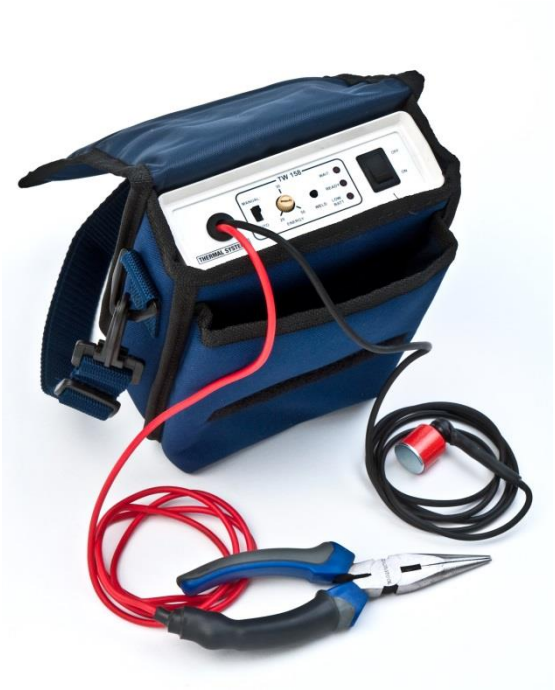
COMPACT THERMOCOUPLE WELDING UNIT

THERMAL SYSTEMS

Description

Ref: 350020

The capacitance-discharge welding unit is used for the attachment of thermocouple wires to a work piece. It is a more compact alternative to larger, heavier units but has the same energy output. The only difference with a compact unit such as this is a slightly longer charging time.



Features

- Manual and Auto (Hands off) operation
- Variable energy level from 20 to 50 joules
- Runs on 4 x AA Alkaline batteries
- Low Battery LED Indicator
- Auto switch-off after 3 minutes to conserve battery
- Output voltage maximum is a safe 60 Volts at 50 Joules
- Lightweight padded carry case (includes shoulder strap, belt loop and tool storage)
- Unit weight approx. 1.2 Kilos

Front Panel Controls

- On/Off switch: Turn off when not in use to conserve battery
- Auto/Manual switch: To select Auto (Hands Free) or Manual (Push Weld) operation
- Energy Control: Set to required weld energy (example: 25 Joules for 0.7mm wire)
- Weld button: For discharging energy in Manual mode
- LED Indicators: Show wait (while charging), Ready and Low Battery conditions

Specification

Size: 137mm wide x 190mm long x 45mm high (Excluding leads and carry case)
Weight: 1.2 kilos (including batteries, leads and carry case)
Battery Type: 4 x AA cell (Alkaline 1.5V recommended for best performance)
Weld Voltage: 37 to 60V (20 to 50 Joules output)
Charging Time: Approx. 15 seconds at 30 joules
Battery Life: Approx. 300 welds at 30 joules (New batteries)
EMC: EN61000-6-1:2001, EN61000-6-3:2001
LVD: EN61010-1:2001
Product is WEEE compliant
Note: Product is NOT user serviceable. Please refer to seller for repair

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Operation

1. Ensure that the thermocouple wire is disconnected from any instrument that may be damaged by the high energy welding pulse.
2. Clean any loose scale or rust from area where the wires are to be attached. Do not clean to brightness or polish, as the process requires a certain amount of resistance at the wire tip in order to initiate the arc.
3. Effectively clean the area for the return lead magnet so as to reduce the resistance to a minimum. Fix the magnet as near to the thermocouple as possible.
4. Strip the insulation from the thermocouple wires to leave approximately 6mm of bare wire.
5. Set the energy adjustment knob to an appropriate setting for the size of the wire to be welded. Normal type 'K' thermocouple wire is 0.711mm dia. and will need about 30 joules (which is the mid-point setting on the energy knob.
6. Switch the unit on by moving the on-off switch to either 'AUTO' or 'MANUAL'.
7. Wait until the 'WAIT' led indicator goes out and the 'READY' led indicator lights up.
8. Grasp one of the stripped wires, about 4-5mm from the end with the tip of the insulated pliers.
9. Press the end of the wire to the work piece at 90° to the surface and maintain a firm pressure. If the unit is set to 'AUTO' there will be a 1 second delay and the weld will occur automatically. If the unit is set to 'MANUAL' the weld will occur immediately the 'FIRE, button is pressed. There will be a sharp crack and a slight arc flash. The wire should weld to the work piece. NOTE: - Do not look directly at the arc and warn on-lookers of your intent to weld. Suitable eye protection should be worn.
10. If the weld does not occur due to a bad contact, the 'READY' led will remain lit, reposition the wire to ensure better contact and try again. When the weld is successful there will be a 1 second delay and the 'WAIT' led will come on again as the unit prepares itself for the next weld. NOTE: - The 'READY' led cannot come on and the next weld cannot be made if the wire is already in contact with the work piece in the 'AUTO' mode.
11. Repeat the process with the 2nd wire, placing it approximately 4 or 6mm from the first wire.
12. Gently bend the wires over at right angles. This is required on most jobs so as to bring the thermocouple wires along or parallel to the surface of the work piece. It also tests the weld strength. Care should be taken to ensure the base wires do not touch together away from the welded junction.
13. Cover the two wires at the point of weld within a blob of thermocouple putty (about 2cc's).
14. If a weld is not made for about 4 minutes the unit will shut itself down to conserve its batteries. To continue, briefly switch the unit off and then back on again. If at any time the Low Battery led lights up, then switch the unit off and replace the batteries.
15. Switch the unit off when finished welding. If the MINIWELD is not to be used for several weeks you are advised to remove the batteries in case of leakage.

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