Axium is a seasoned veteran in the field of assembly automation. We design, build, implement and support innovative high-speed automated assembly systems that deliver unmatched reliability and repeatability for the manufacturing industry. We have a vast experience in assembly automation having supplied non-robotic (“hard-automation”) systems and robotic systems ranging from two to fifteen robots and cycle times down to 48 seconds.

Whether we are designing a high-speed assembly system from the ground up, or creating cells and customized tools for existing applications, AXIUM has the mechanical and robotic design expertise needed to create solutions that deliver performance while reducing operational costs.

Many of Axium’s automation products are standardized so they can be easily integrated into various solutions. All our standardized products can also be combined in a variety of different configurations depending on each specific application.

Some popular AXIUM assembly automation projects include:

- Handling, assembly and finishing of molded and thermoformed components
- Pre-assembly of parts for injection molding machine
- Inspection, packing and packaging of finished goods
- Design and implementation of any other custom equipment

Axium’s plastic fuel tank robotic welding line performs all the operations required in the welding process using automatic or manual tank loading and unloading.

- Hot-plate welding
- IR welding
- Internal welding
- Spin welding
- Cutting
- Inspection
- Manual operations
- 3D vision CMM and inspection

Axium’s plastic fuel tank robotic welding line is based on a modular concept that is generally referred to as the skid concept. Each workstation is mounted on a metal skid specifically designed by Axium to support the loads and stresses associated with the robotic weld station. The skid contains the robots, the servo-driven indexing station (conveyor) and all the peripherals required to execute the tank processes.

<table>
<thead>
<tr>
<th>MAIN FEATURES</th>
<th>BENEFITS</th>
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<tbody>
<tr>
<td>Each cell is mechanically and electrically independent</td>
<td>Cells can be replaced or removed resulting in future cost savings</td>
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<tr>
<td>Skids are lined up one after the other and anchored down</td>
<td>Reduced installation and start-up time (about ¼ the time for a traditional assembly line)</td>
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<td>Simple electrical installation (plug cells and connect the skid to the electrical drop)</td>
<td>Clean and efficient design</td>
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<td>Cabling is hidden inside the skid’s frame</td>
<td>Greater versatility</td>
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<td>Skid features numerous locations where different style robots can be mounted</td>
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PLASTIC FUEL TANK WELDING
Axium’s Fuel Tank Robotic Welding Line features include a modular skid design, servo-indexing fixtures, 3D vision system with positional and angular compensation, tilt stations, part feeders, “double indexing” (feature to reduce the cycle time on long process welds) and tool changing (to weld numerous parts with one robot or for varying tank styles).

**SERVO CONVEYOR**
- Servo driven actuator for accurate and fast positioning
- Less than 4 seconds of transfer time
- Locks the fixture in place
- Modular to meet different length requirements
- Nearly maintenance free for 5+ years

**ELEVATOR**
- Programmable height position for manual loading
- Improves operator’s ergonomic position
- Electric motor for accurate and fast positioning
- Available with tank presence and temperature sensors

**FIxTURE**
- Reliable and secure tank clamping
- Toggle clamps use iso-locators or other features to secure tanks
- All fixtures CMM’d
- Power coupler used for transferring I/Os from fixture to conveyor
- Available with part nests on fixtures (saves on costly feeders)

**FEEDER**
- Numerous feeder designs available (vibratory or centrifugal bowl feeders; vibratory, conveyor or air jet track feeders)
- Part stackers for extra capacity
- 100% poka-yoke protection

**MULTI-CUTTER**
- Includes standard FSU, piercing and blow-needle hole cutting tools
- No need for tool changers

**FSU CUTTER**
- Adjustable diameters
- Harpoon shaped slug retainer for non-blow-needle hole cuts
- Inflating bladder slug retainer for blow-needle hole cuts

**MOTORIZED CUTTER**
- Located itself over the encapsulated ring
- Lock mechanism to avoid any motion while cutting
- Accommodates any size of FSU
- 100% secure slug removing
- Accomodates any size blow-needle hole

**SMART SPIN WELDER**
- Compact design for hard to reach areas
- Up to 8800 rpm, pressure control and depth feedback
- Can stop at a precise angle to accommodate clip orientation
- Innovative passive gripper changer
- Optional dust cleaning system

**MANUAL STATION**
- 100% secure manual station
- Adjustable platform for ergonomic height control
- Can be used for inspection, quality control or manual operations

**COMBITOOL**
- Patented hot plate or IR welding tool
- Allows robot to perform all welding operations (tank heat and match, part heat and fusion)
- Accurate control of all weld forces
- Measures heat and weld depth
- Powerful and precise collision detection capability
- Optional load cell for redundant force feedback
- Process genealogy recording

**TILT STATION**
- Eases access to the underside of the tank
- Rotates the fixture on the conveyor
- Standard AC motor control
- Allows robot compensation by measuring the exact tilt angle