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## **How Welder Impedance affects Weld Performance**

**Low impedance welding is described**

**as it applies to electronic package sealing. Principles are**

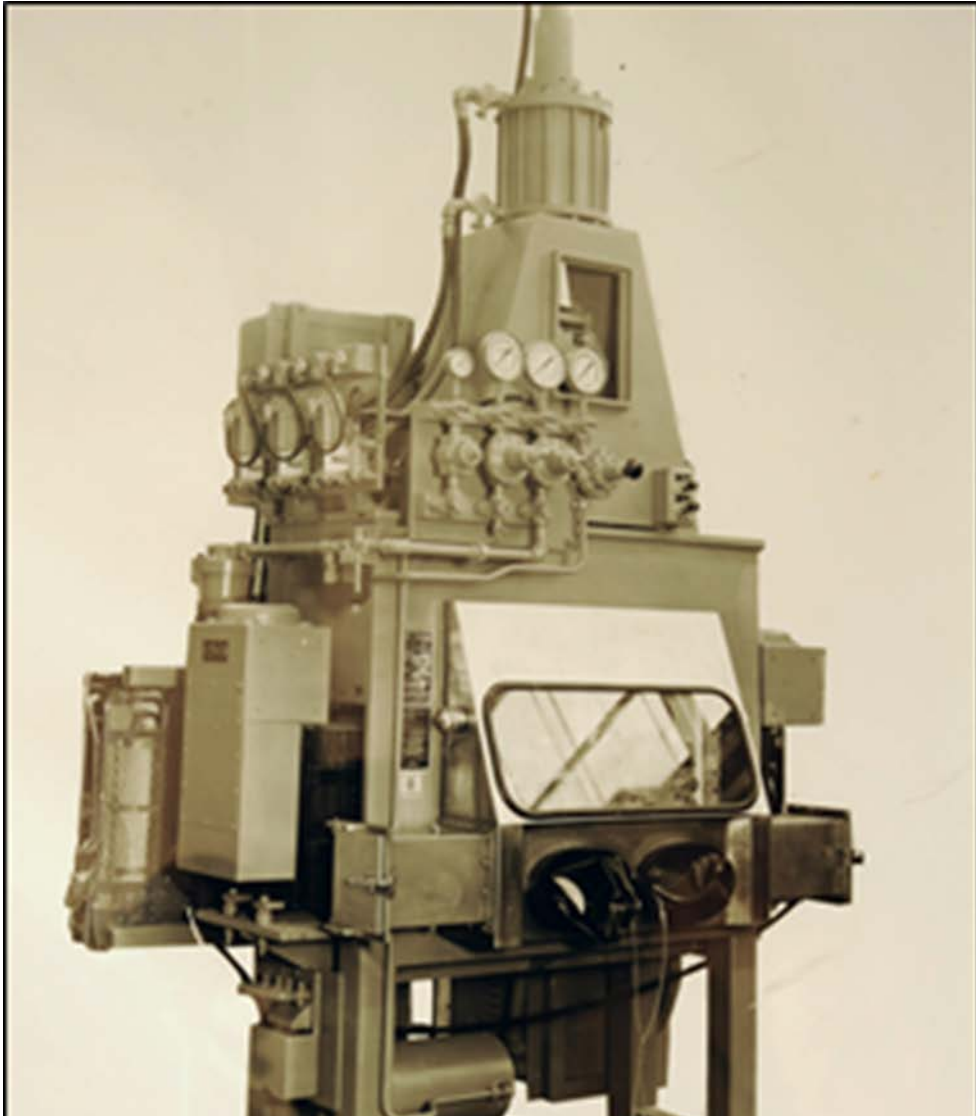
**applicable to any longer seal length resistance weld process (e.g.**

**elongated, multiple, and projection welds)**

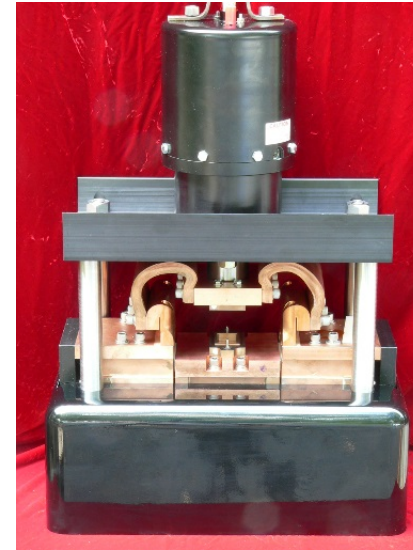
## Low Impedance Projection Welding

- Why would one make a single long weld when one could simply seam/stitch weld a number of overlapping welds, or use a laser?
- Reasons include start/stop anomalies, stress concentration, efficiency, and cost. But the most important reason is **TIME**
- Why would one want to take several seconds or more, to stitch weld an entire seam, if the whole operation could be performed in a few milliseconds?

## 1970's Low Impedance Version

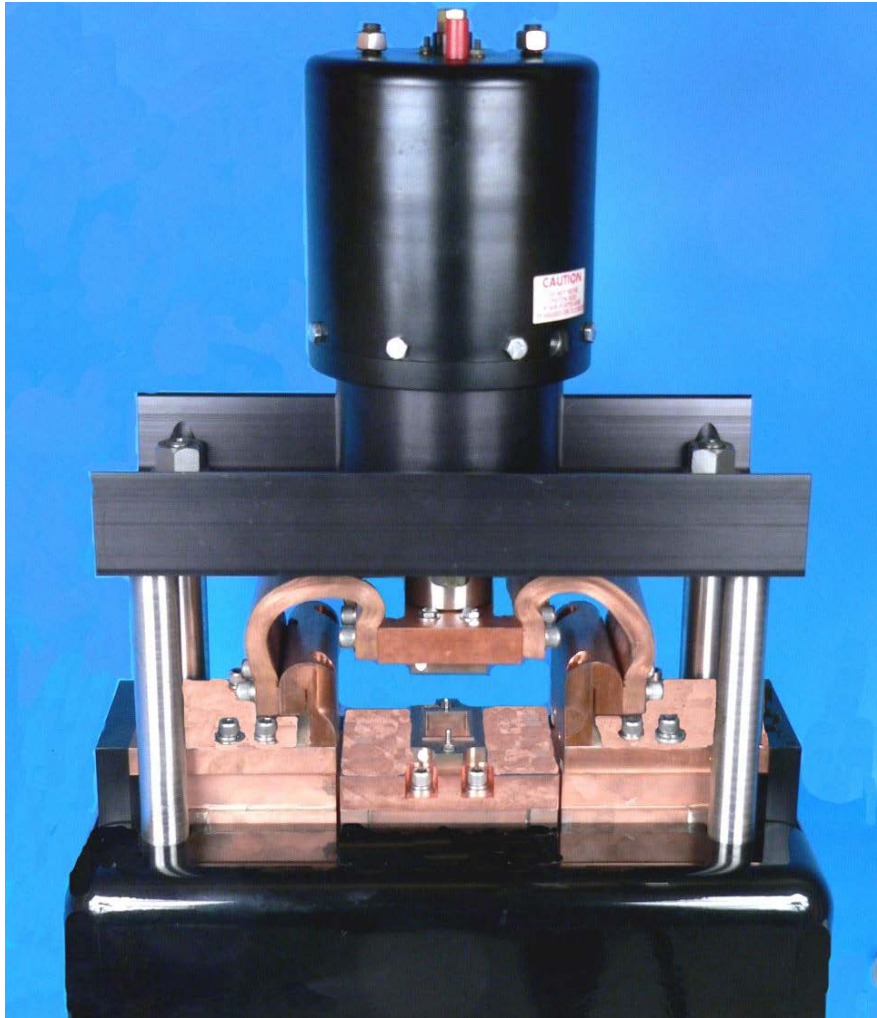


## 21<sup>st</sup> Century Low Impedance Welder

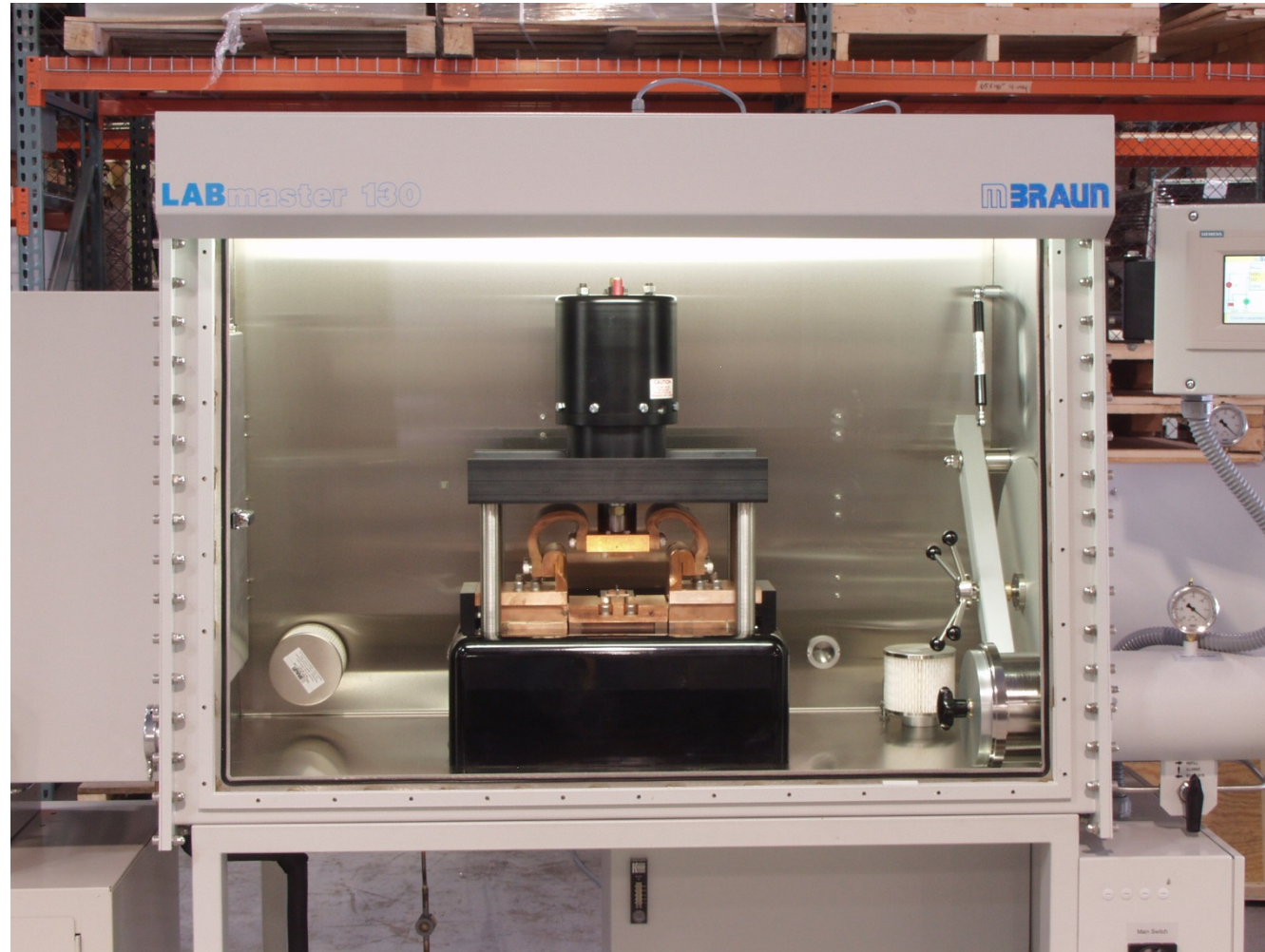


**Note that both machines have similar weld current and force specifications. The lower impedance of the smaller machine provides**

# Low Impedance Resistance Welder

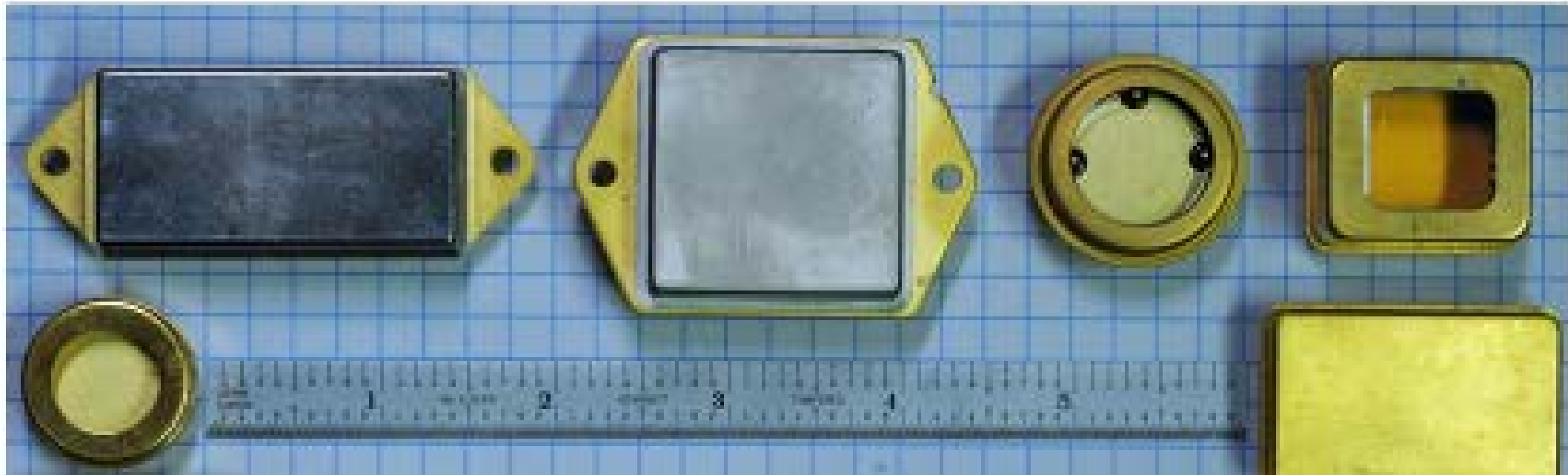


# Low Impedance Welder in Dry Box





# Additional Sizes & Formats



# Benefits of Low Impedance Welding

Benefits of Low Impedance welding include;

- 1) Impedance of conventional welders is typically  $\gg$  than the weld
- 2) Lower impedance means less energy is required to make the weld
- 3) This welder behaves more like a voltage source than a current source
- 4) Provides more efficient power transfer
- 5) And eliminates arcing and expulsion
- 6) Until now, dramatic impedance reduction was heavy, expensive, and exhibited diminishing returns



**QUESTIONS ???**