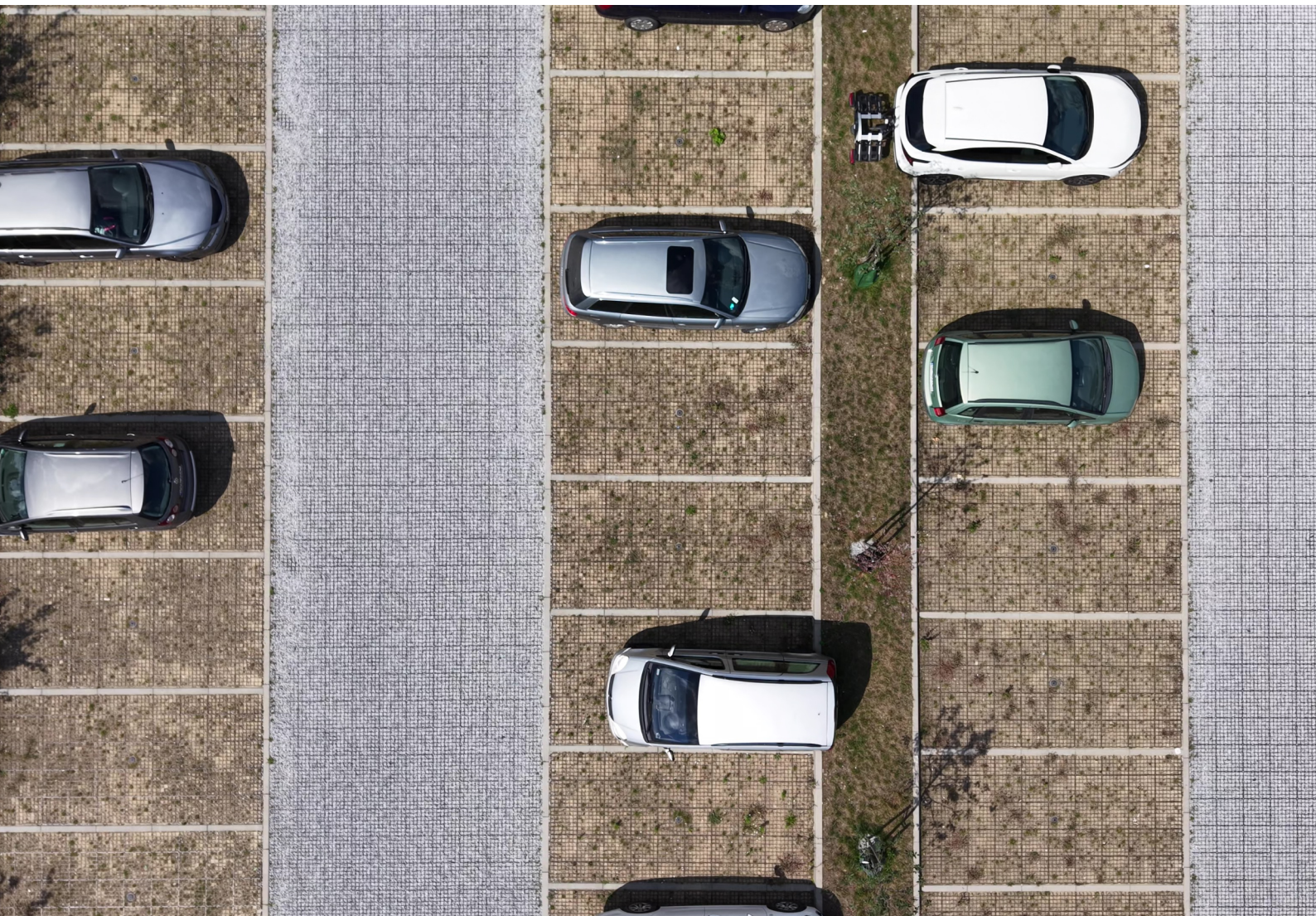




Installation instructions

H30 N30, N40, N50, N40 PLUS, N50 PLUS, N40 PRO, N50 PRO geogrids

GEOGRID SYSTEM WITH STONE INFILL

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GENERAL INFORMATION

NATAN PLAST geogrids form an ecological surface stabilisation system designed to create trafficable surfaces for vehicular and pedestrian use while maintaining a biologically active surface. This solution provides a modern, environmentally friendly alternative to conventional paved surfaces, such as block paving. The product is intended for the construction of roads, driveways, car parks, access routes and other areas requiring durable ground reinforcement. Their design enables the geogrids to stabilise the ground effectively while preserving the natural characteristics of the site, including water permeability and the biologically active character of the surface.

The geogrids are manufactured from a carefully selected PP/PE blend made from 100% recycled material. The material provides high load-bearing capacity and flexibility, resulting in durability in service and resistance to damage during use. The careful selection of raw materials also helps prevent cracking and enhances product reliability in day-to-day use. The geogrids consist of modular elements which, once connected, form a stable pavement suitable for a wide range of applications. Depending on the model selected and the intended use, the system can be adapted to different loads and service conditions. This enables the most suitable solution to be selected for the specific requirements of each project and allows a high-performance, durable and environmentally friendly pavement to be constructed.

LAYING PROCESS

CONNECTING THE GEOGRIDS

N-series geogrids are connected using the integrated clips located along the edges of the modules. The individual modules are designed to form a secure and stable connection by snapping together. To connect the modules correctly, position each successive geogrid over the clips on the adjacent module, then press it down until the connection is fully engaged. Once correctly connected, the modules form a continuous pavement system, ensuring stability across the entire surface. A rubber mallet may be used if necessary to seat the modules accurately and ensure that the clips engage correctly.

- The geogrids are connected using clips located along the edges of the modules.
- Position each successive geogrid over the clips on the adjacent module and press it down until the connection is fully engaged.
- Once correctly connected, the modules interlock to form a continuous, stable surface.
- When connecting the modules, ensure that they fit together as closely as possible.
- A rubber mallet may be used, if necessary, to seat the modules correctly.
- Once connected, the geogrids should be infilled immediately to minimise the effects of thermal expansion and stabilise the installed geogrid system.

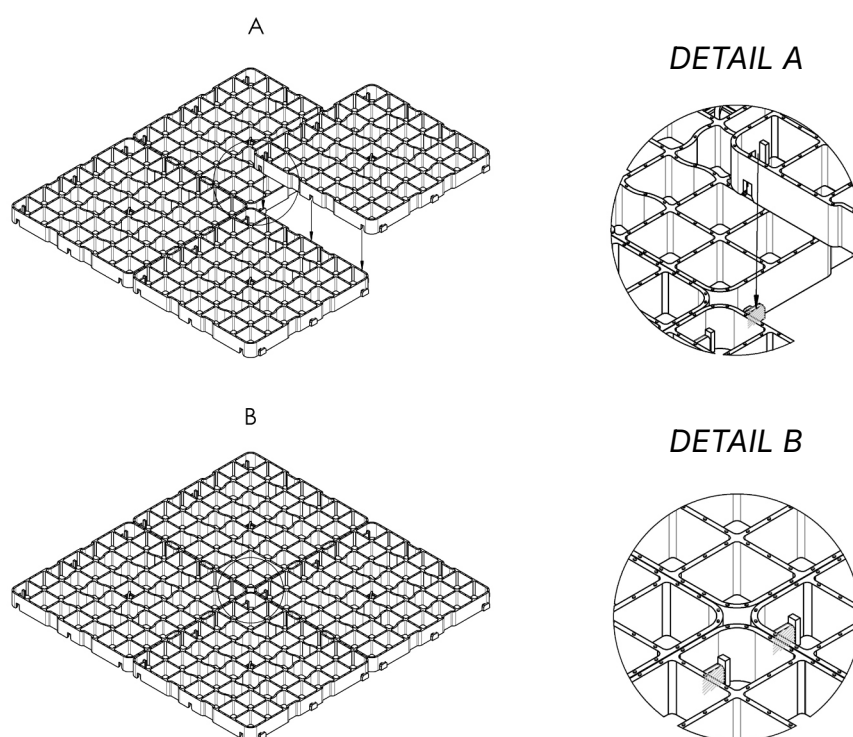


Figure 1 Connecting the geogrids

LAYING THE GEOGRIDS

N-series geogrids must be laid systematically, maintaining a consistent installation direction across the entire area. Start at a corner and continue laying the geogrids in rows to maintain the correct alignment and geometry of the pavement and facilitate the connection of successive modules. During installation, ensure that the clips face the direction in which the next modules are to be laid. This will ensure an orderly installation process and the correct fit of the system as a whole. Where the pavement needs to be fitted against edging units or at terminations, modules may be cut to fit, provided that the required expansion gap is maintained along the edges. Once laid, the geogrids may be lightly compacted using a plate compactor fitted with a rubber mat.

- Start laying the geogrids at a corner of the area.
- Lay the geogrids in rows, maintaining a consistent installation direction across the entire area.

- During laying, check the orientation of the modules to ensure that the clips face the direction in which the next geogrids will be laid.
- Keep each row straight and ensure that the modules fit together correctly.
- Cut the modules to fit where the pavement meets an edge.
- Leave an expansion gap of 3–5 cm at the edges.
- During installation, it is recommended that modules from different pallets be mixed to reduce the visibility of any dimensional and colour variations.
- The geogrids must only be laid when the ambient temperature is above 10 °C.
- Once laid, the geogrid pavement should be flush with adjacent surfaces.
- Once the geogrids have been laid, they may be lightly compacted using a plate compactor fitted with a rubber mat.

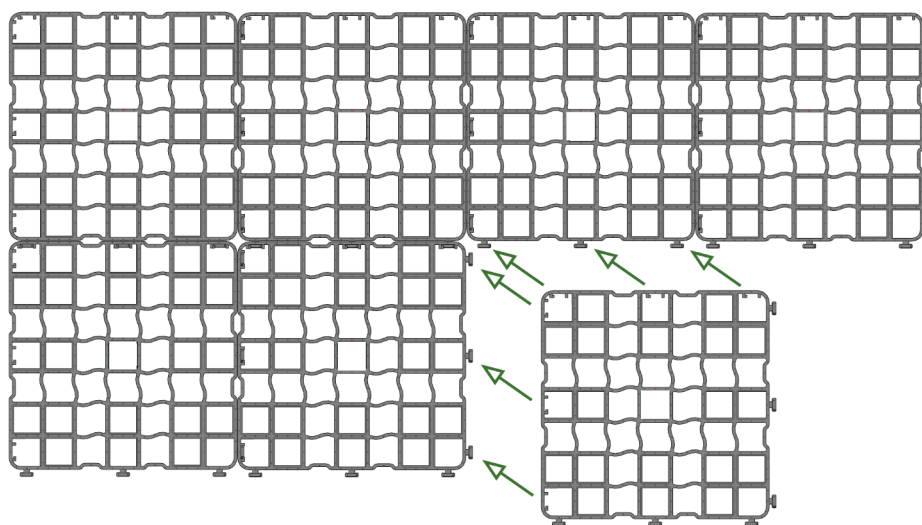


Figure 2 Geogrid laying direction

EXPANSION GAPS

When constructing an N-series geogrid pavement, provision must be made for appropriate expansion gaps and installation gaps. This is due to the properties of the polymer, which may undergo dimensional changes in response to changes in temperature. Correctly designed and formed expansion gaps reduce the risk of pavement buckling, pavement movement and stresses developing where the pavement abuts fixed elements. Particular attention must be paid to pavement terminations and to locations where the pavement abuts edging units, kerbs and other permanent site features. For larger areas, intermediate expansion gaps and suitable edge restraints are also recommended.

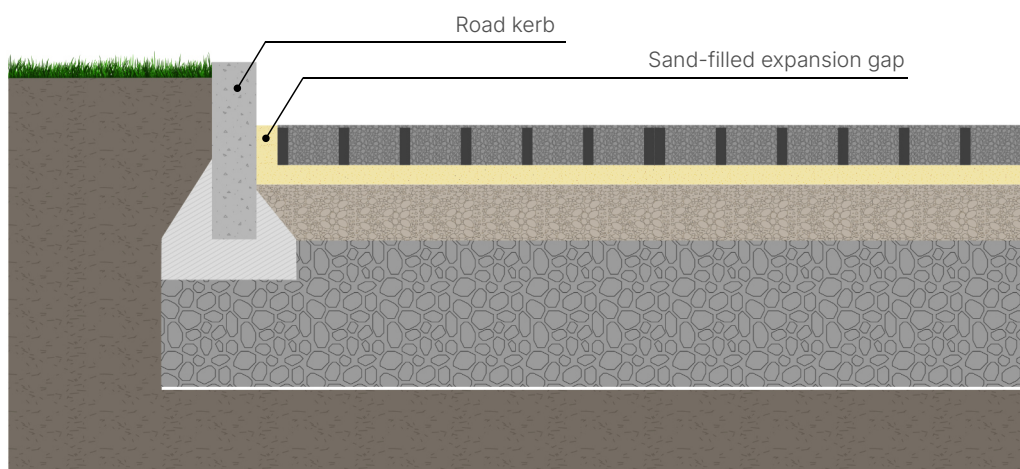


Figure 3 Expansion gap at a kerb

- An expansion gap of at least 3 cm must be maintained at kerbs, edging units and other pavement boundaries.
- Expansion gaps must be filled with sand.
- Because of the polymer's thermal expansion, a clearance should be maintained between the pavement and fixed elements.
- For large areas, intermediate expansion gaps at intervals of approximately 15 m are recommended.
- Where modules are cut to fit at the edges, the required expansion gap must be maintained.
- Road and car park pavements should be restrained by kerbs.
- For larger paved areas, kerbs are also recommended to prevent the pavement from shifting and to ensure its stability.
- The geogrid pavement should be flush with adjacent surfaces while maintaining the required clearances from fixed elements.

SUB-BASE

The sub-base beneath the geogrid pavement should be constructed so as to ensure the durability, stability and safe use of the pavement system as a whole. Its design must be tailored in each case to the intended use of the pavement, the anticipated loads and the ground and groundwater conditions at the installation site. A correctly constructed sub-base should provide uniform support for the geogrids, reduce the risk of rutting, settlement and pavement movement, and allow effective drainage or infiltration of water.



Figure 4 Suggested sub-base build-up

- The sub-base must be designed for each application to suit the pavement type, anticipated loads, traffic intensity and the ground and groundwater conditions at the site.
- The subgrade should be properly prepared, shaped to the required profile and compacted before the subsequent pavement layers are placed.
- The subgrade beneath the pavement should be free from standing water. Where the subgrade has low permeability, appropriate drainage measures must be provided.
- The sub-base should provide uniform, stable support over the entire pavement area.
- The sub-base layers must be constructed using materials suitable for the selected design and placed and compacted in successive layers.
- The sub-base should minimise the risk of rutting, settlement, deformation and pavement movement in service.
- Where the subgrade has low bearing capacity, is silty, clayey or waterlogged, or is susceptible to the washout of fines, a separation layer, such as a geotextile, must be provided.

- The sub-base should ensure effective water management within the pavement construction, particularly by allowing water to drain away or infiltrate and by minimising its accumulation within the sub-base layers.
- The thickness of each sub-base layer must be determined in accordance with the design, taking into account the intended function of the pavement and the anticipated in-service loads.

GEOGRID INFILL

- The geogrids must be infilled with construction or decorative aggregate. The aggregate should be crushed to promote effective interlock and stabilise the infill.
- The geogrid infill should not finish flush with the top of the walls. After compaction, the aggregate should stand slightly proud of the geogrid walls and must never be below their top edge.
- The aggregate used to infill the geogrid clusters should have a grading that allows the spaces to be completely filled and the highest practicable degree of compaction to be achieved. The material must not remain loose within the cells; once placed, it must be thoroughly compacted.
- Expansion gaps must be filled with sand. The sand should completely fill the expansion gap, allowing the pavement to accommodate movement correctly and minimising migration of the aggregate.
- The grading of the geogrid infill and that of the bedding layer beneath the geogrids must be selected so as to prevent aggregate from migrating beneath the vertical geogrid walls. Material migrating beneath the walls as the pavement moves in response to thermal expansion of the polymer may cause the entire pavement to lift and deform.

CONDITIONS FOR SAFE USE OF THE SURFACE

To ensure the required performance, durability and safe use, the geogrid pavement should be constructed in accordance with design documentation that takes account of its intended use, anticipated loads, and the ground and groundwater conditions at the site. The thickness and specification of the sub-base and bedding layer must be selected to suit the pavement type, intended use and design loads. Where the subgrade has low permeability or groundwater conditions are unfavourable, measures specified in the design must be implemented, including additional stabilisation layers or drainage where required.

The following requirements must be observed during use:

- Do not allow any geogrid cells to remain unfilled or inadequately filled.
- The geogrid walls must remain protected by sufficient infill at all times, as exposed walls may be mechanically damaged.
- Missing or partial infill, or infill material of an unsuitable type or grading, may cause mechanical damage to the pavement components and impair serviceability.
- Any loss of infill material, localised settlement or mechanical damage to the pavement must be rectified and the infill replenished promptly.
- The pavement must not be used for purposes other than those for which it was designed or subjected to loads exceeding the values specified in the design documentation.
- The pavement construction, including the thickness and specification of the sub-base, should in each case be based on the relevant construction or detailed design documentation, taking account of the geotechnical conditions of the subgrade and the intended use of the pavement.

Periodic inspection of the pavement is recommended, including, in particular, an assessment of the level of infill in the cells, surface evenness, the condition of the edge restraints and any localised damage. Prompt rectification of any defects identified is important for maintaining the durability and safe use of the pavement.



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