

# Laminax Specifications

## Conductor Metals

Copper is available from 1 to 20 mils thickness (0.025 to 0.5 mm). Standard thicknesses are 1.0, 1.4, 2.0, 5.0 and 10.0 mils (0.025, 0.036, 0.051, 0.127 and 0.25mm). Other thicknesses may be supplied to order when certain minimums are met. Several sources are used. Alpha-Core can use other metals such as aluminum or ferro-magnetic materials as specified by customer.

**Copper Alloy 110 , Aluminum**

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**Thickness tolerance: plus and minus 0.0003" or 0.00762mm** (ASTM B248)

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**Slit width: plus and minus 0.005" or 0.13mm**

## Dielectric Insulation

**Polyester** is the most commonly specified insulation; it may be bonded to the base metal or used non-bonded for type J products. Standard thickness is 1.2 mil (0.030mm). Polyester may be doubled if required. Several sources are used.

**Trade Name: Mylar™, Melinex™, and others**

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**Thickness tolerance: plus and minus 5%**

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**Slit width: plus and minus 0.01" or 0.25mm**

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**Nominal Yield: 16,900 lbW #lb** (SPC)

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**Tensile Strength: 26,000 psi** (MD, ASTM D882A)

### Elongation at Break:

**110%** (MD, ASTM D882A); **80%** (TD); **1.39 g/cc** (SPC)

### Typical Thermal Shrinkage:

**5.5%** (MD, Unrestrained); **4.0%** (TD, 374°F, 5 mins)

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**Dielectric Strength: 6,500 V/mil** (ASTM D149-64)

### Dielectric Constant:

**3.10** (100°C 50Hz); **3.30** (150°C 50Hz); **2.96** (23°C 50Hz)

### Surface Resistance:

**10<sup>12</sup> ohm/sq.** (ASTM 257-61, 500 Vdc, 25°C 95%RH);

**10<sup>17</sup> ohm/sq.** (ASTM 257-61, 100 Vdc, 25°C 1000 sec) electrification

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**UL Listing: E51840 (M), and others**

Alternatively, **Polyimide and Aramid Paper** insulation may be bonded to the foil or used non-bonded in J style applications.

Polyimide (Kapton™) has a standard of 1 (0.025).

Aramid Paper (Nomex™) has a standard of 2 mils (0.051).

## Specific Widths and Manufacturing Tolerances

Widths of metal foil and insulating films are supplied as required. Special sizes on request. Lead wires attached as required.

**Maximum Conductor Width: 4.0 inches (102mm)**

### Standard Length:

**328 ft (100 meter) or 100ft (30.5meter) lengths with a 3" (76mm) diameter core.**

**Also available cut to length from 0.5 to 36". (12.6mm to 914mm)**

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**Centering of Foil on Backings (Type B): 0.020" or 0.5mm either way.**

### Width Tolerance of cuffed and sandwich products (types C and S):

**Width of metal foil + (2 x thickness of film). Minus 0 and plus 0.020" or 0.5mm.**

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