Lineup

**Vacuum Soldering System Model: Mini**

Mini is a very simple system designed for R&D and ideal for evaluation of formic acid reduction. Applications can be expanded by options.

**Vacuum Soldering System Model: VS2**

VS2 is a compact batch module designed for small-scale production from R&D and equipped with convenient automatic work transfer mechanism.

**Vacuum Soldering System Model: MP2**

MP2 is a mass-production system equipped with two process chambers (heating + cooling). The process area in W380 x D310 x H100mm, large module can be mounted.

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**Formic Acid Reduction Reflow**

**Vacuum Soldering System**

**Flux-less Soldering**

Ideal for high-quality soldering with formic acid reduction and compression process.

- Requires no flux and its cleaning
- Creates no splash in process and results no viod

Origin offers the best solutions in system and process.
Hydrogen

Hydrogen

Formic

Nitrogen

and minimum

Vacuum brings

heating

Vacuum

in the

ideal for high

removal of surface oxide

control of voids and solder splashing both by vacuum

synergy from formic acid reduction and compression

■ Pb-free soldering generally creates poor wettability, yet Origin’s process gives excellent soldering.
■ Thin wafer demands higher level of soldering, yet Origin’s easily meets requirement.

comparison of wettability

hydrogen

formic acid

control of voids and solder splashing both by vacuum use

■ Compression process: By compressing voids, creates no splash in process and results no void.
On the other hand, in conventional defoaming process, solder splash occurs during vacuuming.

defoaming process

compression process

■ At higher temperature, formic acid is thermally decomposed. However a small amount remains.
Origin’s system completely decomposes the formic acid gas.
Exhaust treatment equipment is not required.

application of formic acid removes surface oxide and obtains excellent

conventional defoaming process, solder splash occurs during vacuuming.

comparison of voids

hydrogen

formic acid

high speed heating under vacuum condition

although it is difficult to control temperature without significant over-shoot during high speed process, especially under vacuum condition, Origin now offers systems capable of high speed and smooth temperature control with both vacuum and atmospheric condition.

■ IR heater: Origin’s system adopts the directly heated by IR heater, to achieve a high-speed heating.
In contrast, typical hot plate is not suitable for high-speed heating, since the heat capacity of itself is large, and also there is large thermal resistance between the work under vacuum condition.

hot plate

IR heater

temperature profile

programmable temperature profile settings. An example of the formic acid reduction and compression process.

applications

Origin’s system is suitable for applications requiring clean soldering, flux residues and solder splashing is not allowed.

example of power device