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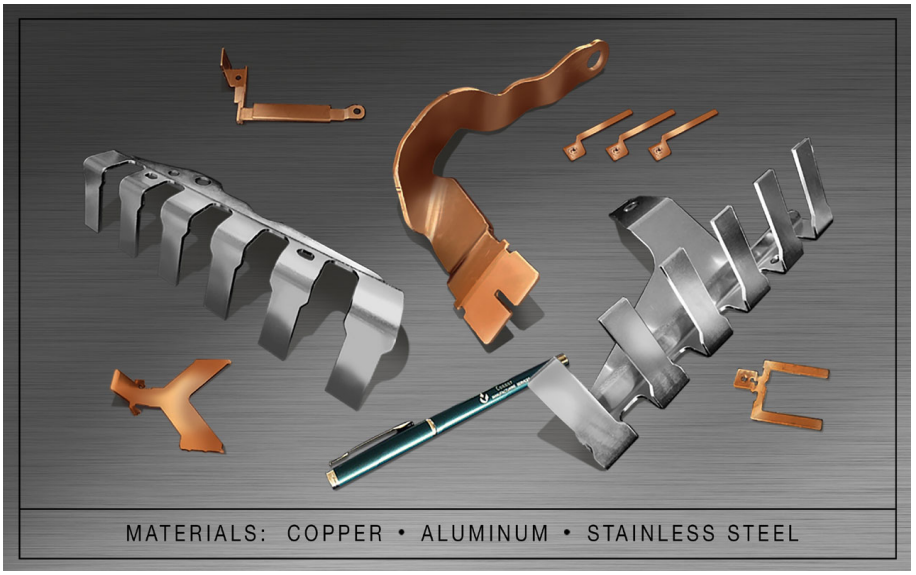
Bus Bars: The New Distribution of Power

A key strategy for the worldwide automotive industry is to design vehicles that incorporate leading-edge advances in electric power capabilities. Designs with enhanced electronics and sensing capabilities throughout the vehicle have been dictated not only by consumer preference and intense competition, but also by requirements for comfort, convenience, safety and environmental protection.

However, in recent years, these requirements for increased use of electric power have been accelerated by the intense development of hybrid-electric or electric vehicles. Just a few years ago, the typical car's electric power request might have been around 1kW; today, the automobile electrical system requires approximately 3kW. Contrast this with an average of 30kW for a hybrid-electric vehicle, and 50kW for an entire electric vehicle.

Given the electric vehicle's insatiable appetite for electric power, methods for assembling a car's electrical power architecture become critical—both for safety and performance. This is where Connor Manufacturing's system of Precision Bus Bar stamping enters the picture. Bus Bars are essential in the process of designing electrical systems that are safe, employ laser date coding for traceability, and are compliant with the toughest industry standards. Bus Bars help dissipate high voltage power off the battery and transmit to various power-demanding locations within the car. For example, Connor builds the tooling for a variety of battery Bus Bars such as single or multi-conductors—which are related to the car's battery system.



Connor's briefcase of precise solutions creates tooling to satisfy exacting Bus Bar designs for use in printed circuit boards for single or multiple conductor applications. An electric car's typical operating environment can range from as high as 185 degrees down to minus 40 degrees F. Bus Bars dissipate heat from the engine to prevent overheating of electrical circuits, reducing the possibility of fires. Connor tooling creates a flat sheer edge for optimal welding performance and close tolerance, ranging from .05 to .3 millimeters.

Connor Manufacturing, with its locations in China, Southeast Asia and the U.S., is a leading supplier of Bus Bars to the electric automobile market. Connor's worldwide locations enable their program management teams to work with designers at OEM, Tier one, and Tier two suppliers and deliver anywhere on the globe, interfacing directly on-site, in the local language with customers in the United States, Germany, China, and Mexico to provide expert, hands-on advice to manufacturing. End-users of Connor-made parts include Daimler, GM, VW, Tesla, Ford, Chrysler, BMW, and others. This customized support also helps Connor's automotive customers meet tight deadlines and reduce scrap.

Connor designs and builds tooling to produce customized Bus-Bar solutions. The Company works side by side with design engineers to select the proper material, dimensions, tolerances, and optimal performance with the best cost solution. Types include: PCS, Line energy, Copper, Aluminum, Flexible (Diffusion Bonded), Laminated, Surge protection and Electrical panel Bus Bars.

Precision Bus Bar Stamping meets exacting requirements of today's and tomorrow's electric vehicles providing:

- Tight tolerance specifications which enable Bus Bar performance and automatic assembly operations
- Complex Bus Bar bending and forming, essential for the ability to optimally size the numerous power cables required in today's high-performance engines
- Flexible, multi-layered Bus bar assemblies

Connor Manufacturing capabilities extend to other leading-edge, energy-efficient applications beyond electric vehicles to include precision stamping tooling for Bus Bar applications in batteries for harnessing solar power. In each application, Connors' expertise in design engineering, tooling and technical support makes them a supplier of choice.

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