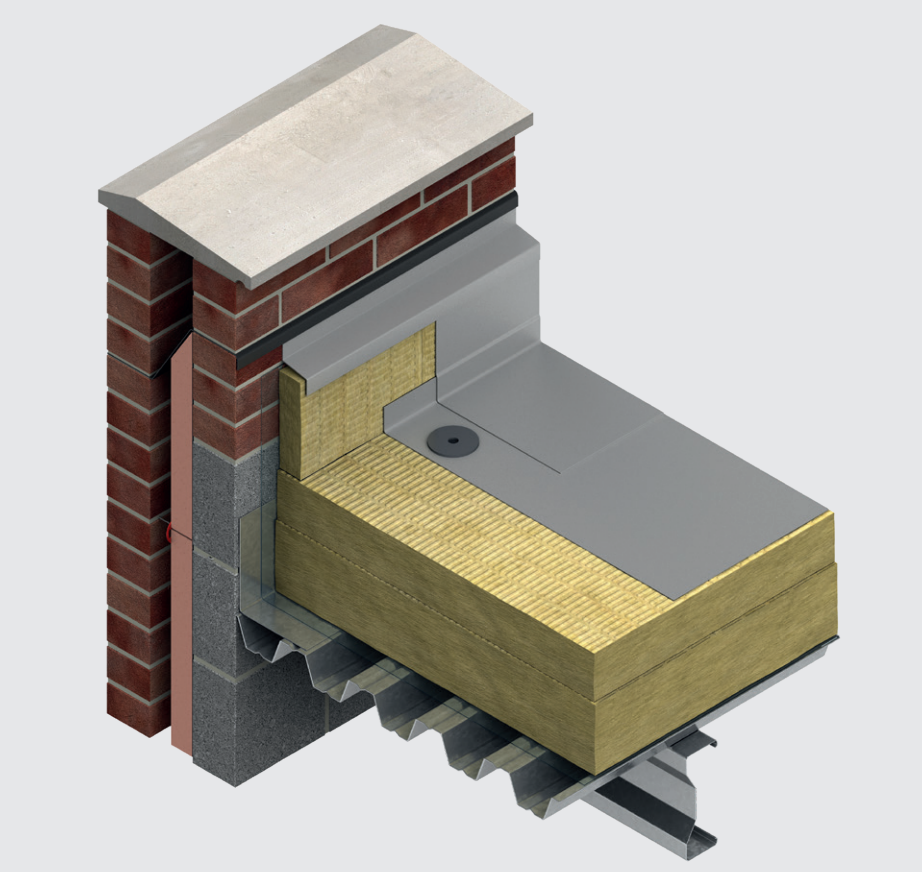
Third Issue | 12/2024

K-Roc® Flat Roof Slab 70/039

Insulation for flat roofs waterproofed with mechanically fixed single-ply waterproofing



- Rock mineral fibre insulation with a thermal conductivity of 0.039 W/mK
- A1 Euroclass
- Fully compatible with most mechanically fixed single-ply waterproofing systems
- Ideal for new build and refurbishment

Kingspan®

Typical constructions and U-values

Assumptions

The U-values in the table that follows have been calculated using the method detailed in BS EN ISO 6946: 2017 (Building components and building elements. Thermal resistance and thermal transmittance. Calculation methods), and using the conventions set out in BR 443 (Conventions for U-value calculations). They are valid for the constructions shown in the details immediately above each table.

The example is based on Kingspan K-Roc® Flat Roof Slab 70/039 installed with a waterproofing system using a mechanically fixed single-ply membrane. Kingspan K-Roc® Flat Roof Slab 70/039 is securely fastened to a sealed metal deck or incorporating a Vapour Control Layer (VCL). The VCL is laid loosely over the structural deck, with all layers fastened mechanically to the specific deck type listed for each application.

For other constructions please contact the Kingspan Insulation Technical Service Department (see rear cover) for a detailed U-value calculation.

NB When calculating U-values to BS EN ISO 6946: 2017, the type of mechanical fixing used may change the thickness of insulation required. These calculations assume telescopic tube fasteners with a thermal conductivity of 1.00 W/mK or less, the effect of which is insignificant.

NB For the purposes of these calculations the standard of workmanship has been assumed good, and therefore the correction factor for air gaps has been ignored.

NB The figures quoted are for guidance only. A detailed U-value calculation and a condensation risk analysis should be completed for each project.

NB If your construction is different for those specified, and / or to gain a comprehensive U-value calculation along with a condensation risk analysis for your project, please consult the Kingspan Insulation Technical Service Department for assistance (see rear cover for details).

U-value table key

Further information on the applicable notional and area weighted average limiting U-values is available in the relevant geographical documentation:

- Approved Documents L to the Building Regulations for England
- Approved Documents L to the Building Regulations for Wales
- Technical Handbooks Section 6 to the Building Standards for Scotland
- Technical Booklets F1 & F2 to the Building Regulations for Northern Ireland
- Technical Guidance Document L (Dwellings) and Technical Guidance Document L (Buildings other than Dwellings) to the Building Regulations for the Republic of Ireland.

Metal deck

Metal deck with no ceiling

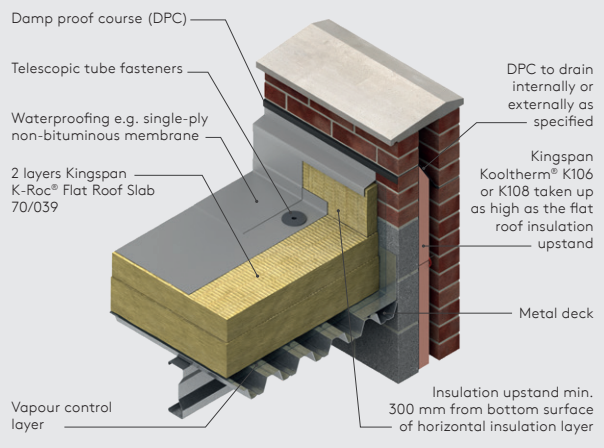


Figure 1

Insulant thickness (mm)	U-values (W/m²K)
120	0.31
140	0.27
160	0.24
180 (80 +100)	0.21
200 (100 +100)	0.19
220 (100 + 120)	0.17
240 (120 + 120)	0.16
260 (120 + 140)	0.15
280 (140 + 140)	0.14
300 (140 + 160)	0.13
320 (160 + 160)	0.12
340 (100 + 120 + 120)	0.11
380 (120 + 120 + 140)	0.10
420 (140 + 140 + 140)	0.09

NB Refer to local distributor or Kingspan Insulation price list for current stock and non-stock sizes.

Design considerations

Sustainability & responsibility

Kingspan Insulation has a long-term commitment to sustainability and responsibility: as a manufacturer and supplier of insulation products; as an employer; as a substantial landholder; and as a key member of its neighbouring communities.

A report covering the sustainability and responsibility of Kingspan Insulation Ltd's operations at its Pembridge (Herefordshire) and Selby (North Yorkshire) manufacturing facilities is available upon request from **literature@kingspaninsulation.co.uk**

Specification clause

Kingspan K-Roc® Flat Roof Slab 70/039 should be described in specifications as:-

The roof insulation shall be Kingspan K-Roc® Flat Roof Slab 70/039 ____mm thick: comprising a rock mineral fibre insulation with a thermal conductivity of 0.039 W/mK. The product shall be installed in accordance with the instructions issued by Kingspan Insulation.

Product classifications

Uniclass UK

Pr_25_57_06_50 Mineral fibre slab insulation

CAWS

J42/10, J42/27, J42/110, J42/425, J42/430

Details also available at **source.thenbs.com**.

Wind loadings

Wind loadings should be assessed in accordance with BS EN 1991-1-4: 2005 + A1: 2010 (National Annex to Eurocode 1 actions on structures. General actions. Wind actions) / I.S. EN 1991-1-4: 2005 (Eurocode 1: Actions on structures - Part -1-4: Generation actions - Wind actions), taking into account:

- length / width / height of the building
- orientation of the building
- wind speed
- aspect (e.g. on a hill side)
- topographical value of the surrounding area.

Falls

The fall on a flat roof, constructed using Kingspan K-Roc® Flat Roof Slab 70/039, is normally provided by the supporting structure being directed towards the rainwater outlets. The fall should be smooth and steep enough to prevent the formation of rainwater ponds. In order to ensure adequate drainage, BS 6229: 2018 (Flat roofs with continuously supported coverings. Code of practice) recommends uniform gradients of not less than 1 in 80. However, because of building settlement, it is advisable to design in even greater falls.

Roof waterproofing

Kingspan K-Roc® Flat Roof Slab 70/039 is suitable for use with most mechanically fixed single–ply waterproofing membranes.

NB Kingspan K-Roc® Flat Roof Slab is not suitable for use with bitumen based built-up waterproofing systems or mastic asphalt. Kingspan Thermaroof® TR27 can be used instead in these applications.

Water vapour control

When installing Kingspan K-Roc® Flat Roof Slab 70/039 in new-build roofs, it is essential to ensure that it is placed over an appropriate vapor control layer. This layer should be separate from the slab unless it is being utilised alongside a sealed metal deck. It is also highly recommended to conduct a thorough condensation risk analysis for each project, regardless of the type of deck being used.

For an effective vapour control layer, it is recommended to use a 1000-gauge (250 microns) polythene sheet. When installing the sheet, ensure that all joints are overlapped and sealed using double-sided self-adhesive tape. This will ensure maximum effectiveness in preventing vapour transmission. For more detailed instructions on installation, please consult the application guidelines provided by the manufacturer.

Design considerations

Roof loading / traffic

Kingspan K-Roc® Flat Roof Slab 70/039 is only suitable for light duty maintenance access. Excessive foot traffic can compromise the integrity of the insulation material by crushing or disturbing the fibres.

To ensure the durability and safety of the roofing system, it is recommended to install a protective layer on the roof during and after installation. In areas where maintenance is to be carried out, designated walkways for light or heavy foot traffic should be applied for additional protection. It is advisable to consult with the membrane manufacturer to explore the available options for this protective layer.

When installing roof-mounted equipment such as air handling or refrigeration units, it is preferable to position them on independent upstands that directly bear onto the substrate. However, if this is not feasible and the equipment needs to be placed directly onto the finished roof, it may be necessary to provide further protection to distribute the load on Kingspan K-Roc® Flat Roof Slab 70/039. In such instances, it is recommended to seek advice from the Kingspan Insulation Technical Service Department (see rear cover for details) and the membrane manufacturer.

Spanning on metal decks

The metal deck must meet the standards of BS / I.S. EN 1090-4: 2018 (Execution of steel structures and aluminium structures - Technical requirements for cold-formed structural steel elements and cold-formed structures for roof, ceiling, floor and wall applications) for steel or BS / I.S. EN 1090-5: 2017 (Execution of steel structures and aluminium structures - Technical requirements for cold-formed structural aluminium elements and cold-formed structures for roof, ceiling, floor and wall applications) for aluminium. It should also be able to resist loads as specified in BS / I.S. EN 1991-1-1: 2002 (Eurocode 1. Actions on structures - General actions - Densities, self-weight, imposed loads for buildings), BS / I.S. EN 1991-1-3: 2003 + A1: 2015 (Eurocode 1. Actions on structures - General actions. Snow loads) and BS EN 1991-1-4: 2005 + A1: 2010 / I.S. EN 1991-1-4: 2005, and be fixed according to the manufacturer's instructions.

If using steel, the material should be galvanised to BS / I.S. EN 10346: 2015 (Continuously hot-dip coated steel flat products for cold forming. Technical delivery conditions) with a typical gauge range of 0.7-1.2 mm. For aluminium, it should conform to BS / I.S. EN 485-2: 2016 + A1: 2018 (Aluminium and aluminium alloys. Sheet, strip and plate - Mechanical properties) with a minimum gauge of 0.9 mm. Both materials should be used in accordance with BS EN 1993-1-3: 2024 (Eurocode 3. Design of steel structures - Cold-formed members and sheeting) / I.S. EN 1993-1-3: 2006 (Eurocode 3 - Design of steel structures - Part 1-3: General rules - Supplementary rules for cold-formed members and sheeting) and BS EN 1999-1-4: 2005 + A1: 2010 / I.S. EN 1991-1-4: 2005 respectively.

Specifically for mechanically fixed systems, ensure that the profile has a crown that is at least 40% of the profile width.

Free-span over a metal deck, the board thickness should be the maximum trough width divided by three. For optimal performance, the trough width should not exceed 300 mm.

Existing roofs

For advice on using K-Roc® Flat Roof Slab 70/039 on existing roofs, please contact the Kingspan Insulation Technical Service Department (see rear cover for details).

Sitework

Installing over metal decks

- Metal decks should be clean, dry, without large projections, steps or gaps, and should be graded for efficient water drainage to all rainwater outlets. When installing over a metal deck, it is advisable that the fixing manufacturer carry out a pull-out test.
- If using a sealed metal deck there is no requirement for a separate vapour control layer.
- If the metal deck is not sealed the vapour control layer should be loose-laid.
- Where one run of the specified vapour control layer laps another, there should be a minimum of 150 mm side and end overlaps, which should be adequately sealed in accordance with the roofing manufacturer's application guidelines.
- To ensure a seamless and effective barrier against moisture, roll up the vapour control layer at the edge of the roof to a height that matches the specified waterproofing membrane. It is important to note that, subject to the upstand details, the vapour control later must be installed on the warm side of the insulation being installed.
- Kingspan K-Roc® Flat Roof Slab 70/039 should be secured to the deck using mechanical fixings e.g. telescopic tube fasteners (see 'Mechanical Fixings').
- Insulation slabs should be laid in a break-bond pattern, with the long edges perpendicular or diagonal to the roof edge and joints lightly butted, leaving no gaps at abutments.
- It is crucial to identify the side of the slab that contains a higher density layer, which can be distinguished by a unique texture visible on the edge of the board. This layer, typically 10-20 mm thick, is specifically engineered to handle greater point loads. Ensure that this high-density layer is facing upwards.
- Rooflights, ventilator kerbs etc. should always be insulated with a minimum thickness of 60 mm Kingspan K-Roc® Flat Roof Slab 70/039.
- On the internal façade of parapets, a minimum 60 mm thick Kingspan K-Roc® Flat Roof Slab 70/039 upstand should be used around the perimeter of the roof.
- A minimum distance of 300 mm should be maintained between the top of the insulation upstand and the bottom of the horizontal roof insulation.
- For roofs without parapets, a timber edging batten 10 mm lower than the height of the insulation should be used to attach the fascia board to the gutter system. Please contact the membrane manufacturer for more details.
- The waterproofing membrane must be mechanically fixed in accordance with the membrane manufacturer's instructions, over the whole insulated area including any insulation upstands. The insulation should be progressively covered and made watertight each day. Kingspan K-Roc® Flat Roof Slab 70/039 must be protected from the elements.

Installing over concrete decks

- Concrete decks should be clean, dry, without large projections, steps or gaps, and should be graded to allow for efficient water drainage to all rainwater outlets. When installing over a concrete deck, it is advisable that the fixing manufacturer carry out a pull-out test.
- The vapour control layer should be loose-laid over the deck.
- Where one run of the specified vapour control layer laps another, there should be a minimum of 150 mm side and end overlaps, which should be adequately sealed in accordance with the roofing manufacturer's application guidelines.
- To ensure a seamless and effective barrier against moisture, roll up the vapour control layer at the edge of the roof to a height that matches the specified waterproofing membrane. It is important to note that, subject to the upstand details, the vapour control later must be installed on the warm side of the insulation being installed.
- Kingspan K-Roc® Flat Roof Slab 70/039 should be secured to the deck using mechanical fixings e.g. telescopic tube fasteners (see 'Mechanical Fixings').
- Insulation slabs should be laid in a break-bond pattern, with the long edges perpendicular or diagonal to the roof edge and joints lightly butted, leaving no gaps at abutments.
- It is crucial to identify the side of the slab that contains a higher density layer, which can be distinguished by a unique texture visible on the edge of the board. This layer, typically 10-20 mm thick, is specifically engineered to handle greater point loads. Ensure that this high-density layer is facing upwards.
- Rooflights, ventilator kerbs etc. should always be insulated with a minimum thickness of 60 mm Kingspan K-Roc® Flat Roof Slab 70/039.
- On the internal façade of parapets, a minimum 60 mm thick Kingspan K-Roc® Flat Roof Slab 70/039 upstand should be used around the perimeter of the roof.
- A minimum distance of 300 mm should be maintained between the top of the insulation upstand and the bottom of the horizontal roof insulation.
- For roofs without parapets, a timber edging batten 10 mm lower than the height of the insulation should be used to attach the fascia board to the gutter system. Please contact the membrane manufacturer for more details.
- The waterproofing membrane must be mechanically fixed in accordance with the membrane manufacturer's instructions, over the whole insulated area including any insulation upstands. The insulation should be progressively covered and made watertight each day. Kingspan K-Roc® Flat Roof Slab 70/039 must be protected from the elements.

Sitework

Installing over plywood decks

- Timber decks should be clean, dry, without large projections, steps or gaps, and should be graded to allow for efficient water drainage to all rainwater outlets. If the timber deck is wet, it should be replaced.
- Where one run of the specified vapour control layer laps another, there should be a minimum of 150 mm side and end overlaps, which should be adequately sealed in accordance with the roofing manufacturer's application guidelines.
- To ensure a seamless and effective barrier against moisture, roll up the vapour control layer at the edge of the roof to a height that matches the specified waterproofing membrane. It is important to note that, subject to the upstand details, the vapour control later must be installed on the warm side of the insulation being installed.
- Kingspan K-Roc® Flat Roof Slab 70/039 should be secured to the deck using mechanical fixings e.g. telescopic tube fasteners (see 'Mechanical Fixings').
- Insulation slabs should be laid in a break-bond pattern, with the long edges perpendicular or diagonal to the roof edge and joints lightly butted, leaving no gaps at abutments.

It is crucial to identify the side of the slab that contains a higher density layer, which can be distinguished by a unique texture visible on the edge of the board. This layer, typically 10-20 mm thick, is specifically engineered to handle greater point loads. Ensure that this high-density layer is facing upwards.

- Joints between insulation slabs should not coincide with those between the plywood sheets.
- Rooflights, ventilator kerbs etc. should always be insulated with a minimum thickness of 60 mm Kingspan K-Roc® Flat Roof Slab 70/039.
- On the internal façade of parapets, a minimum 60 mm thick Kingspan K-Roc® Flat Roof Slab 70/039 upstand should be used around the perimeter of the roof.
- A minimum distance of 300 mm should be maintained between the top of the insulation upstand and the bottom of the horizontal roof insulation.
- For roofs without parapets, a timber edging batten 10 mm lower than the height of the insulation should be used to attach the fascia board to the gutter system. Please contact the membrane manufacturer for more details.
- The waterproofing membrane must be mechanically fixed in accordance with the membrane manufacturer's instructions, over the whole insulated area including any insulation upstands. The insulation should be progressively covered and made watertight each day. Kingspan K-Roc® Flat Roof Slab 70/039 must be protected from the elements.

Mechanical fixings

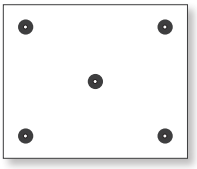
- The number of mechanical fixings required to fix Kingspan K-Roc® Flat Roof Slab 70/039 will vary with the geographical location of the building, the local topography, and the height and width of the roof concerned along with the deck type.
- A minimum of 5 fixings are required to secure slabs of Kingspan K-Roc® Flat Roof Slab 70/039 to the deck.
- The requirement for additional fixings should be assessed in accordance with BS EN 1991-1-4: 2005 + A1: 2010 (National Annex to Eurocode 1. Actions on structures. General Actions. Wind Actions) / I.S. EN 1991-1-4: 2005 (Eurocode 1: Actions on structures - Part 1-4: General actions - Wind actions).
- Mechanical fixings must be arranged in an even pattern.
- Fasteners at insulation slab edges must be located > 50 mm and < 150 mm from edges and corners of the board and not overlap board joints.
- Please refer to page 12 for recommended fixing patterns.
- Each fixing should incorporate a square or circular plate washer (75 x 75 mm or 75 mm diameter).
- If two layers of insulation are to be installed, the base layer should be mechanically fixed with minimum 1 No. fixing in the centre of the slab before fixing the top layer as described above.
- Where alternative mechanical fixing systems are specified, such as bar fixing systems, the specified system must give similar restraint to the insulation board as would be attained by the use of conventional telescopic tube fasteners.
- For details on fixings refer to:

Ejot UK Limited **www.ejot.co.uk**	+44 (0) 1977 687 040
Fixfast **www.fixfast.com**	+44 (0) 1732 882 387
MAK Fasteners **www.makfasteners.com**	+44 (0) 161 866 8164 +353 (0) 1 451 900
SFS Group Fastening Technology Ltd **www.uk.sfs.com**	+44 (0) 330 0555 888

Sitework

Fixing pattern

- To ensure the structural integrity and safety of the Kingspan K-Roc® Flat Roof Slab 70/039, it is imperative to securely fasten the slab using a minimum of five fixings. It is important to note that the number of fixings required may vary depending on the results of wind uplift calculations provided by the roofing manufacturer, which are essential for determining the optimal fastening method based on local environmental conditions.
- These fixings should be evenly distributed across the surface of the slab, as this distribution is crucial for providing uniform support and minimizing the risk of failure.
- Always consult the manufacturer's guidelines for detailed installation requirements, recommended best practices, and any additional factors that may influence the roofing system's performance. Adhering to these guidelines will contribute significantly to the overall safety and efficacy of the installation process.



The total number of fixings necessary should be assessed in accordance with BS EN 1991–1–4: 2005 + A1: 2010.

Installing in two layers

- In situations where two layers of insulation are required, both layers should be installed in the same manner, as detailed in the preceding sections. However, if mechanical fixing methods are to be employed, refer to 'Mechanical Fixings' for guidance on the number of fixings to be used in each layer.
- In all cases, the layers should be horizontally offset relative to each other so that, as far as possible, the slab joints in the two adjacent layers do not coincide with each other (see Figure 2).

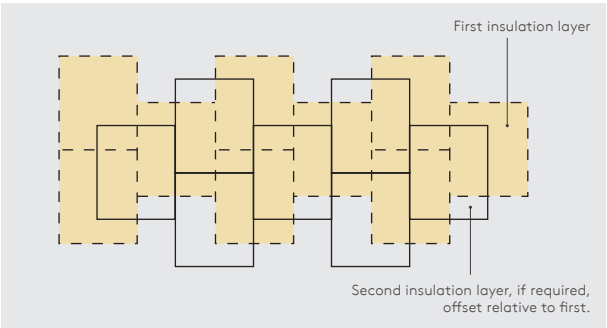


Figure 2 - Offsetting of multiple insulation layers

General

Following trades

- The roof must be adequately protected when building works are being carried out on or over the roof surface. This is best achieved by close boarding. The completed roof must not be used for storage of heavy building components such as bricks or air conditioning equipment. It is advised that progressive electronic testing should be carried out once the works are complete.

Daily working practice

- Day / night joints must be applied to all joints and waterproofing areas to keep the building watertight at all times, especially when progress of the works or bad weather could compromise the waterproofing integrity.

Cutting

- Cutting should be carried out using a hard steel-bladed saw, such as a fine-toothed hand saw or electric circular saw. For minor adjustments or notches, use a sharp knife or insulation knife.
- Ensure accurate trimming to achieve close-butting joints and continuity of insulation.
- Appropriate personal protective equipment (PPE) should be worn, including:
  - work gloves
  - loose-fitting, long-sleeved shirts and long trousers to prevent skin irritation from fibres
  - cap or hood to prevent irritation from fibres
  - safety glasses
  - disposable dust respirator - a certified dusk mask with a filter FFP2 or greater to prevent inhalation of dust particles.

Availability

- Kingspan K-Roc® Flat Roof Slab 70/039 is available through specialist insulation distributors and selected roofing merchants throughout Great Britain and Ireland.

Packaging and storage

- The polyethylene packaging of Kingspan Insulation products, which is recyclable, should not be considered adequate for outdoor protection.
- Ideally, boards should be stored inside a building. If, however, outside storage cannot be avoided, then the boards should be stacked clear of the ground and covered with an opaque polythene sheet or weatherproof tarpaulin. Slabs that have been allowed to get wet should not be used. To prevent damage, do not place any weight or objects on the insulation slabs.
- Do not stack insulation slabs more than 3 metres high.

Health and safety

- A Safety Information Data Sheet for this product is available from the Kingspan Insulation Technical Service department (see rear cover).

Warning - do not stand on or otherwise support your weight on this slab.

Product details

The product

Kingspan K-Roc® Flat Roof Slab 70/039 is a rock mineral fibre insulation.

Standard dimensions

Kingspan K-Roc® Flat Roof Slab 70/039 is available in the following standard size(s):

Nominal dimension		Availability
Length	(mm)	1,200
Width	(mm)	1,000
Insulant thickness	(mm)	Refer to local distributor or Kingspan Insulation price list for current stock and non-stock sizes.

Compressive strength

Kingspan K-Roc® Flat Roof Slab 70/039 has a compressive stress of 70 kPa when tested to BS EN 826: 2013 (Thermal insulating products for building applications. Determination of compression behaviour).

Density

Kingspan K-Roc® Flat Roof Slab 70/039 has a nominal density of approximately 170 kg/m^3.

Fire performance

Kingspan K-Roc® Flat Roof Slab 70/039 achieves European Classification (Euroclass) A1 when classified to EN 13501-1: 2018 (Fire classification of construction products and building elements - Classification using data from reaction to fire tests).

Kingspan K-Roc® Flat Roof Slab 70/039 is assessed under Assessment and Verification of Constancy of Performance (AVCP) System 1 for Reaction to Fire.

Certificate of Constancy of Performance	0751-CPR-400.3-01

There can be materials placed above the insulation layer within a roofing system including, but not limited to, waterproofing materials, reinforcement layers, primers and carrier membranes. These additional materials complete the roofing system. As such, the fire performance of a roofing system is predominantly determined by these finishes in combination with the insulation.

Compliance for meeting the fire safety requirements of the Building Regulations / Standards can be evaluated by testing the fire performance of the roofing system. The most commonly used route to compliance involves testing the full roofing system and uses test method CEN / TS 1187: 2012 Test 4 (Test methods for external fire exposure to roofs), see below table. External roof exposure testing is typically carried out by the waterproofing manufacturer / system supplier, due to the complexities of the roofing system outlined above.

NB Test evidence to demonstrate compliance with the fire safety requirements of the Building Regulations / Standards incorporating Kingspan K-Roc® Flat Roof Slab 70/039 within a roof system should be provided by the chosen waterproofing system supplier.

Further details on the fire performance of Kingspan Insulation products and systems incorporating the products, may be obtained from the Kingspan Insulation Technical Service Department (see rear cover for details).

For guidance regarding the routes to compliance for meeting the fire safety requirements of the Building Regulations / Standards in Great Britain, refer to the relevant Technical Bulletins and links to Government websites at **www.kingspaninsulation.co.uk/fireregulations** (for GB) or contact technical services at **technical@kingspaninsulation.ie** (for Ireland).

Product details

Thermal properties

The λ-values and R-values detailed below are quoted in accordance with BS EN 13162: 2012 + A1: 2015 (Thermal insulation products for buildings. Factory made mineral wool (MW) products. Specification).

Thermal conductivity

The slabs achieve a thermal conductivity (λ-value) of 0.039 W/mK.

Thermal resistance

Thermal resistance (R-value) varies with thickness and is calculated by dividing the thickness of the slab (expressed in metres) by its thermal conductivity. The resulting number is rounded down to the nearest 0.05 (m^2K/W).

Insulant thickness (mm)	Thermal resistance (m^2K/W)
60	1.50
80	2.05
100	2.55
120	3.05
140	3.55
160	4.10

NB Refer to local distributor, Kingspan Insulation or Kingspan Insulation price list for current stock and non-stock sizes.

Contact details

Great Britain

Kingspan Insulation Ltd
Pembridge | Leominster
Herefordshire | HR6 9LA

T: +44 (0) 1544 388 601
E: info@kingspaninsulation.co.uk
www.kingspaninsulation.co.uk

For individual department contact details please visit
www.kingspaninsulation.co.uk/contact

Ireland

Kingspan Insulation Ltd
Castleblayney | County Monaghan

T: +353 (0) 42 979 5000
E: info@kingspaninsulation.ie
www.kingspaninsulation.ie

For individual department contact details please visit
www.kingspaninsulation.ie/contact

For the most up-to-date version of this brochure please scan or click **here.**

To access pre-existing product information or information relating to previously sold/discontinued products please email literature@kingspaninsulation.co.uk.

The information contained in this brochure is believed to be correct at the date of publication. Kingspan Insulation Limited ("Kingspan 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 Insulation price-list or advice sought from Kingspan 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 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 Insulation offers a technical advisory service (see above for contact details), the advice of which should be sought for uses of Kingspan Insulation products that are not specifically described herein. Please check that your copy of this literature is current by contacting the Kingspan Insulation Marketing Department.

® Kingspan, K-Roc and the Lion Device are Registered Trademarks of the Kingspan Group plc in the UK, Ireland and other countries. All rights reserved.

Registered in England & Wales, No. 01882722. Registered Office: Pembridge, Leominster, Herefordshire HR6 9LA UK. VAT GB428602456.

Registered in Ireland, No. 54621. Registered Office: Bree Industrial Estate, Castleblayney, Co. Monaghan, Ireland. VAT IE4575069I.

Kingspan®