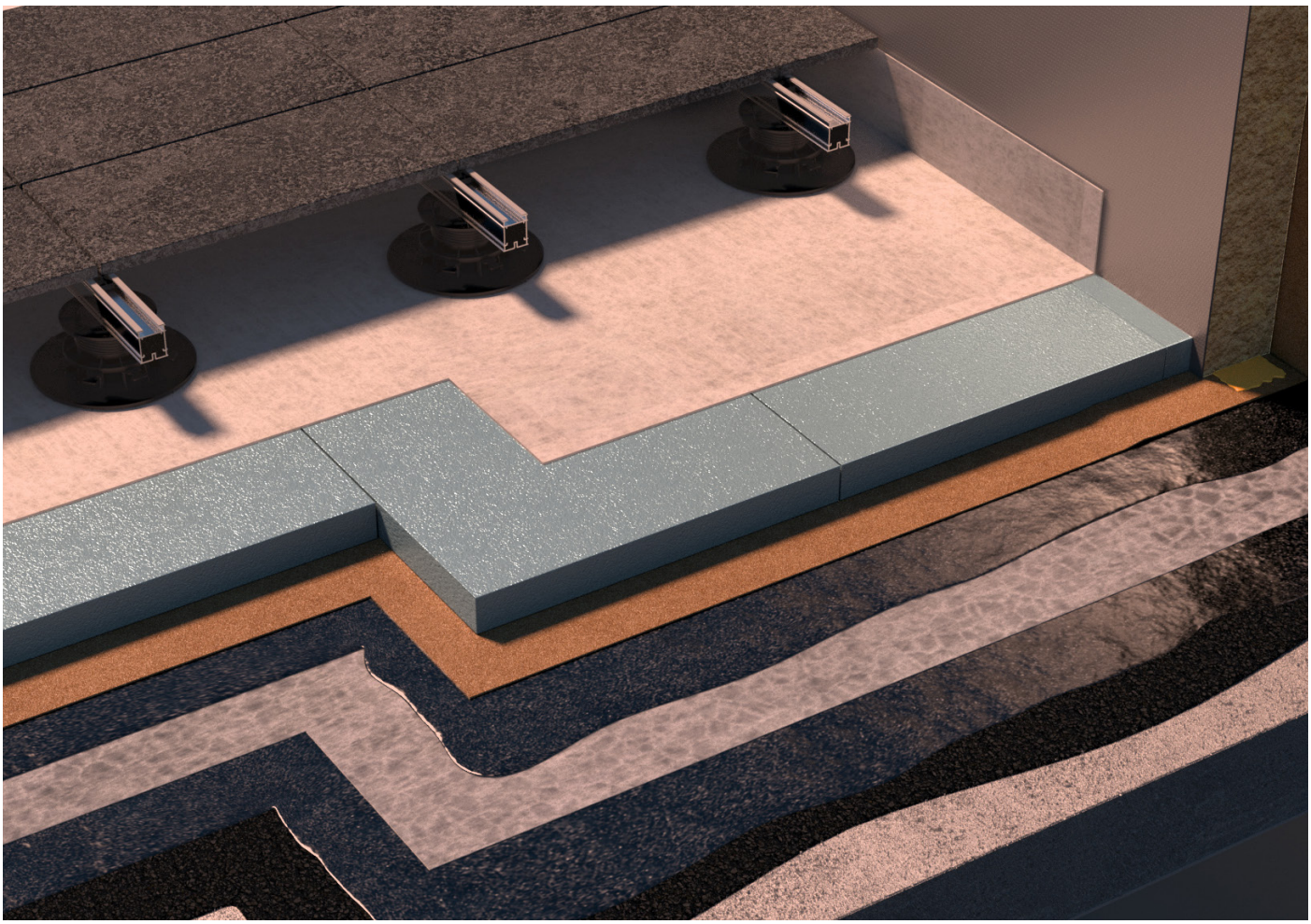
QUANTUM INSULATION

Product Data Sheet

QI Quantum PLUS+



Vacuum Insulated Panel (VIP) – Inverted Roof Insulation System.

Manufactured by

QI Quantum PLUS+

General Information

QI Quantum PLUS+ Inverted Roof Insulation System is a rigid Vacuum Insulation Panel (VIP). The VIP panel consists of a compressed fumed silica sand microporous core which is evacuated of air and moisture before being encased and sealed in a special thin, gas-tight, hybrid aluminium foil envelope, encapsulated in a solvent free polyurethane waterproof coating. The coating is a factory applied solvent free two component elastomeric polyurethane waterproofing membrane. The resulting panel gives outstanding thermal conductivity, with the thinnest possible insulation solution.

With a design (aged) thermal conductivity (λ) of 0.008 W/m.K, the QI Quantum VIP panel provides an insulating performance that is up to five times better than other commonly available insulation materials. This high level of thermal efficiency combined with minimal thickness enable the QI Quantum VIP Inverted Roof Insulation system to meet the requirements of Building Regulations Part L, Part M and NHBC Chapter 7.1.

For use with any certified inverted roofing systems.

Certificates

BBA Certificate applied for.

Installation Instructions

Lay in accordance with the installation scheme provided by Quantum Insulation.

Loose lay and gently butt all joints together.

DO NOT cut the panels under any circumstances; use XPS Infill for areas requiring cut board.

Fire Performance

BS 476 Part 3 : 2004 - When ballasted with aggregate (minimum depth of 50 mm), or fully-supported cast stone or mineral slabs of at least 40 mm thickness, a roof construction incorporating QI Quantum PLUS+ may be considered to be of designation EXT.F.AA (low vulnerability in Scotland) and as such is unrestricted by the National Building Regulations.

BS EN 13501-5:2016 'Euroclass A5' - When ballasted with aggregate (minimum depth of 50 mm), or fully-supported cast stone or mineral slabs of at least 40 mm thickness, a roof construction incorporating QI Quantum PLUS+ may be considered to be of designation T4 and as such is unrestricted by the National Building Regulations.

Delivery conditions

Delivery form

Shrunk wrapped on a pallet, quantity depending on board thickness.

Storage and transport

During shipment, storage, installation and use, this material should not be exposed to flame or other ignition sources.

Product identification

Information on the pack;
Product name.
Approvals.
Dimensions.
Production date.

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QI Quantum PLUS+

QI Quantum PLUS+ Pure Inverted Roof Insulation Handling and Installation

General Information

- The waterproofing system must be approved for inverted roof applications.
- The waterproofing system must be installed correctly, watertight and clean.
- The surface of the waterproofing should be clean, dry, level and free from projections.
- Where required the roof waterproofing should be inspected for guarantee purposes prior to the installation of the QI Quantum PLUS+ Inverted Roof Insulation system.
- QI Quantum PLUS+ Inverted Roof Insulation systems should not be used in association with solvent-based adhesive systems, or be exposed to naked flames or excessive heat.

Delivery and site handling

- The product is delivered to site bearing the manufacturer's name
- The packaging of the QI Quantum PLUS+ panels should not be considered adequate for outdoor protection.
- During installation care should be taken to ensure the QI Quantum PLUS+ panels are not damaged by foot traffic or following trades.
- A protective foot or crawl board should be used during the installation process.
- Regupol RCM, XPS infill, XPS Layer and Grey Thermal Sheet may be walked on during construction.
- QI Quantum PLUS+ 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.

Site work

Before commencing read the layout drawing provided with the system to familiarise yourself with the installation methods and layout plan.

1st Layer

Lay the QI Quantum PLUS+ panels on top of the finished waterproofing and protective rubber crumb layer (if required) in accordance with the layout drawing provided, lightly butting panels together without gaps. During installation care should be taken to ensure the QI Quantum PLUS+ panels are not damaged by foot traffic or following trades.

Cut XPS Infill boards to fit around the perimeter, penetrations, rainwater outlets etc. in accordance with the layout drawing. Ensure accurate trimming of XPS Infill to achieve close-butting joints and continuity of insulation. XPS Infill should be cut with either a fine toothed saw or by scoring with a sharp knife and snapping the board over a straight edge before cutting the facing on the other side.

Site work

2nd layer

Install the 2nd layer QI Quantum PLUS+ panels over the 1st layer of QI Quantum PLUS+ panels, ensuring that the board joints are tightly butted together in relation to the first layer and in accordance with the layout drawing. During installation care should be taken to ensure the QI Quantum PLUS+ panels are not damaged by foot traffic or following trades.

3rd Layer

Lay the Grey Filter sheet over the completed insulation layer ensuring a minimum 300mm side and end overlaps. Turn up at the edge of the roof insulation and seal under a flashing.

4th Layer

Install surface finish (paving, ballast, decking or green roof) as specified.

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QI Quantum PLUS+

QI Quantum PLUS+ Hybrid Inverted Roof Insulation Handling and Installation

General Information

- The waterproofing system must be approved for inverted roof applications.
- The waterproofing system must be installed correctly, watertight and clean.
- The surface of the waterproofing should be clean, dry, level and free from projections.
- Where required the roof waterproofing should be inspected for guarantee purposes prior to the installation of the QI Quantum PLUS+ Hybrid Inverted Roof Insulation system.
- QI Quantum PLUS+ Hybrid Inverted Roof Insulation systems should not be used in association with solvent-based adhesive systems, or be exposed to naked flames or excessive heat.

Delivery and site handling

- The product is delivered to site bearing the manufacturer's name
- The packaging of the QI Quantum PLUS+ panels should not be considered adequate for outdoor protection.
- The QI Quantum PLUS+ panels should be stored inside a building and raised off the floor.
- During installation care should be taken to ensure the QI Quantum PLUS+ panels are not damaged by foot traffic or following trades.
- Regupol RCM, XPS infill, XPS Layer and Grey Thermal Sheet may be walked on during construction.
- QI Quantum PLUS+ 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.

Site work

Before commencing read the layout drawing provided with the system to familiarise yourself with the installation methods and layout plan.

1st layer

Lay the QI Quantum PLUS+ panels on top of the completed waterproofing protective rubber crumb layer (if required) in accordance with the layout drawing provided, lightly butting panels together without gaps. During installation care should be taken to ensure the QI Quantum PLUS+ panels are not damaged by foot traffic or following trades.

Cut XPS Infill boards to fit around the perimeter, penetrations, rainwater outlets etc. in accordance with the layout drawing. Ensure accurate trimming of XPS Infill to achieve close-butting joints and continuity of insulation. XPS Infill should be cut with either a fine toothed saw or by scoring with a sharp knife and snapping the board over a straight edge before cutting the facing on the other side.

Site work

2nd layer

Lay the XPS Layer across the roof area, ensuring that the board joints are staggered in relation to the first layer in accordance with the layout drawing. During installation care should be taken to ensure the QI Quantum PLUS+ panels are not damaged by foot traffic or following trades.

3rd Layer

Lay the Grey Filter sheet over the completed insulation layer ensuring a minimum 300mm side and end overlaps. Turn up at the edge of the roof insulation and seal under a flashing.

4th Layer

Install surface finish (paving, ballast, decking or green roof) as specified.

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PRODUCT DESCRIPTION

Appearance top side	Anthracite
Core	Fumed Silica Sand
Appearance bottom side	Anthracite

DECLARED PERFORMANCE

Essential Characteristics	Performance	Unit	EN Code	Standard
Ozone Depletion Potential	Zero	-	-	-
Global Warming Potential	< 5	-	-	-
Density	180-210	kg/m³	-	BS EN 1602: 1997
Tensile Strength	60	kPa	-	BS EN 1607: 1997
Dimensions and tolerances				
- Thickness	22, 27, 32, 37, 42, 52, 57, 62, 67, 72, 77, 82, 92, 102	mm	-	BS EN 823
- Width	302, 402, 502, 602	mm	-	BS EN 822
- Length	302, 402, 502, 602, 502, 602, 702, 802, 902, 1002, 1102, 1202	mm	-	BS EN 822
Thermal conductivity (aged design value allowing for edge effect)	0.008	W/mK	-	EN 12667: 2001
Thermal Resistance (R-Value) Declared value (1)				
20mm	2.857	m²K/W	-	
25mm	3.571	m²K/W	-	
30mm	4.285	m²K/W	-	
40mm	5.714	m²K/W	-	
Mechanical properties - Compressive strength at 10% deformation	160	kPa	-	BS EN 826: 1996
Linear thermal expansion coefficient				
Longitudinal	0.08	mm/m.K	-	-
Transverse	0.06	mm/m.K	-	mm/m.K
Surface temperature	-40 to +80	°C	-	-
Surface	Anthracite coloured polyurethane waterproofing membrane	-	-	-
Edge profile	Butt	-	-	-

For further information on Quantum Insulation products and services please call **01858 456018** or email **sales@quantuminsulation.com**

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DECLARED PERFORMANCE								
WEIGHT						Unit	EN Code	Standard
Length x width	Weight							
1202 x 602mm	2.78	3.48	4.18	5.57	6.97	kg	-	-
1202 x 402mm	1.85	2.32	2.78	3.72	4.65	kg	-	-
1200 x 302mm	1.39	1,74	2.09	2.79	3.48	kg	-	-
1002 x 602mm	2.33	2.92	3.5	4.67	5.84	kg	-	-
1002 x 302mm	1.17	1.46	1.76	2.34	2.93	kg	-	-
1002 x 402mm	1.56	1.95	2.34	3.12	3.90	kg	-	-
602 x 602mm	1.39	1,74	2.09	2.79	3.48	kg	-	-
602 x 402mm	0.93	1.16	1.39	1.86	2.32	kg	-	-
402 x 302mm	0.46	0.58	0.7	0.93	1.16	kg	-	-
302 x 302mm	0.35	0.44	0.52	0.7	0.87	kg	-	-
COVERAGE						Unit	EN Code	Standard
Length x width	Area							
1202 x 602mm	0.724					m^2	-	-
1202 x 402mm	0.483					m^2	-	-
1202 x 302mm	0.363					m^2	-	-
1002 x 302mm	0.302					m^2	-	-
1002 x 402mm	0.402					m^2	-	-
1002 x 602mm	0.603					m^2	-	-
602 x 602mm	0.362					m^2	-	-
602 x 402mm	0.242					m^2	-	-
402 x 302mm	0.121					m^2	-	-
302 x 302mm	0.091					m^2	-	-

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