

Manufacturer: Wrekin Products Ltd

Issue : 2
Valid From : 10/07/2013

E'Grid Biaxial Geogrids

Product Description

E'Grid Biaxial Grid is a large aperture polypropylene geogrid used to reinforce the ballast layer reducing ballast settlement and subsequent maintenance intervention following ballast renewal.

Product Image



Scope of Acceptance

Full Acceptance

E'Grid Biaxial Geogrids for use on all track renewal site in accordance with NR/L2/TRK/2102. Grid meets British Standards BS EN 13250:2005, and Quality Management Systems BS EN ISO 9001:2000 The Quality Control Strength [expressed as the lower 95% confidence limit in accordance with ISO 2602:1980 (BS 2846:Part 2:1981)] & In addition, the loads at 2% and 5% strain [expressed as the lower 95% confidence limit in accordance with ISO 2602:1980 (BS 2846: Part 2: 1981)]. In accordance with BS EN 13250, for reinforcement materials used in contact with ballast, the Residual tensile strength after abrasion tests to BS EN ISO 13427

The size of the grid aperture in relation to Network Rail's standard track ballast provides maximum interlocking with the ballast particles.

Network Rail Acceptance Panel (NRAP) hereby authorises the product above for use and trial use on railway infrastructure for which Network Rail is the Infrastructure Manager under the ROGS regulations.
 Authorised by:

PP

James Lewis
 Technology Introduction Manager

PP

Andy Jones CEng MICE
 Professional Head - Track

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Specific Conditions

The following Conditions are specific to the approved product/s contained within this Certificate. These conditions must be adhered to in addition to the Network Rail General Conditions contained within the "General Terms and Conditions" section.

Failure to adhere to these conditions may result in the withdrawal or suspension of Acceptance of some, or all of the items contained within the accepted configuration.

Manufacturer

- 1) The geogrid shall be manufactured in accordance with a Quality Management System which complies with the requirements of BS EN ISO 9001:2000. If required by the Engineer, the Contractor shall provide evidence that the manufacturer's Quality Assurance System has been certified to conform with BS EN ISO 9001:2000 by an external authenticating authority approved by the Department of Trade and Industry.
- 2) The reinforcing element shall be certified "CE MARKING" for the reinforcement function in accordance with the requirements of BS EN 13250:2005, "Characteristics required for use in the construction of railways".
- 3) The grid shall be manufactured from Polypropylene sheet, orientated in two directions so that the resulting ribs shall have a high degree of molecular orientation that continues through the area of the integral node.
- 4) The geogrid aperture size shall be approximately 63 mm x 63 mm (+/- 3mm)
- 5) The Quality Control Strength [expressed as the lower 95% confidence limit in accordance with ISO 2602:1980 (BS 2846:Part 2:1981)] shall be measured by a UKAS accredited laboratory and shall be a minimum of 30.0 kN/m with strain at nominal peak not more than 11% in both the longitudinal and transverse directions at that load, when tested in accordance with BS EN ISO 10319:2008.
- 6) In addition, the loads at 2% and 5% strain [expressed as the lower 95% confidence limit in accordance with ISO 2602:1980 (BS 2846: Part 2: 1981)] shall be 11.0 kN/m ($\pm 10\%$) and 22.0 kN/m ($\pm 10\%$) respectively in the longitudinal direction and 11.0 kN/m ($\pm 10\%$) and 22.0 kN/m ($\pm 10\%$) respectively in the transverse direction
- 7) The typical strength of the nodes between the longitudinal and transverse ribs, as determined by the Geosynthetics Research Institute, Drexel University, USA, Test Method GG2-87, shall not be lower than 28.5 kN/m (95% of the Nominal Peak Strength) in both longitudinal and transverse directions
- 8) In accordance with BS EN 13250, for reinforcement materials used in contact with ballast, the residual tensile strength after abrasion tests to BS EN ISO 13427 shall be measured by a UKAS accredited laboratory and should not be lower than 90% of the Nominal Peak Strength in both longitudinal and transverse directions
- 9) The geogrid shall be non-biodegradable and shall have a minimum of 2% finely divided carbon black, as determined by BS 2782 Part 4 method 452B:1993, well dispersed in the Polymer matrix to inhibit attack from ultra violet light
- 10) See detailed specification table provided at application stage for specific durability requirements relating to resistance to chemicals and durability

User

- 1) The geogrid is to be installed at the base of the ballast layer unless specified otherwise.
- 2) Overlapping of grids to be a minimum of 500mm with the squares of the grids aligned to ensure maximum ballast interlocking is provided
- 3) Minimum installation of grid beyond sleeper / bearer end to be 500mm
- 4) This grid can be used for all track renewals undertaken on Network Rails infrastructure
- 5) Grid must be used with standard track ballast.

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Product Configuration

System or Complete Assembly

Part No.	Description	Catalogue No.
E Grid 3030L	Polypropylene Geogrid	057/101300

Hardware (Maintenance Spares and Line Replaceable Units)

Assessed Documentation

Reference	Title	Doc. Rev.	Date and Applies to Cert. issue No.	
Wrekin Geosynthetics Specification Sheet	Wrekin Specification Sheet E Grid Biaxial Geogrid	B	22/02/2011	
5100311/1	Certificate of Factory Production Control BTTG Test Report	-	07/02/2012	
10/12647LP	Test Report Abrasion Resistance	-	01/11/2007	

Certificate History

Issue	Date	Issue History
1	10.07.2013	First accepted for use
2	13.09.2013	Certificate updated with missing Cat number

Contact Details

Manufacturer

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General Terms & Conditions

1) General

- 1) This certificate can only be amended by Network Rail Technology Introduction Group. Any alterations made by a different person will invalidate the entire certificate.
- 2) Failure to abide by the requirements in this Certificate of Acceptance may invalidate the certificate, thereby restricting the right to operate the product and / or limiting the future supply and deployment of the product on the infrastructure.
- 3) Upon the review date this certificate and the product it relates to is invalid and not accepted for use. Manufacturers are to make an application for a review prior to the review date.

2) Manufacturer

The Manufacturer shall:

- 1) Ensure that all products supplied comply with the standards defined in the Acceptance Requirements or otherwise documented as part of the assessment, including meeting the reliability requirements included in the Acceptance Requirements and in any deed of warranty for the relevant certificate number.
- 2) Notify Network Rail Technology Introduction Group:
 - a. Within 48 hours, of any deficiencies affecting the quality, functionality or safety integrity of the product (including corrective action undertaken or proposed).
 - b. Of any intended change to the accepted product; changes include:
 - i. a change to the product configuration (to the actual product or its application);
 - ii. a variation to or addition of manufacturing locations or processes;
 - iii. a change in the name or ownership of the manufacturing company;
 - iv. any changes to the ability or intention to support with technical services, spares or repairs.
- 3) The Manufacturer shall provide Network Rail Technology Introduction Group at least 12 (twelve) months notice of its intention to discontinue supply or to provide such notice as is reasonable if such discontinuance is outside its control and will offer the opportunity of a Last Time Buy to Network Rail together with date for last order placement and supply of the parts affected. The introduction of proposed alternative products shall be communicated to the Network Rail Technology Introduction Group.
- 4) Provide further copies of operating and maintenance manuals to purchasers / users of the product as necessary (including certificates of conformance, calibration etc).
- 5) Provide further copies of training manuals and an appropriate level of training to purchasers or users of the product as necessary.
- 6) Where applicable, specialist technical support, repairs and servicing of the product shall be carried out by the Original Equipment Manufacturer (OEM) or authorised agent only.
- 7) Network Rail may request information from the manufacturer to prove product compliance with clauses 1 and 2 above and reserve the right to suspend and/or withdraw any application where information is not forthcoming within a reasonable timeframe.
- 8) In accordance with Network Rail's Quality Assurance Policy Statement 2011, where the specification and/or Product Acceptance Certificates specify quality assurance classifications (QA1 to QA5) for the products, the manufacturer shall comply with the specified level of quality assurance for each product and allow Network Rail access to carry out its quality assurance checks.
- 9) The manufacturer shall give Network Rail's representatives access at all reasonable times to its premises and allow them to inspect its quality systems and production methods and, if requested, to inspect, examine and test the products both during and after their manufacture and the materials being used in their manufacture.

3) Conditions of Use

Specifiers, installers, operators, maintainers, etc. using the product shall:

- 1) Comply with the certificate conditions. If a condition is not understood guidance must be sought from Network Rail Technology Introduction Group.
- 2) Check that the application of use complies with the relevant certificate's scope of acceptance.
- 3) Report any defect if it is a design or manufacturing fault likely to affect performance and/or the safe operation of the railway in writing to Network Rail Technology Introduction Group.
- 4) Inform Network Rail Technology Introduction Group in writing of a change to the product configuration (or to the actual product or its application).
- 5) Operate, maintain and service the product in accordance with Network Rail standards and Operation and Maintenance manuals as appropriate.
- 6) Be appropriately trained and authorised for the installation, maintenance and use of the product.
- 7) Only send products for repair or reconditioning to the Original Equipment Manufacturer (OEM) or authorised agent.
- 8) Users are to be aware that Product Acceptance is not a substitute for design approval.

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4) Compliance

Railways and Other Guided Systems (ROGS) Regulations

- 1) Where the product is to be used in areas where Network Rail is not the Infrastructure Manager (e.g. leased stations), the sponsor shall additionally obtain formal consent from the Infrastructure Manager for the locality where the equipment is to be installed. This may include a requirement for additional safety verification. The decision of that Infrastructure Manager is binding, and cannot be overridden by Network Rail except by the escalation processes established in the ROGS regulations
- 2) As required in Railway Group Standard GE/RT8270, at each use of this product the project or group responsible for installation and commissioning shall be required to demonstrate compatibility with:

- a. All rail vehicle types that have access rights over the area affected by the change
- b. Infrastructure managed by others
- c. Neighbours.

Railway Interoperability Regulations

- 3) For interoperable constituents of systems the project or group responsible for installation and commissioning shall be required to demonstrate compliance with the relevant Technical Specifications for Interoperability (TSI) where appropriate.
- 4) An authorisation from the national safety authority (i.e. the Railway Safety Directorate of the Office of Rail Regulation) is required before the equipment is to be used in revenue earning service.

5) Supply Chain Arrangements

- 1) Certificates of acceptance do not imply any particular quantity of supply nor any exclusivity of supply.
- 2) Products may be purchased by Network Rail or its agents, suppliers or contractors.
- 3) Manufacturers should note that it is not necessary to enter into any exclusive supply arrangements with resellers or other suppliers.