



Kooltherm®

Pipe Insulation Quick Guide

HVAC & Building Services Insulation System



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Introduction

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

Kingspan premium performance 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.

Certification

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).



The Eurofins 'Indoor Air Comfort' product certification shows compliance of a product with low VOC (volatile organic chemical) emissions criteria.

Kooltherm® Pipe Insulation has a best-in-class Eurofins Indoor Air Comfort Gold certificate which recognises the product as an outstanding material according to VOC Indoor Air Quality emissions standards across Europe, thus contributing towards the award of credits for both BREEAM and LEEDv4.



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.

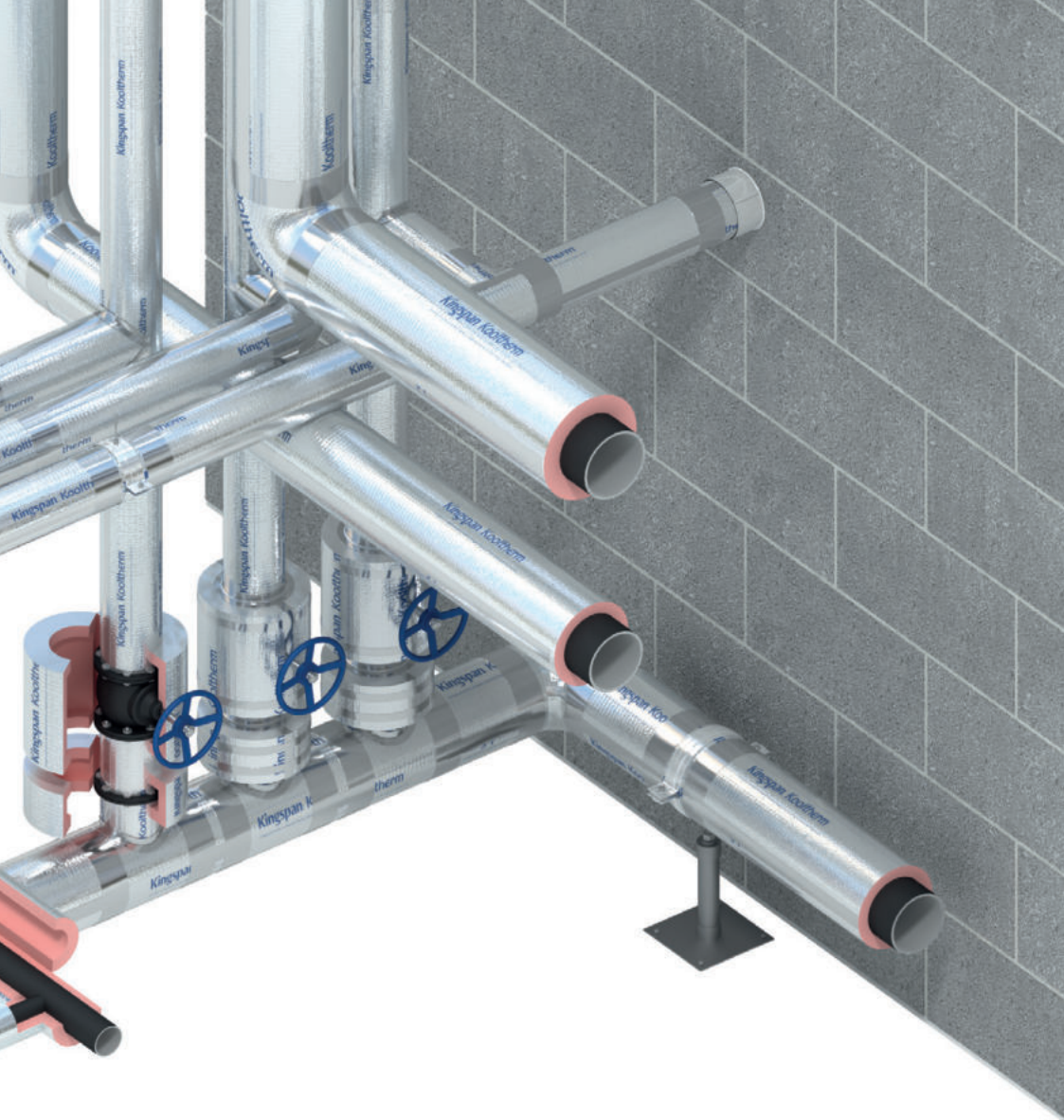
Vapour Barrier Jacket

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/mK (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).

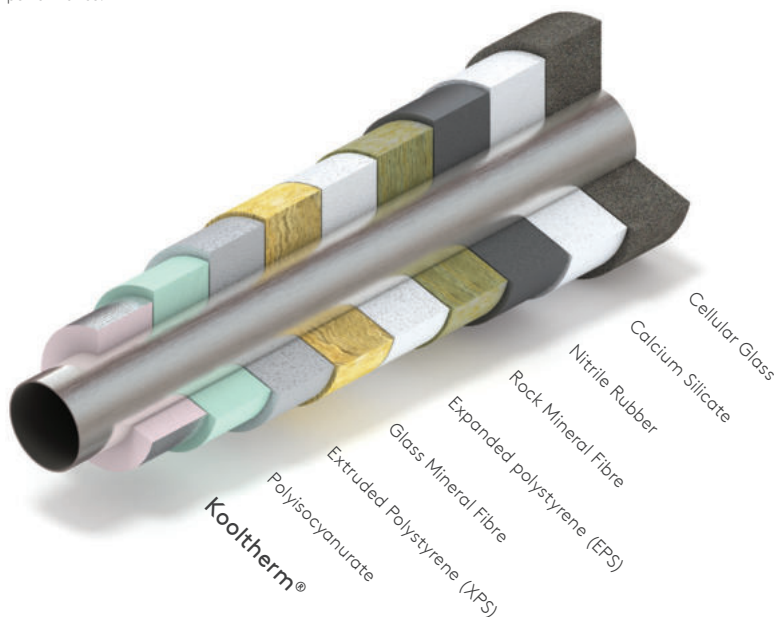
They are filled with a thermally efficient CFC / HCFC-free blowing agent that has low Ozone Depletion Potential (ODP) and low Global Warming Potential (GWP).

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 eliminated 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 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. Further details of the current FM Approved specification can be located at www.approvalguide.com. Please contact the Kingspan Technical Insulation Technical Services department for further confirmation.



Fire Test Classifications (Kooltherm® Pipe Insulation)

| Property | Test Method | Typical Result |
|------------------|---------------|-----------------------------------------------------------------------------------------------------------------------------|
| Reaction to fire | BS EN 13501-1 | B ₂ - s1, d0 (Outer diameter <300 mm) B ₂ - s1, d0 (Outer diameter >300 mm 50-100 mm thickness) |
| FM Approval | Class 4924 | Please contact Kingspan Technical Insulation Technical Services for further information. |

Environmental

Kooltherm® Pipe Insulation can directly contribute towards the award of several 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.



Studley Castle Hotel

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 | 6.6 | 15 | 6.04 | 15 | 8.9 | 20 | 7.78 |
| ≤21.3 | 15 | 7.13 | 20 | 6.45 | 15 | 9.28 | 20 | 8.42 |
| ≤26.9 | 15 | 7.83 | 20 | 7 | 20 | 10.06 | 25 | 9.05 |
| ≤33.7 | 20 | 8.62 | 20 | 7.71 | 20 | 11.07 | 25 | 9.86 |
| ≤42.4 | 20 | 9.72 | 25 | 8.46 | 25 | 12.3 | 30 | 10.83 |
| ≤48.3 | 20 | 10.21 | 25 | 9.01 | 25 | 12.94 | 30 | 11.42 |
| ≤60.3 | 20 | 11.57 | 30 | 9.94 | 25 | 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 | 17.2 | 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 | 45 | 26.61 |
| ≤273 | 30 | 32.4 | 40 | 25.95 | 35 | 38.83 | 45 | 30.91 |
| >273 | 30 | - | 40 | - | 35 | - | 45 | - |
| Hot Water at 60°C thermal conductivity: Low Temperature Heating Water (LTHW) at ≤95°C thermal conductivity: Ambient Temperature: | | | | | | 0.026 W/m.k 0.027 W/m.k +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 full range of values.

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 | 15 | -2.72 |
| ≤26.9 | 30 | -4.18 | 25 | -3.58 | 20 | -3.05 |
| ≤33.7 | 30 | -4.6 | 25 | -4.01 | 20 | -3.41 |
| ≤42.4 | 35 | -5.11 | 25 | -4.53 | 20 | -3.86 |
| ≤48.3 | 35 | -5.45 | 25 | -4.82 | 20 | -4.11 |
| ≤60.3 | 35 | -6.17 | 30 | -5.48 | 20 | -4.78 |
| ≤76.1 | 40 | -6.7 | 30 | -6.3 | 25 | -5.51 |
| ≤88.9 | 40 | -7.77 | 30 | -6.9 | 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 | 45 | -14.61 | 40 | -13.57 | 30 | -12.27 |
| ≤273 | 50 | -17.48 | 40 | -16.28 | 30 | -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.

*For pipes and vessels of diameter greater than 273 mm, the items shall be assumed to be 273 mm for calculation purposes.
(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).

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) | $\epsilon = 0.05$ silver | (W/m) |
| ≤21.3 | 25 | 4.4 |
| ≤26.9 | 25 | 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).

Recommended Thickness

Insulation Thickness Table to Protect Against Freezing

| Steel Pipe Size | | | | Pipe Location | |
|-----------------|------------|------------|------------|---------------|---------|
| NB (inches) | NB (mm) | OD (mm) | ID (mm) | Indoor | Outdoor |
| 1/2 | 15 | 21.3 | 16.0 | 30 | 75 |
| 3/4 | 20 | 26.9 | 21.6 | 15 | 30 |
| 1 | 25 | 33.7 | 27.2 | 15 | 20 |
| 1 1/4 | 32 | 42.4 | 35.9 | 15 | 15 |
| 1 1/2 | 40 | 48.3 | 41.8 | 15 | 15 |
| 2 | 50 | 60.3 | 53.0 | 15 | 15 |
| 2 1/2 | 65 | 76.1 | 68.8 | 15 | 15 |
| 3 | 80 | 88.9 | 80.8 | 15 | 15 |

| Copper Pipe Size | | | Pipe Location | |
|------------------|--|------------|---------------|---------|
| NB (mm) | | ID (mm) | Indoor | Outdoor |
| 15 | | 13.6 | 35 | 130 |
| 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 |
| 76.1 | | 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).

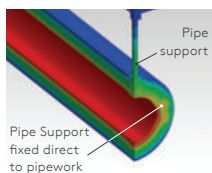
Kooltherm® Insulated Pipe Support Inserts

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.

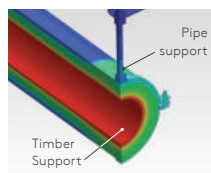
Load bearing calculations for the standard range of Kooltherm® Insulated Pipe Support Inserts are based upon the minimum compressive strength of the relevant density. They are designed to support the static compressive loads imposed by horizontal water filled mild steel and copper pipework with hanger 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.

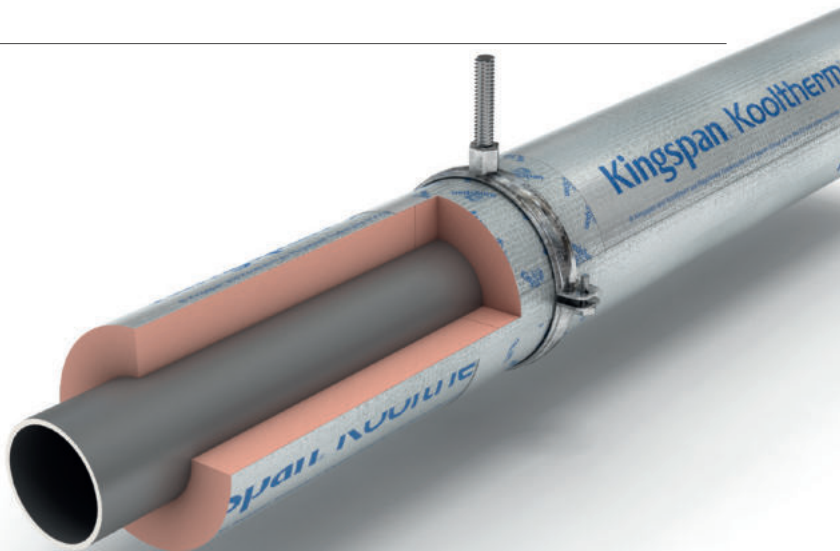
* When analysed in accordance with BS EN ISO 10211: 2007.

Steel Pipe

| Steel Pipe Size | | | Kooltherm® Insulated Pipe Support Inserts | | | |
|-----------------|---------|---------|-------------------------------------------|---------------------|------------------------------|----------------------------------------|
| NB (inches) | NB (mm) | OD (mm) | Length (mm) | Spreader Plate (mm) | Maximum Support Distance (m) | Nominal Density (kg / m ³) |
| 1/2 | 15 | 21.3 | 99 | none | 2 | 60 |
| 3/4 | 20 | 26.9 | 99 | none | 2 | 60 |
| 1 | 25 | 33.7 | 99 | none | 2 | 60 |
| 1 1/4 | 32 | 42.4 | 99 | none | 2 | 60 |
| 1 1/2 | 40 | 48.3 | 99 | 1.0 | 4 | 60 |
| 2 | 50 | 60.3 | 99 | 1.0 | 4 | 60 |
| 2 1/2 | 65 | 76.1 | 99 | 1.0 | 4 | 80 |
| 3 | 80 | 88.9 | 99 | 1.0 | 4 | 80 |
| 4 | 100 | 114.3 | 99 | 1.0 | 4 | 80 |
| 5 | 125 | 139.7 | 99 | 1.0 | 6 | 80 |
| 6 | 150 | 168.3 | 124 | 1.5 | 6 | 120 |
| 8 | 200 | 219.1 | 124 | 1.5 | 6 | 120 |
| 10 | 250 | 273.0 | 124 | 1.5 | 6 | 120 |
| 12 | 300 | 323.9 | 200 | 2.0 | 4 | 120 |
| 14 | 350 | 355.6 | 200 | 2.0 | 4 | 120 |
| 16 | 400 | 406.4 | 200 | 2.0 | 4 | 120 |
| 18 | 450 | 457.0 | 200 | 2.0 | 4 | 120 |

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 (inches) | Length (mm) | Spreader Plate (mm) | Maximum Support Distance (m) | Nominal Density (kg / m³) |
| 15 | 99 | none | 2 | 60 |
| 22 | 99 | none | 2 | 60 |
| 28 | 99 | none | 2 | 60 |
| 35 | 99 | none | 2 | 60 |
| 42 | 99 | none | 2 | 60 |
| 54 | 99 | 1.0 | 4 | 60 |
| 67 | 99 | 1.0 | 4 | 60 |
| 76 | 99 | 1.0 | 4 | 80 |

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 | 120 |
| Thermal Conductivity at +10°C. Please refer to DoP for full values. | (BS EN 12667: 2001) | W/mK | 0.025 | 0.045 |
| Colour | | | Pink / Grey | Grey |
| Closed Cell Content | (BS EN ISO 4590: 2016) Method 1 | % | ≥ 90 | - |
| Operating Temperature: Pipe Section* | Upper Limit Lower Limit | °C °C | + 110 - 50 | + 110 - 50 |

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

General Physical Properties (Reinforced Foil Vapour Barrier Jacket)

| Property | Test Method | Unit | Typical Value |
|-------------------------------------|------------------------|--------------------|---------------|
| Weight | (BS EN ISO 5360: 2016) | g / m ² | 100 + / - 30 |
| Water Vapour Permeance (HVAC Foil): | (ASTM F 1249: 2020) | g/(s.MN) | <0.0048 |

Fire Test Classifications (Kooltherm® Pipe Insulation)

| Property | Test Method | Typical Result |
|------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reaction to fire | (BS EN 13501-1: 2018) | B ₁ - s1, d0 (reinforced aluminium foil vapour barrier jacket for outer diameters of up to and including 300 mm). B - s1, d0 (reinforced aluminium foil vapour barrier jacket for outer diameters above 300 mm between 50-100 mm thickness) |
| FM Approval | Class 4924 | Please contact Kingspan Technical Insulation Technical Services for further information. |

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. | (BS EN 12667: 2001) | W/mK | 0.031 | 0.036 | 0.045 |
| Colour | | | Pink / Grey | Grey | Grey |
| Closed Cell Content | BS EN ISO 4590: 2016 Method 1 | % | >90% | >90% | >90% |
| Operating Temperature: Pipe Section* | Upper Limit Lower Limit | °C °C | + 110 - 50 | + 110 - 50 | + 110 - 50 |

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

Notes:

BS EN ISO 845: 2009 (Cellular plastics and rubbers. Determination of apparent density).
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 4590: 2016 (Rigid cellular plastics. Determination of the volume percentage of open cells and of closed cells).
BS EN ISO 5360: 2016 (Anaesthetic vapourisers. Agent-specific filling systems).
ASTM F 1249: 2020 (Standard Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor).
BS EN 13501-1: 2018 (Fire classification of construction products and building elements - Classification using data from reaction to fire tests).

For technical enquiries and / or insulation thickness calculations, please email hvactechnical@kingspaninsulation.co.uk.

Case Studies



University of Nottingham



Kensington High Street



Acton Gardens



Interdisciplinary Biomedical Research Building (IBRB)



Birmingham Library



Marks & Spencer

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Market Sectors





Apartments

Infrastructure

Commercial

Healthcare

Education

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 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 thermal conductivity as low as 0.025 W/mK 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 Safire™ 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

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