MaxCell®

Technical Manual

Design Parameters

4G Product Line

MaxCell® Design Parameters

4G Materials of Construction

4G Fabric	• Warp - Polyester Monofilament • Diameter = 0.23 +/- 0.02 mm • Denier = 520 +/- 25	• Filling - Nylon 6 Monofilament • Diameter = 0.19 +/- 0.02 mm • Denier = 350 +/- 25 (Nylon 6) • Filling - Polyester Multifilament • Denier = 680 +/- 50 (Polyester)
1250 Pull Tape	• High Tenacity Multifilament Polyester • Tenacity = 7.9 +/- 0.2 gm per denier	• Breaking Tensile > 565 Kg
Sewing Line	• High Tenacity Multifilament Polyester • Stitches = 2.0 +/- 0.2 stitches per cm	
Lubricate	• 100% Polydimethyl Siloxane • Temperature Range = -50 to 200 C • Add-On Weight = 3.0 +/- 1.0%	• Density = 8.4 +/- 0.1 lbs / gal • Viscosity = 350 +/- 25 cps
Detectable Wire - Copper	• AWG 18 Ga. Solid Core Copper • Vinyl Insulation 0.38 mm thick • Nylon Jacket Thickness approx. 0.10 mm	• TFN Insulation Type • 10.4 +/- 0.15 gm / meter
Temperature Range	-50 to 100 degrees C	
UV Performance	Do not store MaxCell unprotected in direct sunlight for more than 30 days	
Length Tolerance	-0.0, +0.5%	

Note: all specificvations are subject to change without prior notice

Previous Date: 12/15/10
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MaxCell® Design Parameters

4G Product Offering

Style	Available Options				
	Available Cells	Pull Tape *		Detectable, Yes / No	Product ID Thread Color ***
		Offering	Optional		
4G 4” - x	3	1250lb	NA	Y	Green
4G 3” - x	3, 4	1250lb	NA	Y	Black, Blue, Red
4G 2” - x	1, 2 or 3	1250lb	NA	Y	Yellow, Black, White
4G Micro - x	1, 2 or 3	1000lb	NA	Y	Black

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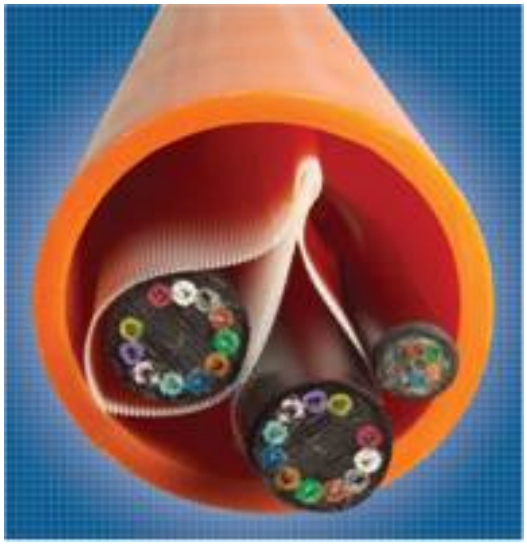
* Pull Tape is flat woven type and is Colored Coded for identification purposes,

*** Other Thread colors are available upon request



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MaxCell® Design Parameters

4G Configuration Dimension Sheet, mm

Style	Maximum Cable Diameter, mm	Dimensions, +/- 2 mm		Design Dimensions, +/- 2 mm			
		Cell Circum	Cell Diameter	Width, A	Seam B	Layer C	Pull Tape Width, D *
4” 3-Cell	38	163	52	86	4	8	10
3” x-Cell	28	121	38	64	4	8	10
2” x-Cell	22	88	28	52	4	8	10
Micro x-Cell	12	56	18	32	4	8	10

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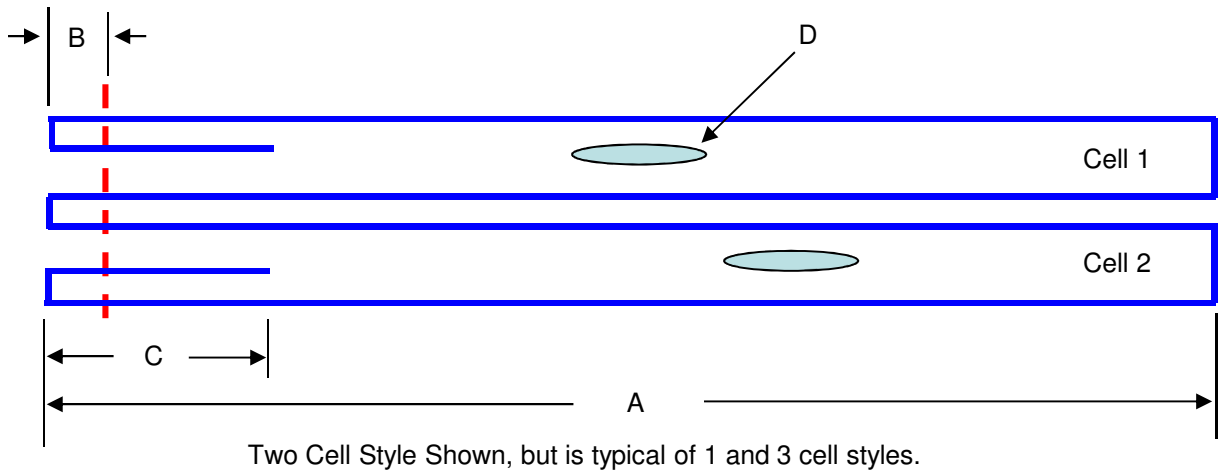
* Standard tape width



Two Cell Style Shown, but is typical of 1 and 3 cell styles.

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4G Estimated Breaking Tensile, kgs

Style	Minimum* Fabric Breaking Tensile , kg/cm	Style Width, +/-6mm	Breaking Tensile, kgs	Estimated % Elongation @ 50kgs
4” 3-Cell	>41.8	86	>2,200	<2.0%
3” 3-Cell	>41.8	64	>1,675	<2.0%
2” 3-Cell	>41.8	52	>1,375	<2.0%
2” 2-Cell	>41.8	52	>950	<2.0%
2” 1-Cell	>41.8	52	>500	<2.0%
Micro 3-Cell	>41.8	32	>850	<2.0%
Micro 2-Cell	>41.8	32	>600	<2.0%
Micro 1-Cell	>41.8	32	>325	<2.0%

* Fabric 2” strip tensile, per ASTM D 2256 as referenced by Bellcore 356 5.3.3

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4G Physical Properties

Physical Properties	Standard Values	Test Method
Dynamic Coefficient of Friction		
• HDPE vs. MaxCell, w/o Lube	< 0.12	ASTM D4518
• MDPE vs. MaxCell w/o Lube	< 0.16	Bellcore 356 4.1.5
• PVC vs. MaxCell w/o Lube	< 0.26	
• Nylon vs. MaxCell w/o Lube	< 0.09	
Bending Test	PASS	Bellcore 356 4.2.5
Environmental Stress Cracking	PASS	ASTM D1693
Hydrocarbon Resistance	< 7.5% Tensile Loss	Bellcore 356 4.3.2
Print Durability	PASS	Bellcore 356 5.3.5
Melting Point	> 215 Degrees C	ASTM D3418
Fungi Resistance	PASS	ASTM G21
Halogen Content	Halogen Free	MIL PRF 85045 F
Smoke Toxicity Index	PASS	NES 713
Optical Smoke Density	PASS	ASTM E662
Oxygen Index	22 to 24	ASTM D2863
Flammability, in Electrical Metallic Tubing	PASS	UL 797
Fabric Thickness	0.495 +/- 0.004 mm	ASTM D1777
Coefficient of Thermal Expansion		ASTM 4723
• MaxCell, mm / 100 M / 5 degrees C	8.4	
• HDPE Inner duct, mm / 100 M / 5 degrees C	60.9	

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MaxCell® Design Parameters

4G Chemical Resistance

Reagent Tested	Percent Tensile Loss		Test Method
	4G MaxCell	Standard 1250 Pull Tape	
Acetic Acid	< 0.5%	< 0.5%	ASTM D543
Hydrogen Peroxide, 3%	< 12.5%	< 12.5%	
Heavy Duty Detergent	< 0.5%	< 0.5%	
Kerosene	< 0.5%	< 0.5%	
Gasoline	< 10.0%	< 2.0%	
Diesel	< 5.0%	< 2.0%	
Hydraulic Fluid	< 0.5%	< 0.5%	
Synthetic Lubrication Oil	< 3.0%	< 2.0%	
Transmission Fluid	< 0.5%	< 3.0%	
Water, heat aging	< 10.0%	< 10.0%	
UV Exposure	< 25.0%	< 25.0%	
Ozone	< 15.0%	< 15.0%	

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Chemical Resistance Summary Chart

Table of Chemical Resistance to Common Reagents

Reagent	Conc., %	Exposure Temp, degrees C	Exposure Time, days	% Retained Tensile Strength
Acetic Acid	glacial	23	31	100
Ammonium Hydroxide	2	23	31	100
	10	22	30	95
Antifreeze	50	23	21	90 - 95
Bleach	5	23	28	107
Brake Fluid		49	30	97
		66	28	80 - 90
Detergents	0.25	23	31	100
	0.25	75	1	100
Diesel Fluids		22	30	100
Ethylene Glycol		23	21	95 - 99
Freon F113		23	21	91 - 99
Gasoline		23	365	90 - 95
Gear Lube		23	21	90 - 96
Lithium Grease		23	21	95 - 100
Hydraulic Fluids		23	28	115
Hydraulic Oils		23	21	94 - 100
Hydrochloric Acid	10	23	21	96 - 98
Hydrofluoric Acid	48	23	31	80
Hydrogen Peroxide	28	23	31	100
Motor Oils		23	28	113
Nitric Acid	10	23	31	100
	40	23	31	75
Power Steering Fluid		23	21	97 - 100
Sodium Chloride	10	22	30	98
Sodium Hydroxide	2	23	31	100
	2	75	1	90
	10	23	21	0 -47
Steam		100	7	82
		100	14	55
Sulfuric Acid	3	23	31	100
	10	23	21	91 - 96
Water		23	365	92
		71	21	90 - 95

Source: Plastic Design Library, PO Box 443, Morris NY 13808, 607-263-2316

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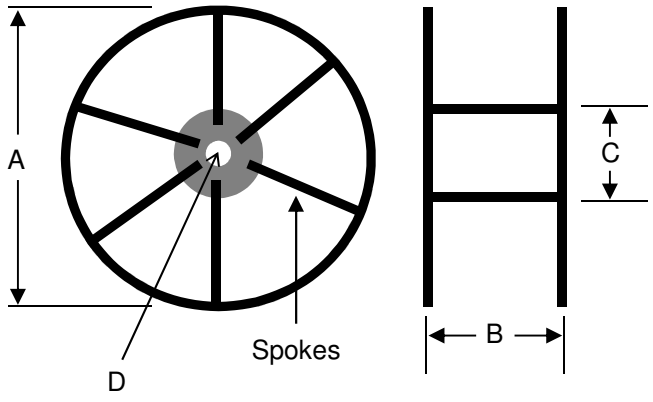
MaxCell® Design Parameters

Reel Dimension Chart

Reel Name	Material of Construction		Number of Spokes	Dimensions, cm				Empty Reel Wt, kg
	Flange	Core		Height A	Width B	Core C	Arbor D	
315	20 mm Plywood	Fiberboard	na	84	37	20	7.6	11
322	20 mm Plywood	Fiberboard	na	84	55	20	7.6	12
415	20 mm Plywood	PVC	na	122	37	22	7.6	25
422	20 mm Plywood	PVC	na	122	55	22	7.6	27
615	14 ga 25 mm Steel Square Tubing with 4 mm Plastic sides	14 ga Steel	6	183	37	38	7.6	39
622	14 ga 25 mm Steel Square Tubing with 4 mm Plastic sides	14 ga Steel	6	183	55	38	7.6	40
630	14 ga 25 mm Steel Square Tubing with 4 mm Plastic sides	14 ga Steel	6	183	76	38	7.6	48
645	14 ga 25 mm Steel Square Tubing with 4 mm Plastic sides	14 ga Steel	8	183	112	38	7.6	51

All dimensions are approximate, are intended to be used as reference purposes and are subject to change.



Prior to shipping all reels:

- Are wrapped with a UV protective film and
- Installation Instructions are attached

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