**DIELECTRIC EPOXY POWDER COATING**

An ideal solution for bus bar insulation.

For OEMs in need of insulated copper or aluminum conductors for light-fitting, durable bus systems, Storm Power Components provides the expertise, capabilities and equipment to manufacture high dielectric, epoxy powder-coated bus bar.

Epoxy Powder-Coated Insulation offers a high dielectric strength while creating durable insulation, impervious to most elements, and allows for closer busbar location in a system ideal for single conductors or multiple conductor assemblies that may have numerous forms. Epoxy powder coating is also well suited for insulating thick conductors, in addition to conductors with multiple electrical contact points.

About the material...

Epoxy powder coating is a free-flowing, thermosetting dry powder. Think of this process as a way of “melting” paint over a busbar’s surface to create a durable, protective surface with thicknesses ranging from 6 to 120 mils or .006 to .120 inches. When the epoxy powder cures, a cross-link occurs increasing molecular weight and insulation capability.

Epoxy powder is chemical resistant and one of the oldest powder paints used in the electronics industry. It not only protects against corrosion, it carries a high insulation rating of 800 volts per mil (.001 inches) at a minimum of 10 mil (.010 inches). Due to safety considerations, a recommended High-Pot test is performed rather than rely on film thickness.

Tensile strength on raw and plated copper bar is in the range of 7500 PSI. UL rating is 130°C. Epoxy powder coating’s high dielectric strength can be varied based on the application, thickness and component preparation.

**Electrostatic Spray or Fluidized Bed?**

The choice is determined by the dielectric strength of a copper or aluminum busbar. The rule of thumb is that a high-voltage bar should be fluid dipped to achieve a thickness greater than .12 inches. Size and shape also play a part. Bus bars or other components with flat, open geometry are more suitable for spraying, while components with turns and bends are better suited for fluidized bed powder coating.

**Electrostatic Spray**

Before spraying onto the part, Storm conducts a set procedure to determine the amount of powder to deposit, determined by voltage, airflow and powder flow. Next, this electrostatic system imparts a negative electric charge to the powder to deposit it onto the grounded component.

Bus bars are put into a curing oven that has the capacity to handle parts up to 12” in length. As the thermo set powder is heated, it begins to melt and flow out to form a higher molecular-weight polymer fused to itself and the substrate.

**Fluidized Bed**

Epoxy powder is suspended by air pumped into a sealed chamber and through a porous plate into an aerated hopper where the powder floats in a fluidized state.

Then heated copper connectors are lowered into the hopper, causing the powder to adhere to the surface and then flow out. This creates a smooth, durable and continuous epoxy coating that is thicker than the coating on sprayed copper components.

As with sprayed components, coated parts are sent to a curing oven.

**Storm offers fluidized bed and electrostatic spray in many colors.**

Four component preparation processes occur prior to applying the powder coating:

- Cleaning: We conduct a final cleaning process to remove all contaminants.
- Edge Conditioning: Edges are smoothed and burrs are removed for uniform coating.
- Masking: Hi-temp masking tape is applied to each part where coating isn’t needed.
- Pre-Heating: Parts are preheated to enable the epoxy powder to melt more evenly.

**LINK TO BUSBAR AMPACITY TABLES >**