

History & Development of Welding.

In 1886 professor Elihu Thompson was working in a laboratory experimenting using a spark control to step up battery currents. He had been using a high tension coil to charge condensers or Leyden jars, from this low voltage source. It occurred to him to reverse the process i.e. to pass the high-voltage charge from the capacitors thru the coil after charging the capacitors. The current pass thru the secondary winding, which was made of many fine turns of wire and a primary winding of heavier wire, which had its terminal, leads in light contact. The result of this discharge was that the terminals of the primary circuit were fused or welded together. Thus the basic principle of resistance welding was born and has never been changed in principle.

A high voltage is sent thru the Primary winding (large number of turns) of a transformer, the voltage is reduced by the turns ratio and the current is stepped up by this same ratio. This provides the high currents required for spot welding.

Early Uses & Development.

Originally, equipment was sold; it was installed on a royalty basis. The user paid for the machine and thereafter paid for each weld made on the machine. It was not until 1916 that (5) five companies were licensed to build resistance welders. Not much progress was made until after 1933, due to these conditions.

It was not until World War II that the greatest gains were made between the years of 1944 to 1948. Now the Resistance Welding process was rapidly expanding and gained popularity in the metal joining field.

December 1944 "Welding Engineer Magazine" had an article on the North American Aviation P-51 Mustang. It stated the cost savings of spot welding compared to riveting as follows: "North American Aviations P-51 Mustang, the worlds fastest air plane, is made up of about 300 spot welded assemblies, representing about 30,000 welds. The company estimates that the cost per weld is about .2 cents as compared to an estimated 5 to 8 cents cost for riveting, had they been used in plane's manufacture." Thus, you can see even more today the cost advantage of Resistance Spot Welding.

Current Uses & Practices.

Resistance welding is used today in a wide range of products from automobiles, appliances, and furniture to welding small solid state circuit elements. Welders range from micro-miniature types to large heavy duty machines welding thick sections. Small simple machines with single points, to multi point machines, robot welders with arms & gantry robots are welding every day to improve productivity and decrease welding costs.

Resistance Welding Equipment & Supply Co.

2045 East 46th Street Indianapolis, IN 46205
Phone: (317) 251-9406 Fax: (317) 251-9407 e-mail: rwesco@iquest.net
Visit us on the World Wide Web at: www.spotweldequip.com