MIRTEST

Ultrasonic systems

Mirtest ssMr2-3-5

High Performance

Ultrasonic Soldering Systems

MIRTEST ULTRASONIC SYSTEMS
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How does Ultrasonics Soldering Work?

Ultrasonic soldering is performed through an ultrasonic-activated soldering iron and a flux-free solder alloy. Therefore, it is considered as an eco-friendlier, softer soldering process as it involves no corrosive chemical agents, normally contained in the flux.

With this process, the oxide layers of the substrate surface are removed by the only action of the ultrasonic vibrations, which propagate into the molten solder alloy. The cavitation phenomenon that results is exactly the same that is used for ultrasonic cleaning. Small, bubble-shaped cavities appear in the liquid and erode the surface of the substrate as they burst against it. This way, the solder can efficiently wet and bond to the cleaned surface.

The joint is even stronger, as the ultrasonic vibrations forcibly expel voids from the joint. This also enables such joints to be used in high vacuum applications.

On top of it, ultrasonic soldering makes it possible to solder a large range of materials, such as glass or ceramic, which is impossible to achieve with classic soldering methods.

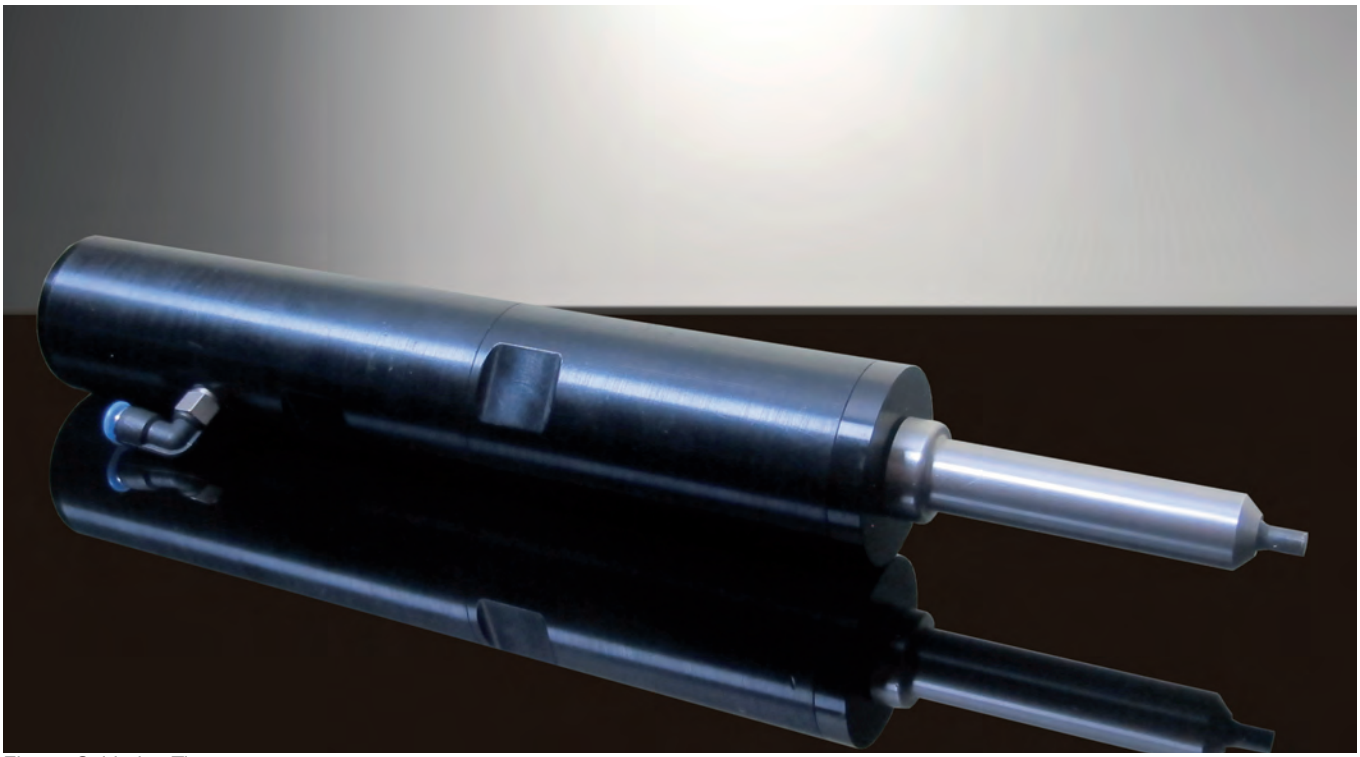

Figure: Soldering Tip

ssMr2-3-5Ultrasonic Soldering System

The “ssMr2-3-5“ ultrasonic soldering system is optimized for ultrasonic soldering applications. It is available in 3 different models:

- **ssMr2**
- **ssMr3**
- **ssMr4**

Figure: ssMr5 (Desktop Version with LCD-Display)

Functions and equipment features

- Compact construction - autonomic device
- Frequency of 60 kHz – Power output up to 15 Watt
- Integrated temperature-depending fan
- Frequency-Autotuning
- Option
  Profibus-Interface: DPV0 Protocol
  - Access to all important generator functions
  - Adjustable Busaddress
- SPS-Interface
- Detachable handeld unit with LCD-Display
- Optional front LCD-Display with rotary switch
- Soldering Iron for robot applications, compressed air cooling, LED-Indicators for heater and over temperature
- Adjustable heater, up to 500 degrees
- Temperature control of the soldering iron, automatical overtemperature switch off
- Frontpanel with power-bargraph-display, status-display and test-button

Figure: ssMr3(for DIN-Rail mounting with detachable operating device)

Figure: ssMr2 (in Rack Mount with Profibus-Interface)

Data Sheet

Mechanical Data (Exemplary for ssMr3)

Dimensions [B x H x T]	70 x 185 x 350 mm
Weight	Approx. 2.5 kg
Protection	IP 20
Design	DIN-Rail mounting

Electrical Data (All Systems)

Line	90 – 250 V / AC (wide range power supply with powerfactor correction)
Line Power Consumption	Approx. 100 VA
Frequency	60 kHz +/- 2 kHz
Ampitude	Adjustable amplitude 50 – 100 %
RF- Output Power	Max. 15 W
Heater Control	Max. temp. 450°C Adjustable150 – 450 Degrees Adjustable Standby-Time and Standby-Temperature
Heater Power	Max. 70 W

Display Data (All Systems)

View	Iluminated LCD-Display in blue or amber
Operation	Rotary Encoder
Display Parameters	• Operating frequency kHz – (Resolution 10 Hz) • Actual power Watt (Resolution 0.1 W) • Accumulated energy • Time during last soldering • Adjustable heater temperature of the connected soldering iron • Operating hours • Temperature of the ultrasonic transducer inside the soldering iron • Temperature of generator

Soldering Iron

Dimensions [L x D]	250 x 35
Weight	Approx. 0.5 kg
Protection	IP 20
Sonotrodes	Special steel, changeable
Connection	Connector 8 pole
Additional Features	• Integrated sensor for temperature control • Connector for pressurized air

Options (All Systems)

Profibus	Optional Profibus-Interface
Ethernet	Modbus TCP/IP
LCD-Front	Graphic-touchscreen display for controll and adjustment
RS232-Interface	RS232 interface for all functions
Handle	Optional handle available