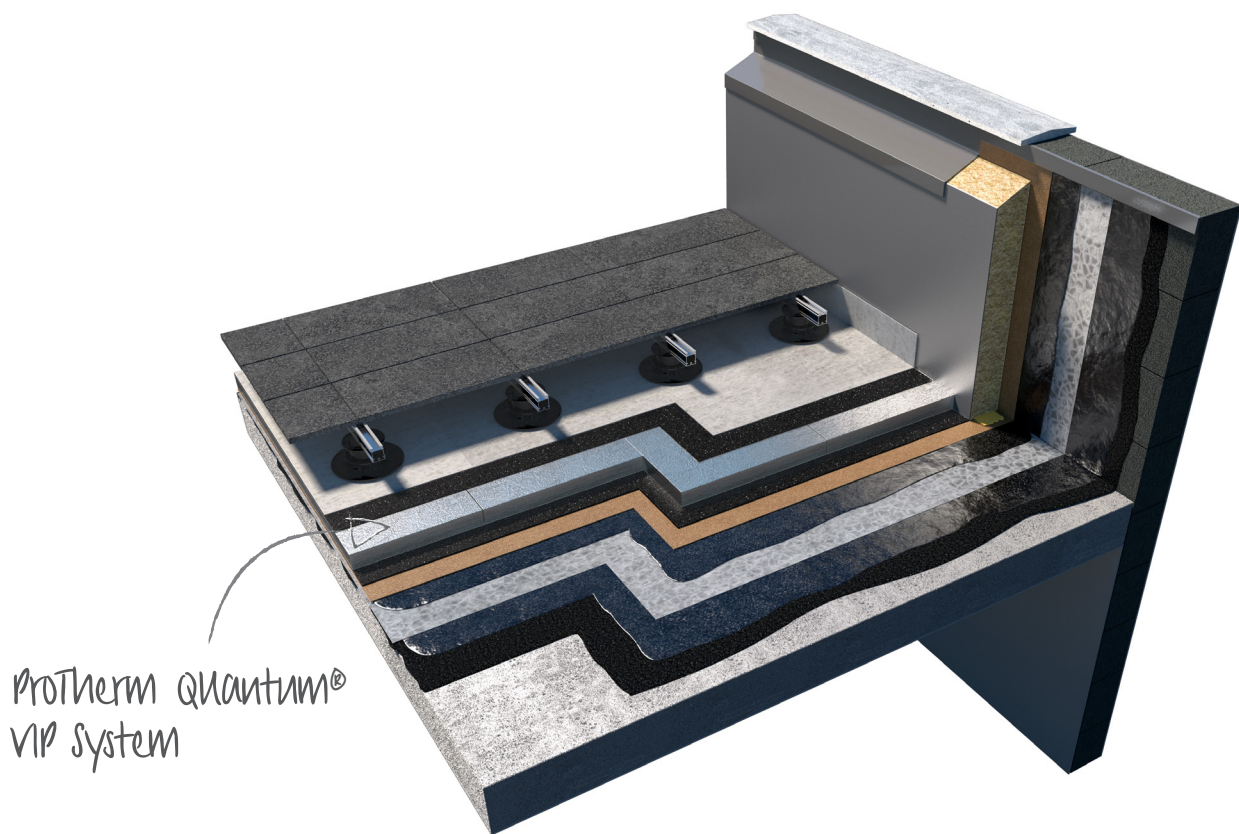


# ProTherm Quantum

## Vacuum Insulated Panel (VIP)

### Product Data Sheet



# ProTherm Quantum

## Vacuum Insulated Panel (VIP)

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### General Information

**ProTherm Quantum VIP Inverted Roof Insulation System** is powered by Kingspan Optim-R, and 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. The resulting panel gives outstanding thermal conductivity, with the thinnest possible insulation solution.

With a declared (aged) thermal conductivity ( $\lambda$ ) of 0.008 W/m.K, the ProTherm 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 ProTherm 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 BBA Certified Inverted roofing systems.

### Certificates

BBA Certificate No.16/5347

### Installation Instructions

Install over Regupol RCM only.

Lay in accordance with the installation scheme provided by Radmat.

Loose lay and gently butt all joint 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 ProTherm Quantum 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** - 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 ProTherm Quantum may be considered to be of designation Broof(t4) and as such is unrestricted by the National Building Regulations.

**BS EN 13501-1:2016** - ProTherm Quantum Inverted Roof Insulation achieves an E classification.

### 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.

# ProTherm Quantum

## Vacuum Insulated Panel (VIP)

### PRODUCT DESCRIPTION

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

### 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	20, 25, 30, 35, 40, 50, 55, 60	mm	-	BS EN 823
- Width	300, 400, 500, 600			
- Length	300, 400, 500, 600 500, 600, 700, 800, 900, 1000, 1100, 1200	mm mm	- -	BS EN 822 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 <sup>(1)</sup>				
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
Reaction to fire	E			
Linear thermal expansion coefficient Longitudinal Transverse	0.08 0.06	mm/m.K mm/m.K	- -	- mm/m.K
Surface temperature	-40 to +80	°C	-	-
Surface	Hybrid Aluminium Foil	-	-	-
Edge profile	Butt	-	-	-

# ProTherm Quantum

## Vacuum Insulated Panel (VIP)

DECLARED PERFORMANCE								
WEIGHT	Performance					Unit	EN Code	Standard
Length x width	20mm	25mm	30mm	40mm	50mm			
1200 x 600mm	2.78	3.48	4.18	5.57	6.97	kg	-	-
1200 x 400mm	1.85	2.32	2.78	3.72	4.65	kg	-	-
1200 x 300mm	1.39	1,74	2.09	2.79	3.48	kg	-	-
600 x 600mm	1.39	1,74	2.09	2.79	3.48	kg	-	-
600 x 400mm	0.93	1.16	1.39	1.86	2.32	kg	-	-
400 x 300mm	0.46	0.58	0.70	0.93	1.16	kg	-	-
300 x 300mm	0.35	0.44	0.52	0.70	0.87	kg	-	-
COVERAGE	Performance					Unit	EN Code	Standard
Length x width	Area							
1200 x 600mm	0.72					m <sup>2</sup>	-	-
1200 x 400mm	0.48					m <sup>2</sup>	-	-
1200 x 300mm	0.36					m <sup>2</sup>	-	-
600 x 600mm	0.30					m <sup>2</sup>	-	-
600 x 400mm	0.24					m <sup>2</sup>	-	-
400 x 300mm	0.12					m <sup>2</sup>	-	-
300 x 300mm	0.09					m <sup>2</sup>	-	-

# ProTherm Quantum

## Vacuum Insulated Panel (VIP)

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### ProTherm Quantum Pure Inverted Roof Insulation Handling and Installation

#### General Information

- The waterproofing system must be BBA Certified 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 ProTherm Quantum Pure Inverted Roof Insulation system.
- ProTherm Quantum Pure 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 and the BBA logo incorporating the number of this Certificate.
- The packaging of the ProTherm Quantum VIP panels should not be considered adequate for outdoor protection.
- The ProTherm Quantum VIP panels should be stored inside a building and raised off the floor.
- ProTherm Quantum VIP panels should not be walked directly on prior to completion of the installation.
- 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.
- ProTherm Quantum VIP 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 Regupol RCM sheets over the completed waterproofing. Run the long edge running perpendicular to the intended direction of the ProTherm Quantum VIP panels. Gently butt Regupol RCM sheet edges together without overlaps.

**2nd layer** Lay the ProTherm Quantum VIP panels on top of the Regupol RCM in accordance with the layout drawing provided, lightly butting panels together without gaps. The ProTherm Quantum VIP panels should not be walked on during installation; a protective crawl board should be used during the installation process.

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

**3rd layer** Install the 2nd layer ProTherm Quantum VIP panels over the 1st layer of ProTherm Quantum VIP panels, ensuring that the board joints are staggered in relation to the first layer in accordance with the layout drawing. The ProTherm Quantum VIP panels should not be walked on during installation; a protective crawl board should be used during the installation process.

**4th Layer** Lay the Regupol RCM sheets over the ProTherm Quantum VIP panels. Run the long edge running perpendicular to the direction of the ProTherm Quantum VIP panels. Gently butt Regupol RCM sheet edges together without overlaps. The ProTherm Quantum VIP panels should not be walked on during installation; once the first sheets of Regupol RCM are installed they can be used to provide the safe walking access.

**5th 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.

**6th Layer** Install surface finish (paving, ballast, decking or green roof) as specified.

# ProTherm Quantum

## Vacuum Insulated Panel (VIP)

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### ProTherm Quantum Hybrid Inverted Roof Insulation Handling and Installation

#### General Information

- The waterproofing system must be BBA Certified 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 ProTherm Quantum Hybrid Inverted Roof Insulation system.
- ProTherm Quantum 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 and the BBA logo incorporating the number of this Certificate.
- The packaging of the ProTherm Quantum VIP panels should not be considered adequate for outdoor protection.
- The ProTherm Quantum VIP panels should be stored inside a building and raised off the floor.
- ProTherm Quantum VIP panels should not be walked directly on prior to completion of the installation.
- 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.
- ProTherm Quantum VIP 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 Regupol RCM sheets over the completed waterproofing. Run the long edge running perpendicular to the intended direction of the ProTherm Quantum VIP panels. Gently butt Regupol RCM sheet edges together without overlaps.

**2nd layer** Lay the ProTherm Quantum VIP panels on top of the Regupol RCM in accordance with the layout drawing provided, lightly butting panels together without gaps. The ProTherm Quantum VIP panels should not be walked on during installation; a protective crawl board should be used during the installation process.

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

**3rd 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. The ProTherm Quantum VIP panels should not be walked on during installation; a protective crawl board should be used during the installation process.

**4th 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.

**5th Layer** Install surface finish (paving, ballast, decking or green roof) as specified.

This information given in good faith and is based on the latest knowledge available to Radmat Building products Ltd. Whilst every effort has been made to ensure that the contents of the publication are current while going to press, customers are advised that products, techniques and codes of practice are under constant review and liable to change without notice.

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