

Lamitex® FR4 Tube Technical Data

Lamitex FR-4 epoxy convolute wrapped tubes are reinforced with woven glass fabric. They are used for mechanical, electrical and electronic applications where extremely high mechanical strength at moderate temperatures is required. FR-4 meets NEMA FR4 self extinguishing requirements and has very good electrical properties in high humidity environments.

<u>Mechanical Properties</u>	Test Method:			Conditioning	
	EN 61212-2	Standard	Test Specimen	IEC 212	Values
Flexural Strength	4.1	ISO 178	id>100 mm	1	350 Mpa
Compressive Strength, Axial	4.2	ISO 604		1	230 MPa
Cohesion between layers	4.3	EN 61212-2	id<100 mm	1	400 MPa

Electrical Properties

Electric Strength in oil @ 90C:

Perpendicular to Laminations	5.1	IEC 243-1	3 mm wall thk	2	10.0 kV/mm
Parallel to Laminations	5.1	IEC 243-1	>3 mm wall thk id>8mm and or	2	50 kV/25 mm
Insulation resistance after immersion in water	5.2	IEC 167	od>10mm	4	10,000 M ohm
Permittivity:	50Hz	5.3	IEC 250	3	4.5
	1 MHz	5.3	IEC 250	3	4.5
Dissipation Factor:	50Hz	5.3	IEC 250	3	0.01
	1 MHz	5.3	IEC 250	3	0.01

Physical and Thermal Properties

Thermal endurance index @ 20,000 hrs	6.0	IEC 216	-	150°C T.I.
Density	7.2	IEC 1183-A	All	1.8 g/cm ³
Water Absorption	7.1	IEC 62-1	4	0.3 mg/cm ²

Conditioning: 1: 24h @ 23°C & 50%RH

2: 24h @ 23°C & 50%RH + 1hr in oil at 90°C

3: 96h @ 105°C + 1hr @ 23°C & 20%RH

4: 24h @ 50°C + 24hr in water at 23°C

5: 96h @ 105°C + 1hr in oil at 90°C

The standard length(s) for IDs 3 mm to 15 mm is 1220 mm and for IDs >15 mm to 1250 mm is 1220 mm and 1650 mm

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