

Product Data Sheet

HYTHERM XPS 500kPa

High performance thermal insulation for heavy-duty inverted roof constructions

Hytherm XPS 500kPa thermal insulation is a durable, rigid extruded polystyrene XPS insulation board with homogeneous closed cell structure, designed specifically for thermal insulation of heavy-duty inverted roofs and load-bearing slabs and used in conjunction with the Water Flow Reducing Layer (WFRL).

It is a robust material with little compressive deformation and excellent thermal insulation properties even in damp environments over a long period.

Key benefits

- Permanently high thermal insulation level.
- High compressive strength – 500kPa.
- High flexible rigidity.
- Resistant to rot and deterioration.
- Low deformation under compression.
- Low water absorption: natural resistance to rain, snow, frost and water vapour.
- High vapour diffusion resistance.
- Simple structural design and workability.



- Quick installation with a small amount of waste.
- Flame retarded, enhancing safety and protection on construction projects.
- Manufactured in accordance with BS EN 13164, ISO 14001 and ISO 9001.
- BBA approved.
- Environmental Product Declaration Ref EPD-EXI-20190112-IBE1-EN.
- GWP (Global Warming Potential) = <5; ODP (Ozone Depletion Potential) = zero.

Use

Hytherm XPS 500kPa is designed for use as insulation on inverted roofs and to satisfy thermal performance and strength requirements of demanding project specifications for the lifetime of the structure.

The boards are robust and highly resistant to the conditions often present on a flat roof, including wide temperature fluctuations and repeated freeze/thaw cycles.

Hytherm XPS 500kPa is intended for use on heavyweight decks such as reinforced concrete with a ballast layer of gravel or concrete slab. It can also be used with a vapour permeable separation layer and this combination helps to minimize the heat loss due to rainwater cooling and therefore the amount of insulation required.

These insulation boards are compatible with most construction materials, e.g. lime, cement, plaster, solvent-free bituminous compounds, water-based preservatives, anhydrous gypsum, alcohols, acids and alkalis. The use of solvent-free adhesives is advised; please contact Axter Ltd for more information on compatibility. Certain organic materials such as solvent-based wood preservatives, coal tar and derivatives (creosote), paint thinners and common solvents (acetone, ethyl acetate, petrol, toluene and white spirit for example) will attack this insulation material, possibly leading to loss of performance through softening, shrinkage and potentially dissolution.

Durability

When properly installed, Hytherm XPS 500kPa boards have a service life similar to that of the building or structure.

Environmental

Environmental Product Declaration EPD-EXI-20190112-IBE1-EN applies to Hytherm XPS 500kPa.

The material is non bio-degradable and does not present an environmental hazard.

It can be recycled, disposed of as landfill or incinerated to recover the energy content

Fire

Hytherm XPS 500kPa is rated Euroclass E under BS EN 13501-1 Reaction to Fire test.

Hytherm XPS 500kPa contains a flame retardant additive to inhibit accidental ignition from a small fire source. However, it is combustible and if exposed to an intensive fire may burn rapidly. During shipment, storage and installation and use, therefore, Hytherm XPS 500kPa should not be stored close to open flames or other ignition sources or come into contact with volatile organic compounds and chemicals such as solvents. During and after installation Hytherm XPS 500kPa should be protected from direct exposure to fire.

Fire classification is based on small scale tests which may not reflect the reaction of the product in its end use state under actual fire conditions.

Handling and Storage

Hytherm XPS 500kPa is lightweight and easy to handle and install. The product must be protected from prolonged exposure to sunlight to prevent degradation of the surface of the board.

Hytherm XPS 500kPa – Product Data

Property	Measure unit	Value	Standard	EN code
Dimensions and tolerances				
Length	mm	1250	BS EN 822	-
Width	mm	600	BS EN 822	-
Thickness	mm	50, 70, 100	BS EN 823	T1
Thickness tolerances	Class	1	BS EN 823	T
Thermal Conductivity Declared Thickness:	W/mK	0.031 (<60mm) 0.032 (≥60mm)	BS EN 13164	λ_D
Compressive strength or compressive stress at 10% deformation	kPa	500	BS EN 826	CS(10\Y)
Compressive creep (design load) max 2% deflection after 50 years ²	kPa	110	BS EN 1606	CC(2/1.5/50) σ_c
Water vapour diffusion resistance factor μ	-	150	EN ISO 10456	MU
Long term water absorption by immersion	%	<0.7	BS EN 12087	WL(T)
Water pick up by diffusion	%	<2 (50<80mm) <1 (>80mm)	BS EN 12088	WD(V)
Water pick up after Freeze Thaw	%	<1	BS EN 12091	FTCD
Dimensional stability under specified temperature (70°C) and humidity conditions (90%rh)	%	<5	BS EN 1604	DS(70,90)
Deformation under specified compressive load (40kPa) and temperature (70°C) conditions	%	<5	BS EN 1605	DLT(2)5
Coefficient of linear thermal expansion (typicalvalue)	mm/m.K	0.07	-	-
Fire performance	-	E	BS EN 13501-1	Euroclass
Temperature limits	°C	-50/+75	-	-
Surface finish	--	Skin	-	-
Edge profile		Shiplap	-	-

Thermal resistance

Thickness (mm)	50	75	100
R_D [m ² .K/W]	1.60	2.40	3.10

EN designation code: T1-CS(10\Y)300-CC(2/1,5/50)110-DS(70,90)-DLT(2)5-WL(T)0.7-WD(V)1,2,³-FTCD1

¹⁾ Thickness dependant
1 Nmm² = 103kPa = 1MPa

Water Flow Reducing Layer (WFRL)

The water flow reducing layer is a high performance spun bonded polyethylene geotextile, which helps to minimise heat loss caused by rainwater cooling and consequently the thickness of insulation required. For use with Axter Hytherm inverted insulation.

$f_x=0.001$ drainage correction for the system incorporating the Axter WFRL.

Nominal characteristics		
Roll size	Length 100m Width 3m 300m ² *	Length 50m Width 1.5m 75m ²
Water vapour resistance (MN.s.g ⁻¹)	0.17	
Head of water test	No penetration	
Mass per unit area (g/m ²)	60	
Lap joints unsealed	300mm	

* Not allowing for overlap (300mm)

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