

## BauderVIP INV Inverted Roof Insulation

<b>Product description</b>	<b>BauderVIP INV</b> is an Inverted Roof Rigid vacuum insulation panel with a microporous core which is evacuated, encased and sealed in a gas tight membrane. BauderVIP INV panels are encapsulated in a protective Polyurea coating for increased robustness and easier handling on site.	
<b>Application fields</b>	<b>BauderVIP INV</b> panels are suitable for use on roof areas where a lack of construction depth or space is an issue such as roofs, roof terraces, enclosed balconies over heated spaces and insulated walkways, in an inverted roof build up.	
<b>Surface Finish</b>	Top	Protective Coating
	Core	Microporous Core
	Bottom	Protective Coating
<b>Colour</b>	Grey RAL 7037	
<b>Edge Profile</b>	Square	
<b>Article number</b>	N/A – Sold as a System	



Characteristic	Test method	Unit	Value
<b>Density</b>	BS EN 1602:1997	Kg/m3	170-210
<b>Mechanical Properties</b>			
<b>Compressive strength at 10% deformation</b>	BS EN 826: 1996	kPa	150
<b>Dimensions (excludes spray coating)</b>			
Thickness	BS EN 823	mm	20, 25, 30, 40 + 50
- Width	BS EN 822	mm	300, 400 + 600
- Length	BS EN 822	mm	600 + 1200
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<b>Declared Thermal Conductivity (lu-value) by panel size</b>			
Declared value by thickness and panel size			
600 x 400mm	-	W/mK	0.008
600 x 600mm	-	W/mK	0.008
1200 x 400mm	-	W/mK	0.008
1200 x 600mm	-	W/mK	0.008
1200 x 300mm	-	W/mK	0.009
<b>Design Thermal Conductivity (lu-value) by panel size</b>			
600 x 400mm	-	W/mK	0.009
600 x 600mm	-	W/mK	0.009

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1200 x 400mm	-	W/mK	0.009
1200 x 600mm	-	W/mK	0.009
1200 x 300mm	-	W/mK	0.010
Surface			Polyurea coating – Grey – RAL 7037

DECLARED PERFORMANCE							
WEIGHT PER M2 (KG)		THICKNESS (mm)					UNIT
LENGTH	WIDTH	20	25	30	40	50	
(mm)	(mm)						
1200	300	4.90	5.60	6.50	6.50	10.60	kg
1200	400	4.90	5.60	6.50	6.50	10.60	kg
1200	600	4.90	5.60	6.50	6.50	10.60	kg
600	400	4.90	5.60	6.50	6.50	10.60	kg
600	600	4.90	5.60	6.50	6.50	10.60	kg
WEIGHT PER BOARD (KG)		THICKNESS (mm)					UNIT
LENGTH	WIDTH	20	25	30	40	50	
(mm)	(mm)						
1200	300	1.764	2.016	2.340	2.988	3.816	kg/m2
1200	400	2.352	2.688	3.120	3.984	5.088	kg/m2
1200	600	3.528	4.032	4.680	5.976	7.632	kg/m2
600	400	1.176	1.344	1.560	1.992	2.544	kg/m2
600	600	1.764	2.016	2.340	2.988	3.816	kg/m2
COVERAGE (M2)		THICKNESS (mm) (excludes 1.4mm spray coating)					UNIT
LENGTH	WIDTH	20	25	30	40	50	
(mm)	(mm)						
1200	300	0.360	0.360	0.360	0.360	0.360	m2
1200	400	0.480	0.480	0.480	0.480	0.480	m2
1200	600	0.720	0.720	0.720	0.720	0.720	m2
600	400	0.240	0.240	0.240	0.240	0.240	m2
600	600	0.360	0.360	0.360	0.360	0.360	m2

Characteristic	Test method	Unit	Value
<b>Fire Properties</b>			
Reaction to fire	EN 13501-1:2018	–	BauderVIP INV achieves European Classification (Euroclass) E when classified to EN 13501-1: 2018 (Fire classification of construction products and building elements).
Properties in relation to fire	European Commission Directive 2000/553/EC	-	In accordance with Annex of Commission Decision 2000/553/EC, when used in an inverted roof specification including an inorganic covering of either loose laid ballast with a thickness of at least 50mm or a mass $\geq 80$ kg/m <sup>2</sup> , sand/cement screed to a thickness of at least 30mm, or cast stone or mineral slabs of at least 40mm thickness a roof system incorporating BauderVIP INV can be considered to be unrestricted under the national Requirements (Classification Broof(t4) to BS EN 13501-5:2016).
Durability			If installed correctly and protected from damage and penetration, the BauderVIP INV Inverted Roofing System can provide reliable long-term thermal performance over the lifetime of the building.

## Product Storage guidance

Store the materials outdoors with suitable robust UV resistant, flame-retardant tarpaulin. Ensure the product(s) are clear of buildings and any other storage areas. The products must not be exposed to a direct naked flame or other ignition sources, or to solvents or other chemicals. All insulation boards must be kept dry, on pallets and off the ground. The packaging of Bauder Insulation products should not be considered adequate for weather protection. Where there are storage containers on site, these may be suitable for storing products.

Damaged boards must not be used.

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## Pallet size

BauderVIP INV panels are delivered to site in cardboard boxes. Box dimensions are 1220x605x255mm and should be stacked no more than five boxes high are transported in protective cardboard boxes. Boxes are stacked and shrink wrapped on 1200 x 1200mm wooden pallets. The box quantities are dependent on board size and thickness as per below table.

There are 10 boxes on a standard pallet.

Length (mm)	Width (mm)	Thickness (mm)	Boards per Box	Length (mm)	Width (mm)	Thickness (mm)	Boards per Box	Length (mm)	Width (mm)	Thickness (mm)	Boards per Box
1200	600	20	11	1200	400	20	11	1200	300	20	11
		25	10			25	10			25	10
		30	8			30	8			30	8
		40	6			40	6			40	6
		50	5			50	5			50	5
Length (mm)	Width (mm)	Thickness (mm)	Boards per Box	Length (mm)	Width (mm)	Thickness (mm)	Boards per Box				
600	600	20	22	600	400	20	22				
		25	20			25	20				
		30	16			30	16				
		40	12			40	12				
		50	10			50	10				

Part boxes may be filled with odd boards depending on the design requirements- to avoid any damage to panels moving around if partially full.

## Packaging

The packaging of the **BauderVIP INV** Inverted Roofing System should not be considered adequate for outdoor protection prior to installation.

## Site Handling

Shrink wrapped on pallet, quantity dependent on board thickness.

All persons using this product should be fully aware of the manual handling methods as roofing materials are heavy and can cause serious injury.

During installation care should be taken to ensure that **BauderVIP INV** panels are not damaged by foot traffic or following trades.

A protective foot or crawl board should be used during the installation process.

**BauderGREEN FV 125 100**, **BauderXPS (300)** infill, **BauderXPS (300)** Layer and **BauderXPS WFRL** may be walked on during construction.

**BauderVIP INV** panels should not be cut or penetrated.

Care must be taken to prevent contact with solvents and materials containing organic components.

Where large volumes are stored, especially indoors, flammable material and ignition sources should not be permitted in the vicinity and adequate ventilation (at least two air changes per hour) should be ensured.

## Transport

**BauderVIP INV** panels and associated products are transported direct to site from our third party supplier on artic curtain sided vehicles with no offload facility.

Two people should lift one box at a time.

Smaller specialist vehicles such as rigid/moffett/flat bed/pump truck & tail lift are available.

Due to the weight of this material, it must be offloaded via a forklift or crane and cannot be handballed.

During shipment this material should not be exposed to flame or other ignition sources.

## PPE

When using this product, installers should be provided with, and wear, suitable personal protective equipment.

## Shelf life

When stored correctly, the product has no stated shelf life.

## Disposal Guidance

Waste insulation is non-hazardous.

Generally, **BauderVIP INV** cores may be disposed of at a normal landfill site that has been licensed for industrial waste. It is prudent to ensure that the panels are appropriately bagged and sealed prior to disposal.

The cores may be recycled.

With respect to disposal, observe usual safety precautions with polythene bags, wrapping and packaging.

Clean, undamaged product may be re-used.

Waste product, including packaging, should be disposed of in accordance with the Waste Hierarchy– Reduce, Re-Use, Recycle. Refer to national waste handling legislation.

## Re-use options of product

Undamaged panels can be re-used for the purpose they were intended.

## Wheeled/Foot Traffic

**BauderVIP INV** panels should not be walked on. A protective foot or crawl board should be used during the installation process.

The **BauderXPS (300)** Inverted Insulation strips and overlay may be walked on.

## UV Exposure

It is recommended that **BauderVIP INV** is not exposed to direct sunlight for a period exceeding four weeks.

## Responsible Sourcing

**BauderVIP INV** is manufactured under management system certified to ISO 14001: 2015

## Certification and Environmental Information

International Standards Organisation (ISO)

ISO 9001:2015 Quality Management

Certificate: 0001QMS-0

ISO 14001:2015 Environmental Management

Certificate: 0001EMS-0

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## ISO 45001:2018 Occupational Health & Safety Management Systems

Certificate: 0001OHS-0

## ISO 50001:2018 Energy Management System

Certificate: 0001EnMS-0

### Safety Data Sheet

Safety Data Sheets are designed to provide the necessary information to recipients of substances and mixtures in the EU & UK. This product is classed as an article, therefore, it does not have a requirement for a Safety Data Sheet

### Further information/ documents

Current documents such as brochures, installation instructions etc. can be found on the Internet at [www.bauder.co.uk](http://www.bauder.co.uk)

### Roof Waterproofing

**BauderVIP INV** Inverted Roofing System is also suitable for use over **Bauder 790-11 Hot Melt**, **Bauder Cold Applied** and **Bauder RBM** waterproofing systems.

Cold liquid applied waterproofing systems may require a separation layer (**BauderGREEN FV 125 100**) with an overlap of 250 - 300 mm) positioned between the membrane and below the insulation.

Waterproofing systems containing solvents should be allowed to fully cure before installing **BauderVIP INV** Inverted Roofing System

During installation **BauderVIP INV** Inverted Roofing System this should not be exposed to flame or other ignition sources.

The waterproofing system must be BBA certified for inverted roof applications.

The waterproofing system should be inspected for warranty purposes prior to the **BauderVIP INV** Inverted Roofing System installation.

The surface of the waterproofing must be clean of all debris and projections prior to the **BauderVIP INV** Inverted Roofing System installation.

### Green Roofs

**BauderVIP INV** Inverted Roofing System is suitable for use under most green roof systems. When designing a loose-laid insulated green roof assembly consideration needs to be given to the following: Green roof systems are required to have a minimum dry weight of 80 kg/m<sup>2</sup> to ballast the insulation boards beneath them. However, the total required dry weight will depend upon wind uplift, which in turn will vary with the geographical location of the building, local topography, and the height and width of the roof concerned. The necessity for any additional dry weight 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). When installing a loose-laid insulated green roof assembly, any insulation must be immediately over-laid with the green roof system.

### Blue Roofs

**BauderVIP INV** Inverted Roofing System is suitable for use in a Blue Roof environment.

When designing a loose-laid insulated blue roof assembly consideration needs to be given to the following:

Blue Roof systems have increased ballast requirements to prevent floatation and wind uplift of the insulation boards beneath them.

However, the total required dry weight will depend upon both floatation and wind uplift, which in turn will vary with the geographical location of the building, local topography, and the height and width of the roof concerned.

When installing a loose-laid insulated blue roof assembly, any insulation must be immediately over-laid with the appropriate surfacing.

### Water Flow Reduction Layer (WFRL)

Protected membrane roofs are inherently safe in respect of condensation risk. The roof design can be assessed for the risk of interstitial condensation using BS 5250: 2021 (Management of moisture in buildings. Code of practice) or BS 6229: 2018 (Flat roofs with continuously supported flexible waterproof coverings. Code of practice).

**Bauder XPS WFRL** should be used with all **BauderVIP INV** installations.

Where one run of the membrane laps another, there should be a minimum 300 mm side and end overlaps. The membrane should be terminated flush with the paving slabs and / or ballast.

### Installation Requirements

Install in accordance with the installation scheme provided.

During installation care should be taken to ensure **BauderVIP INV** Inverted panels are not damaged by foot traffic or following trades.

A protection layer may be specified for use under the **BauderVIP INV** Inverted panels. For further information please contact the Bauder Technical Service Department or check the Bauder Project Specific specification.

**BauderVIP INV** Inverted panels should be laid break bonded where practical, with joints lightly butted. There should be no gaps at abutments.

Where runs of **BauderVIP INV** Inverted panels do not accurately fit the dimension of the roof, the use of **Bauder XPS (300)** Inverted Insulation infill strips is required to make up this difference. Each **BauderXPS (300)** Inverted Insulation infill strip is to be the same thickness as the **BauderVIP INV** Inverted panels.

A **BauderXPS (300)** Inverted Insulation overlay should be laid as soon as possible to avoid exposure of the **BauderVIP INV** Inverted panels to direct foot traffic.

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Roof-light or ventilator kerbs, gutters etc. should always be insulated **BauderXPS (300)** Inverted Upstand Board with a separate backing layer of **BauderXPS (300)** Inverted Insulation to the same U-value as the general roof area.

At the perimeter of the roof and where upstands or any penetrations (e.g. drainage outlets) are present, Bauder XPS Inverted Insulation strips should be laid abutting these areas, to take account of building tolerances. For some roof designs, **BauderVIP INV** Inverted panels could be laid on the abutment. This will be detailed in the design for the individual project.

A **Bauder XPS Upstand Board** or **BauderROCK NC 56mm Upstand Board** can be used around the perimeter of the roof on the internal façade of parapets.

A minimum distance of 300 mm should be maintained between the top of the insulation upstand and the bottom of the horizontal roof insulation.

**BauderVIP INV** Inverted panels should be laid on a clean, dry waterproofing surface. Care must be taken in windy conditions.

**BauderVIP INV** should not be used in association with solvent-based adhesive systems. **BauderVIP INV** should not be exposed to naked flames or excessive heat.

## Cutting

**DO NOT** cut or penetrate the **BauderVIP INV** panels under any circumstances. Cutting of **BauderXPS (300)** Inverted Insulation perimeter infill strips and top protection layer should be carried out either by using a fine-toothed saw, hot wire cutters or by scoring with a sharp knife, snapping the board over a straight edge and then cutting the facing on the other side. Ensure accurate trimming of **Bauder XPS (300)** Inverted Insulation infill strips to achieve close-butting joints and continuity of insulation.

## Gravel Ballast

Install the ballast layer as soon as possible, to ensure that the **Bauder XPS WFRL** is always protected and excessive heat build-up or high winds do not damage the insulation panels. Gravel ballast should be washed, rounded, nominal 20-40mm diameter, and of minimum depth 50 mm. The diameter of the gravel is important as this size has been found to be the most resistant to wind scour, BRE Digest 311 gives advice.

## Paving Slab Ballast

Min. 40 mm thick paving slabs should be laid, over the **BauderXPS WFRL** on proprietary paving slab support of minimum 175 mm (or equivalent base area), in order to maintain drainage below the slabs, and to ensure that moisture vapour can escape. Install paving slabs and supports as soon as possible, to ensure that the **BauderXPS WFRL** is always protected and excessive heat build up or high winds do not damage the insulation panels. Gaps between the paving slabs and upstands should be filled with washed, rounded gravel, nominal 20-40mm diameter.

## Roof Gardens

Having chosen the type of planting system and correctly detailed the various filter layers, moisture retention layers and growing medium, the installation, especially of extensive systems, is quick and simple. A root barrier (unless provided by the waterproofing layer) should be loose-laid on or bonded to the waterproofing membrane with all the laps sealed. The root barrier should be turned up at the edge of the roof insulation and sealed under the flashing. The **BauderVIP INV** panels should be installed as described previously. Panels should be overlaid with **BauderXPS WFRL** which should be installed as described previously. A filtration layer or combined filtration layer / drainage mat is then installed, per its manufacturer's instructions. The growing medium, generally 50 - 200 mm deep is then installed. Specialist spray systems are available, which allow the application of the growing medium and grass /plant seed to be applied in one operation. The depth of growing medium should be assessed for wind loads in accordance with BS EN 1991-1-4: 2005 + A1: 2010 (UK National Annex to Eurocode 1 Actions on structures. General Actions. Wind Actions). BRE Digest 295 gives specific design guidelines for loose-laid insulation systems.