



VOID-TEK

Heave Protection Sheet

DESCRIPTION

VOID-TEK Heave Protection Sheet is a low density Expanded Polystyrene (EPS) compressible fill that helps reduce any forces exerted onto deep fill foundations, concrete ground beams and piled foundations. These pressures can be caused by many things, the expansion of clay soils, excess water, or overgrowth of tree roots. Whatever the reason for the development of these forces VOID-TEK Heave Protection Sheet can help absorb the pressure exerted onto the foundations.

Our VOID-TEK Heave Protection Sheet is easy to install and is available in standard thicknesses of 50, 100, 150 and 200mm to accommodate the different levels of ground movement. The compressible fill is also available in pre-cut pile collars to suit the diameter of the pile. VOID-TEK Heave Protection Sheet is the perfect clay heave protection solution as it is water and rot resistant and will never lose its compressibility.

ADVANTAGES

- Reduces the effects of clay heave for the life of the foundation.
- Resistant to moisture and rot
- Maximum lateral pressures of up to 40kN.m^{-2}
- No reduction in performance over time
- Lightweight, quick & easy to install.
- Minimal water absorption & permeability
- 100% recyclable

STANDARD DIMENSIONS

Unit	Length (mm)	Width (mm)	Thickness (mm)
Void-Tek Heave Protection Sheet	2400	1200	50, 100, 150 & 200
Void-Tek Pile Collar	≤ 1200	≤ 200	≤ 600

All our VOID-TEK Heave Protection Sheet are typically manufactured to standard thicknesses, however bespoke sizes are available on request to fit specific trench foundation dimensions. VOID-TEK Pile Collars are pre-cut to suit the dimensions of the pile foundation and trench. The required thickness of the board will vary depending on the potential ground movement and the allowable pressure limit of the foundation substrate.

DESIGN STANDARDS

VOID-TEK Heave Protection Sheet Low Density Expanded Polystyrene Compressible Fill is manufactured in accordance with **BS-EN-13163-2012+A2-2016**. Under a Quality Management System accredited to **ISO 9001:2015** and an Environmental Management System accredited to **ISO 14001:2015**.

TYPICAL APPLICATIONS

VOID-TEK Heave Protection Sheet is used to protect foundations, encasing the reinforced concrete with the compressible fill material to negate pressures from ground movement against the concrete foundation up to 2m on the vertical face and piled foundations with pile collars up to 600mm deep. There are three common ways to utilize VOID-TEK Heave Protection Sheet within foundations:



1. Vertical Faces of Deep Trench Fill Foundations
2. Under Internal (Party Wall) Ground Beam & Pile Cap
3. Under External Ground Under Beam & Pile Cap

VOID EQUIVALENT THICKNESS OF VOID-TEK HEAVE PROTECTION SHEET

The NHBC accepts low density compressible expanded polystyrene as a suitable material to protect against clay heave and ground movement in foundations. They detail guidelines of minimum void depths to allow for different levels of volume change in shrinkable soils. The void dimensions detailed in the NHBC guidance have an equivalent compressible fill thickness which will typically be twice the minimum void dimensions given by the NHBC.

Under Ground Beam & Pile Caps

Ground Heave Potential	Modified Plasticity Index (%)	NHBC Minimum Void (mm)	VOID-TEK Heave Protection Thickness
Low	10-20	50	100
Medium	20-40	100	200
High	40 +	150	300

Side of Deep Fill Foundation & Ground Beams

Ground Heave Potential	Modified Plasticity Index (%)	NHBC Minimum Void (mm)	VOID-TEK Heave Protection Thickness
Low	10-20	0	0
Medium	20-40	25	50
High	40 +	35	75

It is important that the specified thickness of VOID-TEK Heave Protection Sheet required to resist the pressures exerted from the ground movement is correctly calculated. See the below diagram which breaks down how to determine the thickness of the VOID-TEK Heave Protection Sheet.

The specified VOID-TEK thickness should be
 $T = 100 \times (H/C) + 10$

T= VOID-TEK Heave Protection Sheet Thickness Required

H= Predicted maximum ground movement

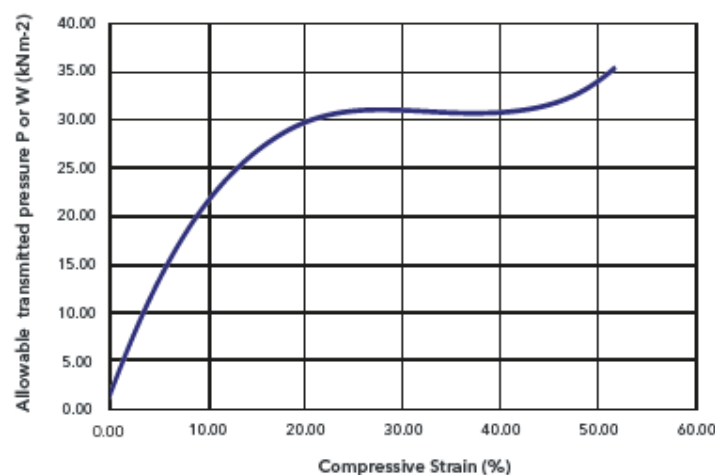
P= Maximum upward pressure on the underside of the beam

W= Maximum lateral pressure on foundation (must not exceed 40 kNm-2)

C= Compressive strain (%) under maximum pressure exerted on foundation

PRESSURE RESISTANCE

The graph below shows the relationship between the transmitted pressure on VOID-TEK Heave Protection Sheet compressible fill and the resulting compressive strain exerted on the material. This helps to gauge the values required to calculate the required thickness of VOID-TEK Heave Protection Sheet.





DURABILITY

VOID-TEK Heave Protection Sheet is rot proof and is not affected by bacteria, moulds or fungi, and will not provide nutrient value for insects or vermin.

VOID-TEK Heave Protection Sheet does not lose any performance over time and will remain an effective insulation for the life of the building.

COMPATABILITY

VOID-TEK Heave Protection Sheet should be kept away from hydrocarbons, solvents, and volatile substances. However, VOID-TEK Heave Protection Sheet is compatible with most chemicals and materials found in common construction environments.

VOID-TEK Heave Protection Sheet should not come into contact with any PVC cables. This is to avoid plasticizer migration which causes PVC cables to become brittle and fragile. Any PVC cables should be protected within a suitable conduit or with a suitable air gap.

MOISTURE RESISTANCE & BREATHABILITY

VOID-TEK Heave Protection Sheet is hydrophobic and highly resistant to the absorption of water but will allow a very minimal amount of water vapour transfer. VOID-TEK Heave Protection Sheet is often utilized with a suitable damp proof membrane or vapour control layer to avoid any unwanted water ingress.

REACTION TO FIRE CLASSIFICATION

VOID-TEK Heave Protection Sheet will achieve reaction to fire Euroclass F. However, the classification achieved when installing in a building will be considerably better. We also supply FRA grades which contain a Fire-Retardant Additive and achieve reaction to fire Euroclass E.

SUSTAINABILITY

VOID-TEK Heave Protection Sheet does not contain HFC's, CFC's or HCFC's. VOID-TEK Heave Protection Sheet has a Global Warming Potential (GWP) of zero and a low O-Zone Depletion Potential (ODP).

VOID-TEK Heave Protection Sheet is 100% recyclable. For more information on our recycling policy, you can contact our office to find out more.

DELIVERY & STORAGE

The boards are delivered to site in packs, wrapped in polythene. They must be protected from prolonged exposure to sunlight and UV rays. Packs should be stored either under cover or protected with opaque light-colored polythene sheeting. The products must be stored fully supported and flat on a firm, level base, to prevent bowing. The products must not be exposed to open flame, care should still be taken to ensure VOID-TEK Heave Protection Sheet doesn't come into contact with any source of ignition.

Physical Properties	VOID-TEK
Compressive Strength @ 10% (kPa)	45
Bending Strength (kPa)	60
Compressive Creep	CC(2/1.5/50)0.3
Water Vapour Permeability (mg Pa.h.m)	0.015 - 0.030
Water Vapour Diffusion Resistance (μ)	20-40
Reaction To Fire – Standard VOID-TEK	F
Length Tolerance	L2
Width Tolerance	W2
Thickness Tolerance	T2
Flatness Tolerance	P5
Squareness	S2



SAFETY

VOID-TEK Heave Protection Sheet is non-toxic, non-irritant and odorless, making it completely safe to handle. It can be cut on-site using a fine tooth saw or a hot wire cutter. For more information refer to our Safety Data Sheet.

All VOID-TEK Heave Protection Sheet is manufactured to the following standards - **BS EN 13163:2012+A2:2016**
- **BS EN 13501-1**.

Please note: The information contained within this datasheet is true and accurate at the date of issuance and is subject to change without prior notice. It is for guidance only the proper use and application of this product is the responsibility of the user.