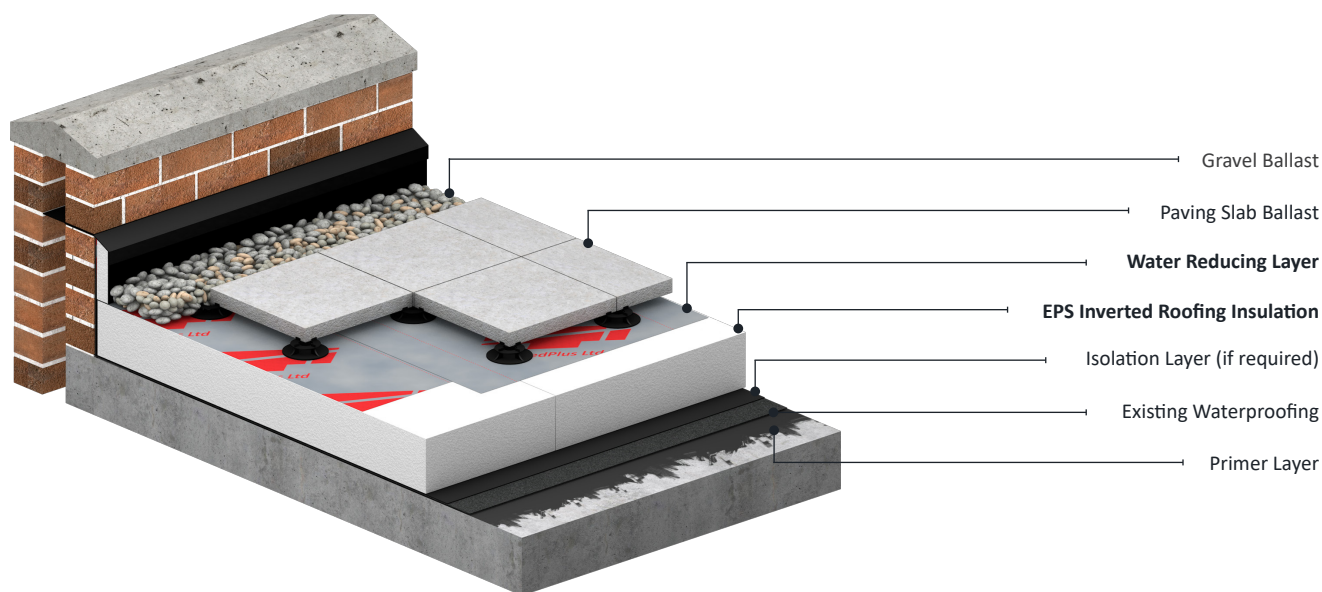




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Inverted Roofing - Datasheet



Standard Product Attributes

Length	1200 / 1185mm
Width	1200 / 1185mm
Thickness	50 - 600mm
Coverage	1.4m ²
Grades	EPS 200 / EPS 300

Design Standards

All EPS Inverted Roofing Insulation is manufactured in accordance with BS-EN-13163-2012+A2-2016. Under a Quality Management System accredited to ISO 9001:2015 and an Environmental Management System accredited to ISO 14001:2015.

Kiwa BDA Agrément® covers the content of this datasheet. Our BDA Agrément® offers further technical guidance, Certificate Number - BAR-18-049-S-A-UK. The Inverted Roofing Boards also follow the guidelines of ETAG 031 - Inverted Roof Insulation Kits.



Product Overview

The Inverted roof insulation boards are manufactured from high density Expanded Polystyrene (EPS) with low water absorption properties. They are designed for use with flat roofs with minimum falls of 1:80. Paving slab and pebble ballasts can be used to cover you inverted roofing insulation to complete your flat roof system.

The Inverted roofing Insulation boards when used in conjunction with Water Flow Reducing Layer can achieve a system drainage factor of 0. This means the corrected Thermal Conductivity can be used at 0.033w/mk.

Product Benefits

- Certified by Kiwa BDA
- Corrected Thermal Conductivity of 0.033w/mk
- Suitable for minimum falls of 1:80
- Follows the guidelines of ETAG 031
- High compressive strength
- Protects waterproofing membrane
- Resistant to freeze/thaw cycles
- Lightweight, quick & easy to install
- Minimal water absorption & permeability
- 100% recyclable
- No HFC's, CFC's or HCFC's
- BRE Green Guide rating of A+



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Typical U-Values

The table below shows the thickness of the Inverted Roof Insulation Boards required to achieve a specific target u-value. The calculations take into account a correction factor as specified in ETAG 031 to compensate for the short term cooling effect of cold rainwater reaching the waterproof layer.

Calculations are based on an inverted roof construction of 150mm reinforced concrete deck, hot melt waterproofing, EPS inverted roof insulation, filter membrane, drainage factor $f_x = 0$ and average rate of precipitation (P) ≤ 3.000 (mm/day).

U-value (W/m ² K)	Required Thickness (mm)	
	EPS 200 & 300 (0.033 W/mK)	
Tested & Default f_x	$f_x = 0$	$f_x = 0.001$
0.20	155	160
0.19	165	170
0.18	175	180
0.17	185	190
0.16	195	200
0.15	210	210
0.14	225	225
0.13	240	250
0.12	260	280
0.11	280	290

Finishing Options

To complete the Inverted Roof Insulation system a finish is required in order to prevent flotation, wind uplift and UV degradation. Several finishing options are available depending on the final use of the roof. Below are typical examples of the different options and the material build ups.

Gravel Ballast Finish - Cost effective and quick to install, this finish is mainly used on untrafficked roofs. The gravel ballast is placed directly over the Filter Membrane to cover the entire system with a minimum thickness of 50mm.

Paving Slab Finish - Provides a strong, durable and accessible surface making it an ideal finish for roof terraces and balconies. Paving stones are usually supported on adjustable bearing spacers to allow a completely flat area on sloping roofs.

Filter Membrane

As part of the Inverted Roofing Insulation System we offer a special Filter Membrane. This is a type LR Non-woven spunbonded polypropylene vapour permeable water reducing membrane. This is used as a filter layer and water control layer between the insulation and the roof finish (ballast or paving) within Inverted Roof systems. Some of the physical properties are shown below, full technical details are available on our website. * Takes into account 300mm overlap during installation.

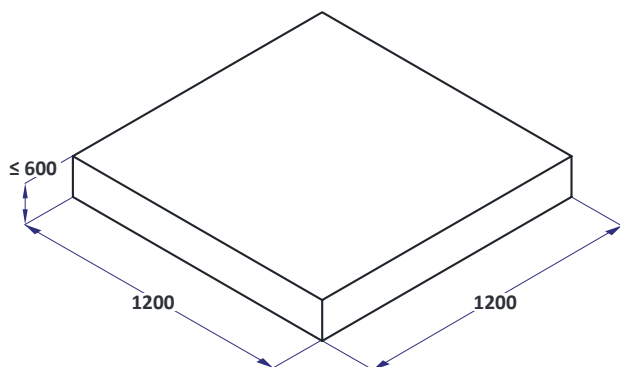
Roll Length (m)	50
Roll Width (m)	1.5
Roll Coverage (m ²)	*60
Thickness (mm)	0.6
Weight (gsm)	125(-9)
Resistance to water vapour penetration	W1
Water Vapour Resistance (MNs/g)	≤ 0.17
Resistance to static loading (kg)	W1 @ 20



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Product Dimensions



Safety

Expanded Polystyrene is non-toxic, non-irritant and odorless, making it completely safe to handle. It can be cut on site using a fine tooth saw or a hot wire cutter.

Durability

Expanded Polystyrene is rot proof, Expanded Polystyrene is not affected by bacteria, moulds or fungi, and will not provide nutrient value for insects or vermin. Expanded Polystyrene does not lose any performance over time and will remain an effective insulation for the life of the building.

Compatibility

Expanded Polystyrene should be kept away from hydrocarbons, solvents and volatile substances, however, Expanded Polystyrene is compatible with most chemicals and materials found in common construction environments. For more information, a full list of chemical behaviours is available on our website.

Expanded Polystyrene should not come into contact with any PVC cables. This is to avoid plasticizer migration which causes PVC cables to become brittle and fragile. Any PVC cables should be protected within a suitable conduit or with a suitable air gap.

Delivery & Storage

The boards are delivered to site in packs, wrapped in polythene. They must be protected from prolonged exposure to sunlight and UV-rays. Packs should be stored either under cover or protected with opaque light-coloured polythene sheeting. The products must be stored fully supported and flat on a firm, level base, to prevent bowing. Care should still be taken to ensure EPS doesn't come into contact with any source of ignition.

Reaction To Fire Classification

Expanded Polystyrene will achieve reaction to fire Euroclass F. However, the classification achieved when installing in a building will be considerably better. We also supply FRA grades which contain a Fire Retardant Additive and achieve reaction to fire Euroclass E.

Sustainability

Expanded Polystyrene does not contain HFC's, CFC's or HCFC's. Expanded Polystyrene has a Global Warming Potential (GWP) of zero and a low O-Zone Depletion Potential (ODP).

Our Expanded Polystyrene is 100% recyclable. For more information on our recycling policy, you can contact our office to find out more.



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Physical Properties	EPS 200	EPS 300
Designed Thermal Conductivity (W/mK)	0.033	0.033
Compressive Strength @ 10% (kPa)	200	300
Bending Strength (kPa)	250	450
Compressive Creep	CC(2/1.5/50) σ^{10}	CC(2/1.5/50) σ^{10}
Dimensional Stability	DS (N) 2	DS (N) 2
Short Term Water Absorption by partial immersion (%)	0.8	0.8*
Long Term Water Absorption by Immersion (%)	1.5	1.5*
Long Term Water Absorption by diffusion (%)	3	3*
Water Vapour Permeability (mg Pa.h.m)	0.006 - 0.015	0.006-0.015
Water Vapour Diffusion Resistance (μ)	40-100	40-100
Reaction to Fire	E	E
Length Tolerance	L2	L2
Width Tolerance	W2	W2
Thickness Tolerance	T2	T2
Flatness Tolerance	P3	P3
Squareness	S2	S2

Please note: The information contained within this datasheet is true and accurate at the date of issuance and is subject to change without prior notice. It is for guidance only the proper use and application of this product is the responsibility of the user.

* EPS 300 Boards will perform better due to higher density
All Expanded Polystyrene is manufactured to the following standards
- BS EN 13163:2012+A2:2016 - BS EN 13501-1.

