Develop and Manufacture
Next Generation Components

Cutting Edge Technologies for Advanced Applications

**E-Mobility / Battery**
- Terminal welding
- Can sealing
- Battery pack welding
- Copper hairpin welding

**Part Identification**
- Laser marking metal and plastic components
- VIN
- Serial numbers
- Barcodes
- 2D codes

**Wiring and Connectors**
- Compacting
- Resistance welding
- Laser welding

**Mechanical Components**
- Resistance and laser welding of steering columns
- Resistance welding wire tangs

**Safety Critical Components**
- Sealing air bag canisters
- Squib wires

**Automotive Sensors**
- Reflow soldering of flexible circuits
- Heatstaking on PCBs
- Laser welding terminals

**Auto Body**
- Resistance welding hot stamped boron steel

**Electric Powertrain**
- Wire compacting
- Resistance welding
- Laser welding
- Wire assembly
Reliable Connections for Automotive Sensors & Safety Critical Parts

Modern automobiles are full of electronic components and sensors that keep track of everything happening in the vehicle enabling the onboard computers to make decisions about things like engine performance, emissions, safety, passenger comfort and more. In recent years, there has been exponential growth in the number of sensors related to driver and car safety—collectively ADAS (advanced driver assist systems) - and it is critical that the electrical connections that make them work be secure and repeatable.

Automotive Oxygen Sensors • Pressure & Temperature Sensors
Rearview Cameras • Squib Wire Welding • Air Bag Initiator Cans • Brake Sensors

AMADA WELD TECH provides technology solutions to the world’s leading automotive OEMs, Tier 1 and Tier 2 suppliers according to the customer’s unique application, manufacturing facility and budget including resistance welding, laser welding and hot bar reflow soldering configured for single operator, semi-automated or automated production.
Part Identification: 
Global Tracking & Tracing

Today’s automotive manufacturers know that part identification and traceability are critical for success. Components need to be marked with both human and machine readable characters which may be alphanumeric (serial numbers, etc.), datamatrix codes or both in order to facilitate quick identification. This is especially important for safety critical parts like airbag housings, ADAS, sensors and more. Lasers are uniquely suited for this application as they are a direct part marking method capable of delivering precise energy to parts with a minimal heat affected zone resulting in high throughput and eliminating rework and post-processing steps. Lasers are capable of marking both metal and plastic components.

High Contrast Marks • High Throughput • Traceability • Ensuring Quality

AMADA WELD TECH provides laser engines for automation, desktop and floor standing Class I systems with for low volume production and R&D manufacturing, and fully automated bespoke systems. Every laser is delivered with a process developed by our experienced applications engineers, informed by your requirements. Enhance your productivity with: barcode job loading, tie to ERP/MRP, industry 4.0 ready, vision and fixtureless marking.
Robust Connections for Electric Powertrain and Wiring Assemblies

Today’s electric vehicles need to be powerful, fast and efficient; they need to be able to go farther, faster on a single charge and the cables and connections that make up their central nervous systems must be fault free and robust enough to ensure performance throughout the serviceable life of the car. For flexibility and robustness, stranded wire is often used to create cable harnesses but has a tendency to fray and create short circuits. Wire compacting creates a solid surface to improve contact and reliability of these connections.

**BENEFITS INCLUDE:** Improved Electrical Connection
- Reduced Contact Resistance • Improved Connection Footprint • Reduced Weight
- Reduced Mechanical Stress Load • Increased Product Lifespan • Cost Reduction

AMADA WELD TECH offers a range of equipment and systems for wire compacting applications of various sizes up to 90 mm². The exact products selected will depend on many things including the materials you are working with, the size/gauge of the wire to be compacted, the degree of compaction required, and your anticipated duty cycle.
e-Mobility / Battery
The Road to Successful EV Manufacturing

As the number of electric vehicles and other transportation devices on the roads grows, so will the demand for high performance batteries to power them. The challenges encountered in bringing EVs to market include the demand for reduced weight, expanded range, faster charge times and lower costs. Translated into manufacturing goals, the batteries need to possess higher capacity with negligible energy loss delivering to the drivetrain, higher current carrying capacity for charging, and be made of light-weight, lower cost materials. Since the e-mobility market is so rapidly expanding, there are additional manufacturing challenges, including the demand for higher throughput and quality. Some of these goals can be achieved by improved cell chemistries and battery pack design, but others can be improved only by considering the joint quality between the batteries and the current collectors. That’s where AMADA WELD TECH comes in!

Battery Tabs • Tab to Terminal Welding • Battery Can Sealing • Electrode Cutting
Dissimilar Metal Joining • Battery Marking • Lead Acid Battery Welding

AMADA WELD TECH offers a range of welding technology solutions for battery manufacturing including resistance welding, laser welding and micro TIG welding. Related applications are addressed with laser marking and laser cutting. The right solution for your specific application will depend on factors like materials, part accessibility and desired throughput.
Ensuring Manufacturing Success with Process Monitoring

Product failure. Upset customers. Product on stop shipment. For the process manufacturing engineer, it’s a worst-case scenario. When this situation occurs, it requires swift attention and accurate resolution: do you know the fundamental underlying issue? Can you calmly and expertly identify the source of the problem and what to do to get back on track? This is where process monitoring comes in. By observing and measuring the process, it is possible to discern good from bad product and when bad occurs, specify defect signatures. In fact, process monitoring can help manufacturers avoid this situation altogether.

Monitor parameters like weld current, voltage drop across the electrodes, workpiece expansion and deformation, electrode force, electrode movement (displacement) and more.

The monitor data can also be used to develop better manual or automated workstations that can avoid weld inconsistencies. Plus, data collected with monitors can provide value after a product is sold in case of a recall or similar situation, as weld data can be correlated with serial numbers.

Improve Quality • Reduce Downtime • Reduce Scrap

**AMADA WELD TECH** offers real-time process monitors for **laser welding, resistance welding, micro TIG welding and hot bar reflow soldering**. These stand-alone monitors are invaluable tools for product development, improving quality and throughput in production and storing data for traceability.
Products for Manufacturing

Since 1948, AMADA WELD TECH, Inc. has worked to achieve one goal: to solve customer’s manufacturing challenges. Knowing there is no one solution that fits all, we strike to provide customers with innovative and reliable manufacturing technology solutions in an effort to be their single source provider.

**AMADA WELD TECH**’s broad range of core technologies - provided as benchtop single operator units, semi-automated workstations or fully automated systems - means that you will get exactly the right solution for your specific application depending on factors like materials, part accessibility and desired throughput.

**Core Technologies**

<table>
<thead>
<tr>
<th>Resistance Welding</th>
<th>Laser Marking</th>
<th>Gloveboxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laser Welding</td>
<td>Integrated Systems</td>
<td>Reflow Soldering</td>
</tr>
<tr>
<td>Laser Micro Machining</td>
<td>Micro TIG Welding</td>
<td>Laser Soldering</td>
</tr>
<tr>
<td>Weld Monitoring</td>
<td>Laser Cutting</td>
<td>Hermetic Sealing</td>
</tr>
</tbody>
</table>
Developing a unique solution geared for advanced manufacturing is complicated. Our approach? Define-Design-Deliver. This helps us design the ideal system to meet your manufacturing needs and budget while maximizing your equipment investment ROI and meeting your production goals.

**Our Philosophy: Define Design Deliver**

**Process Assessment**
- Determine part usage and success
- Optimize part designs
- Select material

**Sample Qualification**
- Process sample parts
- Determine optimal production settings

**Equipment Specification**
- Meets production, quality, and budget criteria
- Product flow
- Customer requirements

**Product Assembly**
- Engineer oversees project
- Work with customer & technicians
- On-time delivery

**Test and Verification**
- Rigorous testing
- System acceptance
- Customer directed

**Installation and Support**
- Install system
- Verify functionality
- Training
Value Added Services

Training

We offer application support and process development services at our Technical Center in Monrovia, California or on-site at your facility. These services can be tailored to meet your specific needs and may include hands-on equipment training.

Due to various application and process variables that are out of our control, these services are offered on a “best effort” basis. We do not guarantee that we will be able to achieve any specific results and cannot be held responsible for your production process.

Services are offered based on availability and must be scheduled a minimum of three weeks in advance.

Topics
- Technology Fundamentals
- Developing Process Success
- Equipment Troubleshooting

Location Options
- On-demand Webinars
- Live Webinars with Q&A
- Factory Hands-on
- On-site Training (specific to your equipment)

Around the Clock Service Support to Minimize Downtime

Inevitably something may go wrong. This can be caused by multitude of reasons, but ultimately the longer that the product is out of order, the more costs are incurred.

We are there when you need us.

24/7 Field Service
- +1-866-751-7378
- service@amadaweldtech.com
Our Commitment

Dedicated Development Resources

• **Core Technologies** - Laser Welding, Resistance Welding, Laser Marking, Laser Micro Machining, Laser Tube Cutting, Micro TIG Welding, Reflow Soldering, Hermetic Seam Sealing
• **2 Lab Locations** - Los Angeles, CA and Detroit, MI
• **Skilled Engineers** - 10 full-time application engineers and technicians
• **Facilities** - 10 state-of-the-art application labs for all core technologies
• **Range of Lasers** - CW and QCW fiber lasers, diode-pumped solid-state (DPSS), Nd:YAG lasers, picosecond lasers and femtosecond lasers
• **Range of Beam Delivery Options** - Fixed, 2D and 3D galvo-scanning, wobble head, trepanning head
• **Range of Resistance Welding Power Supplies** - Linear DC, High Frequency, Cap Discharge, and AC Resistance Spot Welding Controls (5 A – 100,000 A)
• **4 and 5 Axis Laser Welding Workstations**
• **Gloveboxes for Processing in an Inert Atmosphere**

Free Sample Evaluation

Not sure your application is feasible? Want to know which technology is best suited to your process? AMADA WELD TECH offers FREE sample evaluations. Contact us to get started today!