



As a world leader in joining and welding, MTI offers a wide range of friction welders, design resources, research and development capabilities, and contract services for industries regardless of volume needs. Our combined resources make us your complete joining and welding solution.

FULL RANGE PRODUCTION EXPERTISE

MTI can offer a full range of Contract Friction Welding services. We have over 30 years of experience welding a full range of part sizes. Our design engineers work with customers to develop welding processes to meet their most demanding requirements and needs. Parts thought to be unweldable are commonly welded at MTI. Several welding examples are:

- Tungsten to Copper
- Aluminum to Stainless Steel
- Carbon Steel to Monel

VALUE-ADDED SERVICES INCLUDE:

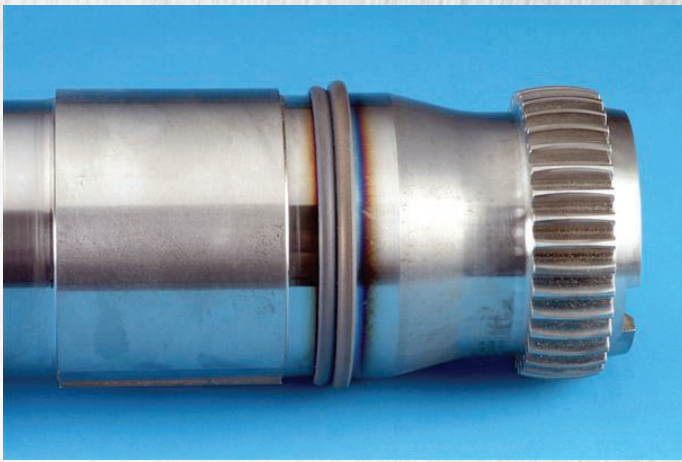
- Material Procurement – Bar-stock, castings, forgings, etc.
- Pre-weld Processing – Including cutting/machining stock to length, machining, and heat treat
- Post-weld Processing – Including weld flash removal, finish machining turning, milling and grinding, and heat treat

TOOLING

MTI has a large inventory of fixturing and part contract tooling, occupying over 10,000 square feet, for its lab and production machines. Whether your parts fit into existing tooling, or require custom tooling to be manufactured, we have the experience and resources needed to produce tooling specific to any application.

TOP TEN ADVANTAGES:

1. Dissimilar metals can be joined—even some considered incompatible or unweldable.
2. The process can be up to 100 times faster than other welding techniques.
3. Versatility allows for joining a wide range of part shapes, materials, and sizes.
4. Joint preparation isn't critical—machined, saw cut, and even sheared surfaces are weldable.
5. Resulting joints are of forged quality, with a 100% butt joint weld through the contact area.
6. Machine-controlled process eliminates human error—weld quality is independent of operator skill.
7. It's ecologically clean—no objectionable smoke, fumes, or gases are generated and exhausts are not required.
8. Consumables are not required—no flux, filler material, or shielding gases.
9. Up to 20% lower power consumption than that of conventional welding processes.
10. No melting means no solidification defects, like gas porosity, segregation or slag inclusion.



FEASIBILITY AND PROTOTYPE STUDIES

By taking advantage of MTI's design experience in the prototype stage, customers can save time and money, while also reducing the number of steps to reach their production goal.

METALLURGICAL EVALUATIONS AND TESTING

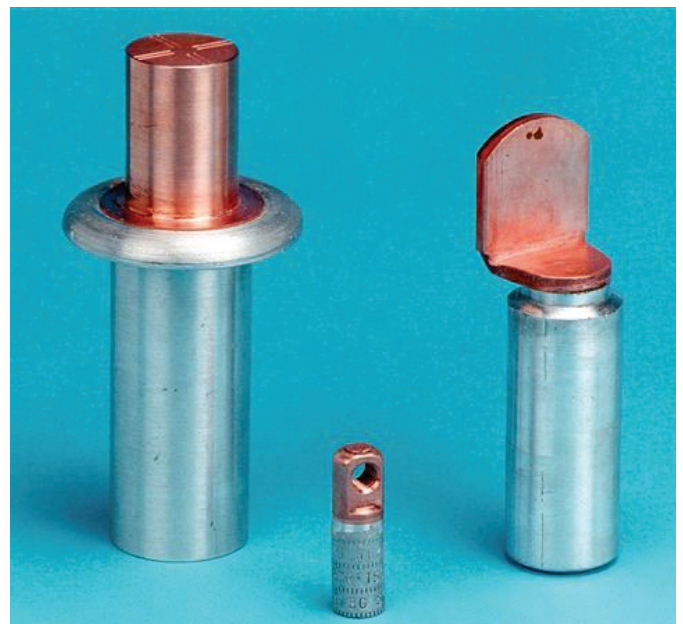
Should you ever require detailed metallurgical evaluations, MTI offers a full-range of testing and evaluations to confirm physical properties of the part and/or weld zone.

APPLICATION DEVELOPMENT: PROCESS OPTIMIZATION

- Our experts include a Chief Metallurgist with over 30 years of experience in the Friction Welding industry.
- MTI's experience allows for optimizing the process without extensive trial and error.
- By using MTI's contract services, customers can explore new applications and markets without a large investment in capital equipment.
- MTI can support the customer's need to supply product throughout the entire process – making the transition from prototype to full production a smooth process.

RESEARCH AND DEVELOPMENT

- Our development and feasibility experience allows customers to explore new designs and applications without workflow disruptions in their manufacturing facility.
- Our experience provides the background to recommend, design, and prototype unique and innovative solutions to the product development/improvement process.
- MTI's design team can also expose additional savings and technical value to new and existing designs.



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