UNISONIK®

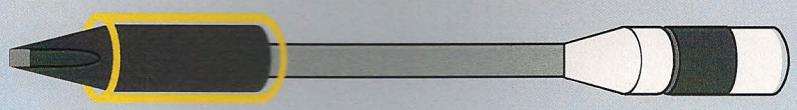
Inquiry No.C00233

JAPAN UNIX's
ULTRASONIC SOLDERING SYSTEM

What is Ultrasonic Soldering?

Basic structure

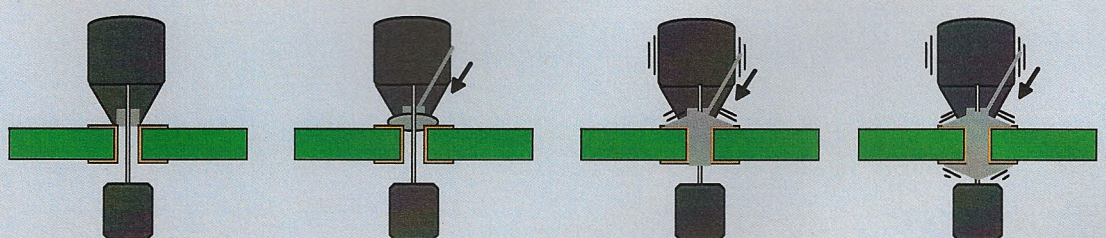
It solders vibrating the soldering iron tip at a few microns amplitude by adding an ultrasonic wave to conventional soldering iron. Since the structure of heater and iron tip is the same composition as the existing Japan Unix soldering robot corresponding to lead-free soldering, stable ultrasonic wave and temperature can be maintained also in soldering automation.



Iron tip · heater element　　Connecting horn　　Ultrasonic transducer

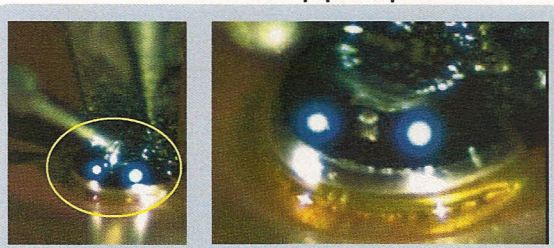
Principle

Negative pressure occurs between the soldering base material and solder material according to the cavitation effect generated from high-frequency ultrasonic vibrations (a few microns amplitude of vibration) of the ultrasonic wave. As a result, application of an ultrasonic wave will promote removal of the dirt of the base material surface, reduction of an oxide film, metal diffusion, removal of air bubbles, etc. As a concrete expectation effect, it leads to improvement in wettability and spreadability of the solder by activation of a soldering object, stability of through-hole solder penetration on multilayer board, reduction of soldering time, etc.



Primary heating　　supply of Solder　　Ultrasonic vibration　　Improvement in solder spreading

Example 1: Comparison of solder spreading by soldering on the surface-oxidized copper plate.



With ultrasonic wave

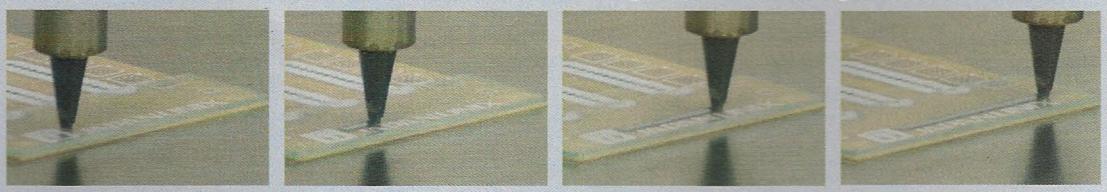
Without ultrasonic wave

Wettability and spreading effects of flux are increased by applying an ultrasonic wave.

Applications of Ultrasonic Soldering

Example 2: Soldering to glass

Automated ultrasonic soldering by soldering robot

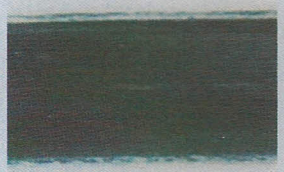


* Special solder materials for glass are used.

Magnified photograph of soldering part to glass.

Comparison of ultrasonic effect of soldering to glass

With ultrasonic wave

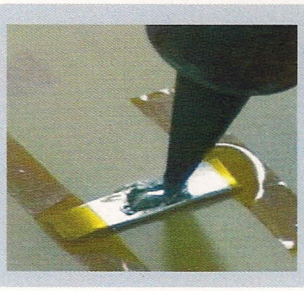


Without ultrasonic wave

Glass surface during soldering

Photographs seen from glass side

Example 3: Soldering to aluminum



Soldering to aluminum material using lead-free solders like Sn-Ag-Cu alloy system

If you have any technical questions or concerns, please contact Japan Unix offices described below.

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● Specifications and external product design are subject to change without any notice in th

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