



Model MH-1545

Weldmaster MH-1545 Metal Welder

A versatile and powerful machine that creates true metallurgical bonds for spot welding nonferrous and dissimilar metal assemblies.

General Description

Sonobond's Weldmaster Model MH-1545 is the industry's most powerful ultrasonic spot welder, delivering a full 4,500 watts of output power to weld a variety of metal assemblies up to 0.100 inches thick.

The model MH-1545 produces ultra reliable, solid-state metallurgical bonds without the use of heat, current, fluxes, filler materials, or other consumables. It creates a welded joint that is often stronger than the parent metals. And while the welding rate depends on the thickness and type of materials being joined, most operations are completed in less than 1.5 seconds.

The MH-1545 consists of a solid-state frequency converter, a welding head, a Wedge-Reed system, and an easily removable and replaceable Taper Lock Tip which vibrates to ultrasonically spot weld the materials. Sonobond custom designs tooling to meet each customer's specific needs.

Features and Benefits

- Outputs 4,500 watts of power to weld nonferrous and dissimilar metal assemblies, including copper to aluminum
- Produces ultra reliable, solid-state metallurgical bonds without heat or current
- Requires no fluxes, filler material, or other consumables
- Patented Wedge-Reed coupling system assures precise, dependable welds and facilitates special tooling, fixtures, rotary tables, or feeders
- Heat-treated, tool steel Taper Lock Tips perform up to 300,000 welds and are easily removed and replaced
- Minimal operating and training costs
- Little or no pre-cleaning required
- Energy efficient
- Can be incorporated into automated assembly equipment
- Automatic frequency control for stable operation

Applications

The Sonobond Model MH-1545 ultrasonic welder is used for heavy gage wire to terminal assembly, electrical bus bar fabrication, copper to aluminum ignition module plates, and other electronic/electrical assemblies.

Theory of Operation

The Weldmaster MH-1545 uses Sonobond's patented Wedge-Reed coupling system of high vibratory force and low amplitude to ensure precise, dependable welds. The unit directs high frequency, ultrasonic energy via a welding tip to the surface between the metals to be welded. The vibratory energy disperses the oxides and surface films between the workpieces, and creates a true metallurgical weld without melting the materials.

Materials

The Weldmaster MH-1545 can be used on:

Material	Alloy	Max. Thickness*
Aluminum	1100-H14, 3003-H14	0.100
Copper	Soft	0.078
Copper	1/2 Hard	0.050
Brass	70 Cu: 30 Zn	0.040
Be Copper	CU -2.25 Be	0.032
Cupro-Nickel	90 Cu: 10 Ni	0.050
Copper Wire	Stranded	AWG 4
Copper Wire	Magnet Wire	AWG 10

* Refers to maximum gage of upper piece.



Specifications

POWER SUPPLY **MODEL FC1545**

Output Power: 0 to 4500 watts (adj.) into 50 Ohm load

Frequency Range: 14.5 kHz to 16 kHz

Input Power: 480 volts, 50/60 Hz, 1 phase, 20 amps (Standard), other voltages on request

Tuning Method: After set-up, controlled by Phase locked loop

Diagnostics: Power On System Test (POST) along with 18 fault indicators for run-time diagnostics of signals and systems

Construction: NEMA 12 panel enclosure with modular, easily removable subassemblies and optional integrated air conditioner

Size (approx.): 42" high, 36" wide, 12" deep (plus depth of optional cooling unit), mounted on 18" legs

Weight (approx.): 750 pounds

WELDING HEAD **MODEL MH-1545**

Controls: System controlled by Allen Bradley SLC-150 programmable standard controller. Extra I/O available to operate accessory tooling. Program is retained in non-volatile memory. Normal system activation is by dual anti-tie down, anti-repeat palm buttons. Manual set-up mode is by key-lock switch

Acoustics: Patented Wedge-Reed and Contra-Resonant anvil system for high clamp force, low amplitude welding of metals

Air: Clean, dry air at 80-100 psi

Size (approx.): 51" high, 13" wide, 45" deep

Weight (approx.): 2,000 pounds

Warranty: One full year against defects in material and workmanship

Specifications are provided for information only and are believed to be accurate. However, no responsibility is assumed by Sonobond Ultrasonics for their use. Ongoing product development and improvement may cause changes without notice.

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