

Product Data Sheet

HYTHERM XPS 500 kPa

High performance thermal insulation for heavy-duty inverted roof constructions

Hytherm XPS 500 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 Axter 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 500 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 500 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 500 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 500.

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

Hytherm XPS 500 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 500 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 500 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 500 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 500 – PRODUCT DATA

| Properties | Measure Unit | Value | Standard | EN code |
|--|--------------|--------------------------------|---------------|-----------------------|
| Dimensions and tolerances | | | | |
| Length | mm | 1250 | BS EN 822 | |
| Width | mm | 600 | BS EN 822 | |
| Thickness | mm | 50, 75, 80, 100, 120, 140, 160 | BS EN 823 | T1 |
| Thickness tolerances | Class | 1 | BS EN 823 | T |
| Thermal Conductivity Declared Thickness: <60 mm | W/mK | 0.031 | BS EN 13164 | λ_D |
| >60 mm | W/mK | 0.032 | BS EN 13164 | λ_D |
| Compressive strength or compressive stress at 10% deformation | kPa | 500 | BS EN 826 | CS(10\Y) |
| Compressive creep max after 50 years <2% deformation under stress σ C | kPa | 180 | BS EN 1606 | CC(2/1.5/50) σ |
| Water vapour diffusion resistance factor μ (tabulated value) | -- | 100 | BS EN 12086 | MU |
| Long term water absorption by total 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 (typical value) | mm/(m.k) | 0.07 | - | - |
| Fire performance | - | E | BS EN 13501-1 | Euroclass |
| Temperature limits | °C | -50/+75 | - | |

| Properties | Measure Unit | Value | Standard | EN code |
|----------------|--------------|---------|----------|---------|
| 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 XPS-EN 13164-T1-CS(10\Y)500-CC(2/1.5/50)180-DS (70,90)-WL(T)0.7-WD(V)1,2,3¹⁾-FCTD1

¹⁾ Thickness dependant

1 Nmm² = 103 kPa = 1MPa

For further information, contact Axter Ltd.

Axter Water Flow Reducing Layer (WFRL)

The Axter 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.

fx = 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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