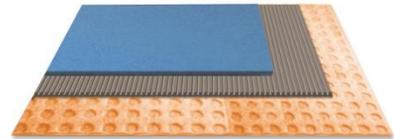


Product Data Sheet

D-Mat 3L

Description

An orange Polyethylene/Polypropylene triple layer decoupling mat constructed with a regular circular column cavity grid structure with a fleece securely welded to the face and the underside.



Uses

An extremely versatile product, Nicobond D-Mat 3L is a decoupling mat for ceramic tile and natural stone installations. It is an uncoupling membrane for problematical substrates; it has superb crack bridging properties and functions as a waterproof and water vapour equalization membrane.

Features

- Tough durable polyethylene membrane.
- Textured Fleece surface for improved adhesion.
- Waterproof.
- Tile early onto green screeds.
- Lightweight.
- Only 3mm thick
- Easy to lay.
- Easy to cut.
- Securely welded fleece.
- Can be installed using flexible tile adhesive.
- Prevents moisture penetration to the substrate.
- Allows vapour to dissipate between the fleece and membrane.
- Load bearing.
- Suppresses cracks in screeds
- Accommodates movement
- Can be used over timber
- Bond with Cement based adhesives or Multi-Purpose Flooring Adhesive.

Key Functions

Uncoupling and separating.

D-Mat uncouples the floor covering from the substrate and prevents the transfer of stresses to the tiled surface. In this way, a deformation or crack caused by shrinkage in the substrate is neutralized. The D-Mat bridges the cracks and does not allow the transfer of this energy to the tiled surface. This enables a green screed to be tiled as soon as it can be walked on without leaving an impression in the screed.

Equalises vapour pressure

D-Mat equalises vapour pressure, so residual moisture cannot build up. The regular construction of the grid on the underside of the mat creates a series of air channels which allow moisture to evaporate and thereby neutralises vapour pressure.

Waterproofing

Manufactured from polyethylene Nicobond D-Mat is a water proof membrane. Used in Conjunction with Nicobond Wet Room Waterproof Liquid Membrane, Tapes and other components a waterproof environment can be created.

Load Bearing

It is recommended to use a C2 and S1 classification adhesive for fixing tiles onto D-Mat. In spreading the adhesive layer over the surface it is important to ensure the cavities in the D-mat are completely filled. The column like structure which becomes filled with adhesive provides a sound base which allows applied dynamic and static loads to be transmitted directly to the substrate and makes the D-Mat highly load resistant.



Surface Preparation

Surfaces to be tiled should be rigid, dimensionally stable, sound, level, capable of taking the applied load, clean and free from laitance, paints, salts, grease, dust and any contamination which may prevent adhesion.

Once the D-Mat 3L has been laid, consideration must be given to the tiles being installed. If it is a high traffic area then the corresponding tile type of suitable thickness and durability should be selected. The contact surface area of the D-Mat 3L is approximately 50% of the total surface area, this can be a factor where high point loading is anticipated and sufficiently durable tiles must be selected. The minimum tile size recommended is 50 x 50mm.

Suitable Substrates

- Concrete
- Sand:Cement Screed
- Anhydrite/ Calcium Sulphate Screed
- Heated Floor Screed
- Wood Floors (for lateral movement)
- Flooring Grade Asphalt
- Synthetic Flooring

Movement Joints

Movement joints must be inserted as appropriate and follow existing structural joints through to the tiled surface. Day joints can be overlaid with D-Mat 3L provided they have been formed correctly and movement is limited to 1 – 2mm across the joint. D-Mat 3L has passed the rigorous Crack bridge test according to FDF – Merkblatt (08.2004). Intermediate joints may be required in larger floors and those subject to significant thermal changes, i.e. direct sunlight or underfloor heating. In these areas the floor should be divided up by movement joints into bays of size not greater than 40m² with an edge length not greater than 8m. Perimeter movement joints should be inserted where tiling abuts restraining surfaces such as perimeter walls, columns, curbs and steps. In all cases reference should be made to BS 5385.

Application

The substrate must be suitably prepared as above to give a clean and level floor.

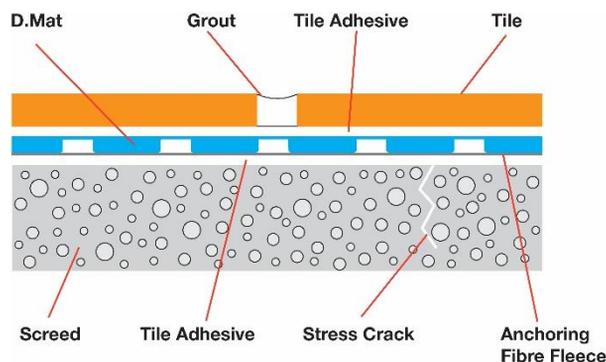
Nicobond D-Mat 3L must be firmly bonded to the substrate using a C2 S1 classification adhesive prior to the installation of the tile bed.

Apply a thin layer of adhesive to the substrate using a Mosaic Trowel (4mm x 4mm). Cut the D-Mat 3L to the appropriate length (scissors or utility knife) and bed the fleece on the underside of the mat firmly into the wet adhesive. Use a float or similar flat trowel to smooth out the D-Mat 3L and to ensure the fleece has good contact and is embedded in the adhesive.

When the D-Mat 3L is placed into position, it is recommended to readjust the alignment by lifting one end and pulling it to slightly to ensure it is taut. This is achieved more easily with assistance from a second person.

Nicobond Multi-Purpose Flooring Adhesive may also be used for bonding the D-Mat 3L to timber/concrete/sand:cement screed and anhydrite screeds – refer to the Multi-Purpose data sheet for more information.

Typical installation detail for Nicobond D-Mat



The cut lengths of the D-Mat 3L will be butt jointed (placed edge to edge) and these joints covered with Nicobond Jointing Tape or similar self adhesive reinforcing tape.

Once the D-Mat 3L has been fitted it should be protected against heavy loads so as not to disturb the early bond strength development. Running boards can be placed down the centre to provide protection.

If the area to be tiled is free from other trades then the tile installation can be commenced immediately after the initial adhesive set has taken place. When setting out the tiles avoid lining up grout joints with the adjoining edges of the D-Mat 3L.

The mixed C2 S1 classification adhesive is applied to the top surface of the D-Mat 3L with the straight edge of the Nicobond Notched Trowel working the adhesive firmly into the cavities to ensure they are completely filled. The adhesive is then floated over the entire surface of the D-Mat 3L and should not generally exceed 10mm bed depth.

Bonding of the Tiles

Fix dry tiles immediately by pressing them firmly into position with a slight sliding or twisting action. Where tiles have deep keys or studs, it will be necessary to back butter the tiles, this is achieved by spreading adhesive onto the back of the tile to fill the keys or spaces between studs.

Whichever method is used, the tiles should be firmly tamped or pressed home to ensure solid bedding without voids. Floors should not be opened to traffic until the adhesive has hardened.

From time to time remove a tile to check that full contact has been made with the adhesive bed. Exterior installations must be protected from rain and frost until the adhesive has fully set. Where fixing is carried out in hot conditions, the finished tiling should be protected from direct sunlight to avoid premature drying.



Substrates

Concrete and Sand: cement Screeds

The drying process for concrete and screed bases is quite lengthy, it is recognised that for screeds, one day should be allowed for each millimetre of thickness for the first 50mm, followed by an increasing time for each millimetre above this thickness. Concrete, being less permeable may be even longer. During the curing process cracking can occur which is mainly caused by restraint to early thermal contraction and drying shrinkage. BS 5385 states that "At least six weeks should be allowed under good drying conditions for the structural floor to undergo initial drying shrinkage. If a levelling screed is subsequently to be applied, the levelling screed should be left for a further three weeks." "Where tiling is on a separating layer directly over the structural floor, the period of six weeks is not critical." Nicobond D-Mat 3L will absorb the inherent stresses between the concrete and the tile covering enabling tiles to be installed as soon as the concrete or screed is hard enough to walk on. A further advantage of D-Mat 3L is that as it is a membrane it will enhance the properties of the screed, the membrane will slow down the drying time of the screed thereby reducing the effect of curling in the screed – this can be a particular problem with floating and unbonded screeds and in so doing minimise any shrinkage cracks which may occur. In situations where there are minor defects or cracks of approx 2 - 3mm then D-Mat 3L can be bonded direct to the floor and tiled over.

Anhydrite/Calcium Sulphate Based Screeds

Direct fixing of tiles to Gypsum based screeds can be achieved by using Nicobond Gypfix where the screed has a residual moisture content of maximum 85% RH or 1% by weight. In situations where the moisture content is below 2% then Nicobond D-Mat 3L is a viable alternative. Gypsum based screeds are sensitive to moisture and would benefit from protection against additional moisture penetration.

Under Floor heating

Nicobond D-Mat 3L is compatible with both underfloor and undertile heating systems. The installation will follow normal practices for commissioning and the heating may be applied seven days after tile fixing for ceramics and porcelain and ten days for natural stone. Refer to the heating manufacturer for precise details. The air channels created in the grid structure of D-Mat 3L allow for a rapid and even distribution of heat beneath the tiling.

For electric undertile heating systems, it is possible to lay the D-Mat 3L either above or below the heating cable or mat. D-Mat 3L does not create a thermal barrier, therefore it will not inhibit heat transfer or reduce the performance of the heating system. However to be most effective in its function as a decoupling mat then the heating cable or mat should be applied direct to the substrate prior to installing D-Mat 3L. This allows D-Mat 3L to isolate the floor tiles from the heated substrate which will prevent stresses from damaging the tiles surface.

To provide a flat and level surface for the D-Mat 3L, apply a layer of smoothing compound or tile adhesive over the cable or mat and then install the D-Mat 3L over this. Tiling will then continue in the usual way using a suitable C2 and S1 category adhesive.

In situations where the D-Mat 3L has been installed then it is necessary to create a level base on which to lay the undertile heating system. This can be achieved by filling the cavities in the D-Mat 3L with adhesive and floating a thin even layer of adhesive over the surface. The function of this is two fold a) to provide a sound, level base and b) to isolate the heating wires from the polyethylene mat. Care must be taken during installation of the tiles to ensure that sufficient adhesive is applied to cover the heating cables and to ensure tiles are solidly bedded thus avoiding any air pockets or voids beneath the tiles. To maintain an efficient heating system the adhesive bed should not be more than 10mm thick.

Timber Floors

This category includes Plywood, chipboard, orient strand board (OSB) and wooden floor boards. Timber floors must be prepared in accordance with BS 5385. To overcome issues of deflection in floors we recommend our Nicobond Plastic Ply. For floors which are rigid but subject to lateral movement and deformation through the influence of moisture or changes in atmospheric humidity then Nicobond D-Mat can be used.

Flooring Grade Asphalt

The surface should be sanded to provide a mechanical key and thoroughly cleaned. It will be necessary to slurry prime the surface using a bonding coat consisting of 1 volume Nicobond Primer, 1 volume of water and 1 volume of Nicobond C2 S1 category adhesive. Allow to set and then install the D-Mat 3L as usual.

Sythetic Resin Floors

The floor must be examined to ensure it is load bearing for the purpose, sanded to provide a mechanical key and thoroughly cleaned. It will be necessary to slurry prime the surface using a bonding coat consisting of 1 volume Nicobond Primer, 1 volume of water and 1 volume of Nicobond C2 S1 category adhesive. Allow to set and then install the D-Mat 3L as usual.

Waterproofing

Manufactured from polyethylene, Nicobond D-Mat 3L passes EN 1928 for Determination of watertightness. Tested according to Method A, the membrane withstands water pressure of 2kPa for 24 hours. Used in Conjunction with Nicobond Wet Room Waterproof Liquid Membrane, Tapes and other components a tanked waterproof floor can be created.

Technique

The D – Mat 3L will be installed in the usual way with the edges of the mat butted up against each other. Carefully align the mat edges so that they can be over taped with Nicobond Wet Room Waterproof Tape to provide a complete seal.

The wall and floor junctions will also be treated in the same manner ensuring the tape completely bridges the junction.

For internal and external corners use Nicobond Wet Room Waterproof Internal and External Corners.

Testing and Accreditation

Nicobond D-Mat 3L has undergone a rigorous program of testing to demonstrate compliance with EN 1348 and for Crack Bridging FDF – Merkblatt (08.2004).

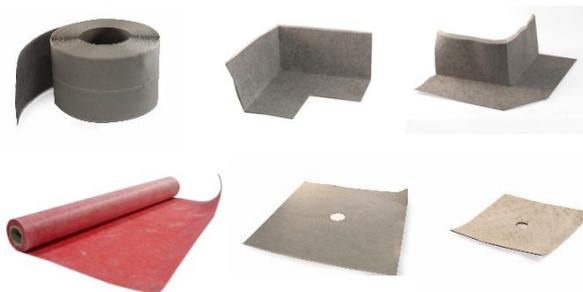
The FDF – Merkblatt test applies the following procedure.

After a storage of 28 days in standard atmosphere at 23°C and 50% relative humidity, a crack between two concrete blocks 40cm x 20cm was generated by a path-controlled test machine without applying an external load.

The crack enlargement was measured by 2 gauges, directly attached to the butt –joint of the concrete slabs (see figure 1). During or directly after the crack enlargement, the ceramic coat was checked optically for damage (breaking of edges, tile fracture).

Test Results

At a crack enlargement of 0.25mm first flank failures between the middle tile and middle joints occurred as well as cracks in the two side joints. Later in the test, this crack widened continuously. The ceramic coating showed no failure until the total rupture of the decoupling.



Notes

Nicobond D-Mat 3L cannot rectify deficiencies in the substrate, adhesive, tile or installation such as but not limited to:

Structurally unsound substrates, deflection limits (Tile Council of America stipulates L/360), substrates with unsuitable surfaces for a particular installation such as but not limited to those that are not flat or adequately prepared according to the recommendations given in BS 5385 and BS 8204.

Product Data	
Colour:	Orange 2004
Size :	1m x 30m roll 1m x 10m roll
Thickness of Material :	3mm
Density :	Approx 550gm per m ²
Void volume between dimples:	1.56l/m ²
Number of dimples per m²:	Approx 2,500 per m ²
Service Temperature:	-40°C to 80°C
Resistant to:	Alkali, Chemicals, fungus, bacteria and decay.
Tensile Adhesion Test to EN 1348:	0.22 N/mm ²
Crack Bridging to FDF-Merkblatt (08.2004):	No tile failure until total rupture of the membrane.
Determination of Watertightness to EN 1928:	Method A, water pressure 2kPa for 24 hours.
Packaging	Protect from direct sunlight.