

ULTRA SONIC SOLDERING SYSTEM



SONIC - SOLDER

www.sonicsolder.com

MBR presents a new Soldering Technology
Flux free soft soldering on „hard-to-solder“ substrates like Glass, Ceramics, Aluminum, Steel, Titanium, Silicon, Metaloxides, Superconductors....

Soldering on Glass,
Ceramics, Aluminum...
SCIENCE FICTION ?
The Future just begins !

ULTRASONIC SOLDERING IS DIFFERENT

The conventional soldering system always requires „FLUX“ for the removal of surface oxidized layers. Such soldering has no possibility to solder direct on Glass, Ceramic or Aluminum etc.

But now by using „Ultrasonic Cavitation Phenomenon“, such surface oxidized layers are simply removed and cleaned. That means, the use

of Flux is no longer required. In combination with the special soldering compound CERASOLZER, you can easily solder on Glass, Ceramic and also “hard-to-solder” metals such as Aluminum, Stainless Steel, etc...

In addition, the Ultrasonic shock waves eliminate any gas bubbles in the liquid solder joint and produce a shrinkhole free joint.



Model USS-9200

For small area Application. Soldering-Tip max. Ø 4 mm

Ultrasonic-Frequency:	57 kHz ±3 kHz
Ultrasonic-Power:	2 - 10 W ±2 W
Temperature range:	150°C - 500°C
Heater:	Ceramic
Heater power:	80 W max.
Mains input power:	150 W
Mains Voltage:	100V – 260V / AC 48 - 65 Hz
Dimensions in mm	
- Base-Housing:	W 240 x D 200 x H 130
- Hand tool:	Ø max. 30, Ø min. 20, L 230
Soldering-Tip diameter:	1 mm, 2 mm, 3 mm, 4 mm



Model USS-9500

For large area Application. Soldering-Tip max. Ø 12 mm

Ultrasonic-Frequency:	40 kHz ±3 kHz
Ultrasonic-Power:	4 - 20 W ±2 W
Temperature range:	150°C - 500°C
Heater:	Ceramic
Heater power:	100 W max.
Mains input power:	200 W
Mains Voltage:	100V - 260V / AC 48 - 65 Hz
Dimensions in mm	
- Base-Housing:	W 300 x D 260 x H 130
- Hand tool:	Ø max. 34, Ø min. 22, L 290
Soldering-Tip diameter:	6 mm to 12 mm

Both Ultrasonic Soldering Systems have been designed for Industrial use. These systems consist of:

1. Microprocessor controlled base unit with control knobs and displays.
2. Hand tool with ceramic heater, vibration unit and soldering tip.
3. Tool stand.
4. Foot switch

ADHESIVE MECHANISM

There are different targets which can be accomplished by using ultrasonic energy in a pool of molten solder on a substrate:

1. We can remove the oxides from the substrate permitting the solder to react with the substrate, i.e. bond.
2. We can force the liquid metal into the tiny crevices, cracks and micropores of the substrate and thereby seal them and provide a greatly increased surface of solder for bonding purposes.
3. We can reach a high grade of evaporation of the solder joint. The ultrasonic vibration presses out



gas bubbles of the liquid solder and produces a shrinkhole free joint. This is very interesting for applications in high-vacuum.

4. Chemical effect with - CERASOLZER - contains a small amount of such elements such as Zn, Ti, Si, Al, Be and Rare Earth, which have a strong chemical affinity with oxygen. These metals are thought, during the bonding process, to combine with oxygen in air to form oxide, which is chemically bound to the surface of glass, ceramic etc.

CERASOLZER



The active solder alloy CERASOLZER is available in different melting points.

One roll of CERASOLZER solder contains 150gr. The diameter of the wire is # 123 = 1,2 mm. All others Ø 1,6 mm

CERASOLZER	Melting Temperature
# 123	123°C
# 143	143°C
# 186*	186°C
# 224	224°C
# 246	246°C
# 297	297°C

* Standard Solder