

PARTS KITTING TRAYS OPTIMIZE ASSEMBLY PROCESS AT AMERICAN AXLE



Custom injection molded parts kitting trays provide optimum part presentation for operators, an ergonomic solution that assists the assembly process and benefits workers.

A series of custom-engineered parts kitting trays, designed and developed by Creative Techniques are now at work at American Axle & Manufacturing, Inc., Detroit, Michigan, aiding in ergonomics and helping to optimize cycle time. During the acquisition of new facilities, manufacturing and assembly operations were reviewed at American Axle in an effort to maximize efficiencies.

One area that was carefully re-engineered was the assembly process of a front differential assembly that is currently supplied to a domestic automotive manufacturer for use in a four-wheel drive vehicle. Inefficiencies were determined to be present in the existing bulk parts delivery system, and a decision was made that through the implementation of a parts kitting process, line efficiency could be improved.

Design for Ergonomics, Tracking and Efficiency

American Axle selected Creative Techniques as the design and engineering source to develop and manufacture these kit trays, in a concurrent engineering approach with other suppliers. With a team well-experienced in kitting applications, Creative Techniques started with the first assembly station and went through the entire line with American Axle, identifying parts that were prime candidates for the kitting process, as well as addressing ergonomic and part traceability issues.

The final product is a family of parts kitting trays that travel through the assembly process with the differential housing. Parts are presented to the operators at each

station in an optimum ergonomic orientation for each assembly process, to minimize part handling and maximize assembly efficiency. Parts are unloaded from the kit trays sequentially, beginning at the front and outside edges of the kit trays, and then working inward to reduce reach and streamline the operations.

In addition, the trays are molded in different colors so that the kits can be readily identified by eye, and they are also molded with integral card holders, designed to accept bar code cards that can be scanned and recorded for lot traceability.

Positive Results

The net results of the implementation of the kitting process are positive. Ergonomically oriented parts allow operators to spend their time concentrating on the actual assembly process, rather than unpacking, sorting and orienting parts supplied in bulk. Reduced part handling assists in improving cycle times, as well as improving product quality as fewer parts are dropped, contaminated, entangled, or damaged, as often occurs during the bulk packaging process. Color coding and bar coding the kits assists in inventory control and tracking, with actual inventory quantities more readily identifiable. Finally, assemblers are pleased at receiving well organized, better presented parts, and are proud to be a part of a winning team.