



General Motors

Use Case – Comau Overhead Conveyor Hangers

Customer Profile

General Motors (GM) is a world leader in the development of transportation innovations that include electric cars and self-driving vehicle technology. Headquartered in Detroit, Michigan, GM serves six continents with 164,000 employees.

Challenge

The production of the Chevy Bolt electric car required a new overhead conveyor pallet design, made up of risers that support and position parts along the assembly line. The existing conveyor encountered infrequent but periodic downtime due to excess tooling weight on the automation equipment. Aluminum risers were considered because they offered a lighter alternative but that solution would also involve sending the conveyor pallets offsite for periodic maintenance and repair.

Solution

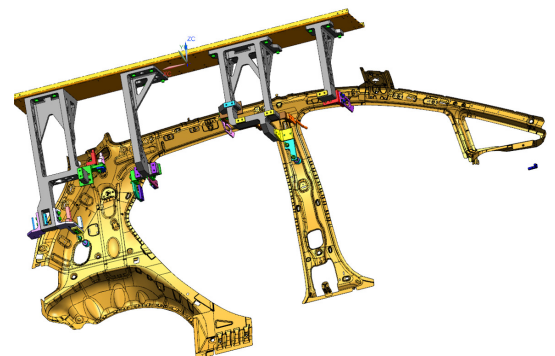
Instead of aluminum, GM 3D printed the risers out of FDM® Nylon 12CF (carbon fiber) material using an F900™ printer. This material offers excellent stiffness and strength while being lighter than aluminum. If spare parts are needed, they can be quickly produced on the 3D printer. This solution also avoided the special welding and maintenance requirements associated with making the risers out of aluminum.

Impact

The nylon 12 carbon fiber risers provided a 32% reduction in weight compared to aluminum and a 72% weight reduction compared to steel. Lead time to make the risers was also cut from an average of nine weeks for metal risers to two weeks for the 3D printed parts, a 75-80% time savings. Additionally, this solution cut cost by decreasing build and post-machining operations and reduced the frequency for periodic maintenance.



A view of the overhead conveyor system.



**Weight
Reduction**



32%

**Lead Time
Savings**



75-80%