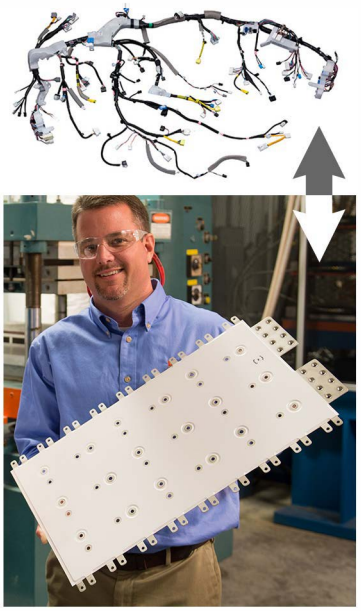
Call 800-394-4804 For Engineering and Design Support

STORM POWER COMPONENTS
BUSBAR INSULATION OPTIONS

Laminated Bus Bar

Laminated busbars reduce inductance by alternating the positive and negative busbar layers between multi-conducting layers of thin dielectric insulation. Multi conductor connectors of all makes and sizes, including IGBTs and capacitors, are connected to the structure. Inductance is reduced, electromagnetic interference is eliminated, and systems switch faster and cleaner, with less energy loss. The image to the right illustrates how Storm engineers transform a spaghetti harness into an integrated multi-layer bus system that you plug in and forget—along with complex wiring assembly, and costly installation errors.



Inductance, Capacitance, and Impedance in Laminated Bus Assemblies

Engineers are tasked to design a lamination that locates, shapes, and routes conducting points in ways to ensure that the multi-layered current can flow in opposite directions and in equal strength. The key aspect of this design is to generate opposing voltages proportional to the rate of current change in a circuit, which in turn enables the opposing magnetic fields to cancel each other's ticket. This eliminates a free ride for extra inductance.

Selecting the Best Geometries & Insulation Materials

With the guidance from our Insulation and Coating Center team, designers and engineers can be confident that they will make the right choice in insulating material and conductor (raw or plated) thickness. You'll be able to explore design considerations from material to edge seals.

Edge Fills Offered by Storm Power Components:

Open Edge

Lamination extends beyond conductor farther than pinched or expoxy-filled edges,
- less tooling lowers costs
- yet maintains minimal creepage
- with less robust edges

Laminated Sealed Edge

Lamination extends past conductor
- with 100% sealed edges
- good for harsh environments
- but laminations are limited by the thickness and number of conductors

Epoxy-Filled Edge

Lamination extends less than other options to reduce footprint
- edges 100% epoxy-sealed by hand
- good for harsh environments

LAMINATED BUS BAR - *Insulation Materials Table*

Selection of the proper internal dielectric insulations can depend on capacitance, inductance, voltage potentials and operating environment. The following table lists the most common insulating materials:*

Insulation Materials	Continuous Use Temp. C°	Dielectric Constant ASTM D150	Dielectric Strength ASTM D149	Flammability Rating
Epoxy Glass (FR4) Superior mechanical and dimensional stability properties	140	4.3	1250	UL 94 V-O
Mylar (PET) Cost effective, tear, chemical and moisture resistant	105	3.3	3500	UL 94 VTM-0
Tedlar (PVF) Chemical / solvent resistant; good mechanical properties	105	11.0	3500	UL 94 HB
Teonex (PEN) Higher dielectric strength and continuous use temperature	160	3.4	5000	UL 94 VTM-0
Nomex Flame resistant; durable	220	1.6	430-845	UL 94 V-0
Kapton High temperature rating and range stability	200	3.7	5000	UL 94 VTM-0
Epoxy Powder Coating Flame, moisture resistant; ideal for multiple shapes	130	4.0	800	UL 94 V-0

* *Note: Values may vary based on application*

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Heavy equipment

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Backplanes
Switches
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Battery back up

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LINK TO BUSBAR AMPACITY TABLES >

STORM POWER COMPONENTS

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