The resistance welder OEM developed multiple gun welders to overcome the problems of increased power demand when making many welds and high die maintenance associated with gang welding. These welders could be furnished with Direct Weld, Push-Pull Weld or the Series-Weld process and with a cascade firing sequence or gun sequence. Both cascade firing and gun sequencing allow rapid welding with a reduced power demand on the plant's electrical service. In the cascade configuration, [figure 6] groups of welding guns are connected to separate transformers.

**FIGURE 6 - MODEL 633**

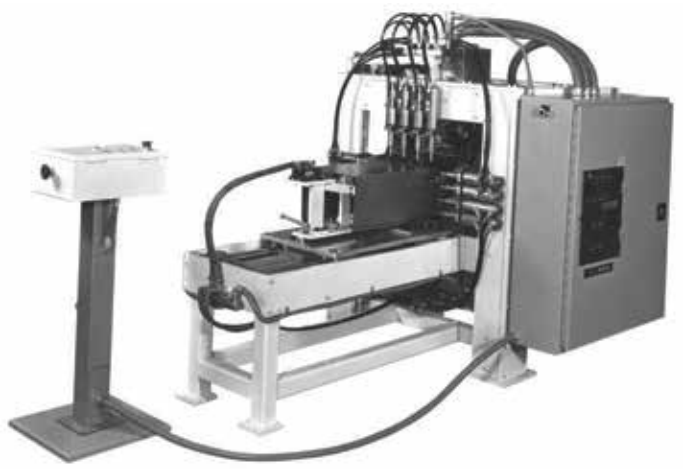

**FIGURE 5 - DRAWER WELDER**

Depending upon the number of weld heads and the workpiece to be welded, two or more welding transformers may be used, each connected to a group of guns. The welder controller initiates all weld heads to advance together against the workpiece. The controller then individually fires each transformer with its group of weld guns in rapid succession. By firing each transformer separately, total demand on the plant is kept to a minimum. Multi-gun sequencing as shown in [figure 7], differs in that, a single welding transformer can be used to fire different groups of weld guns. In this case the welder controller initiates only some of the weld heads which advance against the workpiece. The rest of the weld heads remain in the open or retract position, away from the workpiece. The controller then fires the transformer making welds. The first group of weld heads advance then retract and another group advances and the weld process is repeated. Again, power demand is minimized. Although not as rapid as a cascade operation, multi-gun sequencing is fast and has found wide applications in the wire industry. Integral weld fixturing can usually be provided to simplify any weld tooling requirement. If higher production is needed, hopper feed of cross wire and automatic index systems can be furnished. Similar techniques are used in the wire industry with the Wire Mesh Welders.

We have briefly outlined three industries that have achieved greater productivity and cut welding costs with multiple gun resistance welders. There are many other fabricators who can benefit from such equipment. However, in order to realize a maximum return on your investment, a careful study must be made of your needs. This should be accomplished by conferring with RWC to evaluate your current methods and requirements so that a proper recommendation can be made.

**FIGURE 7 - MODEL 641**

Before contacting RWC, you should collect the following information:

A. **Production requirement**

B. **All engineering data such as material type and thickness, range of product sizes and/or styles and dimensional requirements.**

C. **The number of personnel available for the application.**

D. **Degree of indexing, feeding or automation required.**

E. **Is the product design firm or can it be modified?**

F. **Establish a budget.**

An accurate assessment of your needs will avoid unnecessary overkill. Do your homework, then contact RWC and work with us. RWC's experience in solving welding production problems for other firms, perhaps in your industry, can assure that the special purpose resistance welder you get is the most suitable for your needs and will provide the expected return on your investment.

## TO CALCULATE THE APPROXIMATE COST PER WELD...

**KVA DEMAND = [SECONDARY VOLTAGE] X [SECONDARY CURRENT]**

**KW DEMAND = [KVA] X [POWER FACTOR]***

*** USE A POWER FACTOR OF .4 or .5**

$$\text{ON TIME} = \frac{\text{CYCLES ON}}{216{,}000 \text{ cycles/hour}}$$

**COST PER SPOT = [KW DEMAND (KWH)] X [ON TIME] X [KWH POWER COST]**

**COST PER HOUR = [COST PER SPOT] X [# OF SPOTS PER HOUR]**