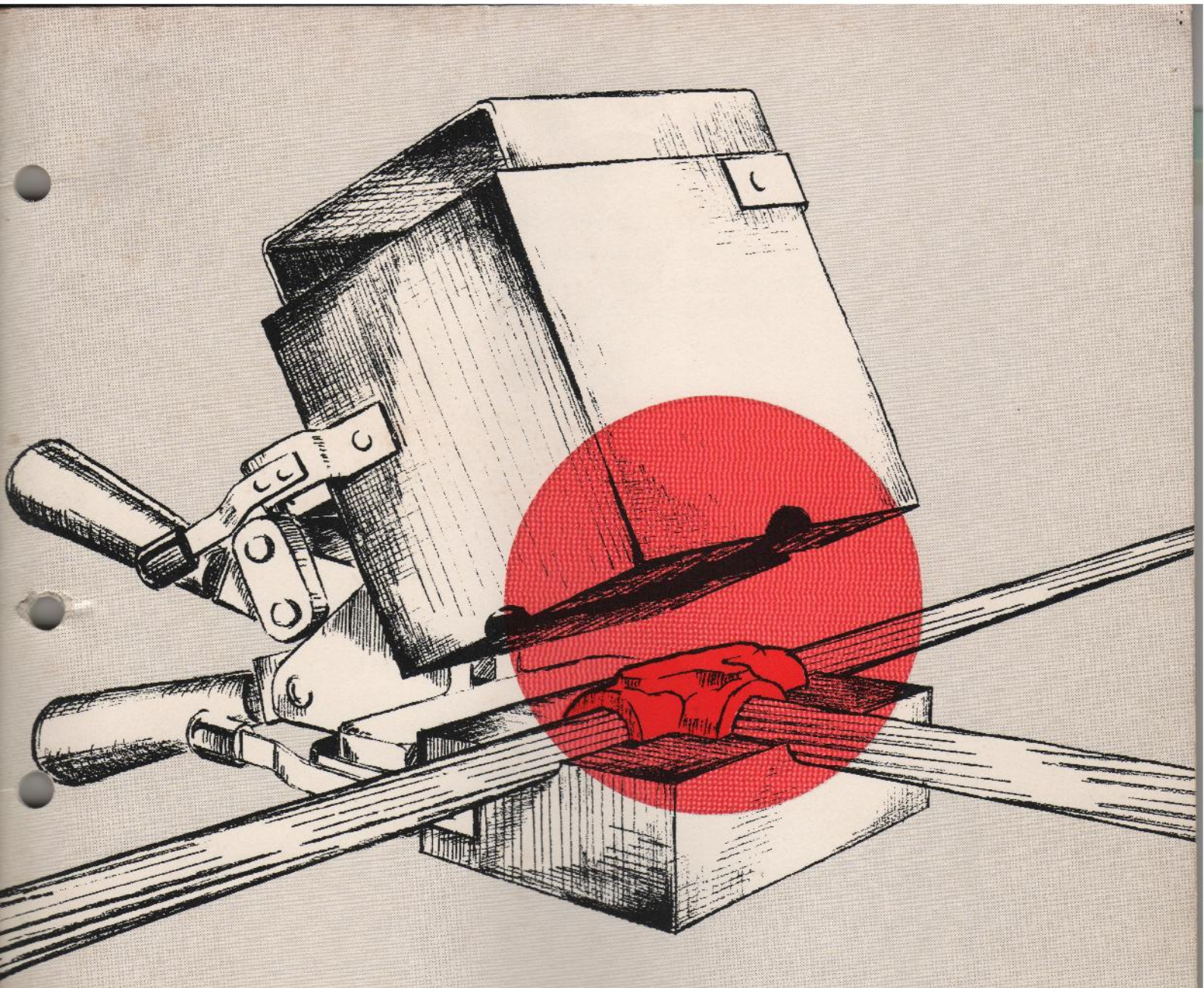


electrical connections catalog

thermOweld®

A DIVISION OF CONTINENTAL INDUSTRIES, INC.

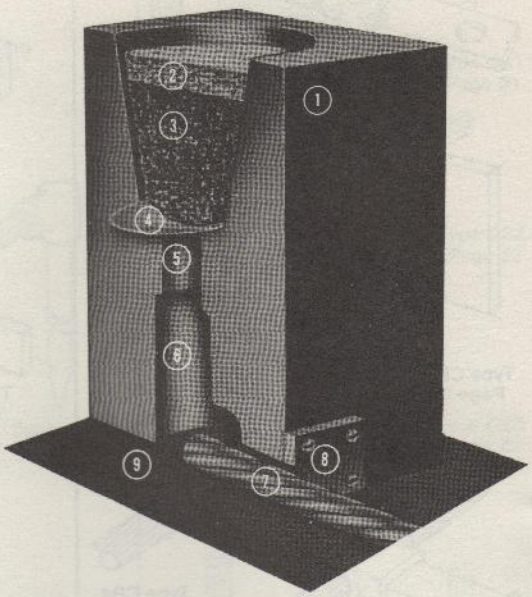
A HANDY & HARMAN COMPANY

thermOweld PROCESS

The THERMOWELD electrical connection process is a simple, efficient method of welding copper to copper or copper to steel. No outside source of power is required when using Thermoweld. Thermoweld connections utilize the high temperature of reaction of powdered copper oxide and aluminum. The reaction takes place in a semi-permanent graphite mold (THERMOMOLD) that lasts for fifty or more welds. The Thermoweld reaction takes place in a very few seconds, therefore the total amount of heat (calories or BTU's) applied to the conductors or surfaces is considerably less than that employed in brazing or soldering. This is an important consideration when welding to insulated cable or thin wall pipe.

Thermoweld is ideal for field use, since it is light and portable and requires no outside power source. It requires very little time or skill to obtain an efficient, maintenance free electrical connection when using Thermoweld.

Thermoweld equipment required for making all types of electrical connections is shown on the following pages.



1—Cutaway of Thermomold
2—Starting Powder (Silver in color)
3—Thermoweld Powder
4—Steel Disc
5—Tap Hole
6—Weld Cavity
7—Cable
8—Wear Plate
9—Steel Surface

THERMOWELD EQUIPMENT IS COMPLETELY INTERCHANGEABLE WITH COMPETITIVE COPPER THERMITE WELDING EQUIPMENT.

THERMOWELD CONNECTION

The Thermoweld connection is a molecular weld. The weld metal has the same melting point as copper. Because of these factors along with the increased cross section of the connection, Thermoweld connections:

1. Will not be affected by high current surge. Tests have shown that the electrical conductor will melt before the Thermoweld connection when subjected to high short-circuit current.
2. Will not loosen or corrode at the point of weld. There are no contact surfaces or mechanical pressures involved. A Thermoweld connection becomes an integral part of the conductor.
3. Have a current-carrying capacity equal to or greater than that of the conductors.

THERMOWELD EQUIPMENT

Thermoweld equipment has been used to weld materials other than copper for electrical purposes.

Materials welded have included:

Stainless Steel	Monel	Copper Clad Steel
Steel Rail	Brass	Copperweld
Plain Steel	Bronze	Chromax
Nichrome V	Everdur	Galvanized Steel

When welding to galvanized steel it may be necessary to resurface exposed bare steel.

For most connections involving lugs, cable, small tubular or rectangular bus, Thermochange clamps are used. Thermochange clamps make possible the use of many different sizes and types of Thermomolds with only two different clamps.

The two Thermochange clamps are catalog number B-106 and B-107. These will fit 95% of all standard Thermomolds.

1. Use B-106 clamps for all molds having a price key 4, 7, or 17. These molds are a nominal 3" x 3" square.
2. Use B-107 clamps for all molds having a price key 5, 6, or 8. These molds are a nominal 4" x 4" square.
3. All molds having a price key 2, 3, 9, 10, 11, 12,13, 14, 15, or 16 have an attached frame; separate handles are not required.

Note: An instruction sheet accompanies each Thermomold.

THERMOWELD POWDER

Thermoweld powder is packaged as shown below in cartridges of moisture resistant plastic. The size and weight in grams is marked on each lid. When one size cartridge is not available, a combination of smaller cartridges or a portion of a larger cartridge may be used. Thermoweld powder has two distinct colors. The starting powder in the bottom of the cartridge is silver. When dumping the powder into the mold, tap the bottom of the cartridge to get all the starting powder out. Be sure the starting powder is spread evenly, but DO NOT TAMP IT DOWN.

THERMOCHANGE CLAMPS MUST BE ORDERED SEPARATELY.

B-106 clamps

B-107 clamps

THERMOWELD POWDER

THERMOWELD powder is packed in plastic cartridges. The size of the cartridge is marked on each cartridge lid and this number also indicates the weight of the cartridge in grams. The plastic cartridges are packed in divided sections in hermetically-sealed plastic bags. This insures the powder arriving in good condition, always dry and ready for firing. It also enables workers to be given part of a box of cartridges for use in their own tool boxes without exposing the other cartridges to possible moisture damage. A package of tin-plated metal discs is shipped with each box of powder.