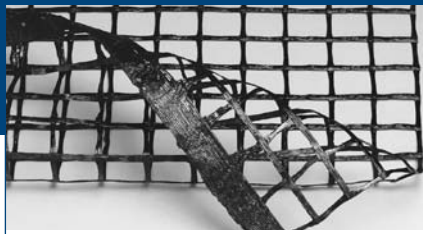


## Miragrid® Geogrids for Soil Reinforcement

TenCate™ develops and produces materials that function to increase performance, reduce costs and deliver measurable results by working with our customers to provide advanced solutions.

The Difference Miragrid® Geogrids Make:

- High long-term design strengths (LTDS). Miragrid® geogrids have more than 100,000 hours of tension creep testing performed at an independent test laboratory. Credible, dependable long term strength assured.
- Cost effective. Creep resistant polyester fibers provide higher allowable tensile strength, minimizing the required number of geogrid layers. Wide rolls significantly reducing placement time, lowering cost.
- Light weight, easy to handle. No sharp edges.
- Flexible, tough. Minimizes movement of soil structure.
- Custom fabrication. Rolls fabricated to meet your specific project requirements.
- Miragrid® geogrids provide the widest strength range, and are the highest strength geogrid material in the market today.



Miragrid® 5XT



Miragrid® 18XT

### APPLICATIONS

Miragrid® geogrids can be used in most MSE applications for soil reinforcement including internally reinforced soil walls, segmental retaining wall reinforcement, steep reinforced slopes, and reinforcement in a variety of landfill applications including potential voids bridging and veneer stability. When a project specifies for long-term design strength for structure stability use Miragrid® geogrids.

### INSTALLATION GUIDELINES

Before placing Miragrid® geogrids, the surface should be cleared of all debris and the foundation base proofrolled. The grids should be rolled out, cut to length, thus eliminating field connections and laid at the proper elevation, location and orientation. Since geogrids vary in strength with roll direction, Miragrid® geogrids should be laid in the direction of main reinforcement.

After rolling out, the geogrid should be tensioned by hand until it is taut, free of wrinkles, and lying flat. Adjacent geogrid rolls may be butted together side-by-side without overlap. Splices in the main reinforcement direction should be avoided.

Certain fill placement procedures may require the reinforcement to be held in place by stakes, sandbags, or fills, as directed by an engineer. A razor blade, sharp knife or scissors may be used to cut the geogrid. Fill placement should follow the standard practice, or as defined in the project specifications or directed by the Engineer. Care should be taken to prevent wrinkles and/or slippage of reinforcement during fill placement and spreading.

*These guidelines serve as a general basis for installation. Detailed instructions are available from your TenCate™ representative.*



## Miragrid® Geogrids for Soil Reinforcement

Property*	Test Method	Units	2XT*	3XT	5XT	7XT	8XT	10XT	18XT	20XT	22XT	24XT
Polymer (coating)	—	—	PET (PVC)	PET (PVC)	PET (PVC)	PET (PVC)	PET (PVC)	PET (PVC)	PET (PVC)	PET (PVC)	PET (PVC)	PET (PVC)
Ultimate Wide Width Tensile Strength	ASTM D 6637	kN/m (lbs/ft)	29.2 (2000)	51.1 (3500)	68.6 (4700)	86.1 (5900)	108.0 (7400)	138.6 (9500)	136.6 (9360)	181.2 (12420)	259.1 (17760)	370.3 (25380)
Creep Reduced Strength	ASTM D 5262	kN/m (lbs/ft)	18.5 (1266)	32.3 (2215)	43.4 (2975)	54.5 (3734)	68.3 (4684)	87.7 (6013)	81.8 (5605)	105.4 (7221)	150.7 (10326)	215.3 (14756)
Long Term Design Strength (In Type 3 Backfill) (sand, silt, clay)	GRI-GG4	kN/m (lbs/ft)	16.0 (1096)	28 (1918)	37.6 (2575)	47.2 (3233)	59.2 (4055)	76 (5206)	70.8 (4853)	91.2 (6252)	130.4 (8940)	186.4 (12776)

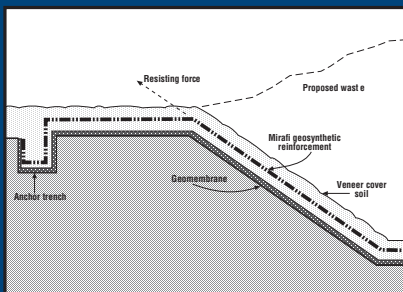
  

Packaging	Units	2XT	3XT**	5XT**	7XT	8XT**	10XT	18XT	20XT	22XT	24XT
Roll Width	m (ft)	1.8 (6.0)	3.6 (12)	3.6 (12)	3.6 (12)	3.6 (12)	3.6 (12)	3.6 (12)	3.6 (12)	3.6 (12)	3.6 (12)
Roll Length	m (ft)	45.7 (150)	45.7 (150)	45.7 (150)	61 (200)	61 (200)	61 (200)	61 (200)	61 (200)	61 (200)	61 (200)
Estimate Roll Weight	kg (lbs)	21 (47)	59 (130)	63 (140)	89 (197)	98 (217)	120 (266)	107 (235)	126 (280)	174 (384)	250 (551)
Area	m <sup>2</sup> (yd <sup>2</sup> )	82.3 (100)	164.5 (200)	164.5 (200)	220 (267)	220 (267)	220 (267)	220 (267)	220 (267)	220 (267)	220 (267)

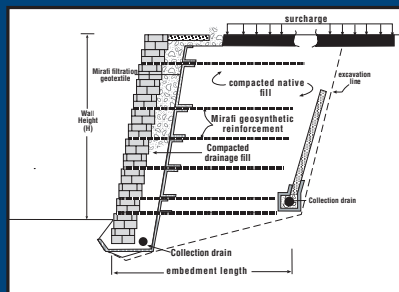
\*Note: Values shown for 2XT are both machine and cross-machine direction. Values for other Mirafi® products are machine direction only.

\*\*Also available in 1.8m (6ft) wide by 45.7m (150ft) long rolls

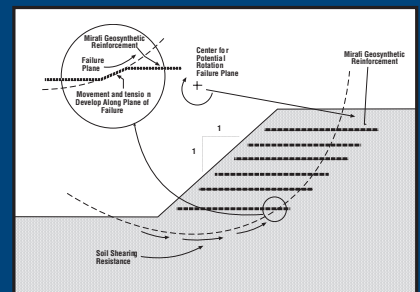
### Miragrid® Geogrids Typical Applications



Veneer Reinforcement



Retaining Wall



Steepened Slope

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Mirafi® is a registered trademark of TenCate Geosynthetics North America.

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## Miragrid<sup>®</sup> 2XT

Miragrid<sup>®</sup> 2XT is composed of high molecular weight, high tenacity polyester multifilament yarns which are woven in tension and finished with a PVC coating. Miragrid<sup>®</sup> 2XT is inert to biological degradation and resistant to naturally encountered chemicals, alkalis, and acids.

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value	
			MD	CD
Tensile Strength (at ultimate)	ASTM D 6637	kN/m (lbs/ft)	29.2 (2000)	29.2 (2000)
Creep Reduced Strength	ASTM D 5262	kN/m (lbs/ft)	18.5 (1266)	18.5 (1266)
Long Term Allowable Design Load <sup>1</sup>	GRI GG-4(b)	kN/m (lbs/ft)	16.0 (1096)	16.0 (1096)

<sup>1</sup> NOTE: Long Term Allowable Design values are for sand, silt and clay

Physical Properties	Test Method	Unit	Typical Value
Grid Aperture Size (machine direction)	--	mm (in)	22.2 (0.875)
Grid Aperture Size (cross machine direction)	--	mm (in)	25.4 (1.0)
Mass/Unit Area	ASTM D 5261	g/m <sup>2</sup> (oz/yd <sup>2</sup> )	254.3 (7.5)
Roll Dimensions (width x length)	--	m (ft)	1.8 (6) x 45.7 (150)
Roll Area	--	m <sup>2</sup> (yd <sup>2</sup> )	82.3 (100)
Estimated Roll Weight	---	kg (lbs)	21 (47)

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## Miragrid<sup>®</sup> 3XT

Miragrid<sup>®</sup> 3XT is composed of high molecular weight, high tenacity polyester multifilament yarns which are woven in tension and finished with a PVC coating. Miragrid<sup>®</sup> 3XT is inert to biological degradation and resistant to naturally encountered chemicals, alkalis, and acids.

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value
			Machine Direction
Tensile Strength (at ultimate)	ASTM D 6637	kN/m (lbs/ft)	51.1 (3500)
Tensile Strength (at 5% strain)	ASTM D 6637	kN/m (lbs/ft)	15.4 (1056)
Creep Reduced Strength	ASTM D 5262	kN/m (lbs/ft)	32.3 (2215)
Long Term Allowable Design Load <sup>1</sup>	GRI GG-4(b)	kN/m (lbs/ft)	28.0 (1918)

<sup>1</sup> NOTE: Long Term Allowable Design values are for sand, silt and clay

Physical Properties	Test Method	Unit	Typical Value
Grid Aperture Size (machine direction)	--	mm (in)	22.2 (0.875)
Grid Aperture Size (cross machine direction)	--	mm (in)	25.4 (1.0)
Mass/Unit Area	ASTM D 5261	g/m <sup>2</sup> (oz/yd <sup>2</sup> )	278.0 (8.2)
Roll Dimensions (width x length)	--	m (ft)	3.6 (12) x 45.7 (150)
Roll Area	--	m <sup>2</sup> (yd <sup>2</sup> )	164.5 (200)
Estimated Roll Weight	---	kg (lbs)	59 (130)

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## Miragrid<sup>®</sup> 5XT

Miragrid<sup>®</sup> 5XT is composed of high molecular weight, high tenacity polyester multifilament yarns which are woven in tension and finished with a PVC coating. Miragrid<sup>®</sup> 5XT is inert to biological degradation and resistant to naturally encountered chemicals, alkalis, and acids.

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value
			Machine Direction
Tensile Strength (at ultimate)	ASTM D 6637	kN/m (lbs/ft)	68.6 (4700)
Tensile Strength (at 5% strain)	ASTM D 6637	kN/m (lbs/ft)	25.4 (1740)
Creep Reduced Strength	ASTM D 5262	kN/m (lbs/ft)	43.4 (2975)
Long Term Allowable Design Load <sup>1</sup>	GRI GG-4(b)	kN/m (lbs/ft)	37.6 (2575)

<sup>1</sup> NOTE: Long Term Allowable Design values are for sand, silt and clay

Physical Properties	Test Method	Unit	Typical Value
Grid Aperture Size (machine direction)	--	mm (in)	22.2 (0.875)
Grid Aperture Size (cross machine direction)	--	mm (in)	25.4 (1.0)
Mass/Unit Area	ASTM D 5261	g/m <sup>2</sup> (oz/yd <sup>2</sup> )	305.1 (9.0)
Roll Dimensions (width x length)	--	m (ft)	3.6 (12) x 45.7 (150)
Roll Area	--	m <sup>2</sup> (yd <sup>2</sup> )	164.5 (200)
Estimated Roll Weight	---	kg (lbs)	63 (140)

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## Miragrid<sup>®</sup> 7XT

Miragrid<sup>®</sup> 7XT is composed of high molecular weight, high tenacity polyester multifilament yarns which are woven in tension and finished with a PVC coating. Miragrid<sup>®</sup> 7XT is inert to biological degradation and resistant to naturally encountered chemicals, alkalis, and acids.

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value
			Machine Direction
Tensile Strength (at ultimate)	ASTM D 6637	kN/m (lbs/ft)	86.1 (5900)
Tensile Strength (at 5% strain)	ASTM D 6637	kN/m (lbs/ft)	31.5 (2160)
Creep Reduced Strength	ASTM D 5262	kN/m (lbs/ft)	54.5 (3734)
Long Term Allowable Design Load <sup>1</sup>	GRI GG-4(b)	kN/m (lbs/ft)	47.2 (3233)

<sup>1</sup> NOTE: Long Term Allowable Design values are for sand, silt and clay

Physical Properties	Test Method	Unit	Typical Value
Grid Aperture Size (machine direction)	--	mm (in)	22.2 (0.875)
Grid Aperture Size (cross machine direction)	--	mm (in)	25.4 (1.0)
Mass/Unit Area	ASTM D 5261	g/m <sup>2</sup> (oz/yd <sup>2</sup> )	345.8 (10.2)
Roll Dimensions (width x length)	--	m (ft)	3.6 (12) x 61 (200)
Roll Area	--	m <sup>2</sup> (yd <sup>2</sup> )	220 (267)
Estimated Roll Weight	---	kg (lbs)	89 (197)

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## Miragrid<sup>®</sup> 8XT

Miragrid<sup>®</sup> 8XT is composed of high molecular weight, high tenacity polyester multifilament yarns which are woven in tension and finished with a PVC coating. Miragrid<sup>®</sup> 8XT is inert to biological degradation and resistant to naturally encountered chemicals, alkalis, and acids.

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value
			Machine Direction
Tensile Strength (at ultimate)	ASTM D 6637	kN/m (lbs/ft)	108.0 (7400)
Tensile Strength (at 5% strain)	ASTM D 6637	kN/m (lbs/ft)	36.8 (2520)
Creep Reduced Strength	ASTM D 5262	kN/m (lbs/ft)	68.3 (4684)
Long Term Allowable Design Load <sup>1</sup>	GRI GG-4(b)	kN/m (lbs/ft)	59.2 (4055)

<sup>1</sup>NOTE: Long Term Allowable Design values are for sand, silt and clay.

Physical Properties	Test Method	Unit	Typical Value
Grid Aperture Size (machine direction)	--	mm (in)	22.2 (0.875)
Grid Aperture Size (cross machine direction)	--	mm (in)	25.4 (1.0)
Mass/Unit Area	ASTM D 5261	g/m <sup>2</sup> (oz/yd <sup>2</sup> )	386.5 (11.4)
Roll Dimensions (length x width)	--	m (ft)	3.6 (12) x 61 (200)
Roll Area	--	m <sup>2</sup> (yd <sup>2</sup> )	220 (267)
Estimated Roll Weight	---	kg (lbs)	98 (217)

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## Miragrid<sup>®</sup> 10XT

Miragrid<sup>®</sup> 10XT is composed of high molecular weight, high tenacity polyester multifilament yarns which are woven in tension and finished with a PVC coating. Miragrid<sup>®</sup> 10XT is inert to biological degradation and resistant to naturally encountered chemicals, alkalis, and acids.

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value
			Machine Direction
Tensile Strength (at ultimate)	ASTM D 6637	kN/m (lbs/ft)	138.6 (9500)
Tensile Strength (at 5% strain)	ASTM D 6637	kN/m (lbs/ft)	45.5 (3120)
Creep Reduced Strength	ASTM D 5262	kN/m (lbs/ft)	87.7 (6013)
Long Term Allowable Design Load <sup>1</sup>	GRI GG-4(b)	kN/m (lbs/ft)	76.0 (5206)

<sup>1</sup> NOTE: Long Term Allowable Design values are for sand, silt and clay

Physical Properties	Test Method	Unit	Typical Value
Grid Aperture Size (machine direction)	--	mm (in)	22.2 (0.875)
Grid Aperture Size (cross machine direction)	--	mm (in)	25.4 (1.0)
Mass/Unit Area	ASTM D 5261	g/m <sup>2</sup> (oz/yd <sup>2</sup> )	484.8 (14.3)
Roll Dimensions (width x length)	--	m (ft)	3.6 (12) x 61 (200)
Roll Area	--	m <sup>2</sup> (yd <sup>2</sup> )	220 (267)
Estimated Roll Weight	---	kg (lbs)	120 (266)

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## Miragrid<sup>®</sup> 18XT

Miragrid<sup>®</sup> 18XT is composed of high molecular weight, high tenacity polyester multifilament yarns which are woven in tension and finished with a PVC coating. Miragrid<sup>®</sup> 18XT is inert to biological degradation and resistant to naturally encountered chemicals, alkalis, and acids.

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value
			Machine Direction
Tensile Strength (at ultimate)	ASTM D 6637	kN/m (lbs/ft)	136.6 (9360)
Tensile Strength (at 5% strain)	ASTM D 6637	kN/m (lbs/ft)	47.4 (3250)
Creep Reduced Strength	ASTM D 5262	kN/m (lbs/ft)	86.4 (5924)
Long Term Allowable Design Load <sup>1</sup>	GRI GG-4(b)	kN/m (lbs/ft)	74.8 (5129)

<sup>1</sup> NOTE: Long Term Allowable Design values are for sand, silt and clay

Physical Properties	Test Method	Unit	Typical Value
Grid Aperture Size (machine direction)	--	mm (in)	45.7 (1.8)
Grid Aperture Size (cross machine direction)	--	mm (in)	17.8 (0.7)
Mass/Unit Area	ASTM D 5261	g/m <sup>2</sup> (oz/yd <sup>2</sup> )	478 (14.1)
Roll Dimensions (length x width)	--	m (ft)	3.6 (12) x 61 (200)
Roll Area	--	m <sup>2</sup> (yd <sup>2</sup> )	220 (267)
Estimated Roll Weight	---	kg (lbs)	107 (235)

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# Miragrid<sup>®</sup> 20XT

Miragrid<sup>®</sup> 20XT is composed of high molecular weight, high tenacity polyester multifilament yarns which are woven in tension and finished with a PVC coating. Miragrid<sup>®</sup> 20XT is inert to biological degradation and resistant to naturally encountered chemicals, alkalis, and acids.

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value
			Machine Direction
Tensile Strength (at ultimate)	ASTM D 6637	kN/m (lbs/ft)	181.2 (12420)
Tensile Strength (at 5% strain)	ASTM D 6637	kN/m (lbs/ft)	77.9 (5340)
Creep Reduced Strength	ASTM D 5262	kN/m (lbs/ft)	114.7 (7861)
Long Term Allowable Design Load <sup>1</sup>	GRI GG-4(b)	kN/m (lbs/ft)	99.3 (6806)

<sup>1</sup> NOTE: Long Term Allowable Design values are for sand, silt and clay

Physical Properties	Test Method	Unit	Typical Value
Grid Aperture Size (machine direction)	--	mm (in)	38.1 (1.5)
Grid Aperture Size (cross machine direction)	--	mm (in)	17.8 (0.7)
Mass/Unit Area	ASTM D 5261	g/m <sup>2</sup> (oz/yd <sup>2</sup> )	556.0 (16.4)
Roll Dimensions (length x width)	--	m (ft)	3.6 (12) x 61 (200)
Roll Area	--	m <sup>2</sup> (yd <sup>2</sup> )	220 (267)
Estimated Roll Weight	---	kg (lbs)	126 (280)

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## Miragrid<sup>®</sup> 22XT

Miragrid<sup>®</sup> 22XT is composed of high molecular weight, high tenacity polyester multifilament yarns which are woven in tension and finished with a PVC coating. Miragrid<sup>®</sup> 22XT is inert to biological degradation and resistant to naturally encountered chemicals, alkalis, and acids.

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value
			Machine Direction
Tensile Strength (at ultimate)	ASTM D 6637	kN/m (lbs/ft)	259.1 (17760)
Tensile Strength (at 5% strain)	ASTM D 6637	kN/m (lbs/ft)	97.8 (6700)
Creep Reduced Strength	ASTM D 5262	kN/m (lbs/ft)	164.0 (11241)
Long Term Allowable Design Load <sup>1</sup>	GRI GG-4 (b)	kN/m (lbs/ft)	142.0 (9732)

<sup>1</sup>NOTE: Long Term Allowable Design values are for sand, silt and clay

Physical Properties	Test Method	Unit	Typical Value
Grid Aperture Size (machine direction)	--	mm (in)	81.3 (3.2)
Grid Aperture Size (cross machine direction)	--	mm (in)	7.6 (0.3)
Mass/Unit Area	ASTM D 5261	g/m <sup>2</sup> (oz/yd <sup>2</sup> )	779.7 (23.0)
Roll Dimensions (length x width)	--	m (ft)	3.6 (12) x 61 (200)
Roll Area	--	m <sup>2</sup> (yd <sup>2</sup> )	220 (267)
Estimated Roll Weight	---	kg (lbs)	174 (384)

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## Miragrid<sup>®</sup> 24XT

Miragrid<sup>®</sup> 24XT is composed of high molecular weight, high tenacity polyester multifilament yarns which are woven in tension and finished with a PVC coating. Miragrid<sup>®</sup> 24XT is inert to biological degradation and resistant to naturally encountered chemicals, alkalis, and acids.

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value
			Machine Direction
Tensile Strength (at ultimate)	ASTM D 6637	kN/m (lbs/ft)	370.3 (25380)
Tensile Strength (at 5% strain)	ASTM D 6637	kN/m (lbs/ft)	102.1 (7000)
Creep Reduced Strength	ASTM D 5262	kN/m (lbs/ft)	234.4 (16063)
Long Term Allowable Design Load <sup>1</sup>	GRI GG-4(b)	kN/m (lbs/ft)	202.9 (13908)

<sup>1</sup> NOTE: Long Term Allowable Design values are for sand, silt and clay

Physical Properties	Test Method	Unit	Typical Value
Grid Aperture Size (machine direction)	--	mm (in)	127 (5)
Grid Aperture Size (cross machine direction)	--	mm (in)	17.8 (0.7)
Mass/Unit Area	ASTM D 5261	g/m <sup>2</sup> (oz/yd <sup>2</sup> )	1118.7 (33)
Roll Dimensions (length x width)	--	m (ft)	3.6 (12) x 61 (200)
Roll Area	--	m <sup>2</sup> (yd <sup>2</sup> )	220 (267)
Estimated Roll Weight	---	kg (lbs)	250 (551)

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