



Accurate, Convenient, Inexpensive Thermocouple Junction Fabrication Using Portable Capacitive Discharge Welders

Portable capacitive discharge (CD) welders are the most popular system employed by users for fabricating thermocouple temperature sensors. Their ease of use by casual operators and the light weight, small size, minimum power requirements, flexibility and quick welding characteristics make them the favored choice for sensor fabrication in product testing and heat treating applications.

Capacitive discharge units generate a high temperature welding arc so tungsten and platinum high temperature couples are as easily fabricated as more common lower temperature types. User selectable stored energy levels allow the units to be employed for creating hair wires sized sensors for bio-medical applications and large wire sensors for heavy industry. With suitable custom fixturing, other weld configurations can be accomplished in a "pseudo-spot-welding" mode. CD welders are used to attach extension leads to RTD sensors or tungsten filaments, weld screens to backing plates, fabricate multi-cell battery connections, fix studs and nail pins to metal surfaces, connect power leads to resistance elements, attach weldable strain gauges to specimens and many similar non-thermocouple applications.

The simplicity and flexibility of capacitive discharge welding operations offers a good fit to a wide range of engineering requirements. These welders service a mix of industrial, government, educational, research and development, and regulatory environments.

Ten important and fascinating things to know about thermocouple welders:

1. CD welders are faster than using gas welding and other welding techniques.
2. They produce a more reliable contact than mechanical twisting or clamping.
3. Thermocouple welders can form and attach junctions in one step.
4. They weld all standard wire types.
5. They can perform multiple welds per minute due to the brief cycle time.
6. Battery and AC line powered units are available.
7. Thermocouple welders are easy to use; operators can become proficient quickly.
8. Making and installing thermocouple junctions with a thermocouple welder is extremely economical because sensor costs become wire costs.
9. Welded surface junction provides an accurate thermocouple, having a high speed response characteristic.
10. Capacitive discharge techniques provide fabricating speed, sensor accuracy, and easy welding of both ordinary and high temperature sensor wires.

Starting in 1982, DCC Corporation created a line of welders using straightforward circuit design that both enhance reliability and repairability. The standard components used in the design facilitate repair operations and are readily available when needed.

With DCC's welder offerings, operator control functions are simple and straightforward. Weld initiation is activated by pushing a firing button. The variable power setting feature supports various wire sizes. Welding operations are performed in the open, so the user can fabricate custom junction configurations or weld the junction directly to metal objects like pipes, tanks, and parts to be monitored or heat treated. For most applications and sensor wire types, a shielding gas is not required.

**For more information about DCC's HotSpot and HotSpot II
capacitive discharge welders,
visit our website at: www.dccCorporation.com/hotspot.html
or call our office at 856-662-7272.**