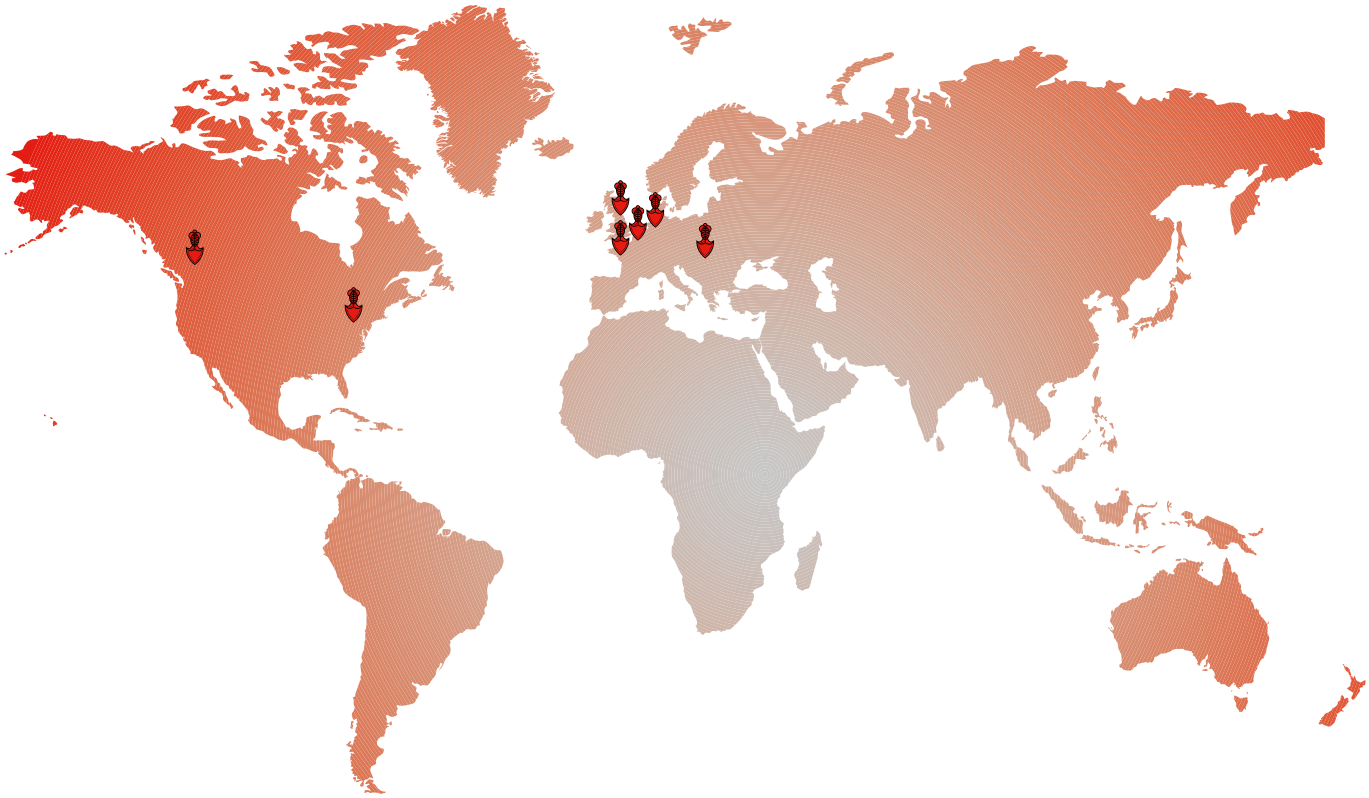
IKO enertherm®
INSULATION

Design and Specification Guide

IKO Insulations

IKO is a **worldwide enterprise**, with more than **3000 employees**, and manufacturing plants in Canada, the United States, United Kingdom, Belgium, Holland, France and Slovakia. The company's operations ship products to **96 countries** around the globe.



The IKO Group

Despite tremendous growth, IKO has also remained firmly rooted in its family values of **entrepreneurial spirit, craftsmanship and innovation**. The company maintains the fierce independence of its founder, and his belief in the importance of controlling the raw materials used in the manufacturing process.

IKO also strives to back the **best products** in the industry with the **best service**. The IKO family includes not just the ownership, but the thousands of dedicated employees across its global operations who share the company's ideals of craftsmanship, attention to detail and world class service for our customers. The commitment of IKO's employees is the key pillar in the company's success in today's competitive marketplace.

The ultimate proof of the company's commitment to quality and innovation is its own success. From humble beginnings to a modern manufacturer with global reach, IKO has remained committed to the values that were the foundation of the business envisioned by our founder, **Isidore Koschitzky**. That combination of old-time values, combined with cutting edge technology and innovation, means IKO will continue to **Set the Standard** both now and in the future.

IKO in the UK

In the UK, the IKO name has become synonymous with delivering dependable waterproofing solutions backed by supreme levels of customer service. And little wonder. This hard earned reputation has been built on a foundation of quality and an ethos of customer service, which permeates through the organisation and remains as strong today as it did **100 years ago**.

The rewards speak for themselves. IKO PLC is now well established as the **UK market leader** in the design, manufacture and installation of roofing and waterproofing systems. With this enviable position comes an unwavering commitment and responsibility to continue investing in new product solutions, new manufacturing facilities and the industry's largest team of people, all dedicated to achieving excellence at every level.

IKO Setting the Standard

BRITISH MADE FOR BRITISH TRADE

IKO enertherm, high-performance insulation systems

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Performance is pushing limits

Sanne Cant - Cyclocross

Sjinkie Knegt - Short Track

Mathieu van der Poel - Cyclocross

IKO Insulations

IKO Insulations develops, manufactures and distributes innovative PIR (polyisocyanurate)-based insulation products under the IKO enertherm brand name.

The demand for high-performance insulation products for the construction industry is growing all the time. To meet this demand, IKO Insulations is constantly investing in Research & Development, a necessity if it is to make products that keep pushing limits in terms of energy performance and insulation value.

Producing high-quality, cutting-edge products requires a careful balancing act in which materials, form, properties and technology are faultlessly matched to each other according to the final application. This is what sets IKO Insulations apart.

IKO enertherm and top-flight sports

Pushing back the boundaries of insulation values and energy conservation and combining all these factors contributing to top performance is similar to elite athletes.

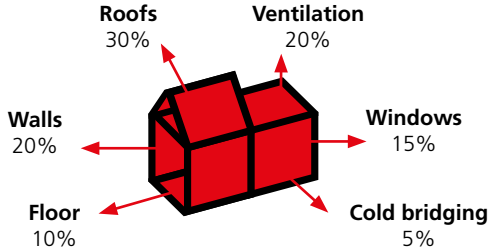
Elite athletes are also constantly pushing back the limits of their own ability: better time, greater fitness, more goals, better technique, etc. They achieve their top performances not only by training hard, but also through a combination of factors (diet, mental focus, equipment, etc). IKO enertherm strives for the total utilisation of all its resources, just like elite athletes.

Good insulation and reduction of energy consumption

High-performance insulation for homes, offices and other buildings is the most immediate and efficient solution for making savings in energy consumption. Lower energy consumption means lower CO_2 emissions, which are responsible for global warming. Good insulation makes a positive contribution to the environment.

Energy loss from an uninsulated house

(source ADEME)



Sustainable insulation

Thanks to their special properties (moisture and mould resistance, dimensional stability), IKO enertherm insulation boards have a very long service life, while retaining all their energy performance.

Environmentally sound production

Renewable raw materials

The use of renewable raw materials is significant. PET bottles, for example, are recycled and used in the PIR insulation production process.

No waste

In the IKO enertherm insulation production process, the cutting and sawing of waste is processed into briquettes, which are used as additives in concrete.

Spread of production sites

The IKO Insulations growth strategy includes the geographical spread of production sites. The shortened transport distances contribute to a significant improvement in the ecological footprint.

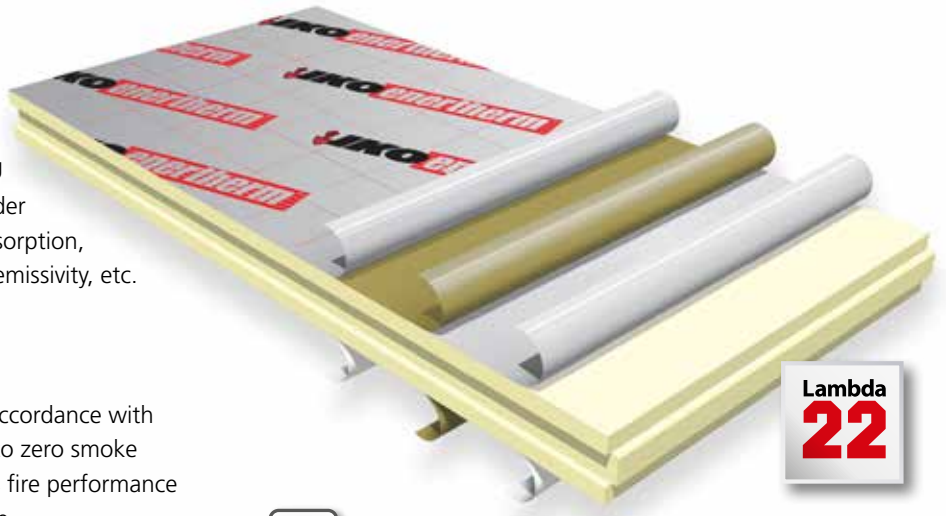
BBA and FM Approved

IKO enertherm ALU insulation boards are both BBA (certification number: 15/5283) and FM approved.

Opting for IKO enertherm:

Top quality multi layer lamination

IKO enertherm ALU insulation is finished on both sides with a 7 layer, single complex ALU lamination layer. The lamination is tested under extreme conditions with respect to water absorption, mechanical properties, corrosion resistance, emissivity, etc.



Fire resistant

IKO enertherm has class E fire resistance in accordance with EN-13501-1. The insulation plate has a low to zero smoke emission rate and does not melt or drip. This fire performance is an inherent part of the foam's cell structure.

Tongue and groove edging*

In order to prevent thermal bridging, water ingress and guarantee a windtight shield, the boards are finished on all sides with tongue and groove edging (TG).

* Only available upon request. Standard straight edging boards will be supplied unless specified.

Thermal efficiency insulation value

IKO enertherm PIR insulation boards with ALU and ALU KR lamination have a lambda value of 0.022W/(m.K).
In practical terms this means that insulation standards can be met using a thinner insulation board, when compared to other insulation materials.

Micro Cell Technology (MCT)

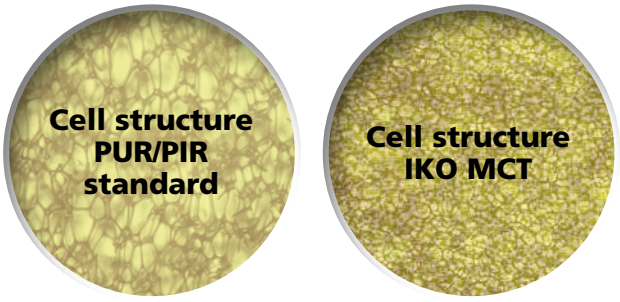
With an optimum formulation of raw materials and production parameters, IKO enertherm has an exceptionally fine cell structure: **Micro Cell Technology**. This MCT gives IKO enertherm these unique characteristics:

Shape retention

IKO enertherm insulation boards retain their shape and dimensional stability longer than PIR boards with coarser foam and boards that don't shrink. Cold bridging is prevented and a longer service life without loss of insulating properties.

Moisture resistant

MCT has a very low long-term water absorption rate (< 0.6%) compared to other insulation materials. Increased weight as a result of water absorption is eliminated, the boards are rot and mould proof and the insulation value is retained.



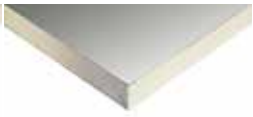
Pressure insulation

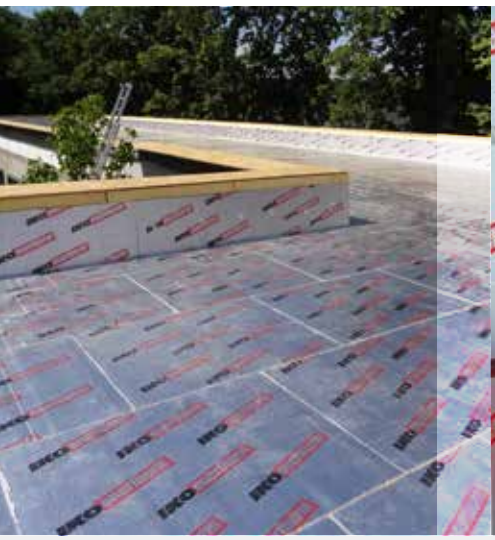
IKO enertherm insulation boards have a high level of elasticity. MCT ensures exceptional pressure resistance, meaning the cells are flexible and don't rupture. The insulation boards can also be walked on without leaving indentations.

A solution for every application

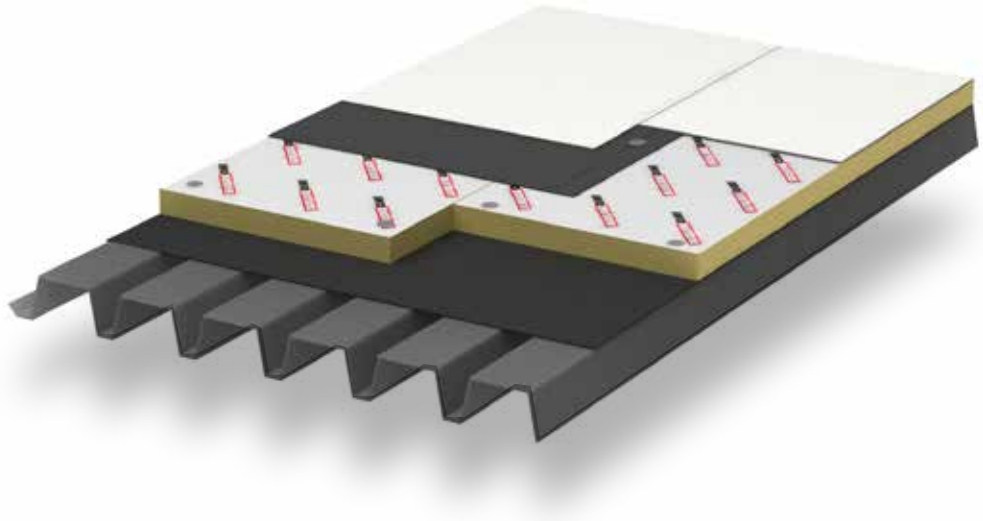
- **IKO enertherm rooftop:** flat roof insulation
- **IKO enertherm sarking:** pitched roof insulation
- **IKO enertherm comfort:** loft insulation
- **IKO enertherm comfort easy:** loft floor insulation
- **IKO enertherm wall:** cavity wall insulation
- **IKO enertherm wrap:** cladding - rainscreen systems
- **IKO enertherm floor:** floor insulation
- **IKO enertherm base:** basement insulation

An IKO enertherm board for every solution

INSULATION BOARD	ALU	ALU NF	ALU 50
			
FLAT ROOFS	■		
PITCHED ROOFS EXTERIOR		■	
PITCHED ROOFS INTERIOR	■		
LOFT FLOOR	■		
CAVITY WALL	■		
CLADDING	■		■
FLOORS	■		
BASEMENTS	■		■
Product information on page ▶	19	19	20




BGF	BM	MG	KR ALU	SYSTEM		System information on page
■	■	■			ROOFTOP	10-11
					SARKING	12-13
					COMFORT	13
					COMFORT EASY	14
			■		WALL	15
					WRAP	16
			■		FLOOR	17
					BASE	18
21	21	22	22			



IKO ENERTHERM ALU / BGF / MG / BM
FLAT ROOF INSULATION

IKO enertherm is used for the thermal insulation of flat roofs.

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BENEFITS:

- Lightweight boards for ease of transportation and handling
- Wide selection of board widths to suite most installations
- Fit for walking on during the work and after
- Can be installed quickly and easily
- High dimensional stability and compressive strength

FLAT ROOF INSULATION

IKO ENERTHERM ALU

IKO enertherm ALU is used for the insulation of flat roofs for **new construction** or **refurbishment** projects on **concrete, steel deck** and **timber substrate.**

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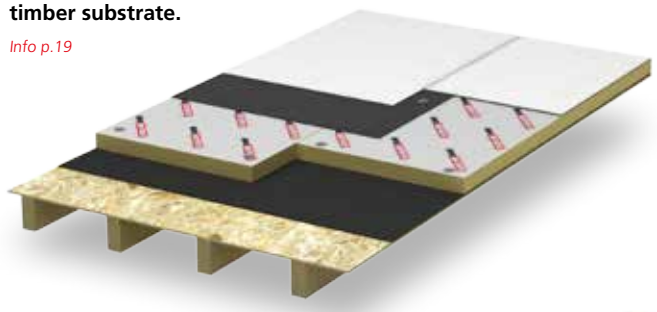

IKO ENERTHERM BGF

IKO enertherm BGF is used for the insulation of flat roofs, with **torch-on bituminous** and **single-ply waterproof membranes.**

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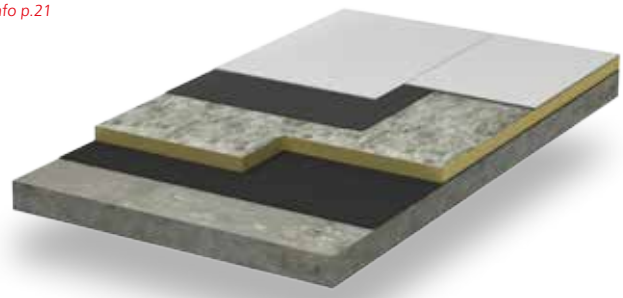

IKO ENERTHERM BM

IKO enertherm BM can be used for torch-on **bituminous membrane** sections or **mastic asphalt systems:** bituminised sand and talc free glass fibre to be applied facing upwards - or can be used with **synthetic roof** sections: perforated coated glass fibre to be applied facing upwards.

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IKO ENERTHERM MG

IKO enertherm MG is used for the insulation of flat roofs in conjunction with **torch-on bituminous membrane** sections, **single-ply** and **mastic asphalt systems.**

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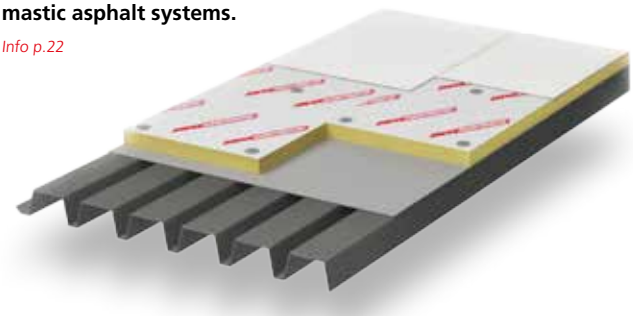

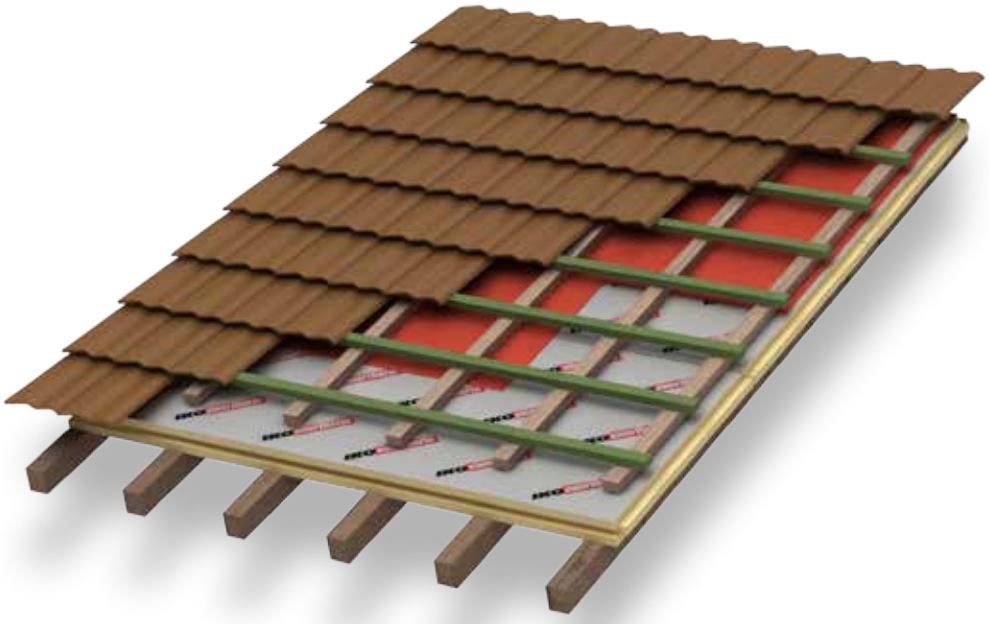

IKO ENERTHERM ALU NF

PITCHED ROOF INSULATION

IKO enertherm is used for the thermal insulation of pitched roofs.

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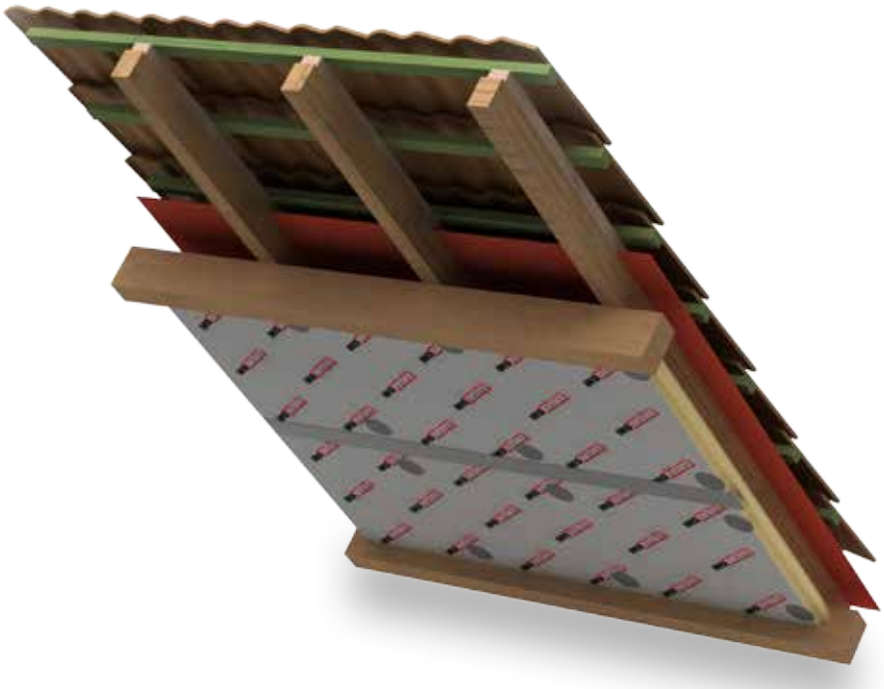
BENEFITS:

- Insulation shield on the trusses without breaks
- Interior finish retained with no loss of volume
- Tongue and groove edge provides for a windproof and thermal shield without cold bridging
- Approx. 60% thinner than mineral wool between the rafters
- Very low loading of the roof structure

IKO enertherm comfort



IKO ENERTHERM ALU
LOFT INSULATION

IKO enertherm comfort is the perfect loft insulation solution.

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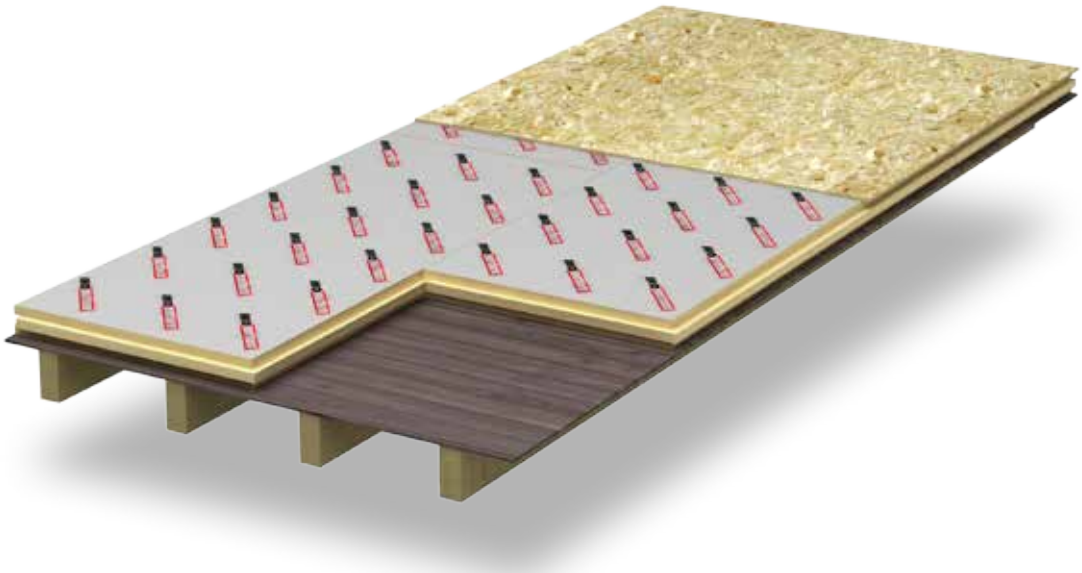
BENEFITS:

- No additional vapour screen needed thanks to closed cell structure of the board and seams taped
- Various finishes possible: plasterboard, laths, etc.
- Very quick installation, convenient size and light weight
- Moisture-insensitive and non-deformable
- Thinner alternative to traditional loft insulation materials



IKO ENERTHERM ALU
LOFT FLOOR INSULATION

IKO enertherm is used for the insulation of the loft floor.

Info p.19

BENEFITS:

- Fast and reliable insulation solution
- Inexpensive
- Loose installation in combination with OSB boards
- The tongue and groove connection (if specified) of the boards eliminates cold bridging

IKO enertherm wall

IKO ENERTHERM ALU
CAVITY WALL INSULATION

IKO enertherm is used for the thermal insulation of cavity walls.

Info p.19

BENEFITS:

- The dimensional stability of the boards guarantees one unbroken insulation shield
- The outstanding thermal performance of IKO enertherm means that one thin layer of insulation board in the cavity is enough, depending on the construction of the building
- Quick and easy to cut and install
- The tongue and groove connection avoids thermal bridging and ingress of water
- The lightweight board facilitates transport and installation
- The ALU cladding is corrosion-resistant
- Fibre-free board, so no irritation

IKO enertherm wrap

IKO ENERTHERM ALU / ALU 50

OUTSIDE WALL INSULATION

IKO enertherm is the solution for the insulation of outside walls.

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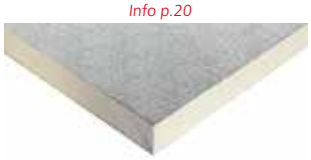
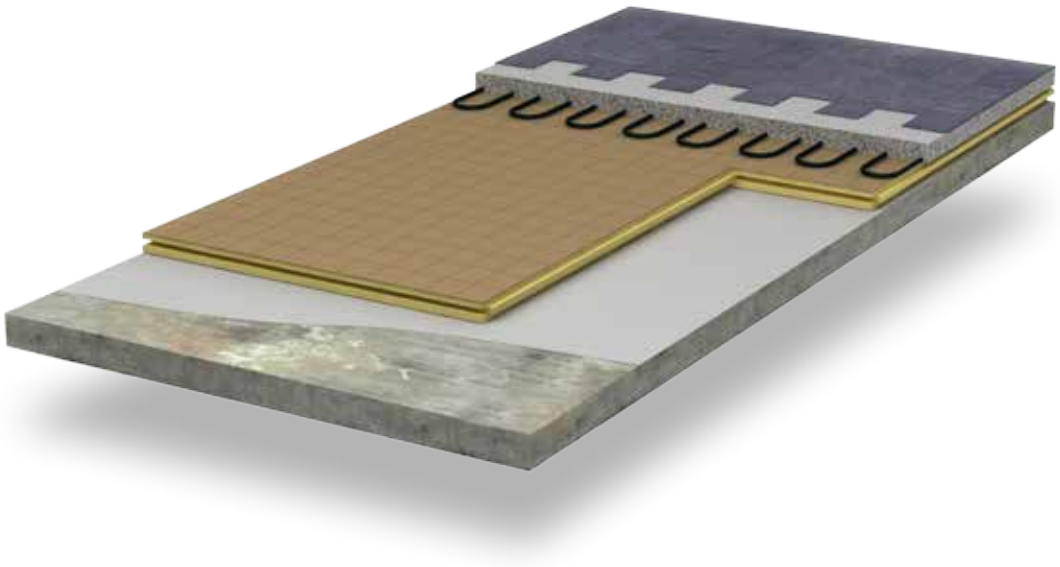


BENEFITS:

- Interior finish of the home is retained
- Various decorative finishes possible: timber, zinc, etc.
- Nearly 40% thinner than mineral wool, XPS or EPS with the same R value
- Wind and moisture-proof insulation shield
- Can be cut and installed quickly and easily
- The ALU cladding is corrosion-resistant

IKO enertherm floor



IKO ENERTHERM KR ALU
FLOOR INSULATION

IKO enertherm is used for the thermal insulation of floors.

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BENEFITS:

- Exceptional dimensional and compressive stability
- Grid reference for underfloor heating installation
- Moisture-insensitive and rot-proof
- Very light and all convenient size
- Easy to process installation
- Fast installation with tongue and groove connection

IKO enertherm base

IKO ENERTHERM ALU 50

BASEMENT INSULATION

IKO enertherm is used for the insulation of underground spaces and basements.

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BENEFITS:

- Lightweight board for easy installation
- Install the tongue and groove system for seamless connection
- Fast installation
- Install using concrete screws and cover plates
- The aluminium cladding can be painted.

IKO enertherm ALU / ALU NF

Product description:

IKO enertherm ALU is a 100% CFC, HCFC or HFC-free insulation board with a rigid polyisocyanurate foam core, clad on both sides with a multi-layer gas-tight aluminium construction. This high-quality reflecting ALU cladding consists of no fewer than seven layers, combined into a single construction. It is tested under extreme conditions regarding water absorption, mechanical properties, corrosion resistance and emissivity.

Range of applications:

Rooftop: flat roof insulation for timber, concrete and steel deck.
Sarking: pitched roof insulation.
Floor: floor insulation (underfloor heating and concrete floors).
Wall: cavity wall insulation.
Wrap: outside wall insulation (closed joints).
Comfort: loft insulation.

Edge finish:

Straight Rebate (SP) Tongue and groove (TG)

Thermal performance:

Thermal conduction coefficient: (EN 13165) λ_D: 0.022W/(m.K)

Technical details:

- Bulk density: ± 32kg/m³
- Compressive strength at 10% deformation: 175kPa (17.5ton/m²)
- Behaviour under uniformly distributed loading: Class C (≤ 5% deformation at 80°C and 40kPa loading)
- Closed cells: more than 95%
- Water vapour diffusion: PIR foam: μ = 60 - ALU facing: μ > 100,000

Fire properties:

- Fire class according to EN 13501-1: **Class E**
- Fire class 'end use' according to 13501-1: **B-s2,d0** (steel deck)
- Fire class according to KB 19/12/1997: **A1** (Belgium)

	R_D-value (m².K/W)													
IKO enertherm ALU (mm)	**30**	**40**	**50**	**60**	**70**	**80**	**90**	**100**	**110**	**120**	**140**	**160**	**180**	**200**
1200 x 600	1.35	1.80	2.25	2.70	3.15	3.60	4.05	4.50	-	5.45	6.35	7.25	8.15	9.05
1200 x 600 TG	-	1.80	2.25	2.70	3.15	3.60	4.05	4.50	-	5.45	6.35	7.25	-	-
1200 x 600 SP	-	-	-	2.70	-	3.60	-	4.50	-	5.45	6.35	-	-	-
1200 x 1000	1.35	1.80	2.25	2.70	3.15	3.60	4.05	4.50	-	5.45	6.35	-	-	-
2400 x 1200	1.35	1.80	2.25	2.70	3.15	3.60	4.05	4.50	5.00	5.45	6.35	7.25	8.15	9.05

	R_D-value (m².K/W)				
IKO enertherm ALU NF (mm)	**80**	**100**	**120**	**132**	**160**
1200 x 2400	3.60	4.50	5.45	6.00	7.25

IKO enertherm ALU 50

Product description:

IKO enertherm ALU 50 is a 100% CFC, HCFC or HFC-free insulation board with a rigid polyisocyanurate foam core, clad on both sides with a 50µm unmarked gastight aluminium layer.

Range of applications:

Wrap: outside wall insulation
Sarking: pitched roof insulation
Base: basement insulation

Edge finish:

Tongue and groove (TG)

Thermal performance:

Thermal conduction coefficient: (EN 13165) λ_D: 0.022W/(m.K)

Technical details:

- Bulk density: ± 32kg/m³
- Compressive strength at 10% deformation: ≥ 150kPa (15ton/m²)
- Closed cells: more than 95%
- Water vapour diffusion resistance: PIR foam: µ = 60 - ALU lamination: µ > 100,000

Fire properties:

- Reaction to fire according to EN 13501-1: **Class D-s2, d0**
- Reaction to fire "end use" according to EN 13501-1: **Class B-s1, d0**
- Reaction to fire according to KB 19/12/1997: **A1 (Belgium)**

	R_D-value (m².K/W)					
IKO enertherm ALU 50 (mm)	**60**	**70**	**85**	**100**	**120**	**140**
1200 x 1000 TG	2.70	3.15	3.85	4.50	5.45	6.35

IKO enertherm BGF

Product description:

IKO enertherm BGF is a 100% CFC, HCFC or HFC-free insulation board with a rigid polyisocyanurate foam core, clad on both sides with a polypropylene-covered bitumen sand free glass membrane.

Range of applications:

Rooftop: flat roof insulation.

Edge finish:

Straight Rebate (SP)

Thermal performance:

Thermal conduction coefficient: (EN 13165) λD: 0.027W/(m.K) until 120mm, 0.026W/(m.K) from 120mm.

Technical details:

- Bulk density: ± 32kg/m³
- Compressive strength at 10% deformation: ≥ 150kPa (15ton/m²)
- Behaviour under uniformly distributed loading: Class C (≤ 5% deformation at 80°C and 40kPa loading)
- Closed cells: more than 95%
- Water vapour diffusion resistance: PIR foam: μ = 60 - lamination: μ > 100

Fire properties:

- Fire class according to EN 13501-1: **Class F**

	R_D-value (m².K/W)			
IKO enertherm BGF (mm)	**81**	**100**	**120**	**140**
1200 x 1000	3.00	3.70	4.60	5.35

IKO enertherm BM

Product description:

IKO enertherm BM is a 100% CFC, HCFC or HFC-free insulation board with a core of rigid polyisocyanurate foam, laminated on one side with polypropylene coated bituminised sand and talc free glass fibre and on the other side with perforated coated glass fibre. To install with torch-on bituminous membrane sections or mastic asphalt systems: bituminised sand and talc free glass fibre to be applied facing upwards. To install to synthetic roof sections: perforated coated glass fibre to be applied facing upwards.

Range of applications:

Rooftop: flat roof insulation for use with torch-on bituminous membrane sections and mastic asphalt systems.

Edge finish:

Straight

Thermal performance:

Thermal conductivity: (EN 13165) λ_D: 0.027W/(m.K) until 120mm and 0.026W/(m.K) from 120mm

Technical details:

- Compressive strength at 10% deformation: 150kPa (15ton/m²)
- Behaviour under uniformly distributed loading: Class C (≤ 5% deformation at 80°C and 40kPa loading)
- Closed cells: more than 95%
- Water vapour diffusion: PIR foam: μ = 60 - lamination: μ > 100

Fire properties:

- Reaction to fire according to EN 13501-1: **Class F**

	R_D-value (m².K/W)					
IKO enertherm BM (mm)	**30**	**40**	**50**	**60**	**70**	**81**
1200 x 600	1.10	1.45	1.85	2.20	2.55	3.00

IKO enertherm MG

Product description:

IKO enertherm MG is a 100% CFC, HCFC or HFC-free insulation board with a rigid polyisocyanurate foam core, clad on both sides with a perforated coated glass membrane.

Range of applications:

Rooftop: flat roof insulation in combination with bituminous membranes, single-ply membranes and mastic asphalt systems.

Edge finish:

Straight Rebate (SP)

Thermal performance:

Thermal conduction coefficient: (EN 13165) between λD: 0.027W/(m.K) until 120mm and 0.026W/(m.K) from 120mm.

Technical details:

- Bulk density: ± 32kg/m³
- Compressive strength at 10% deformation: ≥ 150kPa (15ton/m²)
- Behaviour under uniformly distributed loading: Class C (≤ 5% deformation at 80°C and 40kPa loading)
- Closed cells: more than 95%
- Water vapour diffusion resistance: PIR foam: μ = 60 lamination: μ > 100

Fire properties:

- Fire class according to EN 13501-1: **Class E**

	R_D-value (m².K/W)									
IKO enertherm MG (mm)	**30**	**40**	**50**	**60**	**70**	**81**	**90**	**100**	**120**	**140**
1200 x 600	1.10	1.45	-	2.20	-	3.00	-	3.70	-	-
1200 x 600 SP	-	-	1.85	2.20	-	3.00	-	3.70	4.60	5.35
1200 x 1000	1.10	1.45	1.85	2.20	2.55	3.00	3.30	3.70	4.60	5.35
2400 x 1200	-	1.45	1.85	-	2.55	3.00	-	3.70	4.60	-

IKO enertherm KR ALU

Product description:

IKO enertherm KR ALU is a 100% CFC, HCFC or HFC-free insulation board with a rigid polyisocyanurate foam core, clad on both sides with a multi-layer gas-tight aluminium construction.

Range of applications:

Floor: floor insulation (underfloor heating and concrete floors).
Wall: industrial applications.

Edge finish:

Straight Tongue and groove (TG)

Thermal performance:

Thermal conduction coefficient: (EN 13165) λ_D: 0.022W/(m.K)

Technical details:

- Grid overprint: 100 x 200mm of 100 x 100mm (aid for positioning floor heating)
- Bulk density: ± 32kg/m³
- Compressive strength at 10% deformation: ≥ 150kPa (15ton/m²)
- Closed cells: more than 95%
- Water vapour diffusion resistance: PIR foam: μ = 60 - KR ALU lamination: μ > 100.000

Fire properties:

- Fire class according to EN 13501-1: **Class F**

	R_D-value (m².K/W)														
IKO enertherm KR ALU (mm)	**30**	**40**	**50**	**54**	**60**	**70**	**80**	**82**	**90**	**105**	**120**	**140**	**160**	**180**	**200**
1200 x 1000 TG	1.35	1.80	2.25	2.45	2.70	3.15	-	3.70	-	4.75	5.45	6.35	-	-	-
2400 x 1200	-	1.80	2.25	-	2.70	3.15	3.60	-	4.05	4.75	5.45	6.35	7.25	8.15	9.05

IKO
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IKO enertherm®
INSULATION

FM APPROVED

BRUFMA MEMBER

BBA APPROVAL INSPECTION TESTING CERTIFICATION
CERTIFICATE 15/5283

IKO
Setting the Standard

IKO PLC

Appley Lane North
Appley Bridge
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March 2016