No.	Colour	pcs/ carton
	Sealing compound · content: 290 ml *	4004680	Transparent	12
		4004678	Grey	12
	Description	Order No.	Width mm	m/ roll
	Coating	4003844	1060	25
	Description	Order No.	Width mm	rolls/ carton
	Protect Alu Butyl Tape · 25 m Length	4004681	20	30
		4004682	50	12
		4004684	100	6
	Protect Alu Tape · 25 m Length	4004401	19	36
	Protect Alu Tape · 50 m Length	4004402	50	24
		4004403	100	12

* 1 cartridge seals about 8 m.

In case of creasing Protect sealing compound is to be used. Apply in min. width of 10 mm and min. thickness of 3 mm (refer to Kaiflex Application Manual).

kaiflex[®] **PROTECT ALU-NET**



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Bright surface finish for internal applications

Glass fibre reinforced aluminium foil covering for Kaiflex insulation, Kaiflex Protect Alu-NET protects insulation against mechanical damage and can be supplied either separately as rolls of thin sheet or pre-applied to Kaiflex tube or sheet

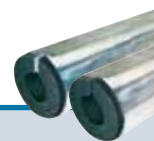
Kaiflex Protect Alu-NET is particularly attractive with a superior aluminium finish that provides an alternative to metal cladding on a range of applications. The covering also features a smooth waterproof finish that can be easily cleaned, making Kaiflex Protect Alu-NET appropriate for clean room and food production environments.

- Attractive aluminium foil finish
- Non-metallic covering free from corrosion

Kaiflex Protect Alu-NET Technical Data

Covering		Woven glass fibre cloth with a weatherproof aluminium finish	
Colour		Silver	
Upper temperature limit		+80 °C	
Lower temperature limit		−30 °C	See remark (1)
Water vapour permeability		0.030 g/m ² x d	Test acc. to DIN 53122
Weight		86 g/m ²	Test acc. to EN 22286
Tear Strength	MD	4 %	In acc. with DIN 53354
Tensile Strength		250 N/50 mm	In acc. with DIN 53354
Resistance to	UV	Poor	
	Mechanical impact	Good	
Outdoor applications		Not suitable for installation outdoors	

Remark (1) For temperatures below −30 °C please contact our Technical Support Team for advice.



Kaiflex Protect Alu-NET ST-tube · Alu-NET pre-covered · self-adhesive

Colour: Silver · Length: 1 m

Copper pipe Cu			Iron & steel pipe Fe			13 mm Insulation thickness			19 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
1/2	5/8	15.0			16.0	AN-ST13x015	4006730 *	77	AN-ST19x015	4007687 *	43
5/8	3/4				21.0						
3/4	7/8	22.0	1/2	21.3	23.0	AN-ST13x022	4002709 *	55	AN-ST19x022	4002720 *	37
1	1 1/8	28.0	3/4	26.9	29.0	AN-ST13x028	4002710 *	43	AN-ST19x028	4002722 *	29
1 1/4	1 3/8	35.0	1	33.7	36.0	AN-ST13x035	4002711 *	38	AN-ST19x035	4002723 *	24
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	AN-ST13x042	4002712 *	28	AN-ST19x042	4002724 *	20
			1 1/2	48.3	49.5	AN-ST13x048	4002713 *	24	AN-ST19x048	4002725 *	15
2	2 1/8	54.0		54.0	55.0	AN-ST13x054	4005842 *	23	AN-ST19x054	4002726 *	15
			2	60.3	61.5	AN-ST13x060	4002715 *	20	AN-ST19x060	4002727 *	14
2 13/16	3	76.1	2 1/2	76.1	77.0	AN-ST13x076	4002716 *	17	AN-ST19x076	4002729 *	14
3	3 1/8	80.0			81.0	AN-ST13x080	4007680 *	15	AN-ST19x080	4007689 *	13
			3	88.9	90.5	AN-ST13x089	4002717 *	15	AN-ST19x089	4002730 *	11
4	4 1/4	108.0			109.5	AN-ST13x108 °	4007682 *	14	AN-ST19x108 °	4002731 *	10
			4	114.3	116.0	AN-ST13x114 °	4002718 *	14	AN-ST19x114 °	4007691 *	9

Copper pipe Cu			Iron & steel pipe Fe			25 mm Insulation thickness					
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton			
1/2	5/8	15.0			16.0						
5/8	3/4				21.0						
3/4	7/8	22.0	1/2	21.3	23.0	AN-ST25x022	4002735 *	21			
1	1 1/8	28.0	3/4	26.9	29.0	AN-ST25x028	4002736 *	20			
1 1/4	1 3/8	35.0	1	33.7	36.0	AN-ST25x035	4002737 *	16			
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	AN-ST25x042	4002738 *	12			
			1 1/2	48.3	49.5	AN-ST25x048	4002739 *	12			
2	2 1/8	54.0		54.0	55.0	AN-ST25x054	4002740 *	11			
			2	60.3	61.5	AN-ST25x060	4002741 *	11			
2 13/16	3	76.1	2 1/2	76.1	77.0	AN-ST25x076	4002742 *	9			
3	3 1/8	80.0			81.0						
			3	88.9	90.5	AN-ST25x089	4002743 *	7			
4	4 1/4	108.0			109.5	AN-ST25x108 °	4005844 *	5			
			4	114.3	116.0	AN-ST25x114 °	4007696 *	5			

* No stock item, delivery time on request.

° Slit (without self-adhesive seal)

For further dimensions please contact our customer service.

kaiflex[®] PROTECT ALU-NET

Bright surface finish for internal applications

Kaiflex Protect Alu-NET ST-Sheet · Alu-NET pre-covered · continuous



Colour: Silver

Insulation thickness mm	Sheet · continuous 1 m width			Sheet · continuous · self-adhesive 1 m width		
	Reference	Order No.	m ² / carton	Reference	Order No.	m ² / carton
10	AN-ST10-RL	4002744	20	AN-ST10-RL-SK	4002750	20
13	AN-ST13-RL	4002745	14	AN-ST13-RL-SK	4002752	14
19	AN-ST19-RL	4002746	10	AN-ST19-RL-SK	4002754	10
25	AN-ST25-RL	4002747	8	AN-ST25-RL-SK	4002756	8
32	AN-ST32-RL	4002748	6	AN-ST32-RL-SK	4002757	6

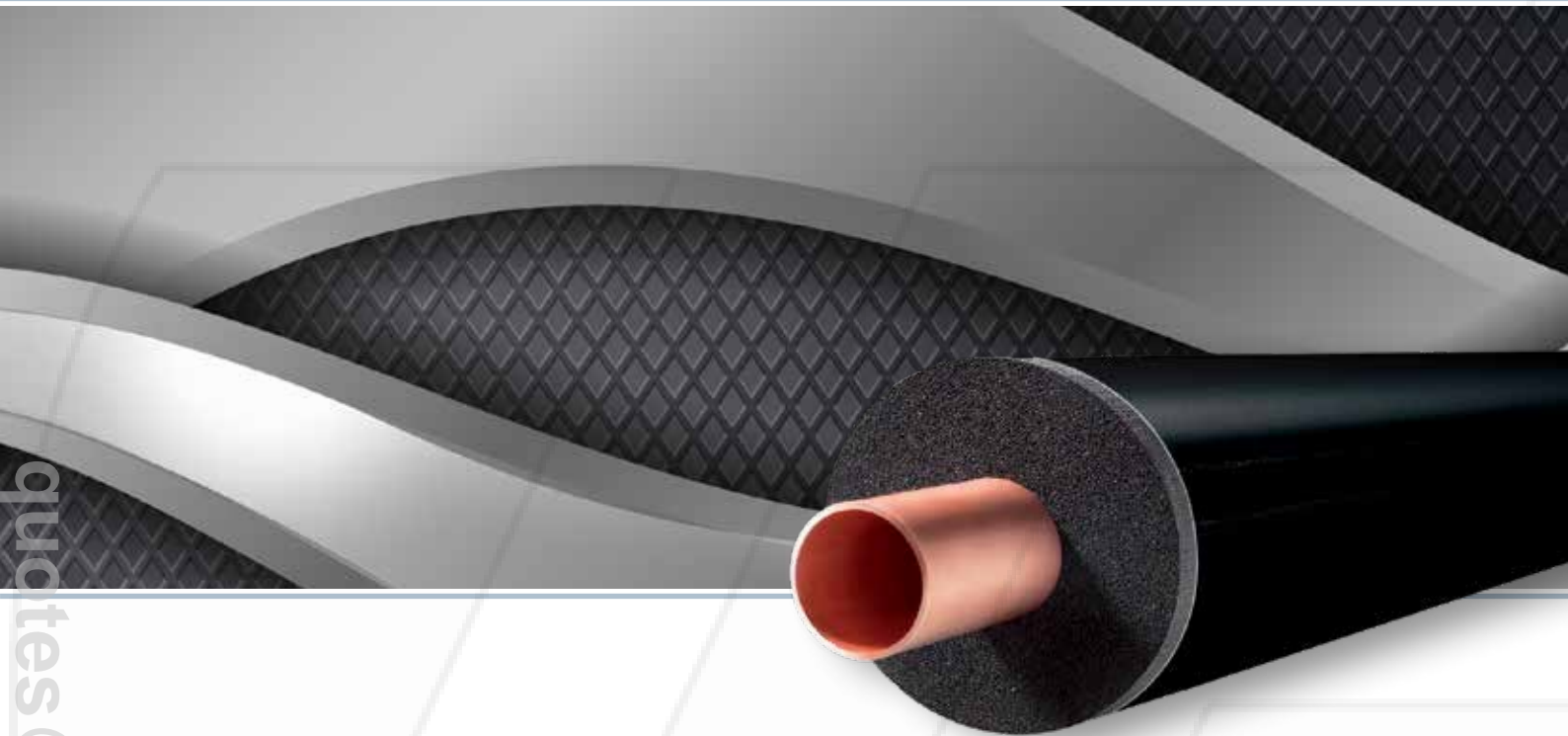
For insulation of ductwork and vessels - may be used for pipe work with a diameter > 323 mm

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kaiflex[®] **PROTECT F-BLACK**

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Mechanical resistance with a black surface finish

With a tough black woven glass fibre fabric covering for Kaiflex insulation, Kaiflex Protect F-BLACK protects insulation against mechanical damage and can be supplied either separately as rolls of thin sheet or pre-applied to Kaiflex tube or sheet.

Kaiflex Protect F-BLACK is attractive, unobtrusive, easy to clean and ideal for covering pipe and duct insulation publicly exposed to view. The covering is also UV resistant and waterproof making it suitable for outdoor use.

- Weather- & UV-resistant for outdoor use
- Protects against impact
- Easy application

Kaiflex[®] PROTECT F-BLACK

Mechanical resistance with a black surface finish

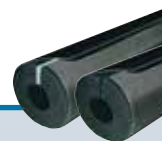
Kaiflex Protect F-BLACK Technical Data

Covering		Woven glass fibre cloth with a black finish	
Colour		Black	
Upper temperature limit		+80 °C	
Lower temperature limit		-30 °C	See remark (1)
Euroclass [°]		E _L / E	Test acc. to DIN EN 13501-1
Weight		245 g/m ²	Test acc. to EN 22286
Elongation		5 %	Test acc. to EN ISO 13934
Tensile Strength	MD	3100 N/50 mm	Test acc. to EN ISO 13934
	CD	2700 N/50 mm	See remark (2)
Tear Strength	MD	165 N	Test acc. to EN ISO 53363
	CD	180 N	See remark (2)
Resistance to	UV	Very good	
	Mechanical impact	Very good	
Shelf life	Self-adhesive products	1 year	Store in a dry room at a typical relative humidity (between 50 % and 70 %) and room temperature (between 0 °C and +35 °C)
Outdoor applications		No additional protection required	

Remark (1) For temperatures below -30 °C please contact our Technical Support Team for advice.

Remark (2) MD: Machine Direction · CD: Cross Direction

[°] The Euroclass rating applies to metallic or solid mineral substrates.



Kaiflex Protect F-BLACK ST-tube · F-BLACK pre-covered · self-adhesive

Colour: Black · Length: 1 m

Copper pipe Cu			Iron & steel pipe Fe			13 mm Insulation thickness			19 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
1/2	5/8	15.0			16.0	FB-ST13x015	4007513 *	77	FB-ST19x015	4006671 *	43
5/8	3/4				21.0						
3/4	7/8	22.0	1/2	21.3	23.0	FB-ST13x022	4006669 *	55	FB-ST19x022	4001834 *	37
1	1 1/8	28.0	3/4	26.9	29.0	FB-ST13x028	4001828 *	43	FB-ST19x028	4001835 *	29
1 1/4	1 3/8	35.0	1	33.7	36.0	FB-ST13x035	4001829 *	38	FB-ST19x035	4001836 *	24
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	FB-ST13x042	4007517 *	28	FB-ST19x042	4001837 *	20
			1 1/2	48.3	49.5	FB-ST13x048	4001830 *	24	FB-ST19x048	4005767 *	15
2	2 1/8	54.0		54.0	55.0	FB-ST13x054	4006670 *	23	FB-ST19x054	4001838 *	15
			2	60.3	61.5	FB-ST13x060	4001831 *	20	FB-ST19x060	4006672 *	14
2 13/16	3	76.1	2 1/2	76.1	77.0	FB-ST13x076	4007521 *	17	FB-ST19x076	4007534 *	14
3	3 1/8	80.0			81.0	FB-ST13x080	4007522 *	15	FB-ST19x080	4007535 *	13
			3	88.9	90.5	FB-ST13x089	4001832 *	15	FB-ST19x089	4007536 *	11
4	4 1/4	108.0			109.5	FB-ST13x108 °	4007524 *	14	FB-ST19x108 °	4007537 *	10
			4	114.3	116.0	FB-ST13x114 °	4007525 *	14	FB-ST19x114 °	4007538 *	9

Copper pipe Cu			Iron & steel pipe Fe			25 mm Insulation thickness					
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton			
1/2	5/8	15.0			16.0						
5/8	3/4				21.0						
3/4	7/8	22.0	1/2	21.3	23.0	FB-ST25x022 °	4007544 *	21			
1	1 1/8	28.0	3/4	26.9	29.0	FB-ST25x028	4001839 *	20			
1 1/4	1 3/8	35.0	1	33.7	36.0	FB-ST25x035	4007545 *	16			
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	FB-ST25x042	4005768 *	12			
			1 1/2	48.3	49.5	FB-ST25x048	4006674 *	12			
2	2 1/8	54.0		54.0	55.0	FB-ST25x054	4001840 *	11			
			2	60.3	61.5	FB-ST25x060	4001841 *	11			
2 13/16	3	76.1	2 1/2	76.1	77.0	FB-ST25x076	4001842 *	9			
3	3 1/8	80.0			81.0						
			3	88.9	90.5	FB-ST25x089	4001843 *	7			
4	4 1/4	108.0			109.5	FB-ST25x108 °	4007548 *	5			
			4	114.3	116.0	FB-ST25x114 °	4007549 *	5			

* No stock item, delivery time on request.

° Slit (without self-adhesive seal)

For further dimensions please contact our customer service.

Kaiflex[®] PROTECT F-BLACK

Mechanical resistance with a black surface finish




Kaiflex Protect F-BLACK ST-Sheet · F-BLACK pre-covered · continuous



Colour: Black			
Insulation thickness mm	Sheet · continuous 1 m width		
	Reference	Order No.	m²/ carton
10	FB-ST10-RL	4001844	20
13	FB-ST13-RL	4001846	14
19	FB-ST19-RL	4001848	10
25	FB-ST25-RL	4001850	8
32	FB-ST32-RL	4001852	6

For insulation of ductwork and vessels - may be used for pipe work with a diameter > 323 mm

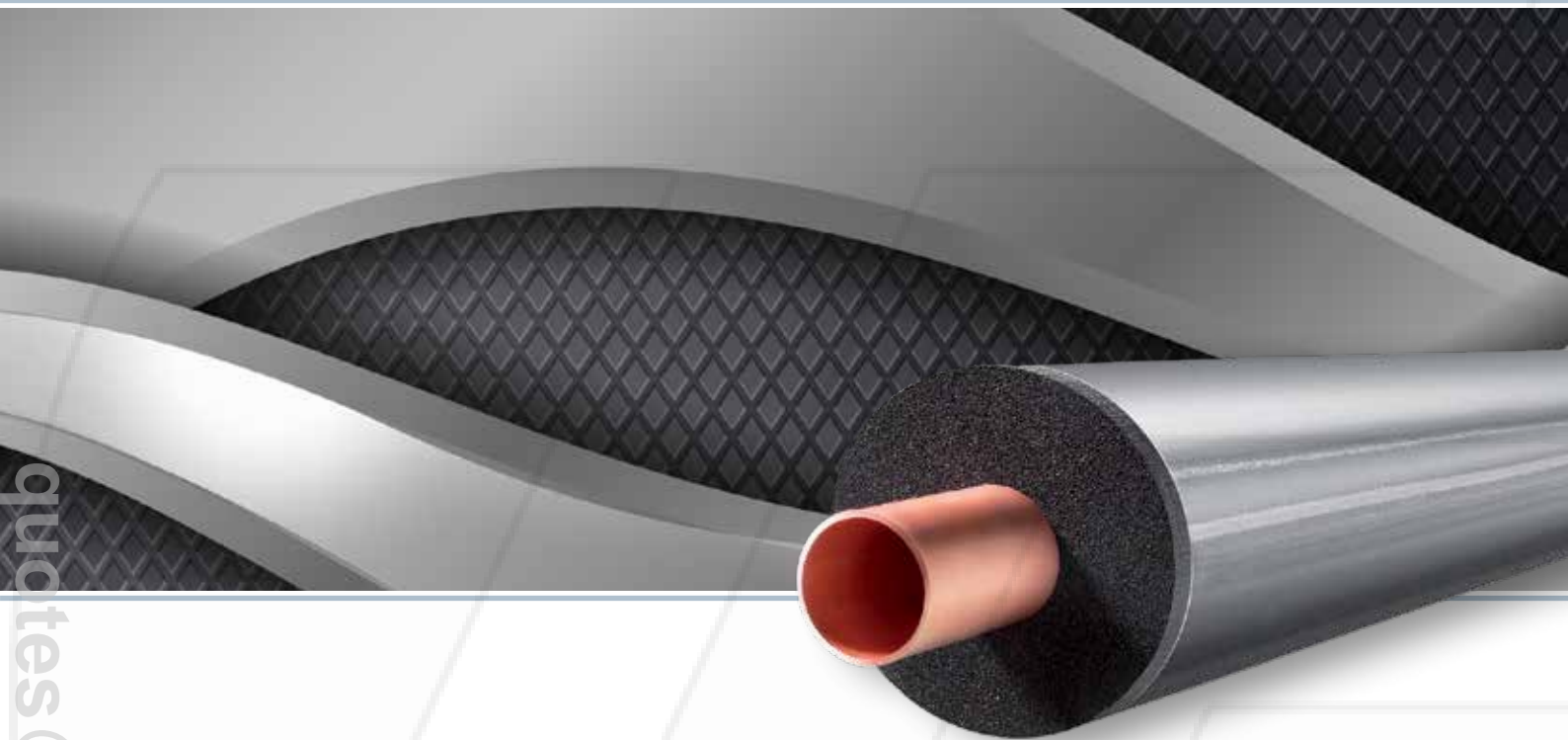
Kaiflex Protect F-BLACK Accessories

	Description	Order No.	Colour	pcs/ carton
	Sealing compound · content: 290 ml *	4004680	Transparent	12
		4004679	Black	12
	Description	Order No.	Width mm	m/ roll
	Coating	4003843	1060	25
	Description	Order No.	Width mm	rolls/ carton
	Protect BLACK Butyl Tape · 25 m Length	4004685	50	2
		4004686	100	1

* 1 cartridge seals about 8 m.

In case of creasing Protect sealing compound is to be used. Apply in min. width of 10 mm and min. thickness of 3 mm (refer to Kaiflex Application Manual).

kaiflex[®] **PROTECT F-ALU**



quotes@tipes.co.uk

Mechanical resistance with a bright surface finish

Tough woven glass fibre with a low emissivity aluminium finish, Kaiflex Protect F-ALU protects insulation whilst providing a professional and durable finish.

Kaiflex Protect F-ALU is supplied either pre-applied to Kaiflex tube or sheet or separately on rolls and is a particularly attractive covering option for plant rooms and light industrial applications. As a non-metallic covering system, Kaiflex Protect F-ALU is free from any risk of corrosion and can be easily installed on site without the need for hot working permits.

- Weather- & UV-resistant for outdoor use
- Attractive low emissivity surface resembles metal
- Protects against impact
- Easy application

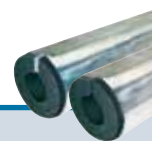
Kaiflex Protect F-ALU Technical Data

Covering		Glass fibre cloth with weatherproof aluminum foil on one side	
Colour		Silver	
Upper temperature limit		+80 °C	
Lower temperature limit		−30 °C	See remark (1)
Euroclass [°]		E _L / E	Test acc. to DIN EN 13501-1
Weight		275 g/m²	Test acc. to EN 22286
Elongation		7 %	Test acc. to EN ISO 13934
Tensile Strength	MD	4020 N/50 mm	Test acc. to EN ISO 13934
	CD	3250 N/50 mm	See remark (2)
Tear Strength	MD	335 N	Test acc. to EN ISO 13934
	CD	350 N	See remark (2)
Resistance to	UV	Very good	
	Mechanical impact	Very good	
Shelf life	Self-adhesive products	1 year	Store in a dry room at a typical relative humidity (between 50 % and 70 %) and room temperature (between 0 °C and +35 °C)
Outdoor applications		No additional protection required	

Remark (1) For temperatures below −30 °C please contact our Technical Support Team for advice.

Remark (2) MD: Machine Direction · CD: Cross Direction

[°] The Euroclass rating applies to metallic or solid mineral substrates.



Kaiflex Protect F-ALU ST-tube · F-ALU pre-covered · self-adhesive

Colour: Silver · Length: 1 m

Copper pipe Cu			Iron & steel pipe Fe			13 mm Insulation thickness			19 mm Insulation thickness		
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton	Reference	Order No.	m/ carton
1/2	5/8	15.0			16.0	FA-ST13x015	4001794 *	77	FA-ST19x015	4007495 *	43
5/8	3/4				21.0	FA-ST13x020	4001796 *	60			
3/4	7/8	22.0	1/2	21.3	23.0	FA-ST13x022	4001797 *	55	FA-ST19x022	4001805 *	37
1	1 1/8	28.0	3/4	26.9	29.0	FA-ST13x028	4001798 *	43	FA-ST19x028	4001806 *	29
1 1/4	1 3/8	35.0	1	33.7	36.0	FA-ST13x035	4001799 *	38	FA-ST19x035	4001807 *	24
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	FA-ST13x042	4001800 *	28	FA-ST19x042	4001808 *	20
			1 1/2	48.3	49.5	FA-ST13x048	4007489 *	24	FA-ST19x048	4001809 *	15
2	2 1/8	54.0		54.0	55.0	FA-ST13x054	4001801 *	23	FA-ST19x054	4005759 *	15
			2	60.3	61.5	FA-ST13x060	4006662 *	20	FA-ST19x060	4001810 *	14
2 13/16	3	76.1	2 1/2	76.1	77.0	FA-ST13x076	4007492 *	17	FA-ST19x076	4005761 *	14
3	3 1/8	80.0			81.0	FA-ST13x080	4007493 *	15	FA-ST19x080	4007500 *	13
			3	88.9	90.5	FA-ST13x089	4006663 *	15	FA-ST19x089	4001812 *	11
4	4 1/4	108.0			109.5	FA-ST13x108 °	4006664 *	14	FA-ST19x108 °	4007502 *	10
			4	114.3	116.0	FA-ST13x114 °	4001804 *	14	FA-ST19x114 °	4007503 *	9

Copper pipe Cu			Iron & steel pipe Fe			25 mm Insulation thickness					
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm	Min ID mm	Reference	Order No.	m/ carton			
1/2	5/8	15.0			16.0						
5/8	3/4				21.0						
3/4	7/8	22.0	1/2	21.3	23.0	FA-ST25x022	4007508 *	21			
1	1 1/8	28.0	3/4	26.9	29.0	FA-ST25x028	4005763 *	20			
1 1/4	1 3/8	35.0	1	33.7	36.0	FA-ST25x035	4001813 *	16			
1 1/2	1 5/8	42.0	1 1/4	42.4	43.5	FA-ST25x042	4001814 *	12			
			1 1/2	48.3	49.5	FA-ST25x048	4001815 *	12			
2	2 1/8	54.0		54.0	55.0	FA-ST25x054	4005764 *	11			
			2	60.3	61.5	FA-ST25x060	4001816 *	11			
2 13/16	3	76.1	2 1/2	76.1	77.0	FA-ST25x076	4001817 *	9			
3	3 1/8	80.0			81.0						
			3	88.9	90.5	FA-ST25x089	4001818 *	7			
4	4 1/4	108.0			109.5	FA-ST25x108 °	4006667 *	5			
			4	114.3	116.0	FA-ST25x114 °	4007511 *	5			

* No stock item, delivery time on request.

° Slit (without self-adhesive seal)





For further dimensions please contact our customer service.

Kaiflex Protect F-ALU ST-Sheet · F-ALU pre-covered · continuous

Colour: Silver			
Insulation thickness mm	Sheet · continuous 1 m width		
	Reference	Order No.	m ² /carton
10	FA-ST10-RL	4001819	20
13	FA-ST13-RL	4001821	14
19	FA-ST19-RL	4001822	10
25	FA-ST25-RL	4001824	8
32	FA-ST32-RL	4001826	6

For insulation of ductwork and vessels - may be used for pipe work with a diameter > 323 mm

Kaiflex Protect F-ALU Accessories

	Description	Order No.	Colour	pcs/carton
	Sealing compound · content: 290 ml *	4004680	Transparent	12
		4004678	Grey	12
	Description	Order No.	Width mm	m/roll
	Coating	4003842	1040	25
	Description	Order No.	Width mm	rolls/carton
	Protect Alu Butyl Tape · 25 m Length	4004681	20	30
		4004682	50	12
		4004684	100	6
	Protect Alu Tape · 25 m Length	4004401	19	36
	Protect Alu Tape · 50 m Length	4004402	50	24
		4004403	100	12

kaiflex[®] SOLAR EPDM plus 2in2



Designed to improve solar hot water efficiency

Kaiflex Solar EPDMplus 2in2 is supplied as twin coils of corrugated stainless steel pipe that is pre-insulated with solar grade EPDM insulation. Kaiflex Solar EPDMplus 2in2 connects solar panels to storage cylinders while minimising energy loss, keeping solar water hot long into the colder months.

Kaiflex Solar EPDMplus 2in2 is based on naturally UV-resistant EPDM rubber and comes with an additional co-extruded foil pre-applied that deters accidental and deliberate damage and vandalism over long periods of time.

The corrugated pipe is specifically designed for to withstand high solar temperatures and pressures. By incorporating a corrugated structure the pipe can be effortlessly bent around the tightest bends and Kaiflex Solar EPDMplus 2in2 is fully compatible with all standard solar panels, cylinders, pumps and fittings.

- Foil covering protects against UV and mechanical impact
- Identifies flow and return
- Compliant with modern solar hot water systems
- Robust insulation ensures separation causes no damage
- Pre-insulated twin pipes, joined for convinience, split for flexibility

Kaiflex Solar EPDMplus 2in2 Technical Data

Description		Twin coils of corrugated stainless steel pipe pre-insulated with high temperature Kaiflex EPDM insulation with a tough co-extruded foil covering.	
Material (pipe)		Corrugated stainless steel pipe	
Corrugated stainless steel pipe	Type	1.4404 / AISI 316L	Test acc. to DIN EN ISO 10380
	Upper temperature limit	+600 °C	
	Lower temperature limit	-270 °C	
	Type test	Audited	
	Operating pressure at +20 °C	The permissible operating pressure was evaluated with 4-fold safety. This statement is based on the tier-system of the rated pressure in acc. with the norm stated.	Test acc. to DIN EN ISO 10380
Cell structure		Closed cell	
Colour		Black	
Upper temperature limit		+150 °C (+175 °C)	See remark (1)
Lower temperature limit		-50 °C	See remark (2)
Thermal conductivity	λ_0	$0.038 + 8.0 \cdot 10^{-5} \vartheta + 7.0 \cdot 10^{-7} \vartheta^2$	Test acc. to DIN EN ISO 8497
	at -10 °C	$\leq 0.037 \text{ W/(m·K)}$	
	at 0 °C	$\leq 0.038 \text{ W/(m·K)}$	
	at +10 °C	$\leq 0.039 \text{ W/(m·K)}$	
Euroclass [°]	Euroclass	E _L	Test acc. to DIN EN 13501-1
Practical fire behaviour		Self-extinguishing, no drips, does not support flame spread	
Packaging		76 x 76 cm	See remark (3)
Outdoor applications		No additional protection against UV-radiation required	

Remark (1) For temperatures above +150 °C please contact our Technical Support Team for advice.

Remark (2) For temperatures below -50 °C please contact our Technical Support Team for advice.

Remark (3) Robust cardboard packaging and end caps protect the pipe work during transport.

[°] The Euroclass rating applies to metallic or solid mineral substrates.

Kaiflex Solar EPDMplus 2in2 Technical Data · Corrugated stainless steel pipe

Nom ID mm	ID mm	OD mm	Pipe wall thickness mm	Min. bending radius mm	Max. operating pressure mm	Content l/m	Width mm	Height mm	Lengths m
16	16.3	21.4	0.2	25	16	0.273	100	50	10, 15, 20, 25, 50
20	20.5	26.7	0.2	30	10	0.430	110	55	10, 15, 20, 25, 50
25	25.4	31.8	0.2	35	10	0.633	120	60	10, 15, 20, 25, 50

Kaiflex Solar EPDMplus 2in2 VA Pre-insulated pipe

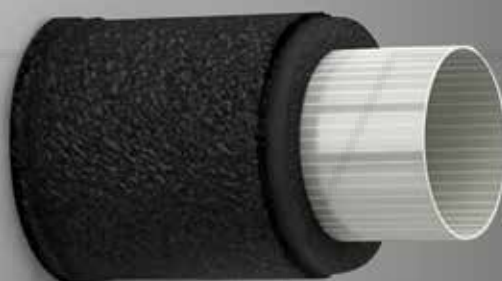


Colour: Black • Delivery including extension-fitting-set

Corrugated stainl. steel pipe Va		14 mm Wall thickness				
OD mm	Nom ID mm	Reference	Order No.	Ø pipe + insulation mm	cartons/ palette	m/ carton
21.4	16	SOLAR-VA-14x16/10	4004643	100	10	10
21.4	16	SOLAR-VA-14x16/15	4004644	100	10	15
21.4	16	SOLAR-VA-14x16/20	4004645	100	7	20
21.4	16	SOLAR-VA-14x16/25	4004646	100	6	25
21.4	16	SOLAR-VA-14x16/50 * °	4004647	100	4	50
26.7	20	SOLAR-VA-14x20/10	4004648	110	10	10
26.7	20	SOLAR-VA-14x20/15	4004649	110	8	15
26.7	20	SOLAR-VA-14x20/20	4004650	110	6	20
26.7	20	SOLAR-VA-14x20/25	4004651	110	4	25
26.7	20	SOLAR-VA-14x20/50 * °	4004652	110	4	50
31.8	25	SOLAR-VA-14x25/10	4004653	120	8	10
31.8	25	SOLAR-VA-14x25/15	4004654	120	6	15
31.8	25	SOLAR-VA-14x25/20	4004655	120	4	20
31.8	25	SOLAR-VA-14x25/25	4004656	120	4	25
31.8	25	SOLAR-VA-14x25/50 * °	4007736	120	4	50

* Custom length of 50 metres per wooden drum upon request. Delivery in full packing units only.

° Delivery without fitting-set



Designed to stop fire spread

Kaiflex Pyrostar is thin and flexible with a strong intumescent effect that tightly seals fire wall penetrations and prevents fire spread. Kaiflex Pyrostar is fibre free and features a closed cell structure to prevent any moisture ingress that could impact on performance.

Compatible with flexible and rigid insulation and extensively tested in real fire situations on combustible and non-combustible pipes passing through both light and solid wall constructions, Kaiflex Pyrostar fully maintains the fire wall integrity up to 120 minutes.

As a flexible solution which is easily cut to size, Kaiflex Pyrostar eliminates the need to order and retain a wide range of uniquely sized cuffs for each combination of pipe size and insulation thickness. One roll of Kaiflex Pyrostar can be adapted on site to seal almost any pipe penetration against fire spread.

- No material change necessary through fire rated walls
- Easy application, even in confined areas
- Effective and easy application
- High levels of safety at wall penetrations.
- Easy to fix

Kaiflex Pyrostar Technical Data

Material		Fibreglass finished with a graphine-based intumescent material	
Cell structure		Dark grey	
Thickness		approx. 1 mm	
Fire-resistance class	Solid walls and ceilings Lightweight partition walls	R 90 / R 120 R 90 / R 120	In acc. with DIN 4102-11
General test certificate		P-MPA-E-14-001	Valid until 27.04.2021
General building approval	For combustible pipe work	Z-19.11-1687 Z-19.17-1974	Valid until 01.04.2021 Valid until 28.04.2020
Solid walls and ceilings	Dicke	≥150 mm	
	Iron & steel pipe	≤Ø 273 mm (synthetic rubber) ≤Ø 323.9 mm (foam glass)	
	Copper pipe	≤Ø 88.9 mm	
	Insulation thickness iron & steel pipe	≤50 mm (synthetic rubber) ≤60 mm (foam glass)	
	Insulation thickness copper pipe	10-39 mm (synthetic rubber) 25-30 mm (foam glass)	
Lightweight partition walls	Minimum thickness	For space enclosing, non bearing lightweight partition walls (F 90 - minimum thickness d ≥ 100 mm)	
	Iron & steel pipe	≤Ø 159 mm	
	Copper pipe	≤Ø 88.9 mm	
	Insulation thickness	9-39 mm	

Kaiflex Pyrostar Fire wrap

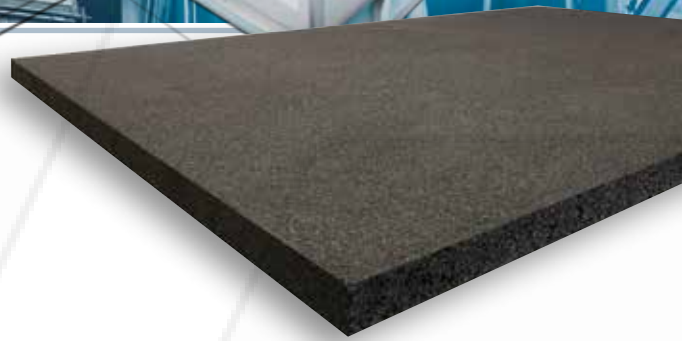
Colour: Dark grey



Description	Order No.	Width mm	Length m
PYROSTAR-BSM-125/05	4004404	125	5
PYROSTAR-BSM-125/10	4004405	125	10

Kaiflex Pyrostar Accessories

	Description	Format	Order No.	Pcs/ carton
	BMK Fire-protection compound	Cartridge 0.4 kg	4004406	12
		Cartridge 1.0 kg	4004407	12



The most flexible approach to soundproofing

Kaisound soundproofing systems are based on the world's first acoustically absorbing elastomeric foam with R-FORCE technology.

- Soundproofing system
- Absorption and reflection
- Insulation and damping
- Flexible and variable

Kaisound Technical Data

Material		Open porous, hydrophobic and flexible acoustic insulation material based on synthetic rubber	
Cell structure		Open cell, with broad variation of cavity geometries for multi-frequency absorption	
Colour		Black	
Upper temperature limit	Kaisound 240 Kaisound 140	+85 °C (+250 °C) +85 °C	See remark (1)
Lower temperature limit		–20 °C (–200 °C)	See remark (2)
Thermal conductivity	λ_0 at –10 °C at 0 °C at +10 °C	Kaisound 240: $0.062 + 8.0 \cdot 10^{-5} \vartheta + 7.0 \cdot 10^{-7} \vartheta^2$ Kaisound 140: $0.041 + 8.0 \cdot 10^{-5} \vartheta + 7.0 \cdot 10^{-7} \vartheta^2$ Kaisound 240: ≤ 0.061 W/(m·K) Kaisound 140: ≤ 0.040 W/(m·K) Kaisound 240: ≤ 0.062 W/(m·K) Kaisound 140: ≤ 0.041 W/(m·K) Kaisound 240: ≤ 0.063 W/(m·K) Kaisound 140: ≤ 0.042 W/(m·K)	Test acc. to DIN EN 12667
Fire performance	Kaisound 140	Class 0	
Practical fire behaviour		Self-extinguishing, no drips, does not support flame spread	
Density	Kaisound 240 Kaisound 140	220 to 360 kg/m ³ (average: 240 kg/m ³) 100 to 180 kg/m ³ (average: 140 kg/m ³)	Test acc. to ISO 845 ASTM D1622
Acoustic insertion loss		Complies to ISO 15665 – Classes A to C – and Shell DEP 31.46.00.31-Gen – Class D when used as part of an insulation system	Test acc. to ISO 3741 (equivalent method ASTM E1222) Classification acc. to ISO 15665
Other certificates / approvals	Kaisound 240	Satisfies classes 6, 7 and 8 of NORSOK R-004 when used as part of a "Kaimann Industrial Solutions" insulation system	Test acc. to ISO 3741 Classification acc. to ISO 15665
Tensile strength		50 to 200 kPa	Test acc. to ISO 1798
Tear strength		0.5 to 1.5 kN/m	Test acc. to ISO 34-1
Elongation at break		50 to 90 %	Test acc. to ISO 1798
Health aspects		Dust & fibre free No bacterial or fungal growth	Test acc. to ISO 846 ASTM G-21 ASTM G-22
Water absorption		<5 % by volume	Test acc. to AGI Q 136 See remark (3)
Application and handling conditions	Ambient temperature Max. relative humidity	+5 °C to +35 °C 80 %	
Shelf life		Material has to be mounted within two years after supply and proper storage. Self-adhesive material within one year.	Store in a dry room away from UV and sunlight at a typical relative humidity (between 50 % and 70 %) and room temperature (between +5 °C and +35 °C)
Outdoor applications		Coverings – such as Protect (R) HD, comCLAD, metal cladding or GRP – must be applied when Kaisound would be directly exposed to the outdoor environment	See remark (4)

For industrial applications it is recommended to consult the Kaimann Industrial Systems Application Manual and other relevant Kaimann installation instructions and application manuals.

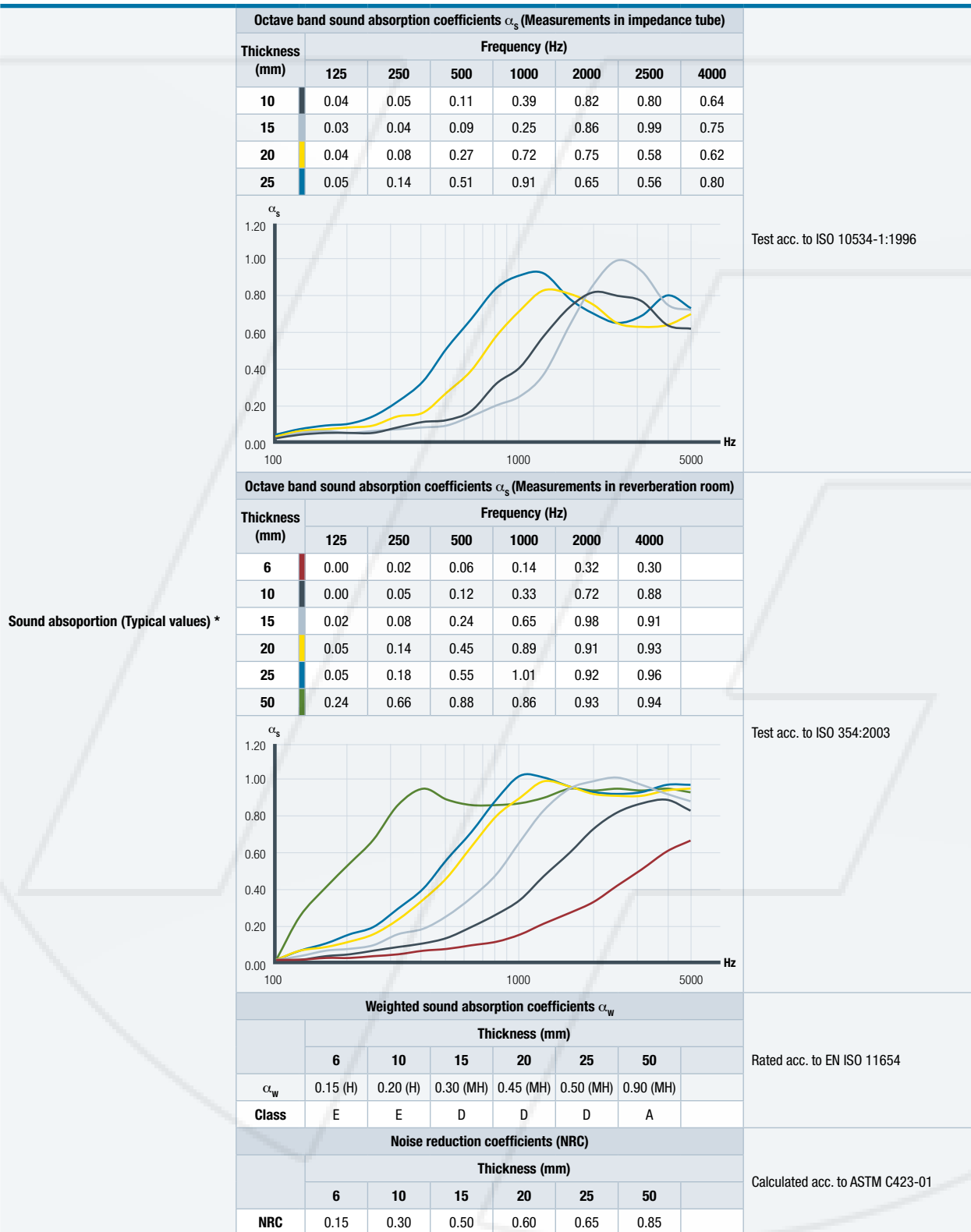
Remark (1) For temperatures above +85 °C please contact our Technical Support Team for advice.

Remark (2) For temperatures below –20 °C please contact our Technical Support Team for advice.

Remark (3) Based on single test results which are not monitored in regular frequency. Can be used for information / reference only.

Remark (4) Please contact our Technical Support Team for advice.

Kaisound 240 Technical Data



* The octave band and 1/3rd octave band sound absorption coefficients shown in the table and chart respectively, are provided as examples which are based on single test results. The values presented can be used for information / reference only.

Kaisound 240 Sheet · flat



Colour: Black								
Insulation thickness mm	Sheet · flat 1.20 x 0.84 m (= 1.00 m²)				Sheet · flat · self-adhesive 1.20 x 0.84 m (= 1.00 m²)			
	Reference	Order No.	pcs / carton	m² / carton	Reference	Order No.	pcs / carton	m² / carton
6	KS240-06-PL-M	4010596 *	16	16	KS240-06-PL-SK-M	4010608 *	16	16
10	KS240-10-PL-M	4010597 *	10	10	KS240-10-PL-SK-M	4010609 *	10	10
15	KS240-15-PL-M	4010598 *	6	6	KS240-15-PL-SK-M	4010610 *	6	6
20	KS240-20-PL-M	4010599 *	5	5	KS240-20-PL-SK-M	4010611 *	5	5
25	KS240-25-PL-M	4010600 *	4	4	KS240-25-PL-SK-M	4010612 *	4	4
50	KS240-50-PL-M	4010601 *	2	2	KS240-50-PL-SK-M	4010613 *	2	2

* No stock item, delivery time on request.


Kaisound 140 Sheet · flat

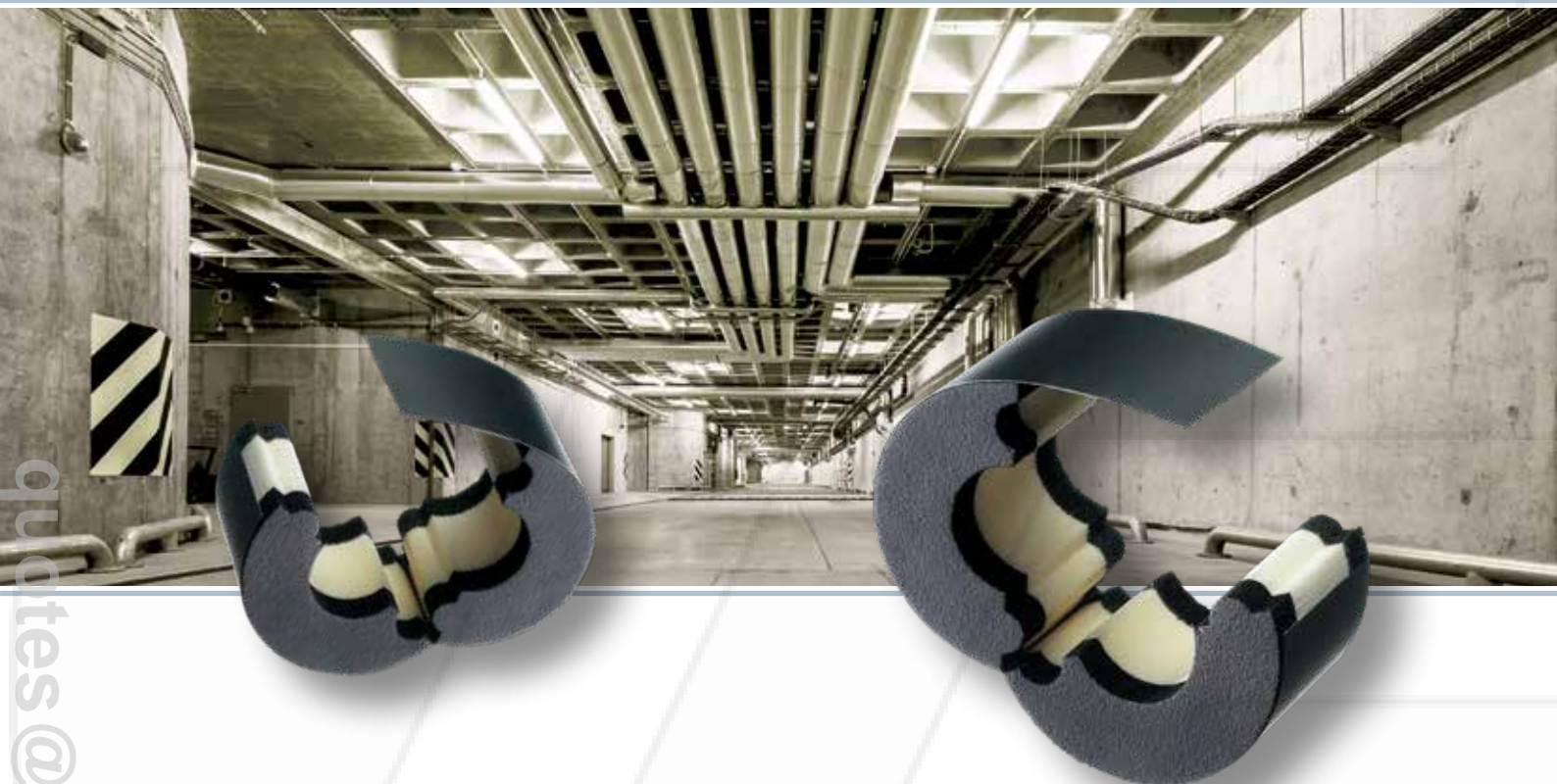


Colour: Black								
Insulation thickness mm	Sheet · flat 1.20 x 0.84 m (= 1.00 m²)				Sheet · flat · self-adhesive 1.20 x 0.84 m (= 1.00 m²)			
	Reference	Order No.	pcs / carton	m² / carton	Reference	Order No.	pcs / carton	m² / carton
6	KS140-06-PL-M	4010584 *	16	16	KS140-06-PL-SK-M	4010620 *	16	16
10	KS140-10-PL-M	4010585 *	10	10	KS140-10-PL-SK-M	4010375 *	10	10
15	KS140-15-PL-M	4010586 *	6	6	KS140-15-PL-SK-M	4010621 *	6	6
20	KS140-20-PL-M	4010587 *	5	5	KS140-20-PL-SK-M	4010376 *	5	5
25	KS140-25-PL-M	4010588 *	4	4	KS140-25-PL-SK-M	4010622 *	4	4
50	KS140-50-PL-M	4010589 *	2	2	KS140-50-PL-SK-M	4010623 *	2	2

* No stock item, delivery time on request.

Tape

	Description	Order No.	Width mm	Rolls / carton
	Protect BLACK Butyl-Tape · 25 m Length	4004685	50	1
		4004686	100	1



Load bearing protection against thermal bridging and corrosion

Kaiflex RT-ST insulated load bearing pipe sections are vapour sealed and prevent condensation, corrosion and energy loss at critical points.

Kaiflex RT-ST consists of high density, compression resistant, PUR/PIR foam sections combined with water vapour resistant Kaiflex ST insulation and a protective outer shell covering. Load bearing pipe clamps that would tear or compress standard insulation tubes can be applied directly around Kaiflex RT-ST sections.

Fully compatible with all other Kaiflex products, Kaiflex RT-ST sections feature an interlocking design and represent a durable, reliable and visually attractive solution that prevents avoidable energy loss and helps to keep pipework free of corrosion.

- Reliably prevents thermal bridging
- Vapour barrier in-built
- Reduces energy losses
- Reliable long term performance
- Easy to apply

Kaiflex RT-ST Technical Data

Material		Two PUR/PIR bearing segments, embedded in elastomeric foam based on synthetic rubber.	
Covering		PVC	
Colour		Black	
Upper temperature limit		+110 °C	
Lower temperature limit		-50 °C	See remark (1)
Thermal conductivity		see Kaiflex ST	
Water vapour permeability	Moisture resistance factor μ	see Kaiflex ST No separate vapour barrier required	
Euroclass °		Euroclass E _L (as part of a system incl. Kaiflex ST tubes: B _L -s3, d0)	Test acc. to DIN EN 13501-1
Density	Insulation insert	80/120 kg/m³	
Other certificates / approvals	Insulation insert	CFC-free	
	Storage temperature	≥ +10 °C	
	Application temperature	≥ +10 °C	
Shelf life		1 year	Store in a dry room at a typical relative humidity (between 50 % and 70 %) and room temperature (between 0 °C and +35 °C)

Remark (1) For temperatures below -50 °C please contact our Technical Support Team for advice.

° The Euroclass rating applies to metallic or solid mineral substrates.



Kaiflex RT-ST Pipe support · self-adhesive

Colour: Black

Copper pipe Cu			Iron & steel pipe Fe		Max. support interval m	13 mm Insulation thickness				19 mm Insulation thickness			
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm		OD mm	Reference	Order No.	pcs/ carton	OD mm	Reference	Order No.	pcs/ carton
	3/8	10.0			2.00	36.0	RT-ST13x010	4002234	52	48.0	RT-ST19x010	4002266	32
	3/8	1 1/2			2.00	38.0	RT-ST13x012	4002235	48	50.0	RT-ST19x012	4002267	28
	1/2	5/8			2.00	41.0	RT-ST13x015	4002236	40	53.0	RT-ST19x015	4002268	22
					2.00	44.0	RT-ST13x018	4002237	32	56.0	RT-ST19x018	4002269	20
	3/4	7/8			2.75	48.0	RT-ST13x022	4002238	32	60.0	RT-ST19x022	4002271	32
1	1 1/8	28	3/4	26.9	3.00	54.0	RT-ST13x028	4002240	40	66.0	RT-ST19x028	4002273	24
1 1/4	1 3/8	35	1	33.7	3.50	61.0	RT-ST13x035	4002242	30	73.0	RT-ST19x035	4002276	38
1 1/2	1 5/8	42	1 1/4	42.4	3.75	68.0	RT-ST13x042	4002243	46	80.0	RT-ST19x042	4002278	32
			1 1/2	48.3	4.25	74.0	RT-ST13x048	4002244	34	86.0	RT-ST19x048	4002279	28
2	2 1/8	54			4.25	80.0	RT-ST13x054	4002246	32	93.0	RT-ST19x054	4002280	48
					4.25	83.0	RT-ST13x057	4002247	28	95.0	RT-ST19x057	4002281	48
			2	60.3	4.25	86.0	RT-ST13x060	4002248	56	98.0	RT-ST19x060	4002282	44
					4.75	92.0	RT-ST13x064	4002249	48	104.0	RT-ST19x064	4002283	40
					4.75	98.0	RT-ST13x070	4002251	44	110.0	RT-ST19x070	4002284	30
2 13/16	3	76.1	2 1/2	76.1	4.75	104.0	RT-ST13x076	4002252	40	116.0	RT-ST19x076	4002285	30
			3	88.9	5.50	117.0	RT-ST13x089	4002254	30	129.0	RT-ST19x089	4002287	26
4	4 1/4	108			6.00	136.0	RT-ST13x108	4002256 *	22	148.0	RT-ST19x108	4002288 *	18
			4	114.3	6.00	144.0	RT-ST13x114	4002257	18	156.0	RT-ST19x114	4002289	16
				125.0	6.00								
		133			6.00	163.0	RT-ST13x133	4002259 *	14	175.0	RT-ST19x133	4002291 *	12
			5	139.7	6.00	170.0	RT-ST13x140	4002260	14	182.0	RT-ST19x140	4002292	12
		159			6.00	190.0	RT-ST13x160	4002261	12	202.0	RT-ST19x160	4002293	8
				168.3	6.00	196.0	RT-ST13x168	4004916	12	208.0	RT-ST19x168	4002294	8
		219		219.1	6.00	247.0	RT-ST13x219	4002263	4	259.0	RT-ST19x219	4002296	4

* No stock item, delivery time on request.

Length pipe support: <133 mm: 50 mm · ≥133 mm: 100 mm



Kaiflex RT-ST Pipe support · self-adhesive

Colour: Black

Copper pipe Cu			Iron & steel pipe Fe		Max. support interval m	25 mm Insulation thickness				32 mm Insulation thickness			
NB inch	Nom OD inch	Nom OD mm	NB inch	Nom OD mm		OD mm	Reference	Order No.	pcs/ carton	OD mm	Reference	Order No.	pcs/ carton
	3/8	10.0			2.00	60.0	RT-ST25x010	4002301	32	74.0	RT-ST32x010	4002326	18
	3/8	1 1/2			2.00	62.0	RT-ST25x012	4002302	28	76.0	RT-ST32x012	4002327	18
	1/2	5/8			2.00	65.0	RT-ST25x015	4002303	24	79.0	RT-ST32x015	4002328	18
					2.00	68.0	RT-ST25x018	4002304	32	82.0	RT-ST32x018	4002329	28
	3/4	7/8			2.75	72.0	RT-ST25x022	4002305	38	86.0	RT-ST32x022	4002330	24
1	1 1/8	28	3/4	26.9	3.00	78.0	RT-ST25x028	4002306	32	92.0	RT-ST32x028	4002331	24
1 1/4	1 3/8	35	1	33.7	3.50	85.0	RT-ST25x035	4002307	26	99.0	RT-ST32x035	4002332	18
1 1/2	1 5/8	42	1 1/4	42.4	3.75	92.0	RT-ST25x042	4002308	22	106.0	RT-ST32x042	4002333	40
			1 1/2	48.3	4.25	98.0	RT-ST25x048	4002309	44	112.0	RT-ST32x048	4002334	30
2	2 1/8	54			4.25	104.0	RT-ST25x054	4002310	40	118.0	RT-ST32x054	4002335	30
					4.25					121.0	RT-ST32x057	4005816	28
			2	60.3	4.25	110.0	RT-ST25x060	4002311	36	124.0	RT-ST32x060	4002336	26
					4.75	116.0	RT-ST25x064	4002312	30	130.0	RT-ST32x064	4002337	24
					4.75					136.0	RT-ST32x070	4002338	22
2 13/16	3	76.1	2 1/2	76.1	4.75	128.0	RT-ST25x076	4002313	24	142.0	RT-ST32x076	4002339	22
			3	88.9	5.50	141.0	RT-ST25x089	4002314	22	155.0	RT-ST32x089	4002341	16
4	4 1/4	108			6.00	160.0	RT-ST25x108	4002315 *	16	174.0	RT-ST32x108	4002343 *	12
			4	114.3	6.00	168.0	RT-ST25x114	4002316	12	182.0	RT-ST32x114	4002344	12
											RT-ST32x125	4006705	XX
		133			6.00		RT-ST25x133	4002317	12	201.0	RT-ST32x133	4002345 *	8
			5	139.7	6.00	194.0	RT-ST25x140	4002318	12	208.0	RT-ST32x140	4002346	8
		159			6.00	214.0	RT-ST25x160	4002319	8	228.0	RT-ST32x160	4002347	6
				168.3	6.00	220.0	RT-ST25x168	4002320	6	234.0	RT-ST32x168	4002348	6
		219		219.1	6.00	271.0	RT-ST25x219	4002322	4	285.0	RT-ST32x219	4002349	4

* No stock item, delivery time on request.

Length pipe support: <133 mm: 50 mm · ≥133 mm: 100 mm

Kaiflex FT Technical Data

Material		Load bearing PIR inserts embedded in a layer of elastomeric foam based on synthetic rubber. Covered by a diffusion-tight metallic film	
Colour		Black	
Upper temperature limit		+85 °C	
Lower temperature limit		-50 °C	See remark (1)
Thermal conductivity		see Kaiflex KKplus s3	
Water vapour permeability	Moisture resistance factor μ	see Kaiflex KKplus s3 No separate vapour barrier required	
Euroclass °		E	Test acc. to DIN EN 13501-1
Density	Insulation insert	120 kg/m³	
Other certificates / approvals	Insulation insert	CFC-free	
	Storage temperature	≥ +10 °C	
	Application temperature	≥ +10 °C	
Shelf life		1 year	Store in a dry room at a typical relative humidity (between 50 % and 70 %) and room temperature (between 0 °C and +35 °C)

Remark (1) For temperatures below -50 °C please contact our Technical Support Team for advice.

° The Euroclass rating applies to metallic or solid mineral substrates.

Kaiflex FT Strip support

Colour: Black · Length: 2 m



Reference	Order No.	Insulation Thickness mm	Width mm	m / carton	pcs/ carton
FT-KK+013	4004055	13	75	24	12
FT-KK+019	4004056	19	100	20	10
FT-KK+032	4004057	32	100	12	6

ACCESSORIES








For a professional finish:

Accessories help to provide an optimal finish for all Kaiflex products




- Kaiflex adhesive
- Kaiflex tools
- Kaiflex tapes
- Coltogum®

ACCESSORIES






Adhesive · Cleaner · Protective Coating · Sealing compound

	Description	Order No.	Can content	pcs/ carton
	Adhesive			
	Adhesive 415plus	4007232	660 g	20
	Adhesive 414 · toluene-free · paintbrush tin	4004706	220 g	24
	Adhesive 414 · toluene-free	4004708	660 g	20
	Adhesive 414 · toluene-free	4004710	2200 g	6
	Adhesive 494 HHF · hexane- and halogenfree	4012616	2200 g	6
	EPDM adhesive · toluene-free	4004699	660 g	20
	Cleaner			
	Cleaner	4004732	1.0 l	12
	Protective Coating			
	Kaifinish Protective Coating · pure white RAL 9010	4004719	0.75 l	12
	Kaifinish Protective Coating · Grey RAL 7035	4004720	0.75 l	12
	Kaifinish Protective Coating · Black RAL 9005	4004721	0.75 l	12
	Sealing compound			
	Coltogum® Heat-resistant sealing compound · rust brown · Cartridge	4004472	310 ml	12

Tools


	Description	Order No.	content/ PU
	Glue pump		
	Glue pump · long spout · Brush 17 mm	4004718	1
	Glue pump · short spout · Brush 17 mm	4004715	1
	Brush 11 mm	4004716	1
	Brush 17 mm	4004717	1
	Knives		
	Ceramic knife · knife with ceramic blade (15 cm) and plastic handle (14 cm)	4004737	1
	Sheet knife	4004735	1
	Kaiflex set of knives · 3 knives, 1 whetstone	4004736	1
	Gel Ink Pen		
	Gel Ink Pen · Silver · for marking on insulation materials	4004730	12

Tapes

	Description	Order No.	Length m	Width mm	Thick- ness	Rolls/ carton
	Tape · self-adhesive					
	ST tape · self-adhesive	4004675	15	50	3	12
	STplus tape · self-adhesive	4008462	15	50	3	12
	EPDMplus tape · self-adhesive	4004142	15	50	3	12
	HFplus s2 tape · self-adhesive	4005135	15	50	3	12
	Tape · Alu					
	Tape · Alu	4010312	50	50	30 µm	24
	PE-insulation tape · self-adhesive					
	PE-insulation tape · self-adhesive · Grey	4004750	10	50	3	10
	PE-insulation PE-insulation tape · self-adhesive · Red	4004751	10	50	2	10
	Fabric tape					
	Fabric tape · Silver	4004779	50	50	–	24
	Fabric tape · Red	4004780	50	50	–	24
	Fabric tape · Black	4004781	50	50	–	24
	PVC tape					
	PVC tape · Light grey	4004769	10	30	–	60
		4004770	10	50	–	36
		4004771	25	25	–	36
		4004773	25	30	–	12
	PVC tape · Black	4004754	33	50	–	18
		4004817	10	30	–	60
		4004818	10	50	–	36
	PVC tape · Red	4010309	25	50	–	18
		4004519	10	30	–	100
	PVC tape · Silver	4004752	25	50	–	18
		4004753	10	50	–	36
		4004747	10	30	–	60

ACCESSORIES

Winding/Binding wire

	Description	Order No.	content/ PU
	Winding/Binding wire		
	Winding/Binding wire · Thickness approx. 0.65 mm · about 100 g	4004806	25

Rivets · PE-Clips

	Description	Order No.	content/ bag	bags/ PU
	Rivets			
	Rivets · Grey	4004783	1000	10
	Rivets · White	4004784	1000	10
	PE-Clips			
	PE-Clips · Grey	4004756	100	25

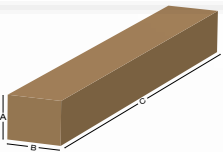
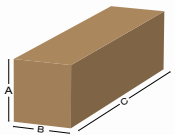
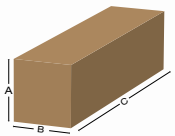
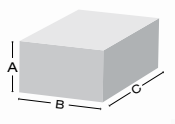
Kaiflex Load

	Description	Order No.	pcs/ carton
	Pipe support section		
	Kaiflex Load Pipe Support · Thickness:19 mm · Diameter: 40 mm · Length: 1 m	4004048	40

- Delivery in full packing units only.
- Delivery of tubes in shorter length (2 m):
Up to 10 % of carton content may be supplied in length of 1 m. Carton content of less than 20 m tubes of 2 m length may be delivered in two pieces of 1 m length.
(Does not apply for 1.20 m tubes)
- Kaiflex ancillaries are to be used to ensure proper installation.

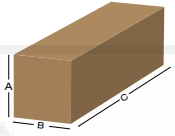
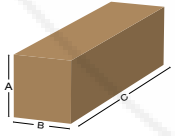
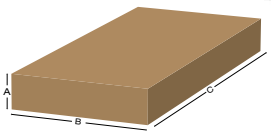
Tube



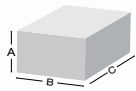
	Description	A mm	B mm	C mm	ø mm	Volume m³
	Tube - Length: 2 m					
	Kaiflex ST, EPDMplus	320	410	2120	–	0.278
	Kaifoam PE	560	460	2110	–	0.544
	Tube - Length: 1.2 m					
	Kaiflex STplus, HFplus s2	385	400	1230	–	0.189
	Tube - Length: 1 m					
	Kaiflex Protect System	400	400	1060	–	0.170
	Tube - endless					
	Kaiflex ST, Solar EPDM	300	500	500	–	0.075

Sheet

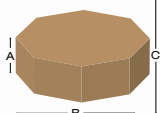


	Description	A mm	B mm	C mm	ø mm	Volume m³
	Sheet - continuous - 1 m width					
	Kaiflex ST, EPDMplus	410	410	1060	–	0.178
	Kaiflex ST, Protect System	560	560	1060	–	0.332
	Sheet - continuous - 1.2 m width					
	Kaiflex STplus, HFplus s2	400	400	1200	–	0.192
	Sheet - flat					
	Kaiflex ST - 2 x 1 m	170	1068	2080	–	0.378
	Kaiflex KKplus s3 Connect	370	550	1060	–	0.216
		370	700	1060	–	0.275
		370	900	1060	–	0.353
	Kaisound	120	870	1230	–	0.128

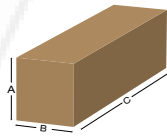
Kaifix EC


	Description	A mm	B mm	C mm	ø mm	Volume m³
	Kaifix ECplus	110	270	250	–	0.007

Pre-insulated pipe


	Description	A mm	B mm	C mm	ø mm	Volume m³
	Kaiflex Solar EPDMplus 2in2 VA	800	800	min. 210 max. 455	–	min. 0.104 max. 0.225

Tapes


	Description	A mm	B mm	C mm	ø mm	Volume m³
	Kaiflex ST, STplus, EPDMplus, HFplus s2	300	300	620	–	0.056

Kaiflex Pyrostar


	Description	A mm	B mm	C mm	ø mm	Volume m³
	Kaiflex Pyrostar	160	160	160	–	0.004

Tolerances DIN EN 14304:2010-03 · Flexible Elastomeric Foam (FEF)

Supplied as	Length	Width	Thickness		Perpendicularity	Inner diameter	
			Stated	Limits		$D_{i0} \leq 100$	$D_i > 100$
Tubes	$\pm 1.5 \%$		$d_0 \leq 8$ $8 < d_0 \leq 18$ $18 < d_0 \leq 31$ $d_0 > 31$	± 1.0 ± 1.5 ± 2.5 ± 3.0	3.0 mm	$D_{i0} + 1 \leq D_i \leq D_{i0} + 4$	$D_{i0} + 1 \leq D_i \leq D_{i0} + 6$
Flat sheets	$\pm 1.5 \%$	$\pm 2.0 \%$	$d_0 \leq 6$ $6 < d_0 \leq 19$ $d_0 > 19$	± 1.0 ± 1.5 ± 2.0	3.0 mm/m (Length/Width) — 3.0 mm (Thickness)	—	—
Continuous sheets	$+5.0 \%$ -1.5%	$\pm 2.0 \%$	$d_0 \leq 6$ $6 < d_0 \leq 19$ $d_0 > 19$	± 1.0 ± 1.5 ± 2.0	3.0 mm/m (Length/Width) — 3.0 mm (Thickness)	—	—
Tapes	$+5.0 \%$ -1.5%	$\pm 2.0 \%$	$d_0 = 3$	-0.1 $+1.5$	—	—	—

Measurements in mm · D_i = inner diameter · d_0 = Nominal thickness of product · D_{i0} = Nominal thickness of a tube

Tolerances DIN EN 14313:2010-03 · Polyethylene Foam (PEF)

Supplied as	Length	Width	Thickness		Perpendicularity	Inner diameter		
			Stated	Limits		$D_i \leq 30$	$35 < D_i \leq 100$	$D_i > 100$
Tubes	-1.5%	—	$d_0 \leq 6$ $6 < d_0 \leq 10$ $10 < d_0 \leq 15$ $15 < d_0 \leq 30$ $d_0 > 30$	± 1.0 ± 1.5 ± 2.0 ± 2.5 ± 3.0	5.0 mm for $D_{i0} \leq 60$ mm and 10.0 mm for $60 < D_{i0} \leq 120$ mm	$D_{i0} + 1$ to $D_{i0} + 4$	$D_{i0} + 2$ to $D_{i0} + 6$	$D_{i0} + 3$ to $D_{i0} + 8$
Profiles	$+1.5 \%$	—	$d_0 \leq 6$ $6 < d_0 \leq 10$ $10 < d_0 \leq 15$ $15 < d_0 \leq 30$ $d_0 > 30$	± 1.0 ± 1.5 ± 2.0 ± 2.5 ± 3.0	5.0 mm for $D_{i0} \leq 60$ mm and 10.0 mm for $60 < D_{i0} \leq 120$ mm	$D_{i0} + 1$ to $D_{i0} + 4$	$D_{i0} + 2$ to $D_{i0} + 6$	$D_{i0} + 3$ to $D_{i0} + 8$
Flat / Continuous sheets	$\pm 1.5 \%$	$\pm 1.0 \%$	$d_0 \leq 6$ $6 < d_0 \leq 19$ $d_0 > 19$	± 1.0 ± 1.5 ± 2.0	10.0 mm/m (Length/Width) —2.0 mm (Thickness)	—	—	—
Tapes	$\pm 1.5 \%$	$\pm 2.0 \%$		$+0.5$	—	—	—	—

Measurements in mm · D_i = inner diameter · d_0 = Nominal thickness of product · D_{i0} = Nominal thickness of a tube

I. General

1. All deliveries by Kaimann GmbH ("Kaimann") to the purchaser are based exclusively on the following General Terms and Conditions ("Conditions"). The purchaser recognises their binding application to the present contract and also, in their valid version, to all future transactions.

2. Any purchasing conditions of the purchaser, whether deviating, conflicting or supplementary in content, do not form part of the contract, also not through acceptance of the order. In particular, they also have no application if the purchaser refers to them in his business transactions, e.g. when placing an order, and Kaimann does not expressly reject them. Deviations are only valid if they have been accepted by Kaimann expressly and in writing.

II. Conclusion of contract

1. Offers by Kaimann are subject to confirmation.

2. The contract is formed on receipt of Kaimann's order confirmation by the purchaser. If, by way of exception, no confirmation of order is received, Kaimann's conditions apply at the latest on acceptance of the delivery item.

3. The written confirmation of order by Kaimann has exclusive authority with regard to the type and extent of the contractually owed delivery and the type of packaging and shipping method. The selection of the delivery item is carried out on the basis of the parameters provided by the purchaser. Sketches, illustrations, dimensions, weights or other performance data in brochures, circulars, price lists, other publications or in our offers and/or relevant documents do not represent a guarantee of properties or any other guarantee, but only serve as a product description.

4. Kaimann is entitled to carry out reasonable, customary or negligible alterations to the delivery item at any time without prior notice, provided this does not impair its functioning or mode of operation and the alteration is necessary for technical reasons.

III. Delivery, delivery dates and delivery deadlines

1. The delivery dates and deadlines apply as confirmed in Kaimann's written order confirmation, however, not before the purchaser has provided all the necessary documents, authorisations, clearances or any agreed down payment. If no delivery period has been agreed, delivery is to be made as soon as possible.

2. The delivery dates and deadlines are deemed observed if the delivery item leaves Kaimann's work, or Kaimann announces its readiness to deliver, at the latest 14 days after expiry of the delivery deadline.

3. The delivery period is extended appropriately without Kaimann defaulting on delivery in case of unforeseeable obstacles for which Kaimann is not responsible. These include industrial action, in particular strike and lawful lockout, accident, machine failure, fire, flood, riot, terrorist acts, war, enactment of new laws or official measures after conclusion of contract which impede delivery, lacking import and export licences needed, or the improper or untimely fulfilment of hedging transactions concluded by the suppliers / subcontractors, in so far as these circumstances influence the delivery of the object of purchase for their duration. This also applies when such circumstances affect suppliers / subcontractors. If the delivery is

delayed as a result of such circumstances for which Kaimann is not responsible for more than 30 days after the contractually specified delivery date, Kaimann may withdraw from the purchase contract by informing the purchaser in writing. If, in cases pursuant to § 275 of the Civil Code (BGB), Kaimann does not need to perform, the purchaser may withdraw from the contract in accordance with § 326 para. 5 of the Civil Code (BGB).

4. If the delivery is delayed for reasons for which the purchaser is responsible, Kaimann may demand compensation for the additional costs thus incurred.

5. If, after receiving the order confirmation from Kaimann, the purchaser cancels or alters an order, Kaimann may withdraw the order or accept return delivery out of goodwill. In this case, the purchaser is nevertheless obliged to pay Kaimann a processing fee of 10 % of the invoice amount. The purchaser reserves the right to prove that Kaimann's expenses are not at that level or at a much lower level.

IV. Transfer of risk, transport costs and shipping

1. If not agreed otherwise, all deliveries within Germany are free to the purchaser's address. I.e., Kaimann delivers the objects itself or has them delivered by a forwarder, and pays the transport costs, provided nothing is agreed to the contrary in the order confirmation. Kaimann bears the risk of accidental destruction, impairment, or delay from transfer to the forwarder.

2. Kaimann decides at its own discretion on the type of shipment used.

3. Taking into account the purchaser's interests Kaimann is entitled to partial deliveries, provided this is reasonable for the purchaser.

V. Acceptance and delivery on call

1. The delivery items are to be accepted by the purchaser even if they demonstrate more than negligible defects. Delivery items for which the written order confirmation stipulates particular quality specifications, or for which delivery ex works is specified, are to be checked and accepted immediately by the purchaser in Kaimann's works or in Kaimann's supplying warehouse once Kaimann announces its readiness to deliver.

2. If the purchaser rejects delivery although it is due, the delivery items will be stored by Kaimann at the purchaser's cost and risk from the day that Kaimann announces its readiness to deliver. From this date on, Kaimann is no longer liable for the accidental destruction, depreciation or damage, e.g. by fire, theft, weather influence or disasters.

3. If a contract has been concluded with the purchaser for a total quantity which can be called in certain parts, the call orders and the corresponding itemisations are to be carried out at the latest by the agreed delivery date. If these calls and itemisations are not carried within the time specified, Kaimann is entitled to itemise and proffer the delivery items, or put them into storage at the purchaser's cost. On unsuccessful expiry of a subsequent deadline set by Kaimann, Kaimann is entitled to withdraw from the remaining part of the contract, or demand compensation for this due to default.

VI. Prices

1. Provided nothing else is agreed between the par-

ties, the prices in Kaimann's valid price list apply. All prices are in Euros and do not include the statutory VAT. Additional costs (for example for packaging, postage, freight, insurance, customs or delivery charges) are only included where delivery is owed free to the purchaser's address, or if the parties have agreed a cost transfer. The statutory VAT at the rate applicable on delivery, along with any applicable additional costs is shown separately on the invoice.

2. If, between conclusion and performance of the contract, customs, freight, charges or duties are raised or introduced, or if price increases are approved or fixed by the authoritative works or dealer association, Kaimann is entitled to raise the price accordingly, and the purchaser is obliged to pay the corresponding surplus. The purchaser has no right of cancellation in this case.

3. The parties assume that carriage-free prices are subject to the condition of unimpeded access to water, land and air traffic. The purchaser is to pay any additional costs resulting from impeded access.

4. Costs for dead freight as a result of circumstances for which the purchaser is responsible, are charged to his account.

VII. Payment terms

1. Unless agreed otherwise, payment is to be made within 10 days of the date of invoice and delivery by Kaimann at 2 % discount, or within 30 days of the date of invoice in cash, without discount. Offsetting against payment claims by Kaimann, and the assertion of rights of retention are only permissible in case of undisputed or legally established claims.

2. If the purchaser defaults on payment, Kaimann is entitled to charge interest on arrears at 8 percentage points per year above the valid base rate as defined by § 247 of the Civil Code (BGB). Costs incurred by Kaimann through the collection of debts, including lawyer's costs, are to be borne by the purchaser. This does not exclude the assertion of further claims for damage.

3. Bills of exchange are only accepted in lieu of payment under the condition that discounting is possible at the Federal State Central Bank. There is no obligation to accept bills of exchange.

4. Credit entries for bills and cheques are always subject to receipt and without prejudice to an earlier due date of the purchase price in case of default by the purchaser. They are effective with the value date on which Kaimann is able to dispose of the counter-value.

5. If the payment conditions are not fulfilled, or if, after conclusion of the contract, circumstances become known which are suitable to reduce the purchaser's creditworthiness, irrespective of Kaimann's right to withdraw from the contract, all amounts become due immediately, regardless of the term of bills accepted. Kaimann is furthermore entitled to demand securities, and only affect outstanding deliveries against advance payment or the provision of security. The duty to provide advance payment does not apply if the purchaser holds undisputed or legally established counter claims.

6. Kaimann is entitled to assign claims arising from Kaimann's business relations.

VIII. Retention of title

1. Kaimann reserves ownership of all delivery items

delivered until the purchaser has paid all claims, including future claims arising from the business relationship. This also applies if the purchaser has paid the purchase price for certain deliveries. In case of open accounts, the retention of title serves as security for any balance claims held by Kaimann. If bills or cheques are accepted by Kaimann, or if bills issued by Kaimann are made available to the purchaser, the retention of title also counts as security for claims on the part of Kaimann arising from dishonoured bills. The retention of title does not lapse until all bills and cheques have been honoured.

2. Treatment and processing are carried out for Kaimann as manufacturer within the meaning of § 950 of the Civil Code (BGB), without obligation for Kaimann. The delivery items thus processed serve as security at the invoice value of the reserved goods.

3. In case of processing, bonding and blending of the reserved goods by the purchaser with other goods which do not belong to Kaimann, Kaimann is entitled to co-ownership of the new goods in the proportion of the invoice value of the reserved goods to the invoice value of the other goods including the cost of processing at the time of processing (bonding, blending). The co-ownership rights thus generated apply correspondingly as reserved goods in accordance with these conditions.

4. The purchaser is entitled to dispose of the delivery items delivered within the normal course of business. He now assigns the resulting claims against third parties to Kaimann in advance as security - in total or at the level of the respective co-ownership share. Kaimann accepts this assignment. The purchaser is to inform Kaimann immediately in writing of any attachment or other impairment of Kaimann's rights by third parties. The power of disposition lapses on suspension of payment by the purchaser and on application for the opening of composition or insolvency proceedings.

5. The claims arising from bills accepted by the purchaser in lieu of payment or on account of payment are now assigned to Kaimann in advance. Instead of transferring the bills accepted, they are safeguarded by the purchaser for Kaimann.

6. Kaimann is obliged to release securities held by him at his choice to the extent that these exceed his claims by more than 10%.

7. In case of default of payment or breach of contract by the purchaser with regard to the retention of title, irrespective of its other rights, Kaimann is entitled to withdraw from the contract in accordance with §§ 323, 324 of the Civil Code (BGB) and to take back the reserved goods at the cost of the purchaser. The same applies if composition or insolvency proceedings are opened on the purchaser's assets, or if the opening of such proceedings is rejected due to a lack of assets, or if another substantial deterioration in his financial situation occurs.

8. The claims assigned to Kaimann serve as security for all his claims, including future claims against the purchaser arising from the business relationship - no. 1 applies accordingly. Subject to revocation by Kaimann, which is permissible at any time, the purchaser is entitled to collect the assigned claims himself. In case of default on payment by the purchaser, Kaimann is entitled, also without revoking the purchaser's authorisation to collect, to notify the purchaser's debtor of the assignment, and collect the debt himself. On request, the purchaser is obliged to inform the third party purchasers of the assignment and provide Kaimann with the information and documents he needs in order to

assert his rights against third party purchasers.

IX. Warranty, liability

1. Kaimann provides warranty, in accordance with the following provisions, for defects to delivery items which exist on transfer of risk. Delivery items are defective if they do not correspond to the specifications on Kaimann's technical data sheet or the test certificate. Warranty claims do not apply in case of only negligible deviation from the agreed quality or in case of only negligible impairment to the serviceability.

2. The delivery items are to be inspected by the purchaser immediately on arrival at the place of destination with regard to their external qualities, quantities and dimensions in the stack. If defects are detected, Kaimann is to be notified of this in writing without delay. If the customer fails to give notification of a defect which is discernable on due inspection, guarantee claims are ruled out. The same applies if later, a defect is detected which was initially not discernable, and the purchaser fails to notify Kaimann of this immediately, but at the latest within 8 days of detection of the error. Kaimann is always to be given the opportunity to inspect rejected delivery items.

3. In case of defects, Kaimann undertakes to fulfil its warranty obligation by means of replacement delivery. If this replacement delivery is unsuccessful twice, in accordance with the statutory regulations, the purchaser is entitled to reduction or cancellation. The purchaser can only assert claims for damages in accordance with the following numbers 6 and 7.

4. If Kaimann inspects the delivery objects due to a claim for rectification of a defect, and it emerges that the claim for rectification was unjustified because no guarantee case exists, the purchaser is to bear the costs. The claim for rectification is unjustified if the purchaser has recognised, or neglectfully failed to recognise, that no defect exists, and that the cause for the symptom behind the presumed defect lies within his own area of responsibility.

5. If the purchaser buys reject or Ila material from Kaimann, the parties agree that, compared with new goods, the quality of the delivery item is lower, and this forms no grounds for guarantee claims against Kaimann.

6. All guarantee claims of the purchaser lapse within one year taken from the delivery of the delivery items. Repairs or replacement deliveries within the guarantee period do not result in its extension. Exceptions are here formed by cases of mandatory statutory longer periods of limitation in accordance with §§ 438 para. 1 no. 2, 438 para. 3 and 479 of the Civil Code (BGB) and claims which form exceptions to Kaimann's limitation of liability in accordance with number 7 below (violation of fundamental contractual duties as well as life, limb or health, liability for guaranteed qualities and product liability).

7. Irrespective of the legal basis, Kaimann is liable in case of intent and gross negligence. In case of slight negligence, Kaimann is liable for the violation of fundamental contractual duties. This is limited however, to damage which is typical for this type of contract and foreseeable on conclusion of the contract. Kaimann's liability in accordance with product liability law for the lack of guaranteed features (guaranteed features have to be individually designated as such expressly in writing by Kaimann) and for damage arising through injury to life, limb or health is unaffected by this. On request, Kaimann is to provide the purchaser with product information, based on which, the purchaser can make his

product selection. In this case, Kaimann is liable for the correctness of the information provided there, but not for the selection of the actual delivery items or their suitability for the intended purpose. IX. 7 sentence 2 remains unaffected.

X. Product liability

1. The purchaser is to inform Kaimann of all cases which come to his attention which could lead to liability in terms of product liability, in particular cases in which a delivery item from Kaimann has caused material or personal damage. The duty to inform also applies with regard to all product liability claims made by third parties relating to delivery items from Kaimann, as well as official notices or warnings sent to the purchaser, and other advice of danger.

2. On request by Kaimann, the purchaser is to carry out or collaborate in all precautionary measures to prevent damage, as well as corrective measures (e.g. replacement of products which have not yet been sold on) at Kaimann's expense. In this case, Kaimann is responsible for taking the decision as to which measure is adequate and necessary.

3. Costs for measures carried out by the purchaser on his own authority are only to be paid by Kaimann in cases of imminent danger and where the measure was necessary.

XI. Place of jurisdiction and choice of law

1. The place of jurisdiction for all disputes arising from or in connection with the delivery is Paderborn. In addition, Kaimann is entitled to sue the purchaser at his general place of jurisdiction or assert his claims at any eligible foreign courts.

2. For all deliveries, also abroad, German material law applies exclusively, under exclusion of the rules of private international law and the CISG.

3. If individual provisions of these conditions are or become invalid, this does not affect the validity of the conditions as a whole, or the validity of the remaining provisions. The same applies to individual contracts. In this case, the invalid provision is to be replaced by a provision which comes as close as possible to the economic purpose of the invalid provision. The same applies in case of a gap in the provisions.

4. Amendments to these conditions require written form.

Kaimann is an active member of the most relevant industry associations locally and on a European level. As part of these associations Kaimann lobbies governments & organisations to recognise the vital role that pipe insulation plays in reducing energy losses and meeting long term energy saving commitments.



CEFEP

CEFEP, the European FEF and PEF interest group, was founded to provide a representative body for European manufacturers of elastomeric and polyethylene foam insulation materials. As a pan-European trade association, CEFEP is focused on promoting the benefits of FEF and PEF insulation regardless of the manufacturer. Kaimann is a founding member of CEFEP.



Eiif

Insulation is one of the most effective energy saving technologies available today, but a high percentage of industrial pipework remains uninsulated. The Eiif is a non-profit organisation dedicated specifically to promoting the energy saving potential of insulation in an industrial setting by conducting in-depth research, lobbying for enhanced energy saving legislation and operating the innovative TIPCHECK scheme, which helps large companies to identify energy saving opportunities on industrial sites. Kaimann is a founding member of the Eiif.

TIMSA

TIMSA, thermal and acoustic manufacturers and suppliers' association, is the UK's long-established trade association for insulation manufacturers and suppliers. Supporting the growth of the market for thermal and acoustic insulation within the UK, TIMSA co-ordinates its members to produce a range of technical literature and continues to promote the benefits of insulation to consumers, businesses and government. Kaimann is an active member of TIMSA.

TICA

TICA, the thermal insulation contractors' association, provides insulation contractors in the UK with the professional support necessary to ensure that standards of pipe insulation within the UK remain at a consistently high level. Kaimann is an associate member of TICA and provides technical support and training for TICA members.

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