

## Case Study

### AZ AUTOMOTIVE CORPORATION REDUCES WORKSPACE

#### Problem defined.

In preparation for the TJD Chrysler Extended Jeep line, AZ Automotive Corporation needed to reduce space and the quantity of robots in an existing work cell, which welded inner metal parts, such as trim and framing, to a wheelhouse. Because of the layout of the components and position of the welds, a single, dedicated weld gun mounted directly to a robot could not be manipulated to reach all of the required weld locations. With few viable options, AZ Automotive sought to configure a work cell that would contain two robots, each with a dedicated weld gun that could reach all of the necessary weld points.

#### Solution in reach.

Applied Robotics' Sigma tool changer was able to provide the flexibility AZ Automotive needed to operate the work cell using just one robot, without adversely affecting cycle times. The Sigma tool changer, which features a strong coupling mechanism that does not require the tool weight be unloaded for reliable tooling uncoupling, offered greater versatility in the mounting orientation of the tool adapter unit on the end-effector—in this case the spot-weld gun. This configuration enabled manufacturer's system integrator to mount two Sigma tool adaptors to opposing sides of the weld gun, thereby allowing the robot to pick up the gun from whichever side was necessary to gain easy access to the weld points.



In addition, the components were presented to the robot on a two-station dial table. As a wheelhouse was being welded at the welding station, the operator (at the load/unload station) could unload the previously welded assembly and position the new assembly components for the next welding cycle. When that welding cycle was completed, the dial would then rotate to present the next set of components for welding. During the rotation, the robot would place the weld gun in its support fixture, uncouple from the gun, and move to the opposite side of the gun, to couple, and position itself to weld the next assembly.