

# Product Specification

## Tensar Biaxial Geogrid

- **Biaxial Geogrid Type 1**
- **Biaxial Geogrid Type 2**
- **Biaxial Geogrid BX1100**
- **Biaxial Geogrid BX1120**
- **Biaxial Geogrid BX1200**
- **Biaxial Geogrid BX1220**
- **Biaxial Geogrid BX1300**
- **Biaxial Geogrid BX1500**
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- **Biaxial Geogrid BX6100**
- **Biaxial Geogrid BX6200**

## Product Specification - Biaxial Geogrid Type 1

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**Product Type:** Integrally Formed Biaxial Geogrid  
**Polymer:** Polypropylene  
**Load Transfer Mechanism:** Positive Mechanical Interlock

### Product Properties

Index Properties	Units	MD Values <sup>1</sup>	XMD Values <sup>1</sup>
▪ Aperture Dimensions <sup>2</sup>	mm (in)	25 (1.0)	33 (1.3)
▪ Minimum Rib Thickness <sup>2</sup>	mm (in)	0.76 (0.03)	0.76 (0.03)
▪ Tensile Strength @ 2% Strain <sup>3</sup>	kN/m (lb/ft)	4.1 (280)	6.6 (450)
▪ Tensile Strength @ 5% Strain <sup>3</sup>	kN/m (lb/ft)	8.5 (580)	13.4 (920)
▪ Ultimate Tensile Strength <sup>3</sup>	kN/m (lb/ft)	12.4 (850)	19.0 (1,300)
<b>Structural Integrity</b>			
▪ Junction Efficiency <sup>4</sup>	%	93	
▪ Flexural Stiffness <sup>5</sup>	mg-cm	250,000	
▪ Aperture Stability <sup>6</sup>	m-N/deg	0.32	
<b>Durability</b>			
▪ Resistance to Installation Damage <sup>7</sup>	%SC / %SW / %GP	95 / 93 / 90	
▪ Resistance to Long Term Degradation <sup>8</sup>	%	100	
▪ Resistance to UV Degradation <sup>9</sup>	%	100	

### Dimensions and Delivery

The biaxial geogrid shall be delivered to the jobsite in roll form with each roll individually identified and nominally measuring 3.0 meters (9.8 feet) or 4.0 meters (13.1 feet) in width and 75.0 meters (246 feet) in length. A typical truckload quantity is 185 to 250 rolls.

### Notes

1. Unless indicated otherwise, values shown are minimum average roll values determined in accordance with ASTM D4759-02. Brief descriptions of test procedures are given in the following notes.
2. Nominal dimensions.
3. True resistance to elongation when initially subjected to a load determined in accordance with ASTM D6637-01 without deforming test materials under load before measuring such resistance or employing "secant" or "offset" tangent methods of measurement so as to overstate tensile properties.
4. Load transfer capability determined in accordance with GRI-GG2-05 and expressed as a percentage of ultimate tensile strength.
5. Resistance to bending force determined in accordance with ASTM D5732-01, using specimens of width two ribs wide, with transverse ribs cut flush with exterior edges of longitudinal ribs (as a "ladder"), and of length sufficiently long to enable measurement of the overhang dimension. The overall Flexural Stiffness is calculated as the square root of the product of MD and XMD Flexural Stiffness values.
6. Resistance to in-plane rotational movement measured by applying a 20 kg-cm (2 m-N) moment to the central junction of a 9 inch x 9 inch specimen restrained at its perimeter in accordance with U.S. Army Corps of Engineers Methodology for measurement of Torsional Rigidity.
7. Resistance to loss of load capacity or structural integrity when subjected to mechanical installation stress in clayey sand (SC), well graded sand (SW), and crushed stone classified as poorly graded gravel (GP). The geogrid shall be sampled in accordance with ASTM D5818-06 and load capacity shall be determined in accordance with ASTM D6637-01.
8. Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.
9. Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D4355-05.

This specification supersedes any and all prior specifications for the product designated above and is not applicable to any product shipped prior to January 1, 2009. Tensar is a trademark of Tensar International Corporation or its affiliates in the US and many other countries. Final determination of the suitability of the above-mentioned information or product for the use contemplated, and its manner of use are the sole responsibility of the user. Tensar International Corporation disclaims any and all express, implied or statutory warranties, including but not limited to, any warranty of merchantability or fitness for a particular purpose regarding this product or the Company's other products, technologies or services. The information contained herein does not constitute engineering advice.

## Product Specification - Biaxial Geogrid Type 2

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**Product Type:** Integrally Formed Biaxial Geogrid  
**Polymer:** Polypropylene  
**Load Transfer Mechanism:** Positive Mechanical Interlock

### Product Properties

Index Properties	Units	MD Values <sup>1</sup>	XMD Values <sup>1</sup>
▪ Aperture Dimensions <sup>2</sup>	mm (in)	25 (1.0)	33 (1.3)
▪ Minimum Rib Thickness <sup>2</sup>	mm (in)	1.27 (0.05)	1.27 (0.05)
▪ Tensile Strength @ 2% Strain <sup>3</sup>	kN/m (lb/ft)	6.0 (410)	9.0 (620)
▪ Tensile Strength @ 5% Strain <sup>3</sup>	kN/m (lb/ft)	11.8 (810)	19.6 (1,340)
▪ Ultimate Tensile Strength <sup>3</sup>	kN/m (lb/ft)	19.2 (1,310)	28.8 (1,970)

### Structural Integrity

▪ Junction Efficiency <sup>4</sup>	%	93	
▪ Flexural Stiffness <sup>5</sup>	mg-cm	750,000	
▪ Aperture Stability <sup>6</sup>	m-N/deg	0.65	

### Durability

▪ Resistance to Installation Damage <sup>7</sup>	%SC / %SW / %GP	95 / 93 / 90	
▪ Resistance to Long Term Degradation <sup>8</sup>	%	100	
▪ Resistance to UV Degradation <sup>9</sup>	%	100	

### Dimensions and Delivery

The biaxial geogrid shall be delivered to the jobsite in roll form with each roll individually identified and nominally measuring 3.0 meters (9.8 feet) or 4.0 meters (13.1 feet) in width and 50.0 meters (164 feet) in length. A typical truckload quantity is 160 to 210 rolls.

### Notes

- Unless indicated otherwise, values shown are minimum average roll values determined in accordance with ASTM D4759-02. Brief descriptions of test procedures are given in the following notes.
- Nominal dimensions.
- True resistance to elongation when initially subjected to a load determined in accordance with ASTM D6637-01 without deforming test materials under load before measuring such resistance or employing "secant" or "offset" tangent methods of measurement so as to overstate tensile properties.
- Load transfer capability determined in accordance with GRI-GG2-05 and expressed as a percentage of ultimate tensile strength.
- Resistance to bending force determined in accordance with ASTM D5732-01, using specimens of width two ribs wide, with transverse ribs cut flush with exterior edges of longitudinal ribs (as a "ladder"), and of length sufficiently long to enable measurement of the overhang dimension. The overall Flexural Stiffness is calculated as the square root of the product of MD and XMD Flexural Stiffness values.
- Resistance to in-plane rotational movement measured by applying a 20 kg-cm (2 m-N) moment to the central junction of a 9 inch x 9 inch specimen restrained at its perimeter in accordance with U.S. Army Corps of Engineers Methodology for measurement of Torsional Rigidity.
- Resistance to loss of load capacity or structural integrity when subjected to mechanical installation stress in clayey sand (SC), well graded sand (SW), and crushed stone classified as poorly graded gravel (GP). The geogrid shall be sampled in accordance with ASTM D5818-06 and load capacity shall be determined in accordance with ASTM D6637-01.
- Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.
- Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D4355-05.

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## Product Specification - Biaxial Geogrid BX1100

*Tensar International Corporation reserves the right to change its product specifications at any time. It is the responsibility of the specifier and purchaser to ensure that product specifications used for design and procurement purposes are current and consistent with the products used in each instance.*

**Product Type:** Integrally Formed Biaxial Geogrid  
**Polymer:** Polypropylene  
**Load Transfer Mechanism:** Positive Mechanical Interlock  
**Primary Applications:** Spectra System (Base Reinforcement, Subgrade Improvement)

### Product Properties

Index Properties	Units	MD Values <sup>1</sup>	XMD Values <sup>1</sup>
▪ Aperture Dimensions <sup>2</sup>	mm (in)	25 (1.0)	33 (1.3)
▪ Minimum Rib Thickness <sup>2</sup>	mm (in)	0.76 (0.03)	0.76 (0.03)
▪ Tensile Strength @ 2% Strain <sup>3</sup>	kN/m (lb/ft)	4.1 (280)	6.6 (450)
▪ Tensile Strength @ 5% Strain <sup>3</sup>	kN/m (lb/ft)	8.5 (580)	13.4 (920)
▪ Ultimate Tensile Strength <sup>3</sup>	kN/m (lb/ft)	12.4 (850)	19.0 (1,300)
<b>Structural Integrity</b>			
▪ Junction Efficiency <sup>4</sup>	%	93	
▪ Flexural Stiffness <sup>5</sup>	mg-cm	250,000	
▪ Aperture Stability <sup>6</sup>	m-N/deg	0.32	
<b>Durability</b>			
▪ Resistance to Installation Damage <sup>7</sup>	%SC / %SW / %GP	95 / 93 / 90	
▪ Resistance to Long Term Degradation <sup>8</sup>	%	100	
▪ Resistance to UV Degradation <sup>9</sup>	%	100	

### Dimensions and Delivery

The biaxial geogrid shall be delivered to the jobsite in roll form with each roll individually identified and nominally measuring 3.0 meters (9.8 feet) or 4.0 meters (13.1 feet) in width and 75.0 meters (246 feet) in length. A typical truckload quantity is 185 to 250 rolls.

### Notes

- Unless indicated otherwise, values shown are minimum average roll values determined in accordance with ASTM D4759-02. Brief descriptions of test procedures are given in the following notes.
- Nominal dimensions.
- True resistance to elongation when initially subjected to a load determined in accordance with ASTM D6637-01 without deforming test materials under load before measuring such resistance or employing "secant" or "offset" tangent methods of measurement so as to overstate tensile properties.
- Load transfer capability determined in accordance with GRI-GG2-05 and expressed as a percentage of ultimate tensile strength.
- Resistance to bending force determined in accordance with ASTM D5732-01, using specimens of width two ribs wide, with transverse ribs cut flush with exterior edges of longitudinal ribs (as a "ladder"), and of length sufficiently long to enable measurement of the overhang dimension. The overall Flexural Stiffness is calculated as the square root of the product of MD and XMD Flexural Stiffness values.
- Resistance to in-plane rotational movement measured by applying a 20 kg-cm (2 m-N) moment to the central junction of a 9 inch x 9 inch specimen restrained at its perimeter in accordance with U.S. Army Corps of Engineers Methodology for measurement of Torsional Rigidity.
- Resistance to loss of load capacity or structural integrity when subjected to mechanical installation stress in clayey sand (SC), well graded sand (SW), and crushed stone classified as poorly graded gravel (GP). The geogrid shall be sampled in accordance with ASTM D5818-06 and load capacity shall be determined in accordance with ASTM D6637-01.
- Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.
- Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D4355-05.

Tensar International Corporation warrants that at the time of delivery the geogrid furnished hereunder shall conform to the specification stated herein. Any other warranty including merchantability and fitness for a particular purpose, are hereby excluded. If the geogrid does not meet the specifications on this page and Tensar is notified prior to installation, Tensar will replace the geogrid at no cost to the customer.

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## Product Specification - Biaxial Geogrid BX1120

*Tensar International Corporation reserves the right to change its product specifications at any time. It is the responsibility of the specifier and purchaser to ensure that product specifications used for design and procurement purposes are current and consistent with the products used in each instance.*

<b>Product Type:</b>	<b>Integrally Formed Biaxial Geogrid</b>
<b>Polymer:</b>	<b>Polypropylene</b>
<b>Load Transfer Mechanism:</b>	<b>Positive Mechanical Interlock</b>
<b>Primary Applications:</b>	<b>SierraScape System, ADD<sup>3</sup> System (Exposed Wall Face Wrap)</b>

### Product Properties

Index Properties	Units	MD Values <sup>1</sup>	XMD Values <sup>1</sup>
▪ Aperture Dimensions <sup>2</sup>	mm (in)	25 (1.0)	33 (1.3)
▪ Minimum Rib Thickness <sup>2</sup>	mm (in)	0.76 (0.03)	0.76 (0.03)
▪ Tensile Strength @ 2% Strain <sup>3</sup>	kN/m (lb/ft)	4.1 (280)	6.6 (450)
▪ Tensile Strength @ 5% Strain <sup>3</sup>	kN/m (lb/ft)	8.5 (580)	13.4 (920)
▪ Ultimate Tensile Strength <sup>3</sup>	kN/m (lb/ft)	12.4 (850)	19.0 (1,300)
▪ Carbon Black Content	%	2.0	

### Structural Integrity

▪ Junction Efficiency <sup>4</sup>	%	93	
▪ Flexural Stiffness <sup>5</sup>	mg-cm	250,000	
▪ Aperture Stability <sup>6</sup>	m-N/deg	0.32	

### Durability

▪ Resistance to Installation Damage <sup>7</sup>	%SC / %SW / %GP	95 / 93 / 90	
▪ Resistance to Long Term Degradation <sup>8</sup>	%	100	
▪ Resistance to UV Degradation <sup>9</sup>	%	100	

### Dimensions and Delivery

The biaxial geogrid shall be delivered to the jobsite in roll form with each roll individually identified and nominally measuring 3.0 meters (9.8 feet) or 4.0 meters (13.1 feet) in width and 50.0 meters (164 feet) in length. A typical truckload quantity is 260 to 350 rolls

### Notes

1. Unless indicated otherwise, values shown are minimum average roll values determined in accordance with ASTM D4759-02. Brief descriptions of test procedures are given in the following notes.
2. Nominal dimensions.
3. True resistance to elongation when initially subjected to a load determined in accordance with ASTM D6637-01 without deforming test materials under load before measuring such resistance or employing "secant" or "offset" tangent methods of measurement so as to overstate tensile properties.
4. Load transfer capability determined in accordance with GRI-GG2-05 and expressed as a percentage of ultimate tensile strength.
5. Resistance to bending force determined in accordance with ASTM D5732-01, using specimens of width two ribs wide, with transverse ribs cut flush with exterior edges of longitudinal ribs (as a "ladder"), and of length sufficiently long to enable measurement of the overhang dimension. The overall Flexural Stiffness is calculated as the square root of the product of MD and XMD Flexural Stiffness values.
6. Resistance to in-plane rotational movement measured by applying a 20 kg-cm (2 m-N) moment to the central junction of a 9 inch x 9 inch specimen restrained at its perimeter in accordance with U.S. Army Corps of Engineers Methodology for measurement of Torsional Rigidity.
7. Resistance to loss of load capacity or structural integrity when subjected to mechanical installation stress in clayey sand (SC), well graded sand (SW), and crushed stone classified as poorly graded gravel (GP). The geogrid shall be sampled in accordance with ASTM D5818-06 and load capacity shall be determined in accordance with ASTM D6637-01.
8. Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.
9. Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D4355-05.

Tensar International Corporation warrants that at the time of delivery the geogrid furnished hereunder shall conform to the specification stated herein. Any other warranty including merchantability and fitness for a particular purpose, are hereby excluded. If the geogrid does not meet the specifications on this page and Tensar is notified prior to installation, Tensar will replace the geogrid at no cost to the customer.

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## Product Specification - Biaxial Geogrid BX1200

*Tensar International Corporation reserves the right to change its product specifications at any time. It is the responsibility of the specifier and purchaser to ensure that product specifications used for design and procurement purposes are current and consistent with the products used in each instance.*

<b>Product Type:</b>	<b>Integrally Formed Biaxial Geogrid</b>
<b>Polymer:</b>	<b>Polypropylene</b>
<b>Load Transfer Mechanism:</b>	<b>Positive Mechanical Interlock</b>
<b>Primary Applications:</b>	<b>Spectra System (Base Reinforcement, Subgrade Improvement)</b>

### Product Properties

Index Properties	Units	MD Values <sup>1</sup>	XMD Values <sup>1</sup>
▪ Aperture Dimensions <sup>2</sup>	mm (in)	25 (1.0)	33 (1.3)
▪ Minimum Rib Thickness <sup>2</sup>	mm (in)	1.27 (0.05)	1.27 (0.05)
▪ Tensile Strength @ 2% Strain <sup>3</sup>	kN/m (lb/ft)	6.0 (410)	9.0 (620)
▪ Tensile Strength @ 5% Strain <sup>3</sup>	kN/m (lb/ft)	11.8 (810)	19.6 (1,340)
▪ Ultimate Tensile Strength <sup>3</sup>	kN/m (lb/ft)	19.2 (1,310)	28.8 (1,970)
<b>Structural Integrity</b>			
▪ Junction Efficiency <sup>4</sup>	%	93	
▪ Flexural Stiffness <sup>5</sup>	mg-cm	750,000	
▪ Aperture Stability <sup>6</sup>	m-N/deg	0.65	
<b>Durability</b>			
▪ Resistance to Installation Damage <sup>7</sup>	%SC / %SW / %GP	95 / 93 / 90	
▪ Resistance to Long Term Degradation <sup>8</sup>	%	100	
▪ Resistance to UV Degradation <sup>9</sup>	%	100	

### Dimensions and Delivery

The biaxial geogrid shall be delivered to the jobsite in roll form with each roll individually identified and nominally measuring 3.0 meters (9.8 feet) or 4.0 meters (13.1 feet) in width and 50.0 meters (164 feet) in length. A typical truckload quantity is 160 to 210 rolls.

### Notes

1. Unless indicated otherwise, values shown are minimum average roll values determined in accordance with ASTM D4759-02. Brief descriptions of test procedures are given in the following notes.
2. Nominal dimensions.
3. True resistance to elongation when initially subjected to a load determined in accordance with ASTM D6637-01 without deforming test materials under load before measuring such resistance or employing "secant" or "offset" tangent methods of measurement so as to overstate tensile properties.
4. Load transfer capability determined in accordance with GRI-GG2-05 and expressed as a percentage of ultimate tensile strength.
5. Resistance to bending force determined in accordance with ASTM D5732-01, using specimens of width two ribs wide, with transverse ribs cut flush with exterior edges of longitudinal ribs (as a "ladder"), and of length sufficiently long to enable measurement of the overhang dimension. The overall Flexural Stiffness is calculated as the square root of the product of MD and XMD Flexural Stiffness values.
6. Resistance to in-plane rotational movement measured by applying a 20 kg-cm (2 m-N) moment to the central junction of a 9 inch x 9 inch specimen restrained at its perimeter in accordance with U.S. Army Corps of Engineers Methodology for measurement of Torsional Rigidity.
7. Resistance to loss of load capacity or structural integrity when subjected to mechanical installation stress in clayey sand (SC), well graded sand (SW), and crushed stone classified as poorly graded gravel (GP). The geogrid shall be sampled in accordance with ASTM D5818-06 and load capacity shall be determined in accordance with ASTM D6637-01.
8. Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.
9. Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D4355-05.

Tensar International Corporation warrants that at the time of delivery the geogrid furnished hereunder shall conform to the specification stated herein. Any other warranty including merchantability and fitness for a particular purpose, are hereby excluded. If the geogrid does not meet the specifications on this page and Tensar is notified prior to installation, Tensar will replace the geogrid at no cost to the customer.

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## Product Specification - Biaxial Geogrid BX1220

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<b>Product Type:</b>	<b>Integrally Formed Biaxial Geogrid</b>
<b>Polymer:</b>	<b>Polypropylene</b>
<b>Load Transfer Mechanism:</b>	<b>Positive Mechanical Interlock</b>
<b>Primary Applications:</b>	<b>SierraScape System, ADD<sup>3</sup> System (Exposed Wall Face Wrap)</b>

### Product Properties

Index Properties	Units	MD Values <sup>1</sup>	XMD Values <sup>1</sup>
▪ Aperture Dimensions <sup>2</sup>	mm (in)	25 (1.0)	33 (1.3)
▪ Minimum Rib Thickness <sup>2</sup>	mm (in)	1.27 (0.05)	1.27 (0.05)
▪ Tensile Strength @ 2% Strain <sup>3</sup>	kN/m (lb/ft)	6.0 (410)	9.0 (620)
▪ Tensile Strength @ 5% Strain <sup>3</sup>	kN/m (lb/ft)	11.8 (810)	19.6 (1,340)
▪ Ultimate Tensile Strength <sup>3</sup>	kN/m (lb/ft)	19.2 (1,310)	28.8 (1,970)
▪ Carbon Black Content	%	2.0	
<b>Structural Integrity</b>			
▪ Junction Efficiency <sup>4</sup>	%	93	
▪ Flexural Stiffness <sup>5</sup>	mg-cm	750,000	
▪ Aperture Stability <sup>6</sup>	m-N/deg	0.65	
<b>Durability</b>			
▪ Resistance to Installation Damage <sup>7</sup>	%SC / %SW / %GP	95 / 93 / 90	
▪ Resistance to Long Term Degradation <sup>8</sup>	%	100	
▪ Resistance to UV Degradation <sup>9</sup>	%	100	

### Dimensions and Delivery

The biaxial geogrid shall be delivered to the jobsite in roll form with each roll individually identified and nominally measuring 3.0 meters (9.8 feet) or 4.0 meters (13.1 feet) in width and 50.0 meters (164 feet) in length. A typical truckload quantity is 160 to 210 rolls.

### Notes

- Unless indicated otherwise, values shown are minimum average roll values determined in accordance with ASTM D4759-02. Brief descriptions of test procedures are given in the following notes.
- Nominal dimensions.
- True resistance to elongation when initially subjected to a load determined in accordance with ASTM D6637-01 without deforming test materials under load before measuring such resistance or employing "secant" or "offset" tangent methods of measurement so as to overstate tensile properties.
- Load transfer capability determined in accordance with GRI-GG2-05 and expressed as a percentage of ultimate tensile strength.
- Resistance to bending force determined in accordance with ASTM D5732-01, using specimens of width two ribs wide, with transverse ribs cut flush with exterior edges of longitudinal ribs (as a "ladder"), and of length sufficiently long to enable measurement of the overhang dimension. The overall Flexural Stiffness is calculated as the square root of the product of MD and XMD Flexural Stiffness values.
- Resistance to in-plane rotational movement measured by applying a 20 kg-cm (2 m-N) moment to the central junction of a 9 inch x 9 inch specimen restrained at its perimeter in accordance with U.S. Army Corps of Engineers Methodology for measurement of Torsional Rigidity.
- Resistance to loss of load capacity or structural integrity when subjected to mechanical installation stress in clayey sand (SC), well graded sand (SW), and crushed stone classified as poorly graded gravel (GP). The geogrid shall be sampled in accordance with ASTM D5818-06 and load capacity shall be determined in accordance with ASTM D6637-01.
- Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.
- Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D4355-05.

Tensar International Corporation warrants that at the time of delivery the geogrid furnished hereunder shall conform to the specification stated herein. Any other warranty including merchantability and fitness for a particular purpose, are hereby excluded. If the geogrid does not meet the specifications on this page and Tensar is notified prior to installation, Tensar will replace the geogrid at no cost to the customer.

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## Product Specification - Biaxial Geogrid BX1300

*Tensar International Corporation reserves the right to change its product specifications at any time. It is the responsibility of the specifier and purchaser to ensure that product specifications used for design and procurement purposes are current and consistent with the products used in each instance.*

<b>Product Type:</b>	<b>Integrally Formed Biaxial Geogrid</b>
<b>Polymer:</b>	<b>Polypropylene</b>
<b>Load Transfer Mechanism:</b>	<b>Positive Mechanical Interlock</b>
<b>Primary Applications:</b>	<b>Spectra System (Base Reinforcement, Subgrade Improvement)</b>

### Product Properties

Index Properties	Units	MD Values <sup>1</sup>	XMD Values <sup>1</sup>
▪ Aperture Dimensions <sup>2</sup>	mm (in)	46 (1.8)	64 (2.5)
▪ Minimum Rib Thickness <sup>2</sup>	mm (in)	1.27 (0.05)	1.27 (0.05)
▪ Tensile Strength @ 2% Strain <sup>3</sup>	kN/m (lb/ft)	5.5 (380)	9.5 (650)
▪ Tensile Strength @ 5% Strain <sup>3</sup>	kN/m (lb/ft)	10.5 (720)	17.5 (1,200)
▪ Ultimate Tensile Strength <sup>3</sup>	kN/m (lb/ft)	16.0 (1,100)	28.0 (1,920)
<b>Structural Integrity</b>			
▪ Junction Efficiency <sup>4</sup>	%	93	
▪ Flexural Stiffness <sup>5</sup>	mg-cm	450,000	
▪ Aperture Stability <sup>6</sup>	m-N/deg	0.58	
<b>Durability</b>			
▪ Resistance to Installation Damage <sup>7</sup>	%SC / %SW / %GP	91 / 83 / 72	
▪ Resistance to Long Term Degradation <sup>8</sup>	%	100	
▪ Resistance to UV Degradation <sup>9</sup>	%	100	

### Dimensions and Delivery

The biaxial geogrid shall be delivered to the jobsite in roll form with each roll individually identified and nominally measuring 4.0 meters (13.1 feet) in width and 50.0 meters (164 feet) in length. A typical truckload quantity is 180 rolls.

### Notes

1. Unless indicated otherwise, values shown are minimum average roll values determined in accordance with ASTM D4759-02. Brief descriptions of test procedures are given in the following notes.
2. Nominal dimensions.
3. True resistance to elongation when initially subjected to a load determined in accordance with ASTM D6637-01 without deforming test materials under load before measuring such resistance or employing "secant" or "offset" tangent methods of measurement so as to overstate tensile properties.
4. Load transfer capability determined in accordance with GRI-GG2-05 and expressed as a percentage of ultimate tensile strength.
5. Resistance to bending force determined in accordance with ASTM D5732-01, using specimens of width two ribs wide, with transverse ribs cut flush with exterior edges of longitudinal ribs (as a "ladder"), and of length sufficiently long to enable measurement of the overhang dimension. The overall Flexural Stiffness is calculated as the square root of the product of MD and XMD Flexural Stiffness values.
6. Resistance to in-plane rotational movement measured by applying a 20 kg-cm (2 m-N) moment to the central junction of a 9 inch x 9 inch specimen restrained at its perimeter in accordance with U.S. Army Corps of Engineers Methodology for measurement of Torsional Rigidity.
7. Resistance to loss of load capacity or structural integrity when subjected to mechanical installation stress in clayey sand (SC), well graded sand (SW), and crushed stone classified as poorly graded gravel (GP). The geogrid shall be sampled in accordance with ASTM D5818-06 and load capacity shall be determined in accordance with ASTM D6637-01.
8. Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.
9. Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D4355-05.

## Product Specification - Biaxial Geogrid BX1500

*Tensar International Corporation reserves the right to change its product specifications at any time. It is the responsibility of the specifier and purchaser to ensure that product specifications used for design and procurement purposes are current and consistent with the products used in each instance.*

<b>Product Type:</b>	<b>Integrally Formed Biaxial Geogrid</b>
<b>Polymer:</b>	<b>Polypropylene</b>
<b>Load Transfer Mechanism:</b>	<b>Positive Mechanical Interlock</b>
<b>Primary Applications:</b>	<b>Spectra System (Base Reinforcement, Subgrade Improvement)</b>

### Product Properties

Index Properties	Units	MD Values <sup>1</sup>	XMD Values <sup>1</sup>
▪ Aperture Dimensions <sup>2</sup>	mm (in)	25 (1.0)	30.5 (1.2)
▪ Minimum Rib Thickness <sup>2</sup>	mm (in)	1.78 (0.07)	1.78 (0.07)
▪ Tensile Strength @ 2% Strain <sup>3</sup>	kN/m (lb/ft)	8.5 (580)	10.0 (690)
▪ Tensile Strength @ 5% Strain <sup>3</sup>	kN/m (lb/ft)	17.5 (1,200)	20.0 (1,370)
▪ Ultimate Tensile Strength <sup>3</sup>	kN/m (lb/ft)	27.0 (1,850)	30.0 (2,050)
<b>Structural Integrity</b>			
▪ Junction Efficiency <sup>4</sup>	%	93	
▪ Flexural Stiffness <sup>5</sup>	mg-cm	2,000,000	
▪ Aperture Stability <sup>6</sup>	m-N/deg	0.75	
<b>Durability</b>			
▪ Resistance to Installation Damage <sup>7</sup>	%SC / %SW / %GP	95 / 93 / 90	
▪ Resistance to Long Term Degradation <sup>8</sup>	%	100	
▪ Resistance to UV Degradation <sup>9</sup>	%	100	

### Dimensions and Delivery

The biaxial geogrid shall be delivered to the jobsite in roll form with each roll individually identified and nominally measuring 4.0 meters (13.1 feet) in width and 50.0 meters (164 feet) in length. A typical truckload quantity is 180 rolls.

### Notes

1. Unless indicated otherwise, values shown are minimum average roll values determined in accordance with ASTM D4759-02. Brief descriptions of test procedures are given in the following notes.
2. Nominal dimensions.
3. True resistance to elongation when initially subjected to a load determined in accordance with ASTM D6637-01 without deforming test materials under load before measuring such resistance or employing "secant" or "offset" tangent methods of measurement so as to overstate tensile properties.
4. Load transfer capability determined in accordance with GRI-GG2-05 and expressed as a percentage of ultimate tensile strength.
5. Resistance to bending force determined in accordance with ASTM D5732-01, using specimens of width two ribs wide, with transverse ribs cut flush with exterior edges of longitudinal ribs (as a "ladder"), and of length sufficiently long to enable measurement of the overhang dimension. The overall Flexural Stiffness is calculated as the square root of the product of MD and XMD Flexural Stiffness values.
6. Resistance to in-plane rotational movement measured by applying a 20 kg-cm (2 m-N) moment to the central junction of a 9 inch x 9 inch specimen restrained at its perimeter in accordance with U.S. Army Corps of Engineers Methodology for measurement of Torsional Rigidity.
7. Resistance to loss of load capacity or structural integrity when subjected to mechanical installation stress in clayey sand (SC), well graded sand (SW), and crushed stone classified as poorly graded gravel (GP). The geogrid shall be sampled in accordance with ASTM D5818-06 and load capacity shall be determined in accordance with ASTM D6637-01.
8. Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.
9. Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D4355-05.

## Product Specification - Biaxial Geogrid BX4100

*Tensar International Corporation reserves the right to change its product specifications at any time. It is the responsibility of the specifier and purchaser to ensure that product specifications used for design and procurement purposes are current and consistent with the products used in each instance.*

<b>Product Type:</b>	<b>Integrally Formed Biaxial Geogrid</b>
<b>Polymer:</b>	<b>Polypropylene</b>
<b>Load Transfer Mechanism:</b>	<b>Positive Mechanical Interlock</b>
<b>Primary Applications:</b>	<b>Spectra System (Base Reinforcement, Subgrade Improvement)</b>

### Product Properties

Index Properties	Units	MD Values <sup>1</sup>	XMD Values <sup>1</sup>
▪ Aperture Dimensions <sup>2</sup>	mm (in)	33 (1.3)	33 (1.3)
▪ Minimum Rib Thickness <sup>2</sup>	mm (in)	0.76 (0.03)	0.76 (0.03)
▪ Tensile Strength @ 2 % Strain <sup>3</sup>	kN/m (lb/ft)	4.0 (270)	5.5 (380)
▪ Tensile Strength @ 5% Strain <sup>3</sup>	kN/m (lb/ft)	8.0 (550)	10.5 (720)
▪ Ultimate Tensile Strength <sup>3</sup>	kN/m (lb/ft)	12.8 (880)	13.5 (920)
<b>Structural Integrity</b>			
▪ Junction Efficiency <sup>4</sup>	%	93	
▪ Flexural Stiffness <sup>5</sup>	mg-cm	250,000	
▪ Aperture Stability <sup>6</sup>	m-N/deg	0.28	
<b>Durability</b>			
▪ Resistance to Installation Damage <sup>7</sup>	%SC / %SW / %GP	90 / 83 / 70	
▪ Resistance to Long Term Degradation <sup>8</sup>	%	100	
▪ Resistance to UV Degradation <sup>9</sup>	%	100	

### Dimensions and Delivery

The biaxial geogrid shall be delivered to the jobsite in roll form with each roll individually identified and nominally measuring 3.0 meters (9.8 feet) or 4.0 meters (13.1 feet) in width and 75.0 meters (246 feet) in length. A typical truckload quantity is 185 to 250 rolls.

### Notes

1. Unless indicated otherwise, values shown are minimum average roll values determined in accordance with ASTM D4759-02. Brief descriptions of test procedures are given in the following notes.
2. Nominal dimensions.
3. True resistance to elongation when initially subjected to a load determined in accordance with ASTM D6637-01 without deforming test materials under load before measuring such resistance or employing "secant" or "offset" tangent methods of measurement so as to overstate tensile properties.
4. Load transfer capability determined in accordance with GRI-GG2-05 and expressed as a percentage of ultimate tensile strength.
5. Resistance to bending force determined in accordance with ASTM D5732-01, using specimens of width two ribs wide, with transverse ribs cut flush with exterior edges of longitudinal ribs (as a "ladder"), and of length sufficiently long to enable measurement of the overhang dimension. The overall Flexural Stiffness is calculated as the square root of the product of MD and XMD Flexural Stiffness values.
6. Resistance to in-plane rotational movement measured by applying a 20 kg-cm (2 m-N) moment to the central junction of a 9 inch x 9 inch specimen restrained at its perimeter in accordance with U.S. Army Corps of Engineers Methodology for measurement of Torsional Rigidity.
7. Resistance to loss of load capacity or structural integrity when subjected to mechanical installation stress in clayey sand (SC), well graded sand (SW), and crushed stone classified as poorly graded gravel (GP). The geogrid shall be sampled in accordance with ASTM D5818-06 and load capacity shall be determined in accordance with ASTM D6637-01.
8. Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.
9. Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D4355-05.

## Product Specification - Biaxial Geogrid BX4200

*Tensar International Corporation reserves the right to change its product specifications at any time. It is the responsibility of the specifier and purchaser to ensure that product specifications used for design and procurement purposes are current and consistent with the products used in each instance.*

**Product Type:** Integrally Formed Biaxial Geogrid  
**Polymer:** Polypropylene  
**Load Transfer Mechanism:** Positive Mechanical Interlock  
**Primary Applications:** Spectra System (Base Reinforcement, Subgrade Improvement)

### Product Properties

Index Properties	Units	MD Values <sup>1</sup>	XMD Values <sup>1</sup>
▪ Aperture Dimensions <sup>2</sup>	mm (in)	33 (1.3)	33 (1.3)
▪ Minimum Rib Thickness <sup>2</sup>	mm (in)	1.27 (0.05)	1.27 (0.05)
▪ Tensile Strength @ 2% Strain <sup>3</sup>	kN/m (lb/ft)	5.5 (380)	7.4 (510)
▪ Tensile Strength @ 5% Strain <sup>3</sup>	kN/m (lb/ft)	10.5 (720)	14.6 (1,000)
▪ Ultimate Tensile Strength <sup>3</sup>	kN/m (lb/ft)	20.5 (1,400)	23.5 (1,610)
<b>Structural Integrity</b>			
▪ Junction Efficiency <sup>4</sup>	%	93	
▪ Flexural Stiffness <sup>5</sup>	mg-cm	750,000	
▪ Aperture Stability <sup>6</sup>	m-N/deg	0.48	
<b>Durability</b>			
▪ Resistance to Installation Damage <sup>7</sup>	%SC / %SW / %GP	90 / 83 / 75	
▪ Resistance to Long Term Degradation <sup>8</sup>	%	100	
▪ Resistance to UV Degradation <sup>9</sup>	%	100	

### Dimensions and Delivery

The biaxial geogrid shall be delivered to the jobsite in roll form with each roll individually identified and nominally measuring 3.0 meters (9.8 feet) or 4.0 meters (13.1 feet) in width and 50.0 meters (164 feet) in length. A typical truckload quantity is 150 to 240 rolls.

### Notes

1. Unless indicated otherwise, values shown are minimum average roll values determined in accordance with ASTM D4759-02. Brief descriptions of test procedures are given in the following notes.
2. Nominal dimensions.
3. True resistance to elongation when initially subjected to a load determined in accordance with ASTM D6637-01 without deforming test materials under load before measuring such resistance or employing "secant" or "offset" tangent methods of measurement so as to overstate tensile properties.
4. Load transfer capability determined in accordance with GRI-GG2-05 and expressed as a percentage of ultimate tensile strength.
5. Resistance to bending force determined in accordance with ASTM D5732-01, using specimens of width two ribs wide, with transverse ribs cut flush with exterior edges of longitudinal ribs (as a "ladder"), and of length sufficiently long to enable measurement of the overhang dimension. The overall Flexural Stiffness is calculated as the square root of the product of MD and XMD Flexural Stiffness values.
6. Resistance to in-plane rotational movement measured by applying a 20 kg-cm (2 m-N) moment to the central junction of a 9 inch x 9 inch specimen restrained at its perimeter in accordance with U.S. Army Corps of Engineers Methodology for measurement of Torsional Rigidity.
7. Resistance to loss of load capacity or structural integrity when subjected to mechanical installation stress in clayey sand (SC), well graded sand (SW), and crushed stone classified as poorly graded gravel (GP). The geogrid shall be sampled in accordance with ASTM D5818-06 and load capacity shall be determined in accordance with ASTM D6637-01.
8. Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.
9. Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D4355-05.

## Product Specification - Biaxial Geogrid BX6100

*Tensar International Corporation reserves the right to change its product specifications at any time. It is the responsibility of the specifier and purchaser to ensure that product specifications used for design and procurement purposes are current and consistent with the products used in each instance.*

**Product Type:** Integrally Formed Biaxial Geogrid  
**Polymer:** Polypropylene  
**Load Transfer Mechanism:** Positive Mechanical Interlock  
**Primary Application:** Dimension System (Foundation Improvement)

Product Properties	Units	MD Values <sup>1</sup>	XMD Values <sup>1</sup>
<b>Index Properties</b>			
▪ 1% Junction Tensile Modulus in Use <sup>2</sup>	kN/m (lb/ft)	250 (17,000)	290 (20,000)
▪ 2% Junction Tensile Modulus in Use <sup>2</sup>	kN/m (lb/ft)	170 (11,750)	220 (15,000)
▪ Junction Strength in Use @ 1% Strain <sup>3</sup>	kN/m (lb/ft)	2.5 (170)	2.9 (200)
▪ Junction Strength in Use @ 2% Strain <sup>3</sup>	kN/m (lb/ft)	3.4 (240)	4.4 (300)
▪ Interaction Coefficient (Granular Soil)		1.0	1.0
<b>Structural Integrity</b>			
▪ Flexural Stiffness <sup>4</sup>	mg-cm	250,000	
▪ Aperture Stability <sup>5</sup>	m-N/deg	0.28	
<b>Durability</b>			
▪ Resistance to Long Term Degradation <sup>6</sup>	%	100	
▪ Resistance to UV Degradation <sup>7</sup>	%	100	

### Dimensions and Delivery

The biaxial geogrid shall be delivered to the jobsite in roll form with each roll individually identified and nominally measuring 4.0 meters (13.1 feet) in width and 75.0 meters (246 feet) in length. A typical truckload quantity is 185 rolls.

### Notes:

- Unless indicated otherwise, values shown are minimum average roll values (MARV) determined in accordance with ASTM D4759-02. The column labeled MD Values represents results from testing the product in the Machine Direction. The column labeled XMD Values represents results from testing the product in the Cross-Machine (Transverse) Direction.
- True resistance to elongation when initially subjected to a load determined in accordance with GRI-GG2-05 without deforming test materials under load before measuring such resistance or employing "secant" or "offset" tangent methods of measurement so as to overstate tensile properties.
- Load transfer capability determined in accordance with GRI-GG2-05.
- Resistance to bending force determined in accordance with ASTM D5732-01, using specimens of width two ribs wide, with transverse ribs cut flush with exterior edges of longitudinal ribs (as a "ladder"), and of length sufficiently long to enable measurement of the overhang dimension. The overall Flexural Stiffness is calculated as the square root of the product of MD and XMD Flexural Stiffness values.
- Resistance to in-plane rotational movement measured by applying a 20 kg-cm (2 m-N) moment to the central junction of a 9 inch x 9 inch specimen restrained at its perimeter in accordance with U.S. Army Corps of Engineers Methodology for measurement of Torsional Rigidity.
- Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.
- Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D4355-05.

Tensar International Corporation warrants that at the time of delivery the geogrid furnished hereunder shall conform to the specification stated herein. Any other warranty including merchantability and fitness for a particular purpose, are hereby excluded. If the geogrid does not meet the specifications on this page and Tensar is notified prior to installation, Tensar will replace the geogrid at no cost to the customer.

This product specification supersedes all prior specifications for the product described above and is not applicable to any products shipped prior to June 1, 2007

## Product Specification - Biaxial Geogrid BX6200

*Tensar International Corporation reserves the right to change its product specifications at any time. It is the responsibility of the specifier and purchaser to ensure that product specifications used for design and procurement purposes are current and consistent with the products used in each instance.*

**Product Type:** Integrally Formed Biaxial Geogrid  
**Polymer:** Polypropylene  
**Load Transfer Mechanism:** Positive Mechanical Interlock  
**Primary Application:** Dimension System (Foundation Improvement)

Product Properties	Units	MD Values <sup>1</sup>	XMD Values <sup>1</sup>
<b>Index Properties</b>			
▪ 1% Junction Tensile Modulus in Use <sup>2</sup>	kN/m (lb/ft)	320 (22,000)	440 (30,000)
▪ 2% Junction Tensile Modulus in Use <sup>2</sup>	kN/m (lb/ft)	270 (18,200)	370 (25,000)
▪ Junction Strength in Use @ 1% Strain <sup>3</sup>	kN/m (lb/ft)	3.2 (220)	4.3 (300)
▪ Junction Strength in Use @ 2% Strain <sup>3</sup>	kN/m (lb/ft)	5.3 (370)	7.3 (500)
▪ Interaction Coefficient (Granular Soil)		1.0	1.0
<b>Structural Integrity</b>			
▪ Flexural Stiffness <sup>4</sup>	mg-cm	750,000	
▪ Aperture Stability <sup>5</sup>	m-N/deg	0.47	
<b>Durability</b>			
▪ Resistance to Long Term Degradation <sup>6</sup>	%	100	
▪ Resistance to UV Degradation <sup>7</sup>	%	100	

### Dimensions and Delivery

The biaxial geogrid shall be delivered to the jobsite in roll form with each roll individually identified and nominally measuring 4.0 meters (13.1 feet) in width and 50.0 meters (164 feet) in length. A typical truckload quantity is 150 rolls.

### Notes:

- Unless indicated otherwise, values shown are minimum average roll values (MARV) determined in accordance with ASTM D4759-02. The column labeled MD Values represents results from testing the product in the Machine Direction. The column labeled XMD Values represents results from testing the product in the Cross-Machine (Transverse) Direction.
- True resistance to elongation when initially subjected to a load determined in accordance with GRI-GG2-05 without deforming test materials under load before measuring such resistance or employing "secant" or "offset" tangent methods of measurement so as to overstate tensile properties.
- Load transfer capability determined in accordance with GRI-GG2-05.
- Resistance to bending force determined in accordance with ASTM D5732-01, using specimens of width two ribs wide, with transverse ribs cut flush with exterior edges of longitudinal ribs (as a "ladder"), and of length sufficiently long to enable measurement of the overhang dimension. The overall Flexural Stiffness is calculated as the square root of the product of MD and XMD Flexural Stiffness values.
- Resistance to in-plane rotational movement measured by applying a 20 kg-cm (2 m-N) moment to the central junction of a 9 inch x 9 inch specimen restrained at its perimeter in accordance with U.S. Army Corps of Engineers Methodology for measurement of Torsional Rigidity.
- Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.
- Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D4355-05.

Tensar International Corporation warrants that at the time of delivery the geogrid furnished hereunder shall conform to the specification stated herein. Any other warranty including merchantability and fitness for a particular purpose, are hereby excluded. If the geogrid does not meet the specifications on this page and Tensar is notified prior to installation, Tensar will replace the geogrid at no cost to the customer.

This product specification supersedes all prior specifications for the product described above and is not applicable to any products shipped prior to June 1, 2007