

Technical Insulation
Great Britain & Ireland

Kooltherm® Pipe Insulation Quick Guide

HVAC & Building Services Insulation System



Contents

Introduction	3
Kooltherm® Pipe Insulation System	4
Features & Benefits	6
Recommended Thickness	8
Kooltherm® Insulated Pipe Support Inserts	12
Technical Data	14
Case Studies	16
Kingspan Technical Insulation	17
Market Sectors	18

Introduction

Kingspan Technical Insulation is a market leading manufacturer of high performance pipe and duct insulation products and systems.

Kingspan's technical insulation products are some of the thinnest and most efficient products commonly available for the insulation of pipework and ductwork in building services / HVAC, process and petrochemical applications and refrigeration services.

Products are supported by the complementary Pipeline Technical Advisory Service, providing guidance for designers, specifiers, consulting and mechanical engineers, mechanical and electrical M & E contractors, thermal insulation contractors' as well as building services and facilities managers.

Building Information Modelling (BIM)

Kingspan Kooltherm® Pipe Insulation is now available as a freely downloadable BIM file from NBS Source. For further information, please contact the Kingspan Technical Insulation Technical Services department.



NBS Specification

NBS users should refer to clause(s): S90/570 Insulation to pipelines.

CE Marking

Kooltherm® Pipe Insulation is CE Marked in accordance with BS EN 14314: 2009 + A1: 2013 (Thermal insulation products for building equipment and industrial installations. Factory made phenolic foam (PF) products specification).



Certification

Kooltherm® Pipe Insulation which is manufactured using continuous process lamination, has a best-in-class Eurofins Indoor Air Comfort Gold certificate and Kooltherm® Pipe Insulation which is cut from block technologies has Eurofins Indoor Air Comfort Certification.



Kooltherm® Pipe Insulation System

Kooltherm® Pipe Insulation

Kooltherm® Pipe Insulation comprises sections of Kooltherm® insulation faced with a factory-applied foil vapour barrier jacket bonded to the insulation core during manufacture.

Kooltherm® Pipe Insulation is CE Marked in accordance with BS EN 14314: 2009 + A1: 2013 (Thermal insulation products for building equipment and industrial installations. Factory made phenolic foam (PF) products. Specification).

Kooltherm® Pipe Insulation is available in a range of thicknesses to suit different performance specifications and may be used on mild steel, stainless steel, carbon steel, copper, multiplex and plastic pipework in standard and non-standard pipe diameters. Kooltherm® Pipe Insulation is manufactured using state of the art continuous and cut from block technologies. Both methods feature the use of a unique bore coated liner / bore coating and minimise production wastage.

Kooltherm® Pipe Insulation is supplied in 1 metre lengths and is available in a nominal density of 37 kg / m³. Higher density pipe insulation sections and insulated pipe supports are also available.

Kooltherm® Insulated Pipe Support Inserts

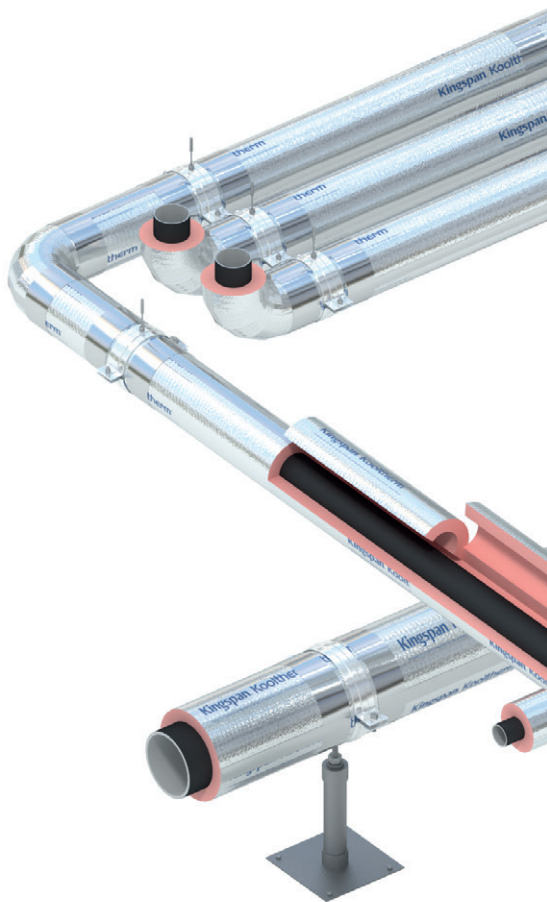
Kooltherm® Insulated Pipe Support Inserts provide optimal load bearing capacity whilst offering protection against insulation compression. Designed for use in pipe supports, hanger brackets and clamps, they will support the compressive loads imposed by horizontal pipework carrying water or other liquids.

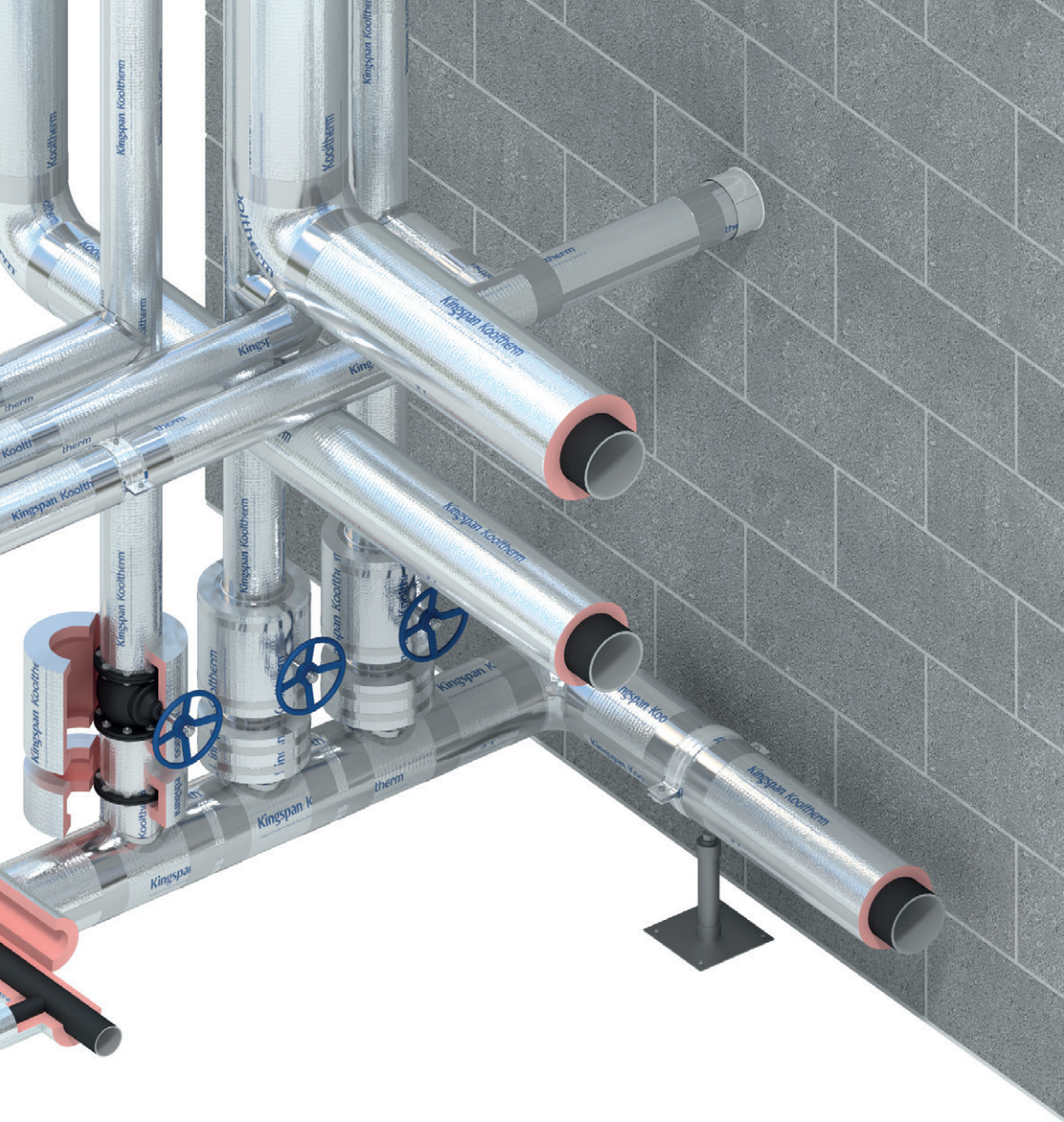
Vapour Barrier Jacket

All Kooltherm® Pipe Insulation products and systems are faced, as standard, with a durable and protective factory applied aluminium foil vapour barrier jacket reinforced with a glass scrim.

A matching self-adhesive tape is used to complete the vapour barrier at joints and breaks.

For applications with an operating temperature below 0°C, a factory applied low permeability multiple layer vapour barrier jacket is recommended in place of the standard reinforced aluminium foil vapour barrier jacket. Please contact Kingspan Technical Insulation Technical Services department for details of relevant certification and compliance.





Features & Benefits

Thermal Performance

With a 25 year aged thermal conductivity as low as 0.025 W/m.K (at 10°C mean), Kooltherm® Pipe Insulation is one of the most thermally efficient insulation materials commonly used. A low thermal conductivity allows specified thermal performance standards to be achieved with thinner insulation.

The thermal performance of Kooltherm® Pipe Insulation derives mainly from its closed cell properties. Its closed cell structure has been optimised to resist heat transfer. The closed cells have a small solid to void volume ratio, are small and uniform in size, and their construction very fine with extremely thin walls and minimum point contacts (struts).

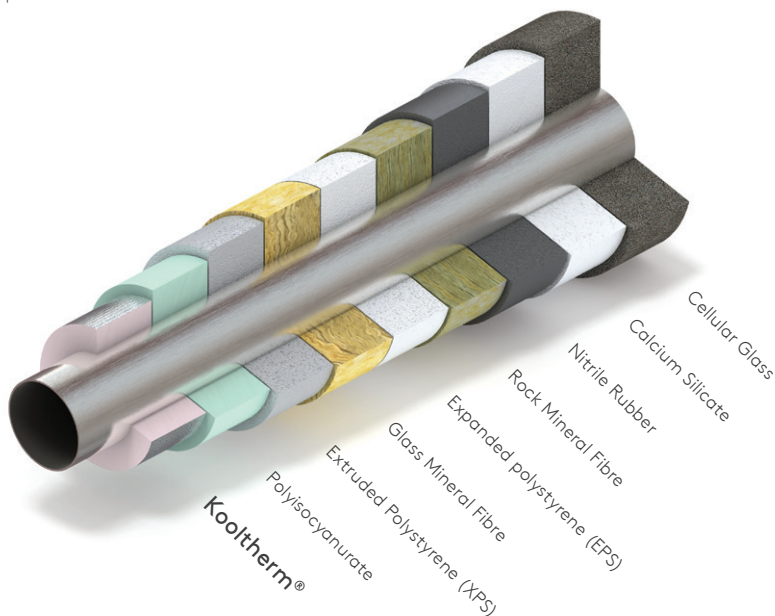
They are filled with a thermally efficient CFC / HCFC-free blowing agent that has low Ozone Depletion Potential (ODP) and low Global Warming Potential (GWP).

As a result of its closed cell, fibre free structure, Kooltherm® Pipe Insulation is unaffected by air infiltration - problems that can be experienced with mineral fibre and which can reduce thermal performance.

Moisture Resistance

Kooltherm® Pipe Insulation has a closed cell structure. The risk of moisture absorption into the insulation is effectively controlled as the factory-applied facing to Kooltherm® Pipe Insulation products and systems provides a high performance vapour barrier jacket.

A factory applied low permeability multiple layer vapour barrier jacket is recommended for low temperature sub zero applications.



Features & Benefits

Fire Performance

Kooltherm® Pipe Insulation has achieved European Classification (Euroclass) B₂-s1,d0, with the reinforced aluminium foil vapour barrier jacket facing exposed to the heat source, when classified to BS EN 13501-1: 2018 (Fire classification of construction products and building elements. Classification using data from reaction to fire tests), for pipework insulation with an outer diameter up to and including 300 mm.

Kooltherm® Pipe Insulation is available with FM Approval to FM Approval Class 4924. Not all thicknesses and sizes are covered by the FM Approval. Please contact the Kingspan Technical Insulation Technical Services department for further confirmation.



Environmental

Kooltherm® Pipe Insulation can directly contribute towards the award of credits under the previous and current versions of BREEAM. The product is manufactured to a BS EN ISO 14001: 2015 (Environmental management systems. Requirements with guidance for use) scheme, qualifying for the Responsible Sourcing credit.



Wembley Park, London
Photos are Copyright of Chris Winter.

Recommended Thickness

Insulation Thickness Table to Control Heat Loss: BS 5422: 2023

Steel Pipe Size	Hot Water 60 °C				Low Temperature Heating Water ≤95 °C			
	Kooltherm®	Max. Heat Loss	Kooltherm®	Max. Heat Loss	Kooltherm®	Max. Heat Loss	Kooltherm®	Max. Heat Loss
	Table 17 A		Table 17 B		Table 15 A		Table 15 B	
OD (mm)	ε = 0.05 silver	(W/m)	ε = 0.05 silver	(W/m)	ε = 0.05 silver	(W/m)	ε = 0.05 silver	(W/m)
≤17.2	15	6.60	20	6.04	20	8.90	20	7.78
≤21.3	20	7.13	20	6.45	20	9.28	25	8.42
≤26.9	20	7.83	20	7.00	20	10.06	25	9.05
≤33.7	20	8.62	25	7.71	25	11.07	30	9.86
≤42.4	20	9.72	25	8.46	25	12.30	30	10.83
≤48.3	25	10.21	30	9.01	25	12.94	30	11.42
≤60.3	25	11.57	30	9.94	30	14.45	30	12.61
≤76.1	25	13.09	30	11.25	30	16.35	35	14.12
≤88.9	25	14.58	30	12.17	30	17.91	35	15.28
≤114.3	25	17.20	35	14.29	30	20.77	40	17.51
≤139.7	25	19.65	35	16.09	30	23.71	40	19.72
≤168.3	30	22.31	35	18.24	35	26.89	40	22.34
≤219.1	30	27.52	40	22.06	35	32.54	50	26.61
≤273	40	32.40	50	25.95	50	38.83	50	30.91
>273	40	-	50	-	50	-	50	-
Ambient Temperature:						+15 °C		

Table 1: Indicative thickness (mm) of insulation for Non-Domestic Hot Water (60 °C) and Low Temperature Heating Service Areas (≤95 °C) to control heat loss.

(Based on Non-domestic Building Services Compliance Guide: 2013 Edition, Section 11; TIMSA HVAC Guide Sections 6.2.1 & 6.2.2; and BS 5422: 2023 (Method for specifying thermal insulating materials for pipes, tanks, vessels, ductwork and equipment operating within the temperature range - 40 °C to +700 °C) Tables 15 & 17).

Note: Please refer to Kooltherm® Pipe Insulation DoP for curves and full range of values. For pipes and vessels of diameter greater than 273 mm, the items shall be assumed to be 273 mm for calculation purposes.

Recommended Thickness

Insulation Thickness Table to Control Heat Gain & Control Condensation

Steel Pipe Size	Water 0 °C to 4.9 °C		Water >4.9 °C to <10 °C		Water >10 °C	
	Kooltherm®	Max. Heat Loss	Kooltherm®	Max. Heat Loss	Kooltherm®	Max. Heat Loss
	Standard		Standard		Standard	
OD (mm)	ε = 0.05 silver	(W/m)	ε = 0.05 silver	(W/m)	ε = 0.05 silver	(W/m)
≤17.2	25	-3.45	20	-2.97	15	-2.48
≤21.3	25	-3.81	20	-3.27	20	-2.72
≤26.9	30	-4.18	25	-3.58	20	-3.05
≤33.7	30	-4.60	25	-4.01	20	-3.41
≤42.4	35	-5.11	25	-4.53	20	-3.86
≤48.3	35	-5.45	30	-4.82	20	-4.11
≤60.3	35	-6.17	30	-5.48	20	-4.78
≤76.1	40	-6.70	30	-6.30	25	-5.51
≤88.9	40	-7.77	30	-6.90	25	-6.17
≤114.3	40	-9.15	35	-8.31	25	-7.28
≤139.7	45	-10.45	35	-9.49	25	-8.52
≤168.3	45	-11.86	35	-10.97	25	-9.89
≤219.1	50	-14.61	40	-13.57	30	-12.27
≤273	50	-17.48	50	-16.28	35	-14.74
Ambient Air Temperature: Relative Humidity: Minimum Surface Temperature:					+25 °C 80% +21.3 °C	

Table 2: Indicative thickness (mm) of insulation required for cold and chilled water supplies to control heat gain and control condensation.

(Based on Non-domestic Building Services Compliance Guide: 2013 Edition, Section 11; TIMSA HVAC Guide Sections 6.2.3 & 7.2; and BS 5422: 2023 (Method for specifying thermal insulating materials for pipes, tanks, vessels, ductwork and equipment operating within the temperature range -40 °C to +700 °C), Tables 6, 8, 10 & 11).

Note: Please refer to Kooltherm® Pipe Insulation DoP for curves and full range of values.

Recommended Thickness

Insulation Thickness Table to Control Heat Loss in Heat Networks

Steel Pipe Size	District Heating 55 °C	
	Kooltherm®	Max. Heat Loss
OD (mm)	ε = 0.05 silver	(W/m)
≤21.3	25	4.4
≤26.9	30	4.7
≤33.7	35	4.7
≤42.4	35	5.1
≤48.3	45	5.1
≤60.3	50	5.4
≤76.1	55	5.8
≤88.9	60	6.1
>89.0	60	-
Ambient Temperature:		20 °C
Flow Temperature:		55 °C

Table 3: Indicative thickness (mm) of insulation required to control heat loss in Heat Networks.

(Based on BS 5422: 2023 (Method for specifying thermal insulating materials for pipes, tanks, vessels, ductwork and equipment operating within the temperature range -40 °C to +700 °C) Table 19C).

Note: For pipes and vessels of diameter greater than 89 mm, the items shall be assumed to be 89 mm for calculation purposes. Please refer to Kooltherm® Pipe Insulation DaP for curves and full range of values.

Recommended Thickness

Insulation Thickness Table to Protect Against Freezing

Steel Pipe Size			Pipe Location	
NB (inches)	OD (mm)	ID (mm)	Indoor	Outdoor
1/2	21.3	16.0	30	70
3/4	26.9	21.6	15	30
1	33.7	27.2	15	20
1 1/4	42.4	35.9	15	15
1 1/2	48.3	41.8	15	15
2	60.3	53.0	15	15
2 1/2	76.1	68.8	15	15
3	88.9	80.8	15	15

Copper Pipe Size			Pipe Location	
	OD (mm)	ID (mm)	Indoor	Outdoor
	15	13.6	35	120
	22	20.2	15	30
	28	26.2	15	20
	35	32.6	15	15
	42	39.6	15	15
	54	51.6	15	15
	76	73.1	15	15
	108	105.0	15	15

Ambient Air Temperature - Indoor:	-6 °C
Ambient Air Temperature - Outdoor:	-10 °C
Initial Water Temperature:	+2 °C
Evaluation Period:	12 hours
Permitted Ice Formation:	50 %

Table 4: Minimum Thickness (mm) of Insulation required to give protection against freezing under specified commercial and institutional conditions.

(Based on BS 5422: 2023 (Method for specifying thermal insulating materials for pipes, tanks, vessels, ductwork and equipment operating within the temperature range -40 °C to +700 °C) Table 29).

Note: All of the above tables have been calculated to BS EN ISO 12241: 2022 (Thermal insulation for building equipment and industrial installations. Calculation rules). Please refer to Kooltherm® Pipe Insulation DaP for curves and full range of values.

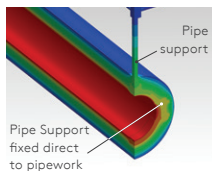
Kooltherm® Insulated Pipe Support Inserts

Kooltherm® Insulated Pipe Support Inserts are available to suit a full range of pipe diameters and in a full range of insulation thicknesses as shown in the following table; however, special sizes are available on request.

In addition to allowing a continuous vapour barrier on below ambient systems, thermal analysis of a + 75°C LTHW system to BS EN ISO 10211: 2007 (Thermal bridges in building construction. Heat flows and surface temperatures. Detailed calculations) has shown that Kooltherm® Insulated Pipe Support System can limit heat loss by up to 4 x more than rubber lined pipe clips, 5 x more than metal pipe clips and 10 x more than hardwood pipe support inserts.

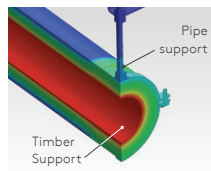
Load bearing calculations for the standard range of Kooltherm® Insulated Pipe Support Inserts are based upon the minimum compressive strength of the relevant density. They are designed to support the static compressive loads imposed by horizontal water filled mild steel and copper pipework with hanger supports spaced at the maximum centres shown below. Kooltherm® Insulated Pipe Support Inserts are not designed to accommodate pipe anchor loads and stresses.

Conventional Pipe Support Methods



Rubber lined pipe support

Thermal analysis* illustrates heat loss of up to 4 x greater than through the Kooltherm® Insulated Pipe Support System.



Timber support insert

Thermal analysis* illustrates significant heat loss of up to 10 x greater than through the Kooltherm® Insulated Pipe Support System.

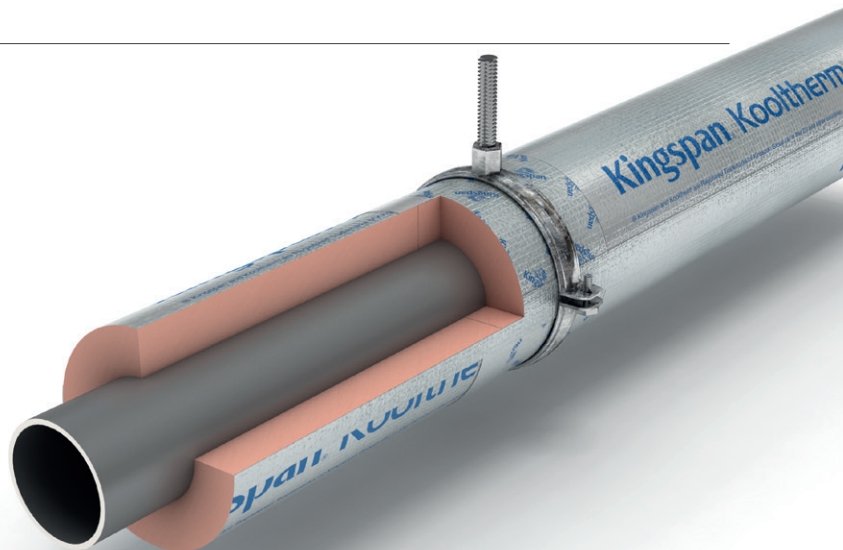
* When analysed in accordance with BS EN ISO 10211: 2007.

Steel Pipe

Steel Pipe Size			Kooltherm® Insulated Pipe Support Inserts			
NB (inches)	NB (mm)	OD (mm)	Length (mm)	Spreader Plate (mm)	Nominal Density (kg / m³)	Design Load (kg / support)
1/2	15	21.3	99	none	60	8.10
3/4	20	26.9	99	none	60	8.47
1	25	33.7	99	none	60	8.92
1 1/4	32	42.4	99	none	60	9.50
1 1/2	40	48.3	99	1.0	60	25.53
2	50	60.3	99	1.0	60	31.87
2 1/2	65	76.1	99	1.0	80	64.36
3	80	88.9	99	1.0	80	75.19
4	100	114.3	99	1.0	80	96.67
5	125	139.7	99	1.0	80	118.15
6	150	168.3	124	1.5	120	356.56
8	200	219.1	124	1.5	120	464.19
10	250	273.0	124	1.5	120	578.38
12	300	323.9	199	2.0	120	1101.27
14	350	355.6	199	2.0	120	1209.05
16	400	406.4	199	2.0	120	1381.77
18	450	457.0	199	2.0	120	1553.81

Values given are based upon Kooltherm® Insulated Pipe Support Inserts with an integral metal spreader plate where specified in the table above.

Kooltherm[®] Insulated Pipe Support Inserts



Copper Pipe

Copper Pipe Size	Kooltherm [®] Insulated Pipe Support Inserts			
NB (mm)	Length (mm)	Spreader Plate (mm)	Nominal Density (kg / m ³)	Design Load (kg / support)
15	99	none	60	7.68
22	99	none	60	8.14
28	99	none	60	8.54
35	99	none	60	9.01
42	99	none	60	9.48
54	99	1.0	60	28.54
67	99	1.0	60	35.42
76	99	1.0	80	64.28

Values given are based upon Kooltherm[®] Insulated Pipe Support Inserts with an integral metal spreader plate where specified in the table above.

Technical Data

General Physical Properties (Kooltherm® Pipe Insulation)

Property	Test Method	Unit	Typical Value
Nominal Density		kg / m ³	37 and 60
Thermal Conductivity at +10°C. Please refer to DoP for full values.	(BS EN 12667: 2001) (BS EN ISO 8497: 1996)	W/m.K	As low as 0.025
Colour			Pink / Grey
Closed Cell Content	(BS EN ISO 4590: 2016) Method 1	%	> 90
Operating Temperature: Pipe Section*	Upper Limit Lower Limit	°C °C	+ 110 - 50

* Factory applied low permeability multiple layer vapour barrier jacket recommended for applications operating below 0 °C.

Fire Test Classifications (Kooltherm® Pipe Insulation)

Property	Test Method	Density (kg/m ³)	Facing	Result	Diameter (mm)	Thickness (mm)
Reaction to fire	(BS EN 13501-1: 2018)	37	HVAC foil*	B ₁ - s1, d0	≤ 300	Any
			Triplex**	F	Any	Any
		60	HVAC foil*	B - s1, d0	> 300	25-80
FM Approval	Class 4924	37	Please contact Kingspan Technical Insulation Technical Services for further information.			

* Product tested with its factory applied reinforced aluminium foil vapour barrier.

** Product tested with its factory applied triplex low emissivity and zero permeability finish (for below zero applications).

For technical enquiries and / or insulation thickness calculations, please email techline.hvac@kingspan.com.

Notes:

BS EN 12667: 2001 (Thermal performance of building materials and products. Determination of thermal resistance by means of guarded hot plate and heat flow meter methods. Products of high and medium thermal resistance).

BS EN ISO 8497: 1996 (Thermal insulation - Determination of steady-state thermal transmission properties of thermal insulation for circular pipes (ISO 8497: 1994)).

BS EN ISO 4590: 2016 (Rigid cellular plastics. Determination of the volume percentage of open cells and of closed cells).

BS EN 13501-1: 2018 (Fire classification of construction products and building elements - Classification using data from reaction to fire tests).

Technical Data

General Physical Properties (Kooltherm® Insulated Pipe Support Inserts)

Property	Test Method	Unit	Typical Value		
Nominal Density		kg / m ³	60	80	120
Thermal Conductivity at +10°C. Please refer to DoP for full values.	(BS EN ISO 8497: 1996)	W/m.K	0.035	0.037	0.044
Colour			Pink /Grey	Grey	Grey
Closed Cell Content	(BS EN ISO 4590: 2016) Method 1	%	>90%	>90%	>90%
Operating Temperature Pipe Supports	Upper Limit	°C	+ 110	+ 110	+ 110
	Lower Limit	°C	-	- 50	- 50

Fire Test Classifications (Kooltherm® Insulated Pipe Support Inserts)

Property	Test Method	Density (kg/m ³)	Facing	Result	Diameter (mm)	Thickness (mm)
Reaction to fire	(BS EN 13501-1: 2018)	60	HVAC foil	B ₁ - s1, d0	≤ 300	Any
		80	HVAC foil*	B ₁ - s1, d0	≤ 300	Any
		120	HVAC foil*	B ₁ - s1, d0	≤ 300	Any
			HVAC foil*	B - s1, d0	> 300	Any

* Tested with an integral metal spreader plate, with reinforced aluminium foil vapour barrier

For technical enquiries and / or insulation thickness calculations, please email techline.hvac@kingspan.com.

Notes:

BS EN ISO 4590: 2016 (Rigid cellular plastics. Determination of the volume percentage of open cells and of closed cells).

BS EN 13501-1: 2018 (Fire classification of construction products and building elements - Classification using data from reaction to fire tests).

BS ISO 8497: 1996 (Thermal insulation - Determination of steady-state thermal transmission properties of thermal insulation for circular pipes (ISO 8497: 1994)).

Case Studies



University of Nottingham



Kensington High Street



Acton Gardens



Interdisciplinary Biomedical Research Building (IBRB)



Birmingham Library



Marks & Spencer

Photo is copyright of Paul Eccleston Arthouse Ltd 2020

Image supplied courtesy of DB Photography

Kingspan Technical Insulation

Company Details

Kingspan Technical Insulation is part of the Kingspan Group plc., one of Europe's leading construction product manufacturers. The Kingspan Group was formed in the late 1960s and is a publicly quoted group of companies headquartered in Kingscourt, County Cavan, Ireland.

Kingspan Technical Insulation is a market leading manufacturer of premium and high performance rigid insulation products and insulated systems for HVAC / building services, process, petrochemical, refrigeration and passive fire protection applications.

Products & Applications

Kingspan Technical Insulation products are suitable for both new build and refurbishment in a variety of applications. The available insulation solutions are listed below.

- Pipe Insulation
- Insulated Pipe Support Inserts
- Tank and Vessel Insulation
- Duct Insulation
- Pre-insulated Ductwork
- Passive Fire Protection

Technical Insulation Product Benefits

Kingspan Kooltherm® Products

- With a thermal conductivity as low as 0.025 W/mK, these are some of the most thermally efficient insulation products commonly used for pipe and ductwork in HVAC and building services applications.
- Some of the most lightweight and thinnest commonly used insulation products.
- Manufactured with a blowing agent that has low Ozone Depletion Potential (ODP) and low Global Warming Potential (GWP).

Kingspan K-Roc® Pipe Insulation

- Supplied with a wide, self-adhesive lap.
- Supplied in 1.2 metre lengths.
- Reaction to fire classification A2_L/A2-s1,d0.

Kingspan KoolDuct® Products

- Thin insulation - the low thermal conductivity (k-value / l-value) of Kingspan KoolDuct® panels makes them thermally efficient, and hence the thinnest, insulation product commonly used for pre-insulated HVAC ductwork.
- Manufactured with a blowing agent that has low Ozone Depletion Potential (ODP) and low Global Warming Potential (GWP).

Kingspan Therma™ Products

- With a thermal conductivity as low as 0.023 W/mK, these are amongst the more thermally efficient insulation products commonly used for external ductwork in HVAC and building services applications.

Tarec™pir

- With a thermal conductivity as low as 0.026 W/mK these are amongst the more thermally efficient insulation products commonly used for process and petrochemical applications.
- Manufactured with a blowing agent that has low Ozone Depletion Potential (ODP) and low Global Warming Potential (GWP).

Tarec™pur

- With a low thermal conductivity these are amongst the more thermally efficient insulation products commonly used for refrigeration applications.
- Manufactured with a blowing agent that has low Ozone Depletion Potential (ODP) and low Global Warming Potential (GWP).

All Products

- Unaffected by air infiltration - a problem that can be experienced with mineral fibre and which can reduce thermal performance.
- Safe and easy to install.
- If installed correctly, can provide reliable long term thermal performance over the lifetime of the building.
- Each product achieves the required fire performance for its intended application.

Kingspan K-Stop® Passive Fire Protection

- A comprehensive range of passive fire protection products including coated batts, cavity barriers, sealants, and mastics for fire protection in walls and floors.

www.kingspanpassivefireprotection.co.uk

Market Sectors



Marine

Terminal & LNG

Industrial

Hotel

Retail

Processing

Leisure



Apartments

Infrastructure

Commercial

Healthcare

Education

Contact Details

Great Britain

Kingspan Technical Insulation Ltd
Harvey Road | Burnt Mills Industrial Estate
Basildon | SS13 1QJ

T: +44 (0) 1457 890400

E: info.kti@kingspan.com

www.kingspantechanicalinsulation.co.uk

For individual department contact details please visit

www.kingspantechanicalinsulation.co.uk/contacts

Ireland

Kingspan Insulation Ltd
Castleblayney | County Monaghan

T: +353 (0) 42 975 4219

E: info.kti@kingspan.com

www.kingspantechanicalinsulation.ie



For the most up-to-date
version of this technical data
sheet please scan or click [here](#).

To check that you have the latest version of this brochure please visit
www.kingspantechanicalinsulation.co.uk or scan the QR code directly above.

To access pre-existing product information or information relating to previously sold/
discontinued products please email info.kti@kingspan.com.

The information contained in this brochure is believed to be correct at the date of publication. Kingspan Technical Insulation Limited ("Kingspan Technical Insulation") reserves the right to alter or amend the product specifications without notice due to continuous improvement commitments. There may also be relevant changes between publications with regard to legislation, or other developments affecting the accuracy of the information contained in this brochure. Product thicknesses shown in this document should not be taken as being available ex-stock and reference should be made to the current Kingspan Technical Insulation price-list or advice sought from Kingspan Technical Insulation's Customer Service Department. The information, technical details and fixing instructions etc. included in this literature are given in good faith and apply to uses described. Kingspan Technical Insulation does not accept responsibility for issues arising from using products in applications different from those described within this brochure or failure to correctly follow the information or instructions as described within this brochure. Recommendations for use should be verified with a suitable expert or professional for suitability and compliance with actual requirements, specifications and any applicable laws and regulations. For other applications or conditions of use, Kingspan Technical Insulation offers a technical advisory service (see above for contact details), the advice of which should be sought for uses of Kingspan Technical Insulation products that are not specifically described herein. Please check that your copy of this literature is current by contacting the Kingspan Technical Insulation Marketing Department.

© Kingspan, Kooltherm, KoolDuct, K-Stop, K-Rac and the Lion Device are Registered Trademarks of the Kingspan Group plc in the UK, Ireland and other countries. All rights reserved.

™ Tarec and Therma are Trademarks of the Kingspan Group plc.

Registered in England and Wales, No. 05571822. Registered Office: Harvey Road, Burnt Mills Industrial Estate, Basildon, SS13 1QJ, England. VAT GB872003452.

Registered in Ireland, No. 54621. Registered Office: Bree Industrial Estate, Castleblayney, Co. Monaghan, Ireland. VAT IE45750691.

