

TC-W100A
Thermocouple Welder

Easy As 1-2-3

The TC-W100A thermocouple welder is easy to use and designed to operate in either a production or laboratory environment. First, select the wire gauge using the selector knob on the front panel. Then, simply load the stripped wire (1), insert the handpiece (2), and remove the welded thermocouple (3). Operators should average 5 to 10 welds per minute on a production basis, if wires are prestripped and the control is preset.

KEY FEATURES

- Welds fresh thermocouples on demand, consistent in size and quality, and without detrimental oxide layers.
- Perfect for medical applications to anchor arthroscopic tools.
- May also be used to aid in the normal resistance welding of very small wires; by forming a ball on the end of the wire, more mass is given to weld the wire to something else.
- Argon gas weld chamber for joining most thermocouple wire from 38 AWG (.004 inch/.102 mm diameter) to 20 AWG (.032 inch/ .813 mm diameter)
- TC-W100A will make thermocouples of all commercially available thermocouple alloys including:

B Platinum 30 Rh - Platinum 6 Rh

C Tungsten 5 Re - Tungsten 26 Re

E Chromel – Constantan

J Iron – Constantan

K Chromel – Alumel

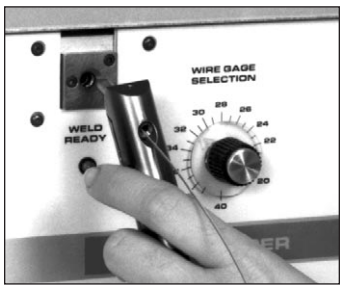
R Platinum 13 Rh - Platinum

S Platinum 10 Rh - Platinum

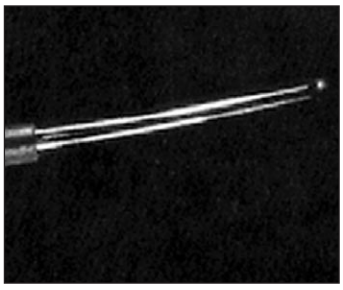
T Copper – Constantan



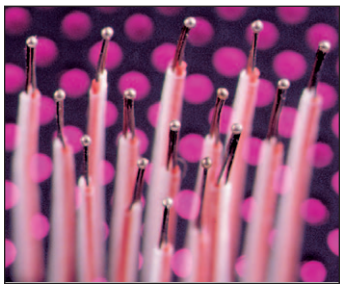
(1) Load stripped wire



(2) Insert handpiece



(3) Remove welded thermocouple



Welded thermocouples

TECHNICAL SPECIFICATIONS

Quality control features	
Weld chamber	Argon gas flowing through the weld chamber ensures a reliable, oxide-free weld.
Firing circuit	Prestripped wire must be properly loaded into the handpiece and the handpiece correctly inserted into the weld chamber to initiate firing. This loading sequence ensures that the handpiece is double earth grounded for maximum operator safety. Internal filtering prevents false firing due to radio frequency interference.
Weld fire lockout	Prevents poor welds caused by attempting a weld before the capacitors recharge. This condition exists immediately after a weld has been made or the control has been reset.
Line voltage regulator	Maintains the capacitor bank voltage within ±0.25% of setting for a ±13% change in line voltage. This feature ensures consistent thermocouple weld quality.
Line failure turndown	Welder automatically activates the turndown circuit, discharging the capacitor bank when the line voltage is interrupted. This circuit ensures consistent welds and protects the operator from inadvertent discharge.
Controls	
Power switch	Disconnects both sides of the input power line when switched to the "OFF" position.
Weld ready	Indicates that the capacitor bank has fully recharged and is ready to make a weld.
Wire gauge selection	Controls the level of stored energy necessary to make a thermocouple weld. Energy levels are indicated for each American Wire Gauge (AWG) from 38 AWG to 20 AWG. Because of variations in he melting characteristics of thermocouple alloys, it may be necessary to increase or decrease the Wire Gauge Selection setting to produce the optimal thermocouple weld. This control may also be used to increase or decrease the size of the weld bead to suit specific requirements. Four Wire Clamp Jaw Assemblies are available for use with different gauge wires. Specify wire gauge range upon ordering.
Specifications	
Solid state circuitry	Components conservatively rated when used within the maximum specified repetition rates. The charging circuit uses thyristors in a unique manner to provide high reliability and precise charging intervals.
Operating voltages and currents	115 V/0.5 A, 230 V/0.3 A, or 100 V/0.5 A at 50/60 Hz
Standby power	Approximately 15 watts
Stored energy rating	Range 3 to 190 watt-seconds (joules)
Capacitor bank	18,300 MFD ±10% at 20° C. Three capacitors are grouped in a single bank. At full rating, the capacitor bank is operated at 144 volts.
Welding speed	As a manual feed thermocouple welder, the maximum number of welds per minute is determined by how fast the handpiece can be loaded and inserted into the weld chamber. The actual weld time is less than .1 seconds, and the time for the circuitry to recharge is 3 seconds maximum.
Argon gas flow	Recommended flow rate is 3 cubic feet per hour.
Argon gas shutoff	Blocks the flow of argon gas to the weld chamber when line voltage is turned off.
Clamps (sold separately)	TCWCS38 clamp for 32 to 38 gauge wire TCWCS31 clamp for 27 to 31 gauge wire TCWCS26 clamp for 23 to 26 gauge wire TCWCS22 clamp for 20 to 22 gauge wire

WEIGHT & DIMENSIONS

	Power Supply	Handpiece	Wire Clamp
Dimensions (W x D x H)	10.25 in x 10 in x 6.875 in (260.4 mm x 254 mm x 174.6 mm)	Body Length: 4 in (102 mm) Body Diameter: 0.75 in (19.0 mm)	Length: 0.75 in (19.0 mm) Diameter: 0.25 in (6.4 mm)
Weight	16.2 lb (7.3 kg) (includes handpiece)		0.2 lb (91 gm)

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