

Sintering System SIN 50+

Flexible low pressure sintering system for reliable, highly thermally conductive bonds

The SIN 50+ modular sintering system is a highly flexible platform designed to meet production requirements ranging from laboratory use to series manufacturing. Thanks to its modular design, it can be configured either as a batch system or as an automated inline system, consisting of an optionally preheating and cooling module.

The system has been developed as a cost-efficient solution for processing modern low-pressure sintering materials. In addition to standard die sintering with the Softtool, it supports advanced applications such as multilayer sintering with the Softtool, die or clip sintering with hard punches and diffusion soldering of power modules.

Within the vacuum chambers, substrate temperature, atmospheric pressure and gas composition can be precisely controlled throughout the entire heating, sintering and cooling process. Copper oxidation can be effectively minimized. In particular, the use of formic acid or forming gas enables in-situ deoxidation of copper surfaces before and after sintering. Maintaining or creating oxide-free surfaces is crucial, as clean and reactive interfaces improve the sinterability of Ag and Cu materials and ensure a high-quality surface finish.

The combination of dynamically adjustable pressing force and flexible tooling provides the versatility needed to realize a wide range of sintering and bonding processes for different package designs.

System features

- Dynamically adjustable pressing force: ≤ 500 kN
- Dynamic controlled and monitored pressure ramps
- Process area: 350 mm x 280 mm
- Press tool: Exchangeable
 - Softtool
 - Hard stamp tool
 - Diffusion soldering tool
- Precise management of the process atmosphere (N₂, N₂/H₂, HCOOH)
- Atmospheric pressure range: 0.1 – 1,200 mbar
- Temperature range: up to 350 °C
- Integrated heating technology
- Hermetically sealed process chambers
- Programmable, controlled and monitored temperature profiles
- Constant process control and traceability
- Integrated interface to MES (e.g. SECS/GEM)
- Easy operation by touch screen panel
- Modular design with flexible expandability
- Internationally patented

Options

- Connection of preheating and/or cooling modules
- Customer-specific automation by addition of handling/transfer systems
- Other dimensions of the process area on request



SIN 50+ sintering system