



# GEOTEXTILES PRODUCT DATA

## FOR MORE INFORMATION

Information on the geotextile specification charts has been provided for comparative purposes only. Designers should contact manufacturers for additional details and to discuss site-specific considerations.

Information on the use and specification of geotextiles is also available from the Geosynthetic Materials Association (GMA).

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## PUBLISHER'S NOTE

All information included in this Specifier's Guide was compiled from information submitted by firms in the geosynthetics industry. Specifications were submitted voluntarily and their accuracy is the responsibility of the manufacturer. The appearance of a listing in this directory is not an endorsement of the company or product by *Geosynthetics* magazine or the Industrial Fabrics Association International (IFAI). The Specifier's Guide is intended as a guide, and *Geosynthetics* and IFAI encourage readers to contact the companies listed for further information.

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These products are engineered to provide cost-effective solutions to meet specific design requirements for separation, reinforcement, filtration, drainage, and protection applications.

Although engineers have developed numerous applications for geotextiles, there are five major functions: separation, reinforcement, filtration, drainage, and protection. The major geotextile classifications are woven, nonwoven, and knitted. Generally, woven fabrics exhibit high tensile strength, high modulus, and low elongation. Needle-punched nonwoven fabrics typically have high permeability as a result of high porosity, and conformability because of their high elongation characteristics. Thermally-spun, bonded, nonwoven fabrics typically have high modulus, compared to needlepunched nonwoven fabrics, and high conformability. Depending on the manufacturing process, knitted geotextiles can offer high tensile strength and elasticity.

Geotextiles are available in a variety of structures and polymer compositions designed to meet a wide range of applications. It is important that all geotextiles be composed of strong, durable, chemically inert polymeric materials that are resistant to the effects of site-specific ground conditions, weather, and aging.

In permanent installations, long-term material performance is a result of the polymer structure's durability. Depending on the application, geotextiles may have other survivability requirements, such as creep resistance and resistance to temperature and/or ultraviolet exposure.

## The numbers

Companies that submitted product data chart lines were asked to provide data determined through industry-accepted testing methods. Companies signed a certificate of compliance verifying the accuracy of this data.

« *Geosynthetics* recommends you contact the manufacturers before making any specifying/purchasing decisions »

# GEOTEXTILES

Product Name (Structure [1]/ Polymer Type [2])	Mass Per Unit Area ASTM D 5261 g/m <sup>2</sup> (oz/yd <sup>2</sup> )	M288 Transportation-Related Applications								Reinforcement Applications						
		Filtration/Hydraulic Properties				Physical Properties				Wide Width Tensile/Elongation ASTM D 4595 kN/m (lb/in)/%				Creep Limited Strength-MD ASTM D 5262 [6] kN/m (lb/ft)	LTDS GRI GT7-MD (in sand) [7] kN/m (lb/ft)	Other Manufacturer's Suggested Applications [8]
		Percent Open Area CWO-22125 %	Apparent Opening Size ASTM D 4751 mm (U.S. sieve)	Permittivity ASTM D 4491 sec-1 Flow Rate (FH or CH) [3] l/min/m <sup>2</sup> (gal/min/ft <sup>2</sup> )	Puncture ASTM D 6241 kN (lb)	Trapezoid Tearing Strength ASTM D 4533 kN (lb)	Grab Tensile/Elongation ASTM D 4632 kN (lb)/%	M288 Survivability Class	M288 Applications [4]	Strength @ 5% Strain [5]		Ultimate Strength % (Tult) [5]				
										MD	XD	MD	XD			

## ACE Geosynthetics Inc. | www.geoace.com

ACETex GT50-II PP (W/PP)	270 (8)	NP	0.425 (40)	0.60/1600 (43), CH	4.5 (1010)	0.6 x 0.5 (135 x 123)	1.8 x 1.5 (404 x 337)/NP	NP	F, SP, ST	NP	NP	50 (285)	50 (285)	NP	NP	F, R, SP, ST
ACETex GT70-I PP (W/PP)	440 (13)	NP	0.425 (40)	0.40/1200 (29), CH	8.0 (1796)	0.8 x 1.6 (180 x 359)	2.0 x 3.5 (449 x 786)/NP	NP	F, SP, ST	NP	NP	70 (399)	105 (599)	NP	NP	F, R, SP, ST
ACETex GT200-II PP (W/PP)	950 (28)	NP	0.297 (50)	0.45/1350 (33), CH	23 (5164)	3.3 x 3.1 (741 x 696)	7.0 x 5.2 (1572 x 1168)/NP	NP	F, SP, ST	NP	NP	200 (1141)	200 (1141)	NP	NP	F, R, SP, ST
ACETex GT250-II PP (W/PP)	1100 (32)	NP	0.595 (30)	0.40/1200 (29), CH	27 (6062)	4.2 x 4.0 (943 x 898)	6.5 x 5.5 (1459 x 1235)/NP	NP	F, SP, ST	NP	NP	250 (1426)	250 (1426)	NP	NP	F, R, SP, ST
ACETex GT300-II (W/PET)	1050 (31)	NP	0.707 (25)	0.20/600 (14), CH	23 (5164)	3.7 x 3.6 (831 x 808)	5.6 x 4.5 (1275 x 1010)/NP	NP	SP, ST	NP	NP	300 (1711)	300 (1711)	NP	NP	R, SP, ST
ACETex GT600-I (W/PET)	1000 (29)	NP	0.297 (50)	0.20/600 (14), CH	13 (2919)	NP	NP	NP	SP, ST	NP	NP	600 (3422)	NP	NP	NP	R, SP, ST
ACETex GT1000-I (W/PET)	1800 (53)	NP	0.297 (50)	0.10/300 (7), CH	16 (3592)	NP	NP	NP	SP, ST	NP	NP	1000 (5703)	NP	NP	NP	R, SP, ST

## Agru America Inc. | www.agruamerica.com

Agrutex 041 (NW-P/PP)	136 (4)	NA	0.212 (70)	1.8/ CH 5467 (135)	1.49 (335)	0.223 (50)	0.445 (120)/50	3	D, SP	NA	NA	NA	NA	NA	NA	S/T, S/P, F, D, E, P
Agrutex 061 (NW-P/PP)	203 (6)	NA	0.212 (70)	1.5/ CH 4479 (110)	1.94 (435)	0.289 (65)	0.756 (170)/50	2, 3	D, SP, ST	NA	NA	NA	NA	NA	NA	S/T, S/P, F, D, E, P
Agrutex 081 (NW-P/PP)	271 (8)	NA	0.180 (80)	1.3/ CH 3895 (95)	2.67 (600)	0.423 (95)	0.979 (220)/50	1, 2, 3	F, E, SP, ST	NA	NA	NA	NA	NA	NA	S/T, S/P, F, D, E, P, R
Agrutex 101 (NW-P/PP)	339 (10)	NA	0.150 (100)	1.1/ CH 3280 (80)	3.23 (725)	0.467 (105)	1.20 (270)/50	1, 2, 3	F, E, SP, ST	NA	NA	NA	NA	NA	NA	S/T, S/P, F, D, E, P, R
Agrutex 121 (NW-P/PP)	401 (12)	NA	0.150 (100)	1.0/ CH 2870 (60)	4.12 (925)	0.556 (125)	1.42 (320)/50	1, 2, 3	F, E, SP, ST	NA	NA	NA	NA	NA	NA	S/T, S/P, F, D, E, P, R
Agrutex 161 (NW-P/PP)	544 (16)	NA	0.150 (100)	0.7/ CH 2050 (50)	5.00 (1125)	0.668 (150)	1.74 (390)/50	1, 2, 3	F, E, SP, ST	NA	NA	NA	NA	NA	NA	S/T, S/P, F, D, E, P, R

- [1] NW = Non woven, -P = needlepunched, -h = calendered  
W = Woven, -SF = slit film t = thermally bonded  
K = Knitted O/C = Other/comboination  
[2] PP = Polypropylene, PET = Polyester, \* = average  
[3] FH = Test is run by the falling head method  
CH = Test is run by the constant head method  
[4] SP = Separation S/F = Silt Fence  
ST = Stabilization D = Drainage  
F = Filtration E = Erosion Control  
A/O = Asphalt overlay  
[5] MD = Machine direction XD = Cross-machine direction

- [6] For a minimum of 10,000 hours, extrapolated to a 75 year time period  
[7]  $LTDS = \frac{T_{ult}}{RF_{cr} \times RF_{id} \times RF_{d}}$   
 $RF_{cr}$  = Reduction factor for creep  
 $RF_{id}$  = Reduction factor for installation damage  
 $RF_{d}$  = Reduction factor for durability

NOTE: this equation does not include other reduction factors which may apply to design. Reduction factors are site specific and should be reviewed on a per project basis. Contact the manufacturer for recommendations.

- [8] R = Reinforcement P = Protection  
SP = Separation S/F = Silt Fence  
ST = Stabilization D = Drainage  
F = Filtration E = Erosion Control  
RC = Reinforcement Composite  
A/O = Asphalt overlay  
NP = Not provided by manufacturer  
NA = Not applicable, per manufacturer  
Companies were requested to provide minimum average roll values (MARV). All claims are the responsibility of the manufacturer.

« Geosynthetics are not a one-size-fits-all solution. You must start with the right fabric and the right application to ensure long-term performance and safety. »

# GEOTEXTILES

Product Name (Structure [1]/ Polymer Type [2])	Mass Per Unit Area ASTM D 5261 g/m <sup>2</sup> (oz/yd <sup>2</sup> )	M288 Transportation-Related Applications								Reinforcement Applications						Other Manufacturer's Suggested Applications [8]
		Filtration/Hydraulic Properties				Physical Properties				Wide Width Tensile/Elongation ASTM D 4595 kN/m (lb/in)/%				Creep Limited Strength-MD ASTM D 5262 [6] kN/m (lb/ft)	LTDS GRI GT7-MD (in sand) [7] kN/m (lb/ft)	
		Percent Open Area CWO-22125 %	Apparent Opening Size ASTM D 4751 mm (U.S. sieve)	Permittivity ASTM D 4491 sec-1 Flow Rate (FH or CH) [3] l/min/m <sup>2</sup> (gal/min/ft <sup>2</sup> )	Puncture ASTM D 6241 kN (lb)	Trapezoid Tearing Strength ASTM D 4533 kN (lb)	Grab Tensile/Elongation ASTM D 4632 kN (lb)/%	M288 Survivability Class	M288 Applications [4]	Strength @ 5% Strain [5]		Ultimate Strength % (Tult) [5]				
										MD	XD	MD	XD			

## Belton Industries Inc. | www.beltonindustries.com

<b>Beltech 180, (W-SF/PP)</b>	130 (4.0) typical	NA	0.500 (35)	0.10/320 (8), FH	2.96 (665)	0.334 (75)	0.800 (180)/15	3	SP	NP	NP	NP	NP	NP	NP	SP
<b>Beltech 250, (W-SF/PP)</b>	170 (5.0) typical	NA	0.600 (30)	0.10/320 (8), FH	4.18 (940)	0.400 (90)	1.11 (250)/15	2	SP	NP	NP	NP	NP	NP	NP	SP
<b>Beltech 315, (W-SF/PP)</b>	220 (6.5) typical	NA	0.425 (40)	0.03/80 (2), FH	5.14 (1155)	0.53 (120)	1.42 (320)/15	1	ST	NP	NP	39.5 (225) 20	38.5 (215) 15	NP	NP	ST
<b>Beltech 400, (W-SF/PP)</b>	285 (8.5) typical	NA	0.500 (35)	0.05/160 (4), FH	7.0 (1565)	0.82 x 0.76 (185 x 170)	2.2 x 1.9 (500 x 420)/ 25 x 15	NP	NP	NP	NP	52.5 (300) 25	52.5 (300) 15	NP	NP	ST
<b>Beltech 2x2 (W-SF/PP)</b>	NA	NA	0.500 (35)	0.5/1600 (40), FH	NP	NP	NP	NP	NP	NP	NP	35.0 (200) 25	35.0 (200) 15	NP	NP	ST
<b>Beltech 4x4 (W-SF/PP)</b>	NA	NA	0.500 (35)	0.2/600 (15), FH	10.19 (2290)	1.25 x 0.93 (280 x 210)	2.94 x 2.40 (660 x 540)/ 25 x 20	NP	NP	NP	NP	70.0 (400) 17	70.0 (400) 13	NP	NP	ST
<b>Beltech 4x6 (W-SF/PP)</b>	544 (16) typical	NA	0.600 (30)	0.2/600 (15), FH	10.95 (2460)	1.27 x 1.34 (285 x 300)	NP	NP	NP	NP	NP	70.0 (400) 20	105 (600) 13	NP	NP	ST
<b>Beltech 940 (W-SF/PP)</b>	92 (2.7) typical	NA	0.710 (25)	0.100/306 (7.5), FH	NP	0.27 x 0.22 (60 x 50)	0.556 x 0.447 (125 x 101)/ 20/15	NA	S/F	NP	NP	NP	NP	NP	NP	S/F
<b>Beltech 806 (W-SF/PP)</b>	92 (2.7) typical	NA	0.825 (20)	0.4/1200 (30), FH	NP	0.27 x 0.20 (60 x 45)	0.49 x 0.40 (110 x 90)/ 20/15	NA	S/F	NP	NP	NP	NP	NP	NP	S/F
<b>Beltech 1935 (W-SF/PP)</b>	109 (3.2) typical	NA	0.710 (25)	0.100/306 (7.5), FH	NP	0.27 x 0.29 (60 x 65)	0.62 x 0.53 (140 x 120)/ 20/15	NA	S/F	NP	NP	NP	NP	NP	NP	S/F
<b>Beltech Hi-Viz (W-SF/PP)</b>	102 (3.0) typical	NA	0.600 (30)	0.100/306 (7.5), FH	NP	0.31 x 0.27 (70 x 60)	0.80 x 0.49 (180 x 110)/ 20/15	NA	S/F	NP	NP	NP	NP	NP	NP	S/F

## Bonar | www.bonar.com

<b>Enkaforce G 300/100 (W-PET)</b>	NP	NA	NP	NP	NP	NP	NP	NP	NP	NP	NP	300 (1700)	100 (570)	NP	NP	R, ST, F
<b>Enkaforce G 600/100 (W-PET)</b>	NP	NA	NP	NP	NP	NP	NP	NP	NP	NP	NP	600 (3400)	100 (570)	NP	NP	R, ST, F
<b>Enkaforce G 1250/100 (W-PET)</b>	NP	NA	NP	NP	NP	NP	NP	NP	NP	NP	NP	1250 (7100)	100 (570)	NP	NP	R, ST, F
<b>Enkaforce G 1000/50 (W-PVA)</b>	NP	NA	NP	NP	NP	NP	NP	NP	NP	NP	NP	1000 (5700)	50 (285)	NP	NP	R, ST, F

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- [2] PP = Polypropylene, PET = Polyester, \* = average
- [3] FH = Test is run by the falling head method  
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- [5] MD = Machine direction XD = Cross-machine direction

- [6] For a minimum of 10,000 hours, extrapolated to a 75 year time period
- [7]  $LTDS = \frac{T_{ult}}{RF_{cr} \times RF_{id} \times RF_d}$   
RF<sub>cr</sub> = Reduction factor for creep  
RF<sub>id</sub> = Reduction factor for installation damage  
RF<sub>d</sub> = Reduction factor for durability

NOTE: this equation does not include other reduction factors which may apply to design. Reduction factors are site specific and should be reviewed on a per project basis. Contact the manufacturer for recommendations.

- [8] R = Reinforcement P = Protection  
SP = Separation S/F = Silt Fence  
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Product Name (Structure [1]/ Polymer Type [2])	Mass Per Unit Area ASTM D 5261 g/m <sup>2</sup> (oz/yd <sup>2</sup> )	M288 Transportation-Related Applications								Reinforcement Applications						
		Filtration/Hydraulic Properties				Physical Properties				Wide Width Tensile/Elongation ASTM D 4595 kN/m (lb/in)/%				Creep Limited Strength-MD ASTM D 5262 [6] kN/m (lb/ft)	LTDS GRI GT7-MD (in sand) [7] kN/m (lb/ft)	Other Manufacturer's Suggested Applications [8]
		Percent Open Area CWO-22125 %	Apparent Opening Size ASTM D 4751 mm (U.S. sieve)	Permittivity ASTM D 4491 sec-1 Flow Rate (FH or CH) [3] l/min/m <sup>2</sup> (gal/min/ft <sup>2</sup> )	Puncture ASTM D 6241 kN (lb)	Trapezoid Tearing Strength ASTM D 4533 kN (lb)	Grab Tensile/Elongation ASTM D 4632 kN (lb)/%	M288 Survivability Class	M288 Applications [4]	Strength @ 5% Strain [5]		Ultimate Strength % (Tult) [5]				
										MD	XD	MD	XD			

## Carthage Mills | www.carthagemills.com

<b>Carthage 6% (W-PP)</b>	NA	4-6	0.212 (70)	0.28/733 (18), CH	4.23 (950)	0.44 x 0.27 (100 x 60)	1.64 x 1.11 (370 x 250)/15	2	D, E (15-50% &>50%)	NA	NA	39.4 (225)	25.4 (145)	NA	NA	E, F, S, S/F, ST, SP, R
<b>FX-55 (W-PP)</b>	NA	<1	0.425 (40)	0.05/204 (5), FH	3.11 (700)	0.33 (75)	0.89 (200)/15	3	SP, ST	NA	NA	21.0 (120)	21 (120)	NA	NA	SP, ST, R
<b>FX-66 (W-PP)</b>	NA	<1	0.425 (40)	0.05/160 (4), FH	4.0 (900)	0.51 (115)	1.40 (315)/15	2, 1	SP, ST	NA	NA	30.6 (175)	35 (200)	NA	NA	SP, ST, R
<b>FX-400MF (W-PP)</b>	NA	NA	0.60 (30)	0.40/1222 (30), CH	NP	NP	NP	NA	NA	35 (200)	39.4 (225)	70 (400)/9	70 (400)/9	NA	NA	SP, ST, R
<b>FX-45HS (NW-PP-P-h)</b>	NA	NA	0.212 (70)	1.70/4890 (120), CH	1.38 (310)	0.22 (50)	0.53 (120)/50	3	D, SP, ST	NA	NA	NA	NA	NA	NA	D, SP
<b>FX-60HS (NW-PP-P-h)</b>	NA	NA	0.212 (70)	1.50/4480 (110), CH	1.82 (410)	0.27 (60)	0.71 (160)/50	2	D, SP, ST, E	NA	NA	NA	NA	NA	NA	D, SP, ST, E
<b>FX-80HS (NW-PP-P-h)</b>	NA	NA	0.180 (80)	135/3666 (90), CH	2.23 (500)	0.36 (80)	0.91 (205)/50	1	D, SP, ST, E	NA	NA	NA	NA	NA	NA	D, SP, ST, E

## Crown Resources LLC | www.crownresources.net

<b>R031* (NW/PP)</b>	NA	NA	0.30 (50)	2.1/6095 (150), FH	0.76 (175)	0.11 (25)	0.35 (80)/50	NA	NA	NA	NA	NA	NA	NA	NA	F, D, SP, E, S/F
<b>R035* (NW/PP)</b>	NA	NA	0.30 (50)	2.1/6095 (150), FH	1.11 (250)	0.178 (40)	0.400 (90)/50	NA	NA	NA	NA	NA	NA	NA	NA	F, D, SP, E, S/F
<b>R040* (NW/PP)</b>	NA	NA	0.212 (70)	1.9/5704 (140), FH	1.20 (270)	0.200 (45)	0.444 (100)/50	NA	NA	NA	NA	NA	NA	NA	NA	F, D, SP, E, S/F
<b>R042* (NW/PP)</b>	NA	NA	0.212 (70)	1.7/4885 (120), FH	1.38 (310)	0.222 (50)	0.533 (120)/50	3	S/F	NA	NA	NA	NA	NA	NA	F, D, SP, E, S/F
<b>R060* (NW/PP)</b>	NA	NA	0.212 (70)	1.5/4880 (110), FH	1.82 (410)	0.267 (60)	0.711 (160)/50	2	SP, D	NA	NA	NA	NA	NA	NA	F, D, SP, E, ST
<b>R080* (NW/PP)</b>	NA	NA	0.180 (80)	1.3/3765 (90), FH	2.33 (525)	0.356 (80)	0.911 (205)/50	1	SP, D, ST, E	NA	NA	NA	NA	NA	NA	F, D, E, ST, SP
<b>R100* (NW/PP)</b>	NA	NA	0.150 (100)	1.1/3251 (80), FH	2.89 (650)	0.444 (100)	1.11 (250)/50	1	SP, D, ST, E	NA	NA	NA	NA	NA	NA	P, F, D, E, SP, ST
<b>R160* (NW/PP)</b>	NA	NA	0.150 (100)	.7/2035 (50), FH	4.56 (1025)	0.644 (145)	1.69 (380)/50	1	SP, D, ST, E	NA	NA	NA	NA	NA	NA	P, F, D, E, SP, ST

\* AASHTO NTPEP STYLES

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$$[7] LTDS = \frac{T_{ult}}{RF_{cr} \times RF_{ID} \times RF_D}$$

RF<sub>cr</sub> = Reduction factor for creep  
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	Mass Per Unit Area ASTM D 5261 g/m <sup>2</sup> (oz/yd <sup>2</sup> )	Percent Open Area CWO-22125 %	Apparent Opening Size ASTM D 4751 mm (U.S. sieve)	Permittivity ASTM D 4491 sec-1 Flow Rate (FH or CH) [3] l/min/m <sup>2</sup> (gal/min/ft <sup>2</sup> )	Puncture ASTM D 6241 kN (lb)	Trapezoid Tearing Strength ASTM D 4533 kN (lb)	Grab Tensile/Elongation ASTM D 4632 kN (lb)/%	M288 Survivability Class	M288 Applications [4]	Strength @ 5% Strain [5]		Ultimate Strength % (Tult) [5]					
										MD	XD	MD	XD				
<b>E100P* (NW/PP)</b>	NA	NA	0.150 (100)	1.0/3055 (75), FH	2.89 (650)	0.444 (100)	1.20 (270)/50	1	SP, D, ST, E	NA	NA	NA	NA	NA	NA	P, F, D, E, SP, ST	
<b>BB 4 X 4 (W/PP)</b>	NA	NA	0.60 (30)	.2/586 (15), FH	4.0 (900)	NA	NA	1/1+	SP, F, R	29.2 (167)	29.2 (167)	70 (400)	70 (400)	NA	NA	Subgrade Enhancement - Reinforcement	
<b>BB 4 X 2.5 (W/PP)</b>	NA	NA	0.30 (50)	.28/733 (18), FH	NA	1.11 (250)	NA	NA	NA	NA	NA	65 (375)	50 (290)	NA	NA	Dewatering Bags, Shoreline Protection	
<b>BB 4 X 6 (W/PP)</b>	NA	NA	0.425 (40)	.30/813 (20), FH	NA	NA	NA	NA	NA	NA	NA	70 (400)	100 (600)	NA	NA	Dewatering Bags, Shoreline Protection	
<b>BB 10 X 10 (W/PP)</b>	NA	NA	0.425 (40)	.37/1010 (25), FH	NA	NA	NA	NA	NA	NA	NA	175 (1000)	175 (1000)	NA	NA	Dewatering Bags, Shoreline Protection	
<b>W200 (W/PP)</b>	NA	NA	0.425 (40)	.05/200 (5), FH	3.11 (700)	0.334 (75)	0.890 (200)/12	3	SP, ST	NA	NA	NA	NA	NA	NA	SP, ST	
<b>W315 (W/PP)</b>	NA	NA	0.425 (40)	.05/163 (4), FH	4.0 (900)	0.533 (120)	1.40 (315)/12	1	SP, ST	NA	NA	NA	NA	NA	NA	SP, ST	
<b>M706 (W/PP)</b>	NA	NA	0.212 (70)	.28/733 (18), FH	4.22 (950)	0.444 x 0.267 (100 x 60)	1.65 x 1.11 (370 x 250)/15	2	D, E	NA	NA	NA	NA	NA	NA	F, D, E	
<b>M404 (W/PP)</b>	NA	NA	0.425 (40)	1.36/4074 (100), FH	2.92 (655)	0.51 x 0.33 (115 x 75)	1.62 x .89 (365 x 200)	2	D, E	NA	NA	NA	NA	NA	NA	F, D, E	
<b>CR1 (W/PP)</b>	NA	NA	0.60 (30)	.05/163 (4), FH	NA	0.44 x 0.44 (100 x 100)	NA	1	ST, R	NA	NA	47.3 (270)	47.3 (270)	NA	NA	ST, SP, R	
<b>CO39* (NW/PP)</b>	NA	NA	NA	NA	NA	NA	0.4 (90)/50	NA	Paving	NA	NA	NA	NA	NA	NA	Paving	
<b>C040* (NW/PP)</b>	140 (4.1)	NA	NA	NA	NA	NA	0.45 (101)/50	Paving	Paving	NA	NA	NA	NA	NA	NA	Paving	
<b>C050 (NW/PP)</b>	153 (4.5)	NA	NA	NA	NA	NA	0.53 (120)/50	Paving	Paving	NA	NA	NA	NA	NA	NA	Paving	

\* AASHTO NTPEP STYLES

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- [2] PP = Polypropylene, PET = Polyester, \* = average
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- [5] MD = Machine direction XD = Cross-machine direction

[6] For a minimum of 10,000 hours, extrapolated to a 75 year time period

$$[7] LTDS = \frac{T_{ult}}{RF_{cr} \times RF_{ID} \times RF_D}$$

RF<sub>cr</sub> = Reduction factor for creep  
RF<sub>ID</sub> = Reduction factor for installation damage  
RF<sub>D</sub> = Reduction factor for durability

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Product Name (Structure [1]/ Polymer Type [2])	M288 Transportation-Related Applications										Reinforcement Applications						Other Manufacturer's Suggested Applications [8]
	Filtration/Hydraulic Properties					Physical Properties					Wide Width Tensile/Elongation ASTM D 4595 kN/m (lb/in)/%				Creep Limited Strength-MD ASTM D 5262 [6] kN/m (lb/ft)	LTDS GRI GT7-MD (in sand) [7] kN/m (lb/ft)	
	Mass Per Unit Area ASTM D 5261 g/m <sup>2</sup> (oz/yd <sup>2</sup> )	Percent Open Area CWO-22125 %	Apparent Opening Size ASTM D 4751 mm (U.S. sieve)	Permittivity ASTM D 4491 sec-1 Flow Rate (FH or CH) [3] l/min/m <sup>2</sup> (gal/min/ft <sup>2</sup> )	Puncture ASTM D 6241 kN (lb)	Trapezoid Tearing Strength ASTM D 4533 kN (lb)	Grab Tensile/Elongation ASTM D 4632 kN (lb)/%	M288 Survivability Class	M288 Applications [4]	Strength @ 5% Strain [5]		Ultimate Strength % (Tult) [5]					
										MD	XD	MD	XD				
Geonia 100 (W/PET)	240	NA	NA	0.03	NA	NA	NA	NA	NA	35	NA	100	50	65	54	NA	
Geonia 150 (W/PET)	320	NA	NA	0.03	NA	NA	NA	NA	NA	53	NA	150	50	90	82	NA	
Geonia 200 (W/PET)	410	NA	NA	0.03	NA	NA	NA	NA	NA	88	NA	200	50	121	109	NA	
Geonia 300 (W/PET)	610	NA	NA	0.03	NA	NA	NA	NA	NA	123	NA	300	50	180	163	NA	
Geonia 400 (W/PET)	790	NA	NA	0.03	NA	NA	NA	NA	NA	140	NA	400	50	240	219	NA	
Geonia 600 (W/PET)	1030	NA	NA	0.03	NA	NA	NA	NA	NA	190	NA	600	50	NA	328	NA	
Geonia 600/100 (W/PET)	1250	NA	NA	NA	NA	NA	NA	NA	NA	210	NA	600	100	360	328	NA	
Geonia 200HP (W/PET)	370	NA	NA	0.1	NA	NA	NA	NA	NA	NA	NA	200	50	121	NA	NA	
Geonia 400HP (W/PET)	390	NA	NA	0.1	NA	NA	NA	NA	NA	NA	NA	400	50	240	NA	NA	
Geonia 70/70 (W/PET)	240	NA	NA	0.04	NA	NA	NA	NA	NA	20/30	NA	70	70	42	39	NA	
Geonia 100/100 (W/PET)	320	NA	NA	0.04	NA	NA	NA	NA	NA	NA	NA	100	100	63	56	NA	
Geonia 150/150 (W/PET)	500	NA	NA	0.01	NA	NA	NA	NA	NA	NA	NA	150	150	90	83	NA	
Geonia 200/200 (W/PET)	640	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	200	200	130	111	NA	
Geonia 250/250 (W/PET)	830	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	250	250	160	139	NA	
Geonia 300/300 (W/PET)	990	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	300	300	200	167	NA	

Daeyoung Geotech | www.dygeotech.co.kr

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RF<sub>ID</sub> = Reduction factor for installation damage  
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Product Name (Structure [1]/ Polymer Type [2])	Mass Per Unit Area ASTM D 5261 g/m <sup>2</sup> (oz/yd <sup>2</sup> )	M288 Transportation-Related Applications								Reinforcement Applications						Other Manufacturer's Suggested Applications [8]
		Filtration/Hydraulic Properties				Physical Properties				Wide Width Tensile/Elongation ASTM D 4595 kN/m (lb/in)/%				Creep Limited Strength-MD ASTM D 5262 [6] kN/m (lb/ft)	LTDS GRI GT7-MD (in sand) [7] kN/m (lb/ft)	
		Percent Open Area CWO-22125 %	Apparent Opening Size ASTM D 4751 mm (U.S. sieve)	Permittivity ASTM D 4491 sec-1 Flow Rate (FH or CH) [3] l/min/m <sup>2</sup> (gal/min/ft <sup>2</sup> )	Puncture ASTM D 6241 kN (lb)	Trapezoid Tearing Strength ASTM D 4533 kN (lb)	Grab Tensile/Elongation ASTM D 4632 kN (lb)/%	M288 Survivability Class	M288 Applications [4]	Strength @ 5% Strain [5]		Ultimate Strength % (Tult) [5]				
										MD	XD	MD	XD			

## Dalco Nonwovens | www.dalcononwovens.com

Dalco 1031 (NW-P/PP)	NP	NP	0.30 (50)	2.2/6095 (150), CH	0.934 (210)	0.11 (25)	0.35 (80)/50	NP	NP	NA	NA	NA	NA	NA	NA	F, D, E
Dalco 1035 (NW-P/PP)	NP	NP	0.25 (60)	2.2/6095 (150), CH	1.157 (260)	0.178 (40)	0.401 (90)/50	NP	NP	NA	NA	NA	NA	NA	NA	F, D, E
Dalco 1040 (NW-P/PP)	NP	NP	0.212 (70)	2.0/5700 (140), CH	1.379 (310)	0.202 (45)	0.45 (100)/50	NP	NP	NA	NA	NA	NA	NA	NA	F, D, E
Dalco 1045 (NW-P/PP)	NP	NP	0.212 (70)	1.8/4885 (120), CH	1.490 (335)	0.22 (50)	0.54 (120)/50	3	SP, D, F, E	NA	NA	NA	NA	NA	NA	F, D, E
Dalco 1060 (NW-P/PP)	NP	NP	0.212 (70)	1.6/4479 (110), CH	1.824 (410)	0.269 (60)	0.71 (160)/50	2	SP, D, F, E	NP	NP	NP	NP	NP	NP	P
Dalco 1070 (NW-P/PP)	NP	NP	0.212 (70)	1.5/4074 (100), CH	2.046 (460)	0.333 (75)	0.80 (180)/50	2	SP, D, F, E	NP	NP	NP	NP	NP	NP	P
Dalco 1080 (NW-P/PP)	NP	NP	0.18 (80)	1.4/3675 (90), CH	2.335 (525)	0.359 (80)	0.91 (205)/50	1	ST, SP, D, F, E	NP	NP	NP	NP	NP	NP	P
Dalco 1100 (NW-P/PP)	NP	NP	0.18 (80)	1.2/3251 (80), CH	2.780 (625)	0.444 (100)	1.1 (250)/50	1	ST, SP, D, F, E	NP	NP	NP	NP	NP	NP	P
Dalco 1120 (NW-P/PP)	NP	NP	0.15 (100)	1.0/3055 (75), CH	3.670 (825)	0.51 (115)	1.33 (300)/50	1	ST, SP, D, F, E	NP	NP	NP	NP	NP	NP	P
Dalco 1160 (NW-P/PP)	NP	NP	0.15 (100)	0.7/2035 (50), CH	4.559 (1025)	0.644 (145)	1.69 (380)/50	1	ST, SP, D, F, E	NP	NP	NP	NP	NP	NP	P
Dalco 1061 (NW-P/PP)	203 (6.0)	NP	0.212 (70)	1.6/4479 (110), CH	1.935 (435)	0.311 (70)	0.757 (170)/50	2	ST, SP, D, F, E	NP	NP	NP	NP	NP	NP	P
Dalco 1081 (NW-P/PP)	271 (8.0)	NP	0.18 (80)	1.3/3675 (90), CH	2.558 (575)	0.400 (90)	0.986 (220)/50	1	ST, SP, D, F, E	NP	NP	NP	NP	NP	NP	P
Dalco 1101 (NW-P/PP)	339 (10.0)	NP	0.15 (100)	0.94/3055 (75), CH	3.225 (725)	0.445 (100)	1.201 (270)/50	1	ST, SP, D, F, E	NP	NP	NP	NP	NP	NP	P
Dalco 1121 (NW-P/PP)	407 (12.0)	NP	0.15 (100)	0.90/2544 (70), CH	4.115 (925)	0.556 (125)	1.434 (320)/50	1	ST, SP, D, F, E	NP	NP	NP	NP	NP	NP	P
Dalco 1161 (NW-P/PP)	542 (16.0)	NP	0.15 (100)	0.5/1833 (45), CH	5.004 (1125)	0.667 (150)	1.748 (390)/50	1	ST, SP, D, F, E	NP	NP	NP	NP	NP	NP	P

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# GEOTEXTILES

Product Name (Structure [1]/ Polymer Type [2])	Mass Per Unit Area ASTM D 5261 g/m <sup>2</sup> (oz/yd <sup>2</sup> )	M288 Transportation-Related Applications								Reinforcement Applications						Other Manufacturer's Suggested Applications [8]
		Filtration/Hydraulic Properties				Physical Properties				Wide Width Tensile/Elongation ASTM D 4595 kN/m (lb/in)/%				Creep Limited Strength-MD ASTM D 5262 [6] kN/m (lb/ft)	LTDS GRI GT7-MD (in sand) [7] kN/m (lb/ft)	
		Percent Open Area CWO-22125 %	Apparent Opening Size ASTM D 4751 mm (U.S. sieve)	Permittivity ASTM D 4491 sec-1 Flow Rate (FH or CH) [3] l/min/m <sup>2</sup> (gal/min/ft <sup>2</sup> )	Puncture ASTM D 6241 kN (lb)	Trapezoid Tearing Strength ASTM D 4533 kN (lb)	Grab Tensile/Elongation ASTM D 4632 kN (lb)/%	M288 Survivability Class	M288 Applications [4]	Strength @ 5% Strain [5]		Ultimate Strength % (Tult) [5]				
										MD	XD	MD	XD			

## GSE Environmental | www.gseworld.com

NW4 (NW-P/PP)	135 (4)	NA	0.212 (70)	1.8 5495 (135)	0.265 (60)	0.22 (50)	0.53 (120)/50	3	SP, D, F, E, A/O	NP	NP	NP	NP	NP	NP	NP
NW6 (NW-P/PP)	200 (6)	NA	0.212 (70)	1.5 4480 (110)	0.395 (90)	0.29 (65)	0.71 (160)/50	2	SP, D, F, E, A/O	NP	NP	NP	NP	NP	NP	NP
NW8 (NW-P/PP)	270 (8)	NA	0.18 (80)	1.3 3865 (95)	0.525 (120)	0.40 (90)	0.97 (220)/50	1	SP, D, F, E, P	NP	NP	NP	NP	NP	NP	NP
NW10 (NW-P/PP)	335 (10)	NA	0.15 (100)	1.0 3050 (75)	0.725 (165)	0.45 (100)	1.15 (260)/50	>1	SP, D, F, E, P	NP	NP	NP	NP	NP	NP	NP
NW12 (NW-P/PP)	405 (12)	NA	0.15 (100)	0.8 2440 (60)	0.835 (190)	0.55 (125)	1.42 (320)/50	>>1	SP, D, F, E, P	NP	NP	NP	NP	NP	NP	NP
NW16 (NW-P/PP)	540 (16)	NA	0.15 (100)	0.6 1830 (45)	1.055 (240)	0.66 (150)	1.73 (390)/50	>>>1	SP, D, F, E, P	NP	NP	NP	NP	NP	NP	NP

Additional heavy weights are available

## Hanes Geo Components | www.hanesgeo.com

TerraTex GS (W-SF/PP)	NA	1	0.425 (40)	0.05/203 (5), CH	3.12 (700)	0.333 (75)	0.90 (200)/15	3	SP, ST	NP	NP	NP	NP	NP	NP	E
TerraTex HD (W-SF/PP)	NA	1	0.425 (40)	0.05/163 (4), CH	4.45 (1000)	0.533 (120)	1.40 (315)/15	1, 2, 3	SP, ST	NP	NP	NP	NP	NP	NP	E
TerraTex N04.5 (NW-P/PP)	NA	NA	0.212 (70)	1.7/4885 (120), CH	1.46 (340)	0.222 (50)	0.533 (120)/50	3	D, SP, ST, E	NP	NP	NP	NP	NP	NP	F, S/F
TerraTex N08 (NW-P/PP)	NA	NA	0.180 (80)	1.35/3657 (90), CH	2.38 (535)	0.378 (85)	0.911 (205)/50	1, 2, 3	ST, SP, E, D	NP	NP	NP	NP	NP	NP	F, E
TerraTex HPG-57 (W/PP)	NA	NA	0.60 (30)	0.4/1222 (30), CH	NP	NP	NP	1, 2, 3	ST, SP	35.0 (200)	39.4 (225)	70.0 (400)	70.0 (400)	NP	NP	R, E, S/F

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# GEOTEXTILES

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		Filtration/Hydraulic Properties				Physical Properties				Wide Width Tensile/Elongation ASTM D 4595 kN/m (lb/in)/%				Creep Limited Strength-MD ASTM D 5262 [6] kN/m (lb/ft)	LTDS GRI GT7-MD (in sand) [7] kN/m (lb/ft)	
		Percent Open Area CWO-22125 %	Apparent Opening Size ASTM D 4751 mm (U.S. sieve)	Permittivity ASTM D 4491 sec-1 Flow Rate (FH or CH) [3] l/min/m <sup>2</sup> (gal/min/ft <sup>2</sup> )	Puncture ASTM D 6241 kN (lb)	Trapezoid Tearing Strength ASTM D 4533 kN (lb)	Grab Tensile/Elongation ASTM D 4632 kN (lb)/%	M288 Survivability Class	M288 Applications [4]	Strength @ 5% Strain [5]		Ultimate Strength % (Tult) [5]				
										MD	XD	MD	XD			

## Huesker Inc. | www.huesker.com

Comtrac 200 (W/PET)	410 (12)	NA	NA	NA	NA	NA	NA	NA	NA	100 (570)	NA	200/10 (1142)	NA	130 (8905)	95 (6507)	R
Comtrac 300 (W/PET)	610 (18)	NA	NA	NA	NA	NA	NA	NA	NA	125 (715)	NA	300/10 (1710)	50/10 (286)	184 (12,607)	145 (9969)	R
Comtrac 400 (W/PET)	700 (21)	NA	NA	NA	NA	NA	NA	NA	NA	180 (1025)	NA	400/10 (2280)	50/10 (286)	245 (16,782)	203 (14,316)	R
Comtrac 600 (W/PET)	1050 (31)	NA	NA	NA	NA	NA	NA	NA	NA	270 (1540)	NA	600/10 (3425)	100/10 (570)	368 (25,514)	304 (20,824)	R
Comtrac 800 (W/PET)	1430 (42)	NA	NA	NA	NA	NA	NA	NA	NA	360 (2055)	NA	800/9 (4565)	100/10 (570)	480 (32,880)	397 (27,200)	R
Comtrac 175.175 DW (W/PET or PP)	600 (17.7)	NA	NA	NA	NA	NA	NA	NA	NA	70 (400)	NA	175/9 (1000)	175/10 (1000)	107 (7330)	83 (5720)	E, R, F
Comtrac P45.45 (W/PP)	240 (7)	NA	0.4 (40)	0.15 (CH) 450 (11)	6.7 (1000)	0.5 x 0.5 (120 x 120)	1.6 x 1.6 (350 x 350) 20 x 15	2, 3	SP	20 (114)	29 (165)	46 (262)	50 (288)	NA	NA	ST, R
Comtrac P80.80 (W/PP)	430 (12.7)	NA	0.18 (80)	0.2 (CH) 612 (15)	7.1 (1600)	1 x 1 (220 x 220)	2.9 x 2.7 (650 x 600) 20 x 15	1, 2, 3	SP, ST	24 (137)	47 (268)	80 (457)	80 (457)	NA	NA	ST, R
Comtrac P105.105 (W/PP)	500 (15)	NA	0.33 (45)	0.33 (CH) 813 (20)	16.3 (3666)	1.4 x 1.4 (320 x 320)	3.6 x 3.3 (800 x 750) 20 x 15	1, 2, 3	SP, ST	50 (285)	55 (315)	105 (600)	105 (600)	NA	NA	ST, R

## Maccaferri Inc. | www.maccaferri-usa.com

MacTex N80.1 (NW-P/PP)	520 (15.4)	NP	0.150 (100)	0.7 / 2035 (50)	4.56 (1025)	0.644 (145)	1.69 (380) / 50	>>1	ST, SP, D, F, E	NA	NA	NA	NA	NA	NA	NA
MacTex N85.1 (NW-P/PP)	540 (16.0)	NP	0.150 (100)	0.7 / 2035 (50)	4.82 (1080)	0.644 (145)	1.69 (380) / 50	>>>1	ST, SP, D, F, E	NA	NA	NA	NA	NA	NA	NA
MacTex AR 0 (NW-P/PP)	130 (3.8)	NP	NA				0.4 (90) / 50	NA	A/O	NA	NA	NA	NA	NA	NA	NA
MacTex AR 1 (NW-P/PP)	140 (4.15)	NP	NA				0.45 (101)	NA	A/O	NA	NA	NA	NA	NA	NA	NA

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Product Name (Structure [1]/ Polymer Type [2])	Mass Per Unit Area ASTM D 5261 g/m <sup>2</sup> (oz/yd <sup>2</sup> )	M288 Transportation-Related Applications									Reinforcement Applications						
		Filtration/Hydraulic Properties			Physical Properties						Wide Width Tensile/Elongation ASTM D 4595 kN/m (lb/in)/%				Creep Limited Strength-MD ASTM D 5262 [6] kN/m (lb/ft)	LTDS GRI GT7-MD (in sand) [7] kN/m (lb/ft)	Other Manufacturer's Suggested Applications [8]
		Percent Open Area CWO-22125 %	Apparent Opening Size ASTM D 4751 mm (U.S. sieve)	Permittivity ASTM D 4491 sec-1 Flow Rate (FH or CH) [3] l/min/m <sup>2</sup> (gal/min/ft <sup>2</sup> )	Puncture ASTM D 6241 kN (lb)	Trapezoid Tearing Strength ASTM D 4533 kN (lb)	Grab Tensile/Elongation ASTM D 4632 kN (lb)/%	M288 Survivability Class	M288 Applications [4]	Strength @ 5% Strain [5]		Ultimate Strength % (Tult) [5]					
										MD	XD	MD	XD				

## Polymer Group Inc. (PGI) Geosynthetics | www.typargeosynthetics.com

<b>Typar 3151</b> NW-PP-t	54* (1.6)	NA	0.84 (20/30)	1.5/9635 (235), FH	NP	0.070 (15)	0.156 (35)/60	NP	NP	NP	NP	NP	NP	NP	NA	NA	SP
<b>Typar 3201</b> NW-PP-t	65* (1.9)	NA	0.59 (30)	1.0/7790 (190), FH	NP	0.110 (25)	0.267 (60)/60	NP	NP	NP	NP	NP	NP	NP	NA	NA	SP, D
<b>Typar 3301</b> NW-PP-t	104* (3.0)	NA	0.30 (50)	0.8/3895 (95), FH	NP	0.156 (35)	0.533 (120)/60	NP	NP	NP	NP	NP	NP	NP	NA	NA	SP, S/F, F, D
<b>Typar 3341</b> NW-PP-t	116* (3.4)	NA	0.25 (60)	0.7/3485 (85), FH	NP	0.180 (40)	0.533 (120)/60	NP	NP	NP	NP	NP	NP	NP	NA	NA	SP, F, D
<b>Typar 3401</b> NW-PP-t	136* (4.0)	NA	0.21 (70)	0.7/2460 (60), FH	0.99 (225)	0.270 (60)	0.578 (130)/60	3	SP, ST, D, E	NP	NP	NP	NP	NP	NA	NA	SP, ST, F, D, E, P
<b>Typar 3501</b> NW-PP-t	170* (5.0)	NA	0.20 (70)	0.5/2050 (50), FH	1.375 (310)	0.270 (60)	0.710 (160)/60	2	SP, ST, D, E	NP	NP	NP	NP	NP	NA	NA	F, D, SP, ST, E, P
<b>Typar 3601</b> NW-PP-t	204* (6.0)	NA	0.10 (140)	0.10/615 (15), FH	1.650 (370)	0.400 (90)	1.067 (240)/60	2	SP, ST, D, E	NP	NP	NP	NP	NP	NA	NA	F, D, SP, ST, E, R, P
<b>Typar 3631</b> NW-PP-t	214* (6.3)	NA	0.10 (140)	0.20/820 (20), FH	NP	0.400 (90)	1.110 (250)/60	1	SP, ST, D, E	NP	NP	NP	NP	NP	NA	NA	F, D, SP, ST, E, R, P
<b>Typar 3801</b> NW-PP-t	272* (8.0)	NA	0.09 (170)	0.10/328 (8), FH	2.285 (510)	0.425 (95)	1.335 (300)/60	1	SP, ST	NP	NP	NP	NP	NP	NA	NA	E, SP, ST, R, P
<b>Typar 3100</b> NW-PP-t	339* (10.0)	NA	NP	0.123/328 (8) FH	3.136 (697)	0.556 (125)	2.000 (450)/60	1	SP, ST	NP	NP	NP	NP	NP	NA	NA	E, SP, ST, R, P

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[6] For a minimum of 10,000 hours, extrapolated to a 75 year time period

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# GEOTEXTILES

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		Filtration/Hydraulic Properties				Physical Properties				Wide Width Tensile/Elongation ASTM D 4595 kN/m (lb/in)/%				Creep Limited Strength-MD ASTM D 5262 [6] kN/m (lb/ft)	LTDS GRI GT7-MD (in sand) [7] kN/m (lb/ft)	
		Percent Open Area CWO-22125 %	Apparent Opening Size ASTM D 4751 mm (U.S. sieve)	Permittivity ASTM D 4491 sec-1 Flow Rate (FH or CH) [3] l/min/m <sup>2</sup> (gal/min/ft <sup>2</sup> )	Puncture ASTM D 6241 kN (lb)	Trapezoid Tearing Strength ASTM D 4533 kN (lb)	Grab Tensile/Elongation ASTM D 4632 kN (lb)/%	M288 Survivability Class	M288 Applications [4]	Strength @ 5% Strain [5]		Ultimate Strength % (Tult) [5]				
										MD	XD	MD	XD			

## Propex Global | www.geotextile.com

Geotex 401 (NW-P/PP)	NA	NA	0.212 (70)	1.7/5704 (140), CH	1.379 (310)	0.222 (50)	0.534 (120)/50	3	D, SP	NA	NA	NA	NA	NA	NA	F, D, E
Geotex 601 (NW-P/PP)	NA	NA	0.212 (70)	1.4/4480 (110), CH	1.824 (410)	0.267 (60)	0.712 (160)/50	2, 3	D, SP, ST	NA	NA	NA	NA	NA	NA	F, D, E, ST, SP
Geotex 801 (NW-P/PP)	NA	NA	0.180 (80)	1.4/4480 (110), CH	2.335 (525)	0.356 (80)	0.912 (205)/50	1, 2, 3	E, ST, SP	NA	NA	NA	NA	NA	NA	F, D, E, ST, SP
Geotex 200ST (W/PP)	NA	NA	0.425 (40)	0.05/163 (4), FH	3.110 (700)	0.330 (75)	0.890 (200)/15	3	SP	NA	NA	NA	NA	NA	NA	SP, ST
Geotex 350ST (W/PP)	NA	NA	0.600 (30)	0.35/1224 (30), FH	5.338 (1200)	0.578 (130)	2.00 x 1.55 (450 x 350)/15	1, 2, 3	ST, SP, R	19.8 (113)	19.8 (113)	52.6 (300)	47.3 (270)	10 (743)	NA	R, SP, ST
Geotex 2x2HF (W/PP)	NA	NA	0.600 (30)	0.70/2040 (50), FH	5.8 (1300)	0.556 (125)	1.40 x 1.40 (315 x 315)/15 x 15	1, 2, 3	E, D, ST, SP, R	17.69 (101)	19.8 (113)	38.5 (220)	35.9 (205)	8 (564)	8 (564)	F, SP, D, ST, R, E
Geotex 4x4HF (W/PP)	NA	NA	0.600 (30)	0.40/1224 (30), FH	8.9 (2000)	0.80 (180)	2.11 x 1.95 (475 x 440)/12 x 6	1, 2, 3	E, ST, SP, R	35.0 (200)	39.4 (225)	70.1 (400)	70.1 (400)	14 (991)	14 (991)	ST, SP, R
Petromat 4598 (NW-P/PP)	140 (4.1)	NA	NA	NA	NA	NA	0.450 (101)/50	NA	A/O	NA	NA	NA	NA	NA	NA	A/O
Reflectex (NW-P/PP)	510 (15)	NA	NA	NA	NA	NA	NA	NA		NA	NA	10 (57)	10 (57)	NA	NA	SP, F, P

## Saint-Gobain ADFORS | www.adfors.com

GlasPave 25 (N/W,O/C), (FG/PET)	136 (4.0)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25 (140)*/<5%	25 (140)*/<5%	NA	NA	A/O, PR
GlasPave 50 (N/W,O/C), (FG/PET)	237 (7.0)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50 (280)*/<5%	50 (280)*/<5%	NA	NA	A/O, PR

\*Tensile test performed under ASTM D5035

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# GEOTEXTILES

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		Filtration/Hydraulic Properties				Physical Properties				Wide Width Tensile/Elongation ASTM D 4595 kN/m (lb/in)/%				Creep Limited Strength-MD ASTM D 5262 [6] kN/m (lb/ft)	LTDS GRI GT7-MD (in sand) [7] kN/m (lb/ft)	
		Percent Open Area CWO-22125 %	Apparent Opening Size ASTM D 4751 mm (U.S. sieve)	Permittivity ASTM D 4491 sec-1 Flow Rate (FH or CH) [3] l/min/m <sup>2</sup> (gal/min/ft <sup>2</sup> )	Puncture ASTM D 6241 kN (lb)	Trapezoid Tearing Strength ASTM D 4533 kN (lb)	Grab Tensile/Elongation ASTM D 4632 kN (lb)/%	M288 Survivability Class	M288 Applications [4]	Strength @ 5% Strain [5]		Ultimate Strength % (Tult) [5]				
										MD	XD	MD	XD			

## SKAPS Industries | www.skaps.com

GC140 (NW-P/PP)	143 (4.2)	NA	NA	NA	1.24 (300)	0.200 (45)	0.453 (102)/50	NP	NP	NA	NA	NA	NA	NA	NA	A/O
GE116 (NW-P/PP)	542 (16)	NA	0.150 (100)	0.57/1833 (45), CH	5.34 (1200)	0.667 (150)	1.89 (425)/50	1	SP, E	NA	NA	NA	NA	NA	NA	S/F, F, D, P, E
GE160 (NW-P/PP)	203 (6)	NA	0.212 (70)	1.63/5080 (125), CH	2.0 (450)	0.290 (65)	0.711 (160)/50	2	SP, D	NA	NA	NA	NA	NA	NA	S/F, F, D, P, E
GE180 (NW-P/PP)	271 (8)	NA	0.180 (80)	1.26/4074 (100), CH	2.67 (600)	0.400 (90)	1.00 (225)/50	1	SP, D, ST	NA	NA	NA	NA	NA	NA	S/F, F, D, P, E
GT110 (NW-P/PP)	NP	NA	0.150 (100)	1.20/3251 (80), CH	3.11 (700)	0.444 (100)	1.11 (250)/50	1	SP, D, ST, E	NA	NA	NA	NA	NA	NA	S/F, F, D, E
GT116 (NW-P/PP)	NP	NA	0.150 (100)	0.70/2035 (50), CH	4.82 (1080)	0.644 (145)	1.69 (380)/50	1	SP, D, ST, E	NA	NA	NA	NA	NA	NA	S/F, F, D, E
GT135 (NW-P/PP)	NP	NA	0.300 (50)	2.0/6095 (150), CH	1.18 (265)	0.178 (40)	0.401 (90)/50	NP	NP	NA	NA	NA	NA	NA	NA	F, D, E
GT142 (NW-P/PP)	NP	NA	0.212 (70)	1.7/4885 (120), CH	1.38 (310)	0.222 (50)	0.533 (120)/50	3	S/F	NA	NA	NA	NA	NA	NA	F, D, E
GT160 (NW-P/PP)	NP	NA	0.212 (70)	1.5/4480 (110), CH	1.82 (410)	0.267 (60)	0.711 (160)/50	2	SP, D	NA	NA	NA	NA	NA	NA	S/F, F, E
GT180 (NW-P/PP)	NP	NA	0.180 (80)	1.3/3657 (90), CH	2.38 (535)	0.356 (80)	0.911 (205)/50	1	SP, D, ST, E	NA	NA	NA	NA	NA	NA	S/F, F, E, D
SW200 (W-SF/PP)	NP	1	0.425 (40)	0.05/163 (4), CH	4.45 (1000)	0.533 (120)	1.40 (315)/15	3	NP	NP	NP	NP	NP	NP	NP	NP
SW315 (W/PP)	NP	1	0.425 (40)	0.05/203 (5), CH	3.12 (700)	0.333 (75)	0.90 (200)/15	1	SP	NP	NP	NP	NP	NP	NP	SF

## TechFab India | www.techfabindia.com

TFI-3200HT (W/PET)	NP	NP	0.25 (60)	0.02/240 (5.89), CH	12 (2698)	NA	NA	NP	NP	80 (457)	80 (457)	200 (1142)	200 (1142)	140 (9590)	NP	R
TFI-3900 (W/PET)	NP	NP	0.45 (40)	0.01/180 (4.41), CH	5 (1124)	NA	NA	NP	NP	270 (1542)	18 (103)	900 (5139)	50 (286)	630 (43155)	NP	W, S, E
R 42 (NW/PP)	NP	NP	0.212 (70)	1.5/4500 (110), CH	1.51 (340)	0.214 (48)	0.534 (120) / 50	NP	SP, ST, F, D, E	NA	NA	9.0 (51)	9.0 (51)	NA	NA	ST, SP, R
R 80 (NW/PP)	NP	NP	0.180 (80)	0.87/2610 (64), CH	2.38 (535)	0.356 (80)	0.912 (205) / 50	NP	SP, ST, F, D, E	NA	NA	16 (91)	16 (91)	NA	NA	ST, SP, R
R 160 (NW/PP)	NP	NP	0.150 (100)	0.48/1440 (35), CH	4.80 (1080)	0.623 (140)	0.1690 (380) / 50	NP	SP, ST, F, D, E	NA	NA	30 (171)	30 (171)	NA	NA	ST, SP, R

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		Filtration/Hydraulic Properties				Physical Properties				Wide Width Tensile/Elongation ASTM D 4595 kN/m (lb/in)/%				Creep Limited Strength-MD ASTM D 5262 [6] kN/m (lb/ft)	LTDS GRI GT7-MD (in sand) [7] kN/m (lb/ft)	
		Percent Open Area CWO-22125 %	Apparent Opening Size ASTM D 4751 mm (U.S. sieve)	Permittivity ASTM D 4491 sec-1 Flow Rate (FH or CH) [3] l/min/m <sup>2</sup> (gal/min/ft <sup>2</sup> )	Puncture ASTM D 6241 kN (lb)	Trapezoid Tearing Strength ASTM D 4533 kN (lb)	Grab Tensile/Elongation ASTM D 4632 kN (lb)/%	M288 Survivability Class	M288 Applications [4]	Strength @ 5% Strain [5]		Ultimate Strength % (Tult) [5]				
										MD	XD	MD	XD			
Mirafi 140NC (NW-P/PP)	NA	NA	0.212 (70)	2.0/5704(140), CH	1.1 (250)	0.2 x 0.2 (45 x 45)	0.4 x 0.4 (100 x 100)/50 x 50	NA	NA	NA	NA	NA	NA	NA	NA	F, D, E
Mirafi 140N (NW-P/PP)	NA	NA	0.212 (70)	1.7/5500 (135), CH	1.4 (310)	0.2 x 0.2 (50 x 50)	0.5 x 0.5 (120 x 120)/50 x 50	3	D, E, SP, ST	NA	NA	NA	NA	NA	NA	F
Mirafi 160N (NW-P/PP)	NA	NA	0.212 (70)	1.5/4481 (110), CH	1.8 (410)	0.3 x 0.3 (60 x 60)	0.7 x 0.7 (160 x 160)/50 x 50	2, 3	D, E, SP, ST	NA	NA	NA	NA	NA	NA	F
Mirafi 180N (NW-P/PP)	NA	NA	0.18 (80)	1.4/3870 (95), CH	2.2 (500)	0.4 x 0.4 (80 x 80)	0.9 x 0.9 (205 x 205)/50 x 50	1, 2, 3	D, E, SP, ST	NA	NA	NA	NA	NA	NA	F, P
Mirafi 1100N (NW-P/PP)	NA	NA	0.15 (100)	0.8/3056 (75), CH	3.1 (700)	0.4 x 0.4 (100 x 100)	1.1 x 1.1 (250 x 250)/50 x 50	1, 2, 3	D, E, SP, ST	NA	NA	NA	NA	NA	NA	F, P
Mirafi 1120N (NW-P/PP)	NA	NA	0.15 (100)	0.8/2648 (65), CH	3.6 (800)	0.5 x 0.5 (115 x 115)	1.3 x 1.3 (300 x 300)/50 x 50	1, 2, 3	D, E, SP, ST	NA	NA	NA	NA	NA	NA	F, P
Mirafi 1160N (NW-P/PP)	NA	NA	0.15 (100)	0.7/2037 (50), CH	4.6 (1025)	0.6 x 0.6 (140 x 140)	1.7 x 1.7 (380 x 380)/50 x 50	1, 2, 3	D, E, SP, ST	NA	NA	NA	NA	NA	NA	F, P
Mirafi 500X (W/SF-PP)	NA	1	0.425 (40)	0.05/204 (5), CH	3.1 (700)	0.3 x 0.3 (75 x 75)	0.9 x 0.9 (200 x 200)/15 x 15	3	SP, ST	NA	NA	NA	NA	NA	NA	NA
Mirafi 600X (W/SF-PP)	NA	1	0.425 (40)	0.05/163 (4), CH	4.0 (900)	0.5 x 0.5 (113 x 113)	1.4 x 1.4 (315 x 315)/15 x 15	1, 2, 3	SP, ST	NA	NA	NA	NA	NA	NA	NA
Mirafi FW402 (W/PP)	NA	10	0.425 (40)	2.1/5907 (145), CH	3.0 (675)	0.5 x 0.3 (115 x 75)	1.6 x 0.9 (365 x 200)/24 x 10	2, 3	D	7.0 (40)	8.8 (50)	35 (200)	24.5 (140)	NA	NA	E, F
Mirafi FW404 (W/PP)	NA	1	0.425 (40)	0.9/2852 (70), CH	5.1 (1150)	0.7 x 0.7 (150 x 165)	1.8 x 1.4 (400 x 315)/15 x 15	1, 2, 3	D, E	17.5 (100)	17.5 (100)	43.8 (250)	40.3 (230)	NA	NA	F
Mirafi FW500 (W/PP)	NA	3	0.30 (50)	0.2/611 (15), CH	4.5 (1200)	0.6 x 0.7 (120 x 120)	1.4 x 1.9 (375 x 375)/(15 x 8)	2, 3	D	12.3 (70)	43.8 (250)	35.0 (200)	48.2 (275)	NA	NA	E, F
Mirafi FW700 (W/PP)	NA	4	0.212 (70)	0.28/733 (18), CH	4.2 (950)	0.4 x 0.3 (100 x 60)	1.6 x 1.1 (370 x 250)/15 x 15	2, 3	D, E	12.3 (70)	7.0 (40)	39.4 (225)	25.4 (145)	NA	NA	F

## TenCate Geosynthetics | www.mirafi.com

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A/O = Asphalt overlay  
NP = Not provided by manufacturer  
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Product Name (Structure [1]/ Polymer Type [2])	Mass Per Unit Area ASTM D 5261 g/m <sup>2</sup> (oz/yd <sup>2</sup> )	M288 Transportation-Related Applications								Reinforcement Applications						Other Manufacturer's Suggested Applications [8]
		Filtration/Hydraulic Properties				Physical Properties				Wide Width Tensile/Elongation ASTM D 4595 kN/m (lb/in)/%				Creep Limited Strength-MD ASTM D 5262 [6] kN/m (lb/ft)	LTDS GRI GT7-MD (in sand) [7] kN/m (lb/ft)	
		Percent Open Area CWO-22125 %	Apparent Opening Size ASTM D 4751 mm (U.S. sieve)	Permittivity ASTM D 4491 sec-1 Flow Rate (FH or CH) [3] l/min/m <sup>2</sup> (gal/min/ft <sup>2</sup> )	Puncture ASTM D 6241 kN (lb)	Trapezoid Tearing Strength ASTM D 4533 kN (lb)	Grab Tensile/Elongation ASTM D 4632 kN (lb)/%	M288 Survivability Class	M288 Applications [4]	Strength @ 5% Strain [5]		Ultimate Strength % (Tult) [5]				
										MD	XD	MD	XD			
Mirafi HP270 (W/PP)	NA	NA	0.60 (30)	0.70/2037 (50), CH	4.5 (1000)	0.5 x 0.6 (120 x 140)	1.3 x 1.1 (290 x 255)	2, 3	SP	17.7 (101)	19.8 (113)	38.5 (220)	35.9 (205)	NA	NA	R, ST
Mirafi HP370 (W/PP)	NA	NA	0.425 (40)	0.9/1630 (40), CH	5.8 (1300)	0.7 x 0.7 (150 x 160)	2.0 x 1.4 (450 x 320)/12 x 10	1, 2, 3	SP	21.9 (125)	22.8 (130)	52.5 (300)	47.3 (270)	NA	NA	R, ST
Mirafi HP570 (W/PP)	NA	NA	0.60 (30)	0.4/ 1222 (30), CH	8.9 (2000)	0.8 x 0.8 (180 x 180)	2.2 x 2.1 (500 x 475)/11 x 4	1, 2, 3	SP	35.0 (200)	39.4 (225)	70.0 (400)	70.0 (400)	NA	NA	R, ST
Mirafi HP665 (W/PP)	NA	NA	0.425 (40)	0.26/815 (20), CH	8.9 (2000)	0.8 x 1.2 (180 x 275)	2.7 x 3.1 (600 x 700)/15 x 15	1, 2, 3	SP, ST	17.5 (100)	61.3 (350)	70.0 (400)	96.3 (550)	NA	NA	R, E
Mirafi HP770 (W/PP)	NA	NA	0.60 (30)	0.23/611 (15), CH	8.5 (1900)	1.1 x 1.3 (250 x 300)	2.4 x 2.0 (550 x 450) 12 x 6	1, 2, 3	SP, ST	52.5 (300)	52.5 (300)	105.1 (600)	84.0 (480)	NA	NA	R
Mirafi PET70/70 (W/PET)	NA	NA	0.425 (40)	0.1/407 (10), CH	NA	NA	NA	NA	NA	15.8 (90)	35.0 (200)	70.0 (400)	70.0 (400)	42.0 (2880)	33.2 (2280)	R
Mirafi PET100 (W/PET)	NA	NA	0.85 (20)	0.32/815 (20), CH	NA	NA	NA	NA	NA	35.0 (200)	NP	105.1 (600)	NP	63.0 (4320)	49.9 (3420)	R
Mirafi PET200 (W/PET)	NA	NA	0.60 (30)	0.32/2037 (50), CH	NA	NA	NA	NA	NA	87.6 (500)	NP	201.4 (1150)	NP	120.8 (8280)	95.5 (6540)	R
Mirafi PET300 (W/PET)	NA	NA	0.85 (20)	0.1/407 (10), CH	NA	NA	NA	NA	NA	122.6 (700)	NP	300 (1715)	NP	180.2 (12348)	148.9 (10205)	R
Mirafi PET600/100 (W/PET)	NA	NA	NA	NA	NA	NA	NA	NA	NA	210 (1200)	NP	600 (3427)	100 (571)	360 (24674)	298 (20388)	R
Mirafi PET1000/100 (W/PET)	NA	NA	NA	NA	NA	NA	NA	NA	NA	400 (2284)	NP	1000 (5710)	100 (571)	600 (41113)	496 (33987)	R
Mirafi S600 (NW-P/PP)	203 (6.0)	NA	0.18 (80)	1.5/4481 (110), CH	2.0 (450)	0.3 x 0.3 (70 x 70)	0.7 x 0.7 (170 x 170)/50 x 50	NA	NA	NA	NA	NA	NA	NA	NA	ST, P
Mirafi S800 (NW-P/PP)	271 (8.0)	NA	0.15 (100)	1.4/4481 (110), CH	2.7 (600)	0.4 x 0.4 (95 x 95)	1.0 x 1.0 (230 x 230)/50 x 50	NA	NA	NA	NA	NA	NA	NA	NA	ST, P
Mirafi S1600 (NW-P/PP)	542 (16.0)	NA	0.15 (100)	0.7/2037 (50), CH	5.3 (1200)	0.69 x 0.69 (155 x 155)	1.9 x 1.9 (425 x 425)/50 x 50	NA	NA	NA	NA	NA	NA	NA	NA	ST, P
MPV400 (NW-P/PP)	119 (3.5)	NA	NA	NA	NA	NA	0.4 x 0.4 (90 x 90)/50 x 50	NA	NA	NA	NA	NA	NA	NA	NA	A/O
MPV500 (NW-P/PP)	140 (4.1)	NA	NA	NA	NA	NA	0.4 x 0.4 (101 x 101)/50 x 50	NA	A/O	NA	NA	NA	NA	NA	NA	A/O

## TenCate Geosynthetics | www.mirafi.com

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[6] For a minimum of 10,000 hours, extrapolated to a 75 year time period

$$[7] LTDS = \frac{T_{ult}}{RF_{cr} \times RF_{id} \times RF_d}$$

RF<sub>cr</sub> = Reduction factor for creep  
RF<sub>id</sub> = Reduction factor for installation damage  
RF<sub>d</sub> = Reduction factor for durability

NOTE: this equation does not include other reduction factors which may apply to design. Reduction factors are site specific and should be reviewed on a per project basis. Contact the manufacturer for recommendations.

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# GEOTEXTILES

Product Name (Structure [1]/ Polymer Type [2])	Mass Per Unit Area ASTM D 5261 g/m <sup>2</sup> (oz/yd <sup>2</sup> )	M288 Transportation-Related Applications								Reinforcement Applications						Other Manufacturer's Suggested Applications [8]
		Filtration/Hydraulic Properties				Physical Properties				Wide Width Tensile/Elongation ASTM D 4595 kN/m (lb/in)/%				Creep Limited Strength-MD ASTM D 5262 [6] kN/m (lb/ft)	LTDS GRI GT7-MD (in sand) [7] kN/m (lb/ft)	
		Percent Open Area CWO-22125 %	Apparent Opening Size ASTM D 4751 mm (U.S. sieve)	Permittivity ASTM D 4491 sec-1 Flow Rate (FH or CH) [3] l/min/m <sup>2</sup> (gal/min/ft <sup>2</sup> )	Puncture ASTM D 6241 kN (lb)	Trapezoid Tearing Strength ASTM D 4533 kN (lb)	Grab Tensile/Elongation ASTM D 4632 kN (lb)/%	M288 Survivability Class	M288 Applications [4]	Strength @ 5% Strain [5]		Ultimate Strength % (Tult) [5]				
										MD	XD	MD	XD			

## Tensar International Corp. | www.tensar-international.com

GlasPave® 25	136 (4.0)	NA	NA	NA	NA	NA	25 kN/m (170 lb/in) / <5%*	NA	NA	NA	NA	NA	NA	NA	NA	A/O, PR
GlasPave® 50	237 (7.0)	NA	NA	NA	NA	NA	50 kN/m (280 lb/in) / <5%*	NA	NA	NA	NA	NA	NA	NA	NA	A/O, PR

\* Tensile strength per ASTM D 5035

## Texel Inc. | www.texel.ca

TEXEL080E (NW-PP)	271 (8)	NA	0.180 (80)	1.26/4074 (100)	2.670 (600)	0.400 (90)	0.979 (220)/50	NA	NA	NA	NA	NA	NA	NA	NA	P, SP, D, E, ST
TEXEL100E (NW-PP)	339 (10)	NA	0.150 (100)	0.94/3055 (79)	3.220 (725)	0.444 (100)	1.200 (270)/50	NA	NA	NA	NA	NA	NA	NA	NA	P, SP, D, E, ST
TEXEL120E (NW-PP)	407 (12)	NA	0.150 (100)	0.90/2544 (62)	4.000 (900)	0.556 (125)	1.470 (330)/50	NA	NA	NA	NA	NA	NA	NA	NA	P, SP, D, E, ST
TEXEL140E (NW-PP)	475 (14)	NA	0.150 (100)	0.64/2037 (50)	4.650 (1045)	0.600 (135)	1.730 (389)/50	NA	NA	NA	NA	NA	NA	NA	NA	P, SP, D, E, ST
TEXEL160E (NW-PP)	542 (16)	NA	0.150 (100)	0.57/1833 (45)	5.340 (1200)	0.667 (150)	1.891 (425)/50	NA	NA	NA	NA	NA	NA	NA	NA	P, SP, D, E, ST
TEXEL200E (NW-PP)	675 (20)	NA	NP	NP	6.200 (1395)	0.800 (180)	1.980 (445)/50	NA	NA	NA	NA	NA	NA	NA	NA	P, SP, D, E, ST
TEXEL240E (NW-PP)	810 (24)	NA	NP	0.4/1019	7.150 (1607)	0.910 (205)	2.225 (495)/50	NA	NA	NA	NA	NA	NA	NA	NA	P, SP, D, E, ST
TEXEL280E (NW-PP)	950 (28)	NA	NP	NP	8.000 (1800)	1.010 (228)	2.420 (545)/50	NA	NA	NA	NA	NA	NA	NA	NA	P, SP, D, E, ST
TEXEL320E (NW-PP)	1080 (32)	NA	NP	NP	8.800 (1980)	1.100 (247)	2.640 (595)/50	NA	NA	NA	NA	NA	NA	NA	NA	P, SP, D, E, ST
TEXEL430E (NW-PP)	1460 (43)	NA	NP	NP	9.500 (2135)	1.350 (303)	3.300 (742)/50	NA	NA	NA	NA	NA	NA	NA	NA	P, SP, D, E, ST

## Thrace-LINQ Inc. | www.thracelinq.com

120EX (NW-PP)	NP	NP	0.21 (70)	2.2/6519 (160), FH	0.934 (210)	0.133 (30)	0.356 (80)/50	NP	NP	NP	NP	NP	NP	NP	NP	A/O, F, D
125EX (NW-PP)	NP	NP	0.21 (70)	2.1/6112 (150), FH	1.179 (265)	0.178 (40)	0.400 (90)/50	NP	NP	NP	NP	NP	NP	NP	NP	A/O, F, D
130EX (NW-PP)	NP	NP	0.21 (70)	2.0/5908 (145), FH	1.334 (300)	0.200 (45)	0.467 (105)/50	NP	NP	NP	NP	NP	NP	NP	NP	A/O, F, D
140EX (NW-PP)	NP	NP	0.21 (70)	1.8/5297 (130), FH	1.512 (340)	0.222 (50)	0.534 (120)/50	3	ST, SP, D, A/O	NP	NP	NP	NP	NP	NP	E, F
150EX (NW-PP)	NP	NP	0.18 (80)	1.5/4482 (110), FH	1.824 (410)	0.267 (60)	0.712 (160)/50	2, 3	ST, SP, D	NP	NP	NP	NP	NP	NP	E, F
160EX (NW-PP)	NP	NP	0.15 (100)	1.5/4482 (110), FH	2.113 (475)	0.334 (75)	0.801 (180)/50	2, 3	ST, SP, D	NP	NP	NP	NP	NP	NP	E, F
180EX (NW-PP)	NP	NP	0.15 (100)	1.5/4482 (110), FH	2.380 (535)	0.356 (80)	0.912 (205)/50	1, 2, 3	ST, SP, D, E	NP	NP	NP	NP	NP	NP	F, P

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W = Woven, -SF = slit film t = thermally bonded  
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- [2] PP = Polypropylene, PET = Polyester, \* = average
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- [5] MD = Machine direction XD = Cross-machine direction

[6] For a minimum of 10,000 hours, extrapolated to a 75 year time period

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RF<sub>cr</sub> = Reduction factor for creep  
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Product Name (Structure [1]/ Polymer Type [2])	Mass Per Unit Area ASTM D 5261 g/m <sup>2</sup> (oz/yd <sup>2</sup> )	M288 Transportation-Related Applications									Reinforcement Applications						Other Manufacturer's Suggested Applications [8]
		Filtration/Hydraulic Properties				Physical Properties					Wide Width Tensile/Elongation ASTM D 4595 kN/m (lb/in)/%				Creep Limited Strength-MD ASTM D 5262 [6] kN/m (lb/ft)	LTDS GRI GT7-MD (in sand) [7] kN/m (lb/ft)	
		Percent Open Area CWO-22125 %	Apparent Opening Size ASTM D 4751 mm (U.S. sieve)	Permittivity ASTM D 4491 sec-1 Flow Rate (FH or CH) [3] l/min/m <sup>2</sup> (gal/min/ft <sup>2</sup> )	Puncture ASTM D 6241 kN (lb)	Trapezoid Tearing Strength ASTM D 4533 kN (lb)	Grab Tensile/Elongation ASTM D 4632 kN (lb)/%	M288 Survivability Class	M288 Applications [4]	Strength @ 5% Strain [5]		Ultimate Strength % (Tult) [5]					
										MD	XD	MD	XD				
<b>245EX (NW-PP)</b>	NP	NP	0.15 (100)	1.2/3463 (85), FH	3.114 (700)	0.445 (100)	1.112 (250)/50	1, 2, 3	ST, SP, D, E	NP	NP	NP	NP	NP	NP	P, F	
<b>250EX (NW-PP)</b>	NP	NP	0.15 (100)	1.2/3463 (85), FH	3.225 (725)	0.445 (100)	1.201 (270)/50	1, 2, 3	ST, SP, D, E	NP	NP	NP	NP	NP	NP	P, F	
<b>275EX (NW-PP)</b>	NP	NP	0.15 (100)	0.9/2648 (65), FH	3.692 (830)	0.512 (115)	1.334 (300)/50	1, 2, 3	ST, SP, D, E	NP	NP	NP	NP	NP	NP	P, F	
<b>350EX (NW-PP)</b>	NP	NP	0.15 (100)	0.7/2037 (50), FH	4.67 (1050)	0.645 (145)	1.690 (380)/50	1, 2, 3	ST, SP, D, E	NP	NP	NP	NP	NP	NP	P, F	
<b>AOL (NW-PP)</b>	NP	NP	NP	NP	NP	NP	0.400 (90)/50	NP	NP	NP	NP	NP	NP	NP	NP	A/O	
<b>AOM (NW-PP)</b>	NP	NP	NP	NP	NP	NP	0.449 (101)/50	NP	A/O	NP	NP	NP	NP	NP	NP	A/O	
<b>GTF-180/ GTF190 (W-PP)</b>	NP	NP	0.60 (30)	0.05/448 (11), FH	1.112 (250)	0.178 (40)	0.56 x 0.45 (125 x 101)/15	NP	SF unsupported	NP	NP	NP	NP	NP	NP	S/F	
<b>GTF200 (W-PP)</b>	NP	1	0.425 (40)	0.08/244 (6), FH	3.114 (700)	0.334 (75)	0.890 (200)/15	3	ST, SP	NP	NP	NP	NP	NP	NP	SP	
<b>GTF250 (W-PP)</b>	NP	NP	0.425 (40)	0.05/163 (4), FH	4.003 (900)	0.400 (90)	1.112 (250)/15	2, 3	ST, SP	NP	NP	NP	NP	NP	NP	SP	
<b>GTF300 (W-PP)</b>	NP	1	0.425 (40)	0.05/163 (4), FH	4.45 (1000)	0.512 (115)	1.401 (315)/15	1, 2, 3	ST, SP	NP	NP	30.6 (175)	30.6 (175)	NP	NP	ST, SP	
<b>GTF350 (W-PP)</b>	NP	NP	0.425 (40)	0.150/448 (11), FH	4.45 (1000)	0.53 x 0.53 (120 x 120)	1.56 x 1.56 (350 x 350) 20/15	NP	NP	NP	NP	46 (265)	40 (226)	NP	NP	ST, SP, R	
<b>GTF500 (W-PP)</b>	NP	NP	0.180 (80)	0.136/407 (10), FH	6.23 (1400)	.89 x 0.89 (200 x 200)	2.67 x 2.67 (600 x 600) 20/15	NP	NP	NP	NP	70 (400)	70 (400)	NP	NP	ST, SP, R	
<b>GTF 400E (W-PP)</b>	NP	4 - 6	0.21 (70)	0.28/733 (18), FH	4.23 (950)	0.45 x 0.27 (100 x 60)	1.65 x 1.11 (370 x 250)/15	2, 3	D, E	NP	NP	39 (225)	25 (145)	NP	NP	F	
<b>GTF 400EO (W-PP)</b>	NP	10	0.425 (40)	2.1/5908 (145), FH	3.004 (675)	0.51 x 0.33 (115 x 75)	1.64 x 0.98 (370 x 220)/10	3	D	NP	NP	35 (200)	25 (145)	NP	NP	E, F	
<b>GTF 404 (W-PP)</b>	NP	1	0.425 (40)	0.90/2852 (70), FH	5.12 (1150)	0.67 x 0.73 (150x165)	1.78 x 1.40 (400 x 315)/15	1, 2, 3	D, E	NP	NP	44 (250)	40 (230)	NP	NP	F	
<b>GTF 320 (W-PP)</b>	NP	NP	0.425 (40)	0.70/2037 (50)FH	NP	0.73 x 0.64 (166 x 145)	1.77 x 1.55 (400 x 350)/20	2, 3	SP	NP	NP	39 (225)	39 (220)	NP	NP	R, ST	
<b>GTF 570 (W-PP)</b>	NP	NP	0.600 (30)	0.40/1222 (30), FH	8.90 (2000)	0.80 x 0.80 (180 x 180)	2.11 x 1.95 (475 x 440) 12/6	1, 2, 3	SP	NP	NP	70 (400)	70 (400)	NP	NP	R, ST	
<b>600EX (NW-PP)</b>	6	NP	0.18 (80)	1.5/4482 (110), FH	1.935 (435)	0.289 (65)	0.712 (160)/50	2, 3	ST, SP, D, E	NP	NP	NP	NP	NP	NP	E, F, P	
<b>800EX (NW-PP)</b>	8	NP	0.15 (100)	1.4/4075 (100), FH	2.558 (575)	0.400 (90)	0.979 (220)/50	1, 2, 3	ST, SP, D, E	NP	NP	NP	NP	NP	NP	E, F, P	
<b>2400EX (NW-PP)</b>	24	NP	NP	NP	7.784 (1750)	0.890 (200)	2.224 (500)/50	1, 2, 3	P, E	NP	NP	NP	NP	NP	NP	P, F, P	
<b>3200EX (NW-PP)</b>	32	NP	NP	NP	10.453 (2350)	1.201 (270)	2.669 (600)/50	1, 2, 3	P, E	NP	NP	NP	NP	NP	NP	P, F, P	

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										MD	XD	MD	XD			

## US Fabrics | www.usfabrics.com

US 200	NA	NA	0.43 (40)	0.05	3.115 (700)	0.334 (75)	0.890 (200) / 15	3	NP	NA	NA	NA	NA	NA	NA	NA
US 250	NA	NA	0.425 (40)	0.05	4.005 (900)	0.405 (90)	1.112 (250) / 15	2	ST, SP	NA	NA	NA	NA	NA	NA	NA
US 315	NA	NA	0.425 (40)	0.05	4.450 (1000)	0.533 (120)	1.402 (315) / 15	1	SP	NA	NA	NA	NA	NA	NA	NA
US 4800	410 (12.1)	NA	0.180 (80)	0.15	6.228 (1400)	0.890 x 0.890 (200 x 200)	2.669 x 2.669 (600 x 600) / 20 x 15	NA	SP	24.6 (140.3)	41.4 (236.2)	70 (400)	70 (400)	NA	NA	NA
US 670	190 (5.6)	4 - 6	0.212 (70)	0.28	4.228 (950)	0.445 x 0.267 (100 x 60)	1.646 x 1.112 (370 x 250) / 15 x 15	2, 3	DE	NA	NA	NA	NA	NA	NA	NA
US 90NW	119 (3.5)	NA	0.300 (50)	2.0	1.179 (265)	0.178 (40)	0.401 (90) / 50	NA	NP	NA	NA	NA	NA	NA	NA	NA
US 120NW	142 (4.5)	NA	0.212 (70)	1.7	1.513 (340)	0.222 (50)	0.533 (120) / 50	3	S/F	NA	NA	NA	NA	NA	NA	NA
US 160NW	203 (6.0)	NA	0.212 (70)	1.5	1.824 (410)	0.267 (60)	0.711 (160) / 50	2	SP, D	NA	NA	NA	NA	NA	NA	NA
US 180NW	237 (7.0)	NA	0.212 (70)	1.4	2.114 (475)	0.333 (75)	0.800 (180) / 50	NA	SP, D	NA	NA	NA	NA	NA	NA	NA
US 205NW	271 (8.0)	NA	0.180 (80)	1.35	2.381 (535)	0.378 (85)	0.912 (205) / 50	1	SP, D, ST, E	NA	NA	NA	NA	NA	NA	NA

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WINFAB 270HP	NA	NA	0.60 (30)	0.70/2037 (50), CH	NA	NA	NA	2, 3	SP	17.7 (101)	19.8 (113)	38.5 (220)	35.9 (205)	NA	NA	E, D, F, R, ST
WINFAB 2x2HF	NA	NA	0.425 (40)	0.70/2037 (50), CH	6.23 (1400)	0.556 x 0.556 (125 x 125)	1.402 x 1.402 (315 x 315) / 15 x 15	1, 2, 3	D, E, SP, ST	11.4 (65)	20.5 (117)	35 (200)	35 (200)	NA	NA	F, R
WINFAB 370HP	NA	NA	0.60 (30)	0.52/1630 (40), CH	NA	NA	NA	1, 2, 3	SP	21.9 (125)	22.8 (130)	52.5 (300)	39.4 (225)	NA	NA	E, D, F, R, ST
WINFAB 3x3HF	NA	NA	0.60 (30)	0.52/1630 (40), CH	7.12 (1600)	0.801 x 0.623 (180 x 140)	2.003 x 1.558 (450 x 350) 15 x 6	1, 2, 3	SP	20.3 (116)	25.4 (145)	52.5 (300)	52.5 (300)	NA	NA	E, D, F, R, ST
WINFAB 570HP	NA	NA	0.60 (30)	0.4/1222 (30), CH	NA	NA	NA	1, 2, 3	SP	35 (200)	39.4 (225)	70 (400)	70 (400)	NA	NA	E, D, F, R, ST
WINFAB 4x4HF	NA	NA	0.60 (30)	0.4/1222 (30), CH	9.79 (2200)	0.89 x 0.89 (200 x 200)	2.114 x 1.958 (475 x 440) 15 x 15	1, 2, 3	SP	35 (200)	39.4 (225)	70 (400)	70 (400)	NA	NA	E, D, F, R, ST
WINFAB 4x4	NA	NA	0.60 (30)	0.15/407.4 (10), CH	9.79 (2200)	0.89 x 0.89 (200 x 200)	2.558 x 2.225 (570 x 500) 15 x 12	1, 2, 3	SP	21.2 (121)	38 (217)	70 (400)	70 (400)	NA	NA	E, D, F, R, ST
WINFAB 4x6	NA	NA	0.425 (40)	0.26/815 (20), CH	10.676 (2400)	0.801 x 1.224 (180 x 275)	2.67 x 3.115 (600 x 700) 15 x 15	1, 2, 3	D, E, SP, ST	17.5 (100)	38.5 (220)	70 (400)	105.1 (600)	NA	NA	F, R

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[6] For a minimum of 10,000 hours, extrapolated to a 75 year time period

$$[7] LTDS = \frac{T_{ult}}{RF_{cr} \times RF_{id} \times RF_d}$$

RF<sub>cr</sub> = Reduction factor for creep  
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Product Name (Structure [1]/ Polymer Type [2])	Mass Per Unit Area ASTM D 5261 g/m <sup>2</sup> (oz/yd <sup>2</sup> )	M288 Transportation-Related Applications								Reinforcement Applications						Other Manufacturer's Suggested Applications [8]
		Filtration/Hydraulic Properties				Physical Properties				Wide Width Tensile/Elongation ASTM D 4595 kN/m (lb/in)/%				Creep Limited Strength-MD ASTM D 5262 [6] kN/m (lb/ft)	LTDS GRI GT7-MD (in sand) [7] kN/m (lb/ft)	
		Percent Open Area CWO-22125 %	Apparent Opening Size ASTM D 4751 mm (U.S. sieve)	Permittivity ASTM D 4491 sec-1 Flow Rate (FH or CH) [3] l/min/m <sup>2</sup> (gal/min/ft <sup>2</sup> )	Puncture ASTM D 6241 kN (lb)	Trapezoid Tearing Strength ASTM D 4533 kN (lb)	Grab Tensile/Elongation ASTM D 4632 kN (lb)/%	M288 Survivability Class	M288 Applications [4]	Strength @ 5% Strain [5]		Ultimate Strength % (Tult) [5]				
										MD	XD	MD	XD			

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WINFAB 770HP	NA	NA	0.6 (30)	0.23/611 (15), CH	NA	NA	NA	1, 2, 3	SP	52.5 (300)	52.5 (300)	105.1 (600)	84 (480)	NA	NA	E, D, F, R, ST
WINFAB 2196	NA	6	0.425 (40)	1.5/4480 (110), CH	3.113 (700)	0.4 x 0.285 (90 x 65)	1.557 x 0.89 (350 x 200) 15 x 15	3	NA	NA	NA	NA	NA	NA	NA	D, E, F
WINFAB 2197	NA	10	0.425 (40)	2.1/5907 (145), CH	3.336 (750)	0.512 x 0.334 (115 x 75)	1.624 x 0.89 (365 x 200) 24 x 15	3	NA	NA	NA	35 (200)	24.52 (140)	NA	NA	D, E, F
WINFAB 2198	NA	6	0.425 (40)	0.5/2460 (60), CH	3.559 (800)	0.445 x 0.312 (100 x 70)	1.557 x 0.89 (350 x 200) 15 x 15	3	NA	NA	NA	NA	NA	NA	NA	D, E, F
WINFAB 2199	NA	4	0.212 (70)	0.28/733 (18), CH	4.228 (950)	0.445 x 0.267 (100 x 60)	1.647 x 1.113 (370 x 250) 15 x 15	2, 3	D, E, SP	NA	NA	39.4 (225)	25.39 (145)	NA	NA	F
WINFAB 2300	NA	8	0.60 (30)	1.5/4685 (115), CH	5.563 (1250)	0.645 x 0.556 (145 x 125)	1.78 x 1.491 (400 x 335) 20 x 15	1, 2, 3	SP	NA	NA	40.3 (230)	39.4 (225)	NA	NA	D, E, F
WINFAB 2403	NA	6	0.425 (40)	0.96/2852 (70), CH	5.963 (1340)	0.645 x 0.556 (145 x 125)	1.891 x 1.558 (425 x 350) 21 x 21	1, 2, 3	D, E, SP, ST	NA	NA	47.3 (270)	39.4 (225)	NA	NA	F
WINFAB 2404	NA	1	0.425 (40)	0.96/2852 (70), CH	5.118 (1150)	0.668 x 0.734 (150 x 165)	1.78 x 1.402 (400 x 315) 15 x 15	1, 2, 3	D, E, SP, ST	NA	NA	43.8 (250)	40.3 (230)	NA	NA	F
WINFAB 200W	NA	NA	0.425 (40)	0.05/204 (5), FH	3.114 (700)	0.33 x 0.33 (75 x 75)	0.89 x 0.89 (200 x 200) 15 x 15	3	SP	NA	NA	NA	NA	NA	NA	ST
WINFAB 250W	NA	NA	0.425 (40)	0.05/163 (4), FH	3.338 (750)	0.4 x 0.4 (90 x 90)	1.113 x 1.113 (250 x 250) 15 x 15	2, 3	SP	NA	NA	NA	NA	NA	NA	ST
WINFAB 315W	NA	NA	0.425 (40)	0.05/163 (4), FH	4.005 (900)	0.533 x 0.533 (120 x 120)	1.402 x 1.402 (315 x 315) 15 x 15	1, 2, 3	SP, ST	NA	NA	NA	NA	NA	NA	R
WINFAB 310N	NA	NA	0.3 (50)	2.2/6112 (150), CH	0.934 (210)	0.134 x 0.134 (30 x 30)	0.355 x 0.355 (80 x 80) 50 x 50	NA	NA	NA	NA	NA	NA	NA	NA	D, E, F

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# GEOTEXTILES

Product Name (Structure [1]/ Polymer Type [2])	Mass Per Unit Area ASTM D 5261 g/m <sup>2</sup> (oz/yd <sup>2</sup> )	M288 Transportation-Related Applications								Reinforcement Applications						
		Filtration/Hydraulic Properties				Physical Properties				Wide Width Tensile/Elongation ASTM D 4595 kN/m (lb/in)/%				Creep Limited Strength-MD ASTM D 5262 [6] kN/m (lb/ft)	LTDS GRI GT7-MD (in sand) [7] kN/m (lb/ft)	Other Manufacturer's Suggested Applications [8]
		Percent Open Area CWO-22125 %	Apparent Opening Size ASTM D 4751 mm (U.S. sieve)	Permittivity ASTM D 4491 sec-1 Flow Rate (FH or CH) [3] l/min/m <sup>2</sup> (gal/min/ft <sup>2</sup> )	Puncture ASTM D 6241 kN (lb)	Trapezoid Tearing Strength ASTM D 4533 kN (lb)	Grab Tensile/Elongation ASTM D 4632 kN (lb)/%	M288 Survivability Class	M288 Applications [4]	Strength @ 5% Strain [5]		Ultimate Strength % (Tult) [5]				
										MD	XD	MD	XD			

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<b>WINFAB 350N</b>	NA	NA	0.3 (50)	2.0/6112 (150), CH	1.157 (260)	0.178 x 0.178 (40 x 40)	0.401 x 0.401 (90 x 90) 50 x 50	NA	NA	NA	NA	NA	NA	NA	NA	NA	D, E, F
<b>WINFAB 400N</b>	NA	NA	0.212 (70)	2.0/5704 (140), CH	1.38 (310)	0.2 x 0.2 (45 x 45)	0.445 x 0.445 (100 x 100) 50 x 50	NA	NA	NA	NA	NA	NA	NA	NA	NA	D, E, F
<b>WINFAB 450N</b>	NA	NA	0.212 (70)	1.8/4889 (120), CH	1.49 (335)	0.222 x 0.222 (50 x 50)	0.534 x 0.534 (120 x 120) 50 x 50	3	D, SP, ST	NA	NA	NA	NA	NA	NA	NA	E, F
<b>WINFAB 600N</b>	NA	NA	0.212 (70)	1.5/4482 (110), CH	1.825 (410)	0.267 x 0.267 (60 x 60)	0.711 x 0.711 (160 x 160) 50 x 50	2, 3	D, SP, ST	NA	NA	NA	NA	NA	NA	NA	E, F
<b>WINFAB 700N</b>	NA	NA	0.212 (70)	1.5/4074 (100), CH	2.047 (460)	0.333 x 0.333 (75 x 75)	0.8 x 0.8 (180 x 180) 50 x 50	2, 3	D, SP, ST	NA	NA	NA	NA	NA	NA	NA	E, F
<b>WINFAB 800N</b>	NA	NA	0.18 (80)	1.4/3667 (90), CH	2.336 (525)	0.356 x 0.356 (80 x 80)	0.912 x 0.912 (205 x 205) 50 x 50	1, 2, 3	D, E, SP, ST	NA	NA	NA	NA	NA	NA	NA	F
<b>WINFAB 1000N</b>	NA	NA	0.15 (100)	1.2/3251 (80), CH	2.781 (625)	0.445 x 0.445 (100 x 100)	1.113 x 1.113 (250 x 250) 50 x 50	1, 2, 3	D, E, SP, ST	NA	NA	NA	NA	NA	NA	NA	F
<b>WINFAB 1000NE</b>	339 (10)	NA	0.15 (100)	0.94/3055 (75), CH	3.225 (725)	0.445 x 0.445 (100 x 100)	1.201 x 1.201 (270 x 270) 50 x 50	1, 2, 3	D, E, SP, ST	NA	NA	NA	NA	NA	NA	NA	F
<b>WINFAB 1200N</b>	NA	NA	0.15 (100)	1.0/3055 (75), CH	3.671 (825)	0.511 x 0.511 (115 x 115)	1.335 x 1.335 (300 x 300) 50 x 50	1, 2, 3	D, E, SP, ST	NA	NA	NA	NA	NA	NA	NA	F
<b>WINFAB 1600N</b>	NA	NA	0.15 (100)	0.70/2037 (50), CH	4.561 (1025)	0.644 x 0.644 (145 x 145)	1.69 x 1.69 (380 x 380) 50 x 50	1, 2, 3	D, E, SP, ST	NA	NA	NA	NA	NA	NA	NA	F

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