



## THERMOSET MOLDING FOR ELECTRICAL AND LIGHTING APPLICATIONS

Woodland Plastics Corporation offers extensive thermoset molding expertise and services to various OEMs and suppliers in the Electrical and Lighting industries. With an excellent blend of electrical performance, durability, and cost effectiveness; components molded from thermoset materials such as Bulk Molding Compounds (BMCs), Phenolics, Epoxies, and DAPs are used in a wide variety of electrical and lighting applications.

### ELECTRICAL PERFORMANCE

Due to a range of rapidly changing environments, electrical and lighting applications must offer excellent electrical performance characteristics to resist physical and chemical degradation. Utilizing molded thermosets in the product design may provide the following electrical characteristics:



### DIELECTRIC STRENGTH

Electrical and lighting components must withstand a certain amount of electrical voltage before breaking down.

### ELECTRICAL INSULATION

Power transmission and low voltage insulators must resist the flow of electrical charges or currents to prevent physical and chemical deterioration of the parts.

### THERMAL SHOCK RESISTANCE

Electrical motor components require stability to withstand rapid changes in temperature.

### CONDUCTIVITY

Opposed to insulative applications, heat sinks may require either thermally or electrically conductive materials in which heat, or electricity, transfers through a material or component easily and/or freely.

### UL FLAMMABILITY RATING

Many components or assemblies must be UL approved for flammability, such as V-0, HB, or 5-VA safety standards.

### UV RESISTANCE TO LEDS AND/OR SUNLIGHT

In outdoor or LED lighting applications, components must remain dimensionally and chemically stable when exposed to UV from LED bulbs or sunlight.

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## THERMOSET MOLDING FOR ELECTRICAL AND LIGHTING APPLICATIONS

### DURABILITY

While electrical and lighting components must offer excellent electrical characteristics based on the application needs, products and assemblies must also continue to remain dimensionally and chemically stable throughout the life of the product. While some engineered thermoplastics may eventually degrade or deteriorate in harsh environments, thermoset components provide excellent durability, including:

### CORROSION RESISTANCE

While metals will eventually corrode with exposure to moisture, thermosets offer excellent corrosion resistance.

### LOW CTE

Circuit breakers and assemblies require a low coefficient of thermal expansion (CTE) to resist changes in shape, area, and volume when exposed to cycling or rapid temperatures.

### COST EFFECTIVENESS AND DESIGN

Aside from offering superior electrical performance and durability over other materials, molded thermoset components also provide cost and design advantages over metals or engineered thermoplastics, including:

### MOLDABILITY

Due to excellent mold-ability, thermoset molded parts and components may be molded from intricate or complex designs.

### PART CONSOLIDATION

Consolidate the total number of parts in an assembly with thermoset injection molding.

### HIGH YIELD

Components injection molded provide a much higher product yield and throughput than manufacturing metal counterparts, resulting in a faster lead time to market.

### ENCAPSULATION/SEALING

Electrical housings require superior sealing or encapsulation to prevent moisture absorption.

### HUMIDITY RESISTANCE

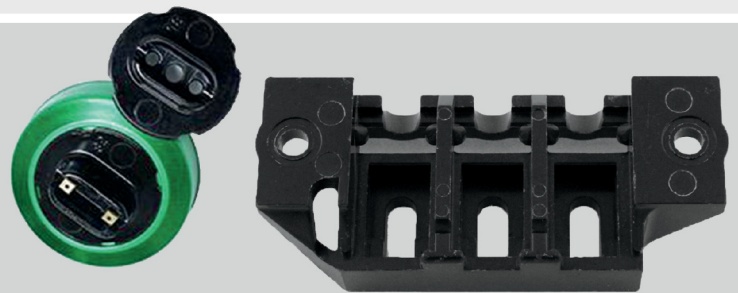
Outdoor lighting applications may be exposed to high humidity throughout the life of the product, which can deteriorate electrical insulation properties.

### HIGH STRENGTH

Electrical motor assemblies must include components that are strong enough to handle high mechanical loads.

### DIMENSIONAL STABILITY

Electrical terminal blocks must remain dimensionally stable within high temperatures and strong electrical currents.



### LOWER WEIGHT

Reduce the mass/part weight of a component assembly by switching from metal to thermoset.

### REDUCED SECONDARY MACHINING

Reduce or eliminate secondary machining operations by utilizing tight molded-in tolerances.

### LOW SHRINK/CREEP

Thermosets offer lower shrink and creep properties compared to engineered thermoplastics.