

**Convolute Rolled Tube Products - Property Comparison**

			RT130	RT130M	RT130X	RT500	RT500F	RT500M	RT500X	RT504	
			Glass Fabric								
			Epoxy							Phenolic	
<b>PHYSICAL PROPERTIES</b>											
Specific Gravity (0.750" ID x 1.000" OD)	-		1.84	1.90	1.95	1.82	1.85	1.86	1.87	1.77	
Rockwell Hardness (0.750" ID x 1.000" OD)	M Scale		105	100	114	100	115	100	100	110	
Moisture Absorption (0.750" ID x 1.000" OD)	Condition D <sub>1</sub> -24/23	%	0.11	0.18	0.03	0.24	0.14	0.14	0.11	0.31	
Tensile Strength (0.750" ID x 1.000" OD)	Condition A	Axial	psi	41,800	--	54,200	--	38,900	37,000	--	32,100
Compressive Strength (0.750" ID x 1.000" OD)	Condition A	Axial	psi	29,700	27,400	34,200	38,500	30,600	34,000	34,700	30,000
<b>THERMAL PROPERTIES</b>											
Temperature Index <sup>1</sup>	Electrical / Mechanical	°C	140 / 140	140 / 140	140 / 140	200 / 200	200 / 200	200 / 200	200 / 200	180 / 160	
Flammability Rating U.L. 94	Condition A	Class	V-0	V-0	V-0	HB	HB	HB	HB	HB	
<b>ELECTRICAL PROPERTIES</b>											
Dissipation Factor (0.750" ID x 1.000" OD)	Condition A	-	--	--	--	0.030	0.030	0.028	--	--	
	Condition D-24/23/50	-	--	--	--	0.040	0.040	0.038	--	--	
	Condition D-48/50	-	--	--	--	--	--	0.045	--	--	
Permittivity (0.750" ID x 1.000" OD)	Condition A	-	--	--	--	4.41	4.41	4.36	--	--	
	Condition D-24/23/50	-	--	--	--	4.48	4.48	4.45	--	--	
	Condition D-48/50	-	--	--	--	--	--	4.66	--	--	
Breakdown Voltage (0.750" ID x 1.000" OD)	Condition A		--	--	--	--	60	55	46	--	
	Condition D-48/50	kV	--	--	--	--	--	50	40	--	
	Condition D-336/50		--	--	--	--	--	--	--	--	
Electric Strength (0.750" ID x 1.000" OD)	Condition A	V/mil	390	385	430	400	435	390	460	300	
	Condition D-48/50		470	420	550	--	430	--	370	250	

NOTE a: A double dash (--) indicates that the value has not been determined or is not applicable to the product.

NOTE b: All testing per ASTM D348 unless otherwise noted.

**Convolute Rolled Tube Products - Property Comparison**

			RT504F	RT505	RT505F	RT507	RT507F	RT507L	RT509	RT509F
			Glass Fabric							
			Phenolic	Melamine		Silicone			Melamine	
<b>PHYSICAL PROPERTIES</b>										
Specific Gravity (0.750" ID x 1.000" OD)		-	1.75	1.88	1.86	1.95	1.78	1.72	1.97	1.86
Rockwell Hardness (0.750" ID x 1.000" OD)		M Scale	110	90	90	85	80	80	90	90
Moisture Absorption (0.750" ID x 1.000" OD)	Condition D <sub>1</sub> -24/23	%	0.35	1.21	0.75	0.31	0.16	0.16	0.75	0.70
Tensile Strength (0.750" ID x 1.000" OD)	Condition A	Axial	psi	41,500	--	--	34,700	--	--	--
Compressive Strength (0.750" ID x 1.000" OD)	Condition A	Axial	psi	32,300	23,200	26,300	9,300	9,800	9,800	26,300
Compressive Modulus (0.750" ID x 1.000" OD)	Condition A	Axial	psi	--	--	--	--	--	--	--
<b>THERMAL PROPERTIES</b>										
Temperature Index <sup>1</sup>	Electrical / Mechanical	°C	180 / 160	140 / 140	140 / 140	170 / 220	170 / 220	170 / 220	150 / 150	150 / 150
Flammability Rating U.L. 94	Condition A	Class	HB	V-0	V-0	V-0	V-0	V-0	V-0	V-0
<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		--	--	55	--	--	--	--	55
	Condition D-48/50	kV	--	--	45	--	--	--	--	45
	Condition D-336/50		--	--	32	--	--	--	--	32
Electric Strength (0.750" ID x 1.000" OD)	Condition A	V/mil	390	290	295	195	265	265	195	295
	Condition D-48/50		--	275	255	120	--	--	195	255

NOTE a: A double dash (--) indicates that the value has not been determined or is not applicable to the product.

NOTE b: All testing per ASTM D348 unless otherwise noted.

**Convolute Rolled Tube Products - Property Comparison**

			RT511	RT511F	RT511M	RT520M	RT520X	RT521M	RT571		
			Glass Fabric								
			Epoxy								
<b>PHYSICAL PROPERTIES</b>											
Specific Gravity (0.750" ID x 1.000" OD)		-	1.82	1.85	1.86	1.72	1.72	1.77	1.92	--	
Rockwell Hardness (0.750" ID x 1.000" OD)		M Scale	100	115	100	107	100	107	120	--	
Moisture Absorption (0.750" ID x 1.000" OD)	Condition D <sub>1</sub> -24/23	%	0.24	0.14	0.14	0.06	0.13	0.12	0.07	--	
Tensile Strength (0.750" ID x 1.000" OD)	Condition A	Axial	psi	--	38,900	37,000	40,900	47,300	43,900	49,500	--
Compressive Strength (0.750" ID x 1.000" OD)	Condition A	Axial	psi	38,500	30,600	34,000	27,500	28,300	30,200	50,600	--
Compressive Modulus (0.750" ID x 1.000" OD)	Condition A	Axial	psi	--	--	--	--	--	--	--	
<b>THERMAL PROPERTIES</b>											
Temperature Index <sup>1</sup>	Electrical / Mechanical	°C	200 / 200	200 / 200	200 / 200	180 / 180	180 / 180	130 / 140	170 / 180	--	
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	-	0.030	0.030	0.028	--	--	--	--	--	
	Condition D-24/23/50	-	0.040	0.040	0.038	--	--	--	--	--	
	Condition D-48/50	-	--	--	0.045	--	--	--	--	--	
Permittivity (0.750" ID x 1.000" OD)	Condition A	-	4.41	4.41	4.36	--	--	--	--	--	
	Condition D-24/23/50	-	4.48	4.48	4.45	--	--	--	--	--	
	Condition D-48/50	-	--	--	4.66	--	--	--	--	--	
Breakdown Voltage (0.750" ID x 1.000" OD)	Condition A		--	60	55	70	80	70	96	--	
	Condition D-48/50	kV	--	--	50	--	--	--	--	--	
	Condition D-336/50		--	--	--	--	--	--	--	--	
Electric Strength (0.750" ID x 1.000" OD)	Condition A	V/mil	400	435	390	430	495	415	485	--	
	Condition D-48/50		--	430	--	--	--	--	500	--	

NOTE a: A double dash (--) indicates that the value has not been determined or is not applicable to the product.

NOTE b: All testing per ASTM D348 unless otherwise noted.

**Convolute Rolled Tube Products - Property Comparison**

			RT310	RT315	RT342	RTB320	RTB320D	RTB320X	RTB320Z	RTB324	
			Cotton (Canvas)			Cotton (Fine Weave Linen)					
			Phenolic			Phenolic				Phenolic - PTFE	
<b>PHYSICAL PROPERTIES</b>											
Specific Gravity (0.750" ID x 1.000" OD)		-	1.28	1.25	1.31	1.32	1.29	1.32	1.35	1.27	
Rockwell Hardness (0.750" ID x 1.000" OD)		M Scale	90	85	80	85	80	109	109	90	
Moisture Absorption (0.750" ID x 1.000" OD)	Condition D <sub>1-24/23</sub>	%	2.20	2.35	2.33	1.12	1.52	1.57	1.85	1.70	
Tensile Strength (0.750" ID x 1.000" OD)	Condition A	Axial	psi	6,200	7,400	8,700	9,800	10,200	7,500	16,000	8,600
Compressive Strength (0.750" ID x 1.000" OD)	Condition A	Axial	psi	23,400	19,700	24,000	27,800	21,700	33,700	33,700	22,900
Compressive Modulus (0.750" ID x 1.000" OD)	Condition A	Axial	psi	2,000	--	--	--	--	--	--	
<b>THERMAL PROPERTIES</b>											
Temperature Index <sup>1</sup>	Electrical / Mechanical	°C	140 / 140	-- / 140	130 / 130	150 / 140	125 / 125	125 / 125	125 / 125	-- / 140	
Flammability Rating U.L. 94	Condition A	Class	HB	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		--	--	--	--	--	--	--	--	
	Condition D-48/50	kV	--	--	--	--	--	77	--	--	
	Condition D-336/50		--	--	--	--	--	--	--	--	
Electric Strength (0.750" ID x 1.000" OD)	Condition A	V/mil	120	--	125	185	265	216	240	175	
	Condition D-48/50		--	--	--	--	--	--	--	--	

NOTE a: A double dash (--) indicates that the value has not been determined or is not applicable to the product.

NOTE b: All testing per ASTM D348 unless otherwise noted.

**Convolute Rolled Tube Products - Property Comparison**

			RT325	RTB326	RTB329	RT610	RT628	RT629	RT630
			Cotton (Fine Weave Linen)			Paper			
			Phenolic - Graphite	Epoxy	Melamine	Phenolic			
<b>PHYSICAL PROPERTIES</b>									
Specific Gravity (0.750" ID x 1.000" OD)		-	1.29	1.35	1.31	1.31	1.25	1.28	1.28
Rockwell Hardness (0.750" ID x 1.000" OD)		M Scale	90	100	90	90	85	95	95
Moisture Absorption (0.750" ID x 1.000" OD)	Condition D <sub>1</sub> -24/23	%	1.37	1.05	3.78	1.34	1.37	1.00	1.00
Tensile Strength (0.750" ID x 1.000" OD)	Condition A	Axial	psi	--	10,700	--	--	11,300	11,300
Compressive Strength (0.750" ID x 1.000" OD)	Condition A	Axial	psi	23,200	29,300	23,900	23,400	22,100	21,800
Compressive Modulus (0.750" ID x 1.000" OD)	Condition A	Axial	psi	--	--	--	--	--	--
<b>THERMAL PROPERTIES</b>									
Temperature Index <sup>1</sup>	Electrical / Mechanical	°C	-- / 125	140 / 140	140 / 130	140 / 140	130 / 130	140 / 130	140 / 130
Flammability Rating U.L. 94	Condition A	Class	HB	HB	V-0	HB	HB	HB	HB
<b>ELECTRICAL PROPERTIES</b>									
Dissipation Factor (0.750" ID x 1.000" OD)	Condition A	-	--	--	--	--	--	--	0.013
	Condition D-24/23/50	-	--	--	--	--	--	--	--
	Condition D-48/50	-	--	--	--	--	--	--	--
Permittivity (0.750" ID x 1.000" OD)	Condition A	-	--	--	--	--	--	--	4.28
	Condition D-24/23/50	-	--	--	--	--	--	--	--
	Condition D-48/50	-	--	--	--	--	--	--	--
Breakdown Voltage (0.750" ID x 1.000" OD)	Condition A		--	49	--	--	--	--	60
	Condition D-48/50	kV	--	21	--	--	--	--	19
	Condition D-336/50		--	--	--	--	--	--	--
Electric Strength (0.750" ID x 1.000" OD)	Condition A	V/mil	--	275	120	265	450	365	365
	Condition D-48/50		--	350	--	--	185	--	300

NOTE a: A double dash (--) indicates that the value has not been determined or is not applicable to the product.

NOTE b: All testing per ASTM D348 unless otherwise noted.