

Welcome to TechNotes!

Welcome to the first issue of **TechNotes**, a technical newsletter from the Mursix Corporation. **TechNotes** will be published and e-mailed approximately 4-5 times per year. It will address specific technical issues, answer technical questions, and will contain interesting case histories from a variety of markets. It will also keep you informed about new equipment, processes, services and the ever-expanding capabilities of Twoson Tool, Twoson ESP, FX Springman, and Dakota Engineering.

In this introductory issue of **TechNotes**, we would like to familiarize you with some relatively recent additions to the long list of Twoson Tool capabilities – **robotic and projection welding**.

Robotic and Projection Welding at Twoson Tool

Welding has long been one of the many value-added operations in Twoson's impressive list of capabilities. In fact, over the past several years, we have used our controlled projection welding technology to produce more than 20,000 welded assemblies every day. Recently, we have added some sophisticated new equipment to our welding capabilities. The key addition is a Panasonic robotic MIG and TIG welding system, which is a completely automated, self-contained welding cell.

In keeping with the Twoson philosophy that technology is central to our manufacturing operations, this equipment features a 6-axis articulated robot manipulator operating on a servo-controlled, high-speed 60-inch turntable. Repeatability at the end of the 947 mm electrode reach is rated at ± 0.1 mm (or less). The robot controller is digitally interfaced to a high-performance 350 amp artificially intelligent inverter power supply and 32-bit RISC processors to maximize welding performance and productivity. This translates into cost and quality advantages for our customers.

Another important weapon in Twoson's welding arsenal is our projection welding station. This unit features a heavy-duty, water-cooled transformer with a stacked core and cast secondaries for high conductivity. Coupled with its roller bearing-guided low friction ram and super-low friction air cylinder, this gives the welding station quicker turnaround time for faster processing.

Projection Welding Basics

For those not familiar with projection welding (sometimes referred to as resistance projection welding or RPW for short), it is a process in which the welding heat is localized at a predetermined point established by the design of the part. Electrical current flow is concentrated in one or more projections in one of the parts, and heat is generated. The projection heats to a temperature at which it collapses due to the electrode force at some point during the weld process. Heat continues to be generated in both parts until sufficient nugget growth is realized and then the current is terminated. While projection welding is not ideal for every application, it is well suited to parts on which it is desirable that the part be produced with very little heat surface marking on one side of the panel.

Projection welding has several benefits that translate into **higher quality and lower cost** for the customer. These include:

- High equipment reliability, translating into reduced downtime and better delivery of welded parts
- High welding speed, yielding quicker turnaround
- Reduced dimensional variation, resulting in improved part quality
- Ability to weld a variety of materials (aluminum, copper alloys, steel, stainless steel, and steel alloys)
- Ability to weld many coated materials with minimal disruption of protective coatings

If you have an application that you think might benefit from Twoson's welding capability call **Alan Jones at 765-282-2221 (ext. 208)** or e-mail him at **ajones@twoson.com**.

Other Twoson Capabilities

Welding is just one of Twoson's long list of manufacturing and engineering capabilities, all of which are part of the package of services that help us deliver superior, cost-effective components to our customers. To learn about some of Twoson's other capabilities, click on the links below:

► **Prototyping**

► **Stamping Precious Metals**

► **Post Plating**

► **Multislide Stamping**

► **Precision Machining**

► **Multi-Part Assembly**

► **Tooling Capabilities**

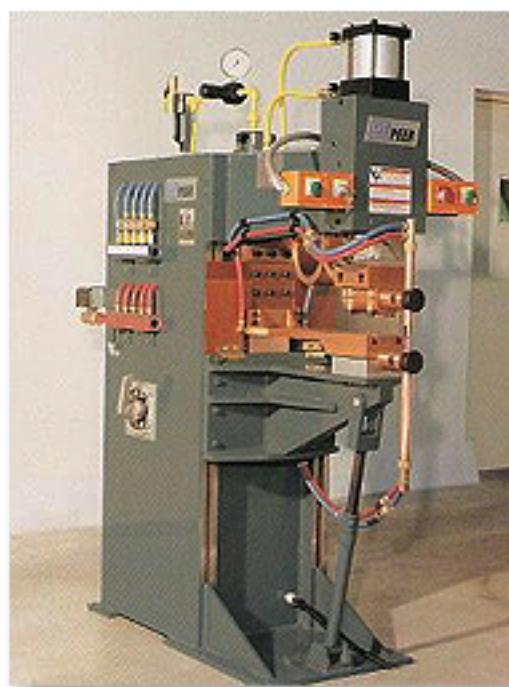
► **Contact Staking**

► **Punch Press Stamping**

Twoson Tool, Twoson ESP, FX Springman, and Dakota Engineering comprise the Mursix Corporation, an integrated, multi-disciplinary enterprise serving the appliance, automotive, medical, marine, and other industries. Our capabilities include tool design and construction, punch press and multislide stamping of precious metals, CNC and screw machining, in-machine processing, sophisticated multi-part assembly, and silver, tin, & zinc post plating.



Our 6-axis articulated robotic welder utilizes a servo-controlled, high-speed 60-inch turntable.



Our projection welding station is configured for faster part turnaround, resulting in lower costs for customers.