



**Convolute Rolled Tube Products - Property Comparison**

			BT12HPN	BT12NPN	BT13HPN	BT13NPG	BT13NPN	BT13SPN	
			Cotton (Canvas)						
			Phenolic						
<b>PHYSICAL PROPERTIES</b>									
Specific Gravity (0.750" ID x 1.000" OD)	-		1.30	1.30	1.30	1.28	1.30	1.30	
Rockwell Hardness (0.750" ID x 1.000" OD)	M Scale		90	100	100	90	90	95	
Moisture Absorption (0.750" ID x 1.000" OD)	Condition D <sub>1</sub> -24/23	%	1.70	1.80	1.80	2.10	2.00	1.40	
Tensile Strength (0.750" ID x 1.000" OD)	Condition A	Axial	psi	7,600	7,500	7,900	7,900	7,700	7,300
Compressive Strength (0.750" ID x 1.000" OD)	Condition A	Axial	psi	27,500	26,000	28,000	24,000	25,500	28,500
Compressive Modulus	Condition A	Lengthwise / Crosswise	psi	250	320	380	415	350	440
<b>THERMAL PROPERTIES</b>									
T <sub>g</sub> by DMA		°C	--	--	--	--	--	--	
Temperature Index <sup>1</sup>	Electrical / Mechanical	°C	130 / 130	130 / 130	140 / 140	-- / 140	140 / 140	140 / 140	
Flammability Rating U.L. 94	Condition A	Class	HB	HB	HB	HB	HB	HB	
<b>ELECTRICAL PROPERTIES</b>									
Dissipation Factor (0.750" ID x 1.000" OD)	Condition A	-	--	--	--	--	--	--	
	Condition D-24/23/50	-	--	--	--	--	--	--	
	Condition D-48/50	-	--	--	--	--	--	--	
Permittivity (0.750" ID x 1.000" OD)	Condition A	-	--	--	--	--	--	--	
	Condition D-24/23/50	-	--	--	--	--	--	--	
	Condition D-48/50	-	--	--	--	--	--	--	
Breakdown Voltage (0.750" ID x 1.000" OD)	Condition A		--	--	--	--	--	--	
	Condition D-48/50	kV	--	--	--	--	--	--	
	Condition D-336/50		--	--	--	--	--	--	
Electric Strength (0.750" ID x 1.000" OD)	Condition A	V/mil	225	190	150	--	135	150	
	Condition D-48/50		--	--	--	--	--	--	

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**Convolute Rolled Tube Products - Property Comparison**

			BT22NPN	BT22ZPN	BT25HEE	BT25HPN	BT25NEE	BT25NPG	BT25NPN	
			Cotton (Fine Weave Linen)							
			Phenolic	Epoxy	Phenolic	Epoxy	Phenolic-Graphite	Phenolic		
<b>PHYSICAL PROPERTIES</b>										
Specific Gravity (0.750" ID x 1.000" OD)	-		1.29	1.34	1.32	1.31	1.33	1.30	1.32	
Rockwell Hardness (0.750" ID x 1.000" OD)	M Scale		100	105	105	105	110	90	105	
Moisture Absorption (0.750" ID x 1.000" OD)	Condition D <sub>1-24/23</sub>	%	1.20	1.40	0.70	1.10	1.50 0.90	1.50	0.70	
Tensile Strength (0.750" ID x 1.000" OD)	Condition A	Axial	psi	10,000	11,000	12,000	9,800	12,500	10,500	12,000
Compressive Strength (0.750" ID x 1.000" OD)	Condition A	Axial	psi	30,000	33,000	30,000	31,000	30,000	23,500	30,000
Compressive Modulus	Condition A	Lengthwise / Crosswise	psi	425	400	400	400	470	--	400
<b>THERMAL PROPERTIES</b>										
T <sub>g</sub> by DMA		°C	--	--	≥ 150	--	--	--	--	
Temperature Index <sup>1</sup>	Electrical / Mechanical	°C	125 / 125	125 / 125	140 / 140	135 / 135	140 / 140	- / 125	140 / 140	
Flammability Rating U.L. 94	Condition A	Class	HB	HB	HB	HB	HB	HB	HB	
<b>ELECTRICAL PROPERTIES</b>										
Dissipation Factor (0.750" ID x 1.000" OD)	Condition A	-	--	--	--	--	--	--	--	
	Condition D-24/23/50	-	--	--	--	--	--	--	--	
	Condition D-48/50	-	--	--	--	--	--	--	--	
Permittivity (0.750" ID x 1.000" OD)	Condition A	-	--	--	--	--	--	--	--	
	Condition D-24/23/50	-	--	--	--	--	--	--	--	
	Condition D-48/50	-	--	--	--	--	--	--	--	
Breakdown Voltage (0.750" ID x 1.000" OD)	Condition A		--	--	75	--	--	--	75	
	Condition D-48/50	kV	--	--	30	--	--	--	30	
	Condition D-336/50		--	--	--	--	--	--	--	
Electric Strength (0.750" ID x 1.000" OD)	Condition A	V/mil	190	200	300	275	350	--	300	
	Condition D-48/50		--	--	280	--	--	--	280	

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**Convolute Rolled Tube Products - Property Comparison**

			BT25SPN
			Cotton (Fine Weave)
			Phenolic
<b>PHYSICAL PROPERTIES</b>			
Specific Gravity (0.750" ID x 1.000" OD)	-		1.29
Rockwell Hardness (0.750" ID x 1.000" OD)	M Scale		100
Moisture Absorption (0.750" ID x 1.000" OD) Condition D <sub>1-24/23</sub>	%		1.10
Tensile Strength (0.750" ID x 1.000" OD) Condition A Axial	psi		9,300
Compressive Strength (0.750" ID x 1.000" OD) Condition A Axial	psi		28,500
Compressive Modulus Condition A Lengthwise / Crosswise	psi		440
<b>THERMAL PROPERTIES</b>			
T <sub>g</sub> by DMA	°C		--
Temperature Index <sup>1</sup> Electrical / Mechanical	°C		135 / 135
Flammability Rating U.L. 94 Condition A	Class		HB
<b>ELECTRICAL PROPERTIES</b>			
Dissipation Factor (0.750" ID x 1.000" OD) Condition A	-		--
	Condition D-24/23/50	-	--
	Condition D-48/50	-	--
Permittivity (0.750" ID x 1.000" OD) Condition A	-		--
	Condition D-24/23/50	-	--
	Condition D-48/50	-	--
Breakdown Voltage (0.750" ID x 1.000" OD) Condition A			--
	Condition D-48/50	kV	--
	Condition D-336/50		--
Electric Strength (0.750" ID x 1.000" OD) Condition A	V/mil		275
	Condition D-48/50		--

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