



FRANKLIN

Composites for Today's Challenges

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Lamitex® XX Tube Technical Data

Lamitex® XX paper phenolic convolute wrapped tubes are a mechanical grade composite with good electrical properties in moderate humidity conditions. It is frequently used in transformer designs, as winding tubes in the metal foil industries and as carrier tubes for polishing brushes.

| <u>Mechanical Properties</u> | <u>Test Method:</u> | | | <u>Conditioning</u> | |
|---------------------------------------------------|---------------------|-----------------|-----------------------------|-----------------------|------------------------|
| | <u>EN 61212-2</u> | <u>Standard</u> | <u>Test Specimen</u> | <u>IEC 212</u> | <u>Values</u> |
| Flexural Strength | 4.1 | ISO 178 | id>3.937 inch | 1 | 18,854 psi |
| Compressive Strength, Axial | 4.2 | ISO 604 | | 1 | 20,300 psi |
| Cohesion between layers | 4.3 | EN 61212-2 | id<3.937 inch | 1 | 23,200 psi |
| <u>Electrical Properties</u> | | | | | |
| Electric Strength in oil @ 194°F: | | | | | |
| Perpendicular to Laminations | 5.1 | IEC 243-1 | .118" wall thk | 2 | 211 Vpm |
| Parallel to Laminations | 5.1 | IEC 243-1 | >.118" wall thk | 2 | 25.4 kV/inch |
| Insulation resistance after immersion in water | 5.2 | IEC 167 | id>.315" and or od>.394" | 4 | 10 M ohm |
| Permittivity 50 Hz | 5.3 | IEC 250 | | 3 | 5.0 |
| Dissipation Factor 50 Hz | 5.3 | IEC 250 | | 3 | 0.04 |
| <u>Physical and Thermal Properties</u> | | | | | |
| Thermal endurance index @ 20,000 hrs | 6.0 | IEC 216 | | - | 248°F T.I. |
| Density | 7.2 | IEC 1183-A | All | 1 | 1.15 g/cm ³ |
| Maximum Water Absorption | | ASTM D348 | .125" wall | D ₁ -24/23 | 2.0% |

Conditioning: 1: 24h @ 23°C(73°F) & 50%RH

2: 24h @ 23°C(73°F) & 50%RH + 1hr in oil @ 90°C(194°F)

3: 96h @ 105°C(221°F) + 1hr @ 23°C(73°F) & 20%RH

4: 24h @ 50°C(122°F) + 24hr in water @ 23°C(73°F)

The standard length(s) for inside diameters .118" - .331" is 59", .335" - .394" is 53.1", IDs >.394 to 3.937 is 53.1", 59" or 65" and >3.937 - 49.2" is 48", 53.1, or 65".

All values are average test results from typical production material and extensive testing.

No Warranty is implied or guaranteed and testing is recommended for each application.

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