



Liburdi Automated Welding Systems

# Friction Stir Welder

With the ability to weld unweldable alloys like Aluminum with seamless and aesthetical finishing, in a fully automated process, the LAWS Friction Stir Welder can find applications in a wide variety of industries such as Shipbuilding, Aerospace, Railroad, Automotive, and more.



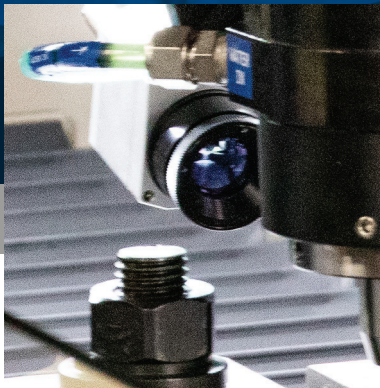
## First Purpose-Built FSW Designed in Canada

The first of its kind made on Canadian soil by a team of highly skilled engineers at Liburdi Automation Inc. We wanted to revolutionize the Friction Stir Welding process while keeping the development at home. Building it at home meant we were able to monitor the entire development process and ensure the quality was up to Liburdi standards.



**1500 RPM Spindle**

Able to go from 0-1500 RPM performing at 100Nm torque at 750 PRM. Integrated load cell with Bluetooth feedback, water cooler, and temperature feedback



**Thermal Camera**

Provides thermal reading to display hot zones of the spindle and plates that are being welded. Able to detect flaws within the components.



**Intuitive User Interface**

User-friendly touch screen providing real-time information. Allows operator to pre-program welds with precise measurements.

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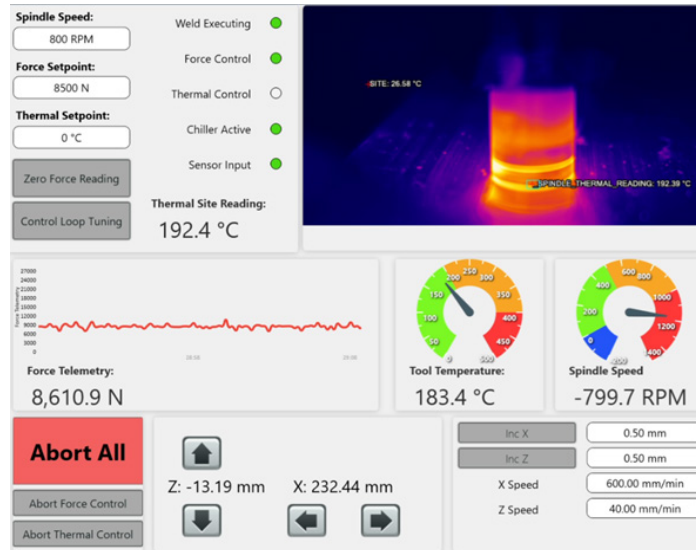


# Software

Fully integrated on LAWS 4.0 software technology platform

Real-time tooling force and temperature feedback via Bluetooth sensor with 8Hz update rate. Force reading range from 0 to 30000N and temperature range from 0 to 6700 °C

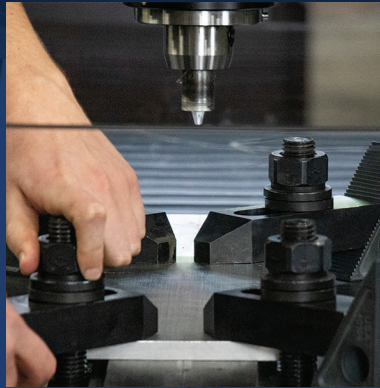
Fully Integrated Thermal Vision with Optris PI Camera with Range from 0c to 800c. Supported real-time thermal reading on customized site and cooling-rate calculation



Real-time interactive UI with modern graphical design to monitor and control critical friction stir welding process parameter

Built-in automatic force control (AFC) to maintain axial force loading on tools through adjusting plunge depth

Built-in closed-loop thermal control for welding process through adjusting the spindle rotation speed



- 40kN forge load, 10 kN radial load
- Capable of processing 3ft long aluminum & steel coupons (1/2" and 1/8" thickness respectively)
- Integrated force-sensing tool-holder for closed-loop welding via Bluetooth
- Thermal camera for closed-loop temperature feedback
- Watercooled tool-holder with integrated force & temperature telemetry
- Structurally optimized frame design ensures minimal tool deflection

