

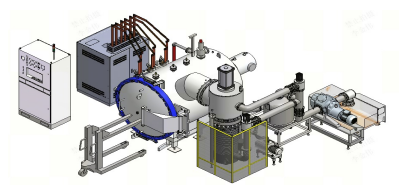
BRAZING & DIFFUSION BONDING FURNACE SYSTEMS

Thermal processing systems for vacuum brazing, controlled-atmosphere brazing, and diffusion bonding

01

VACUUM BRAZING

Complex Geometry • High Joint Integrity



- BEST FOR** Complex parts, multiple joints, enclosed microchannels
- HOW IT WORKS** Filler metal melts and flows under vacuum
- WHY CHOOSE IT** Clean joints, low oxidation, strong metallurgical quality
- EQUIPMENT** Batch vacuum brazing furnace

02

CONTROLLED-ATMOSPHERE BRAZING

Continuous • High-Volume Production

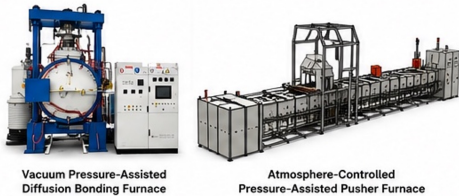


- BEST FOR** Standardized designs and high-volume production
- HOW IT WORKS** Filler metal melts and flows in a controlled atmosphere
- WHY CHOOSE IT** Continuous processing with repeatable thermal and atmosphere control
- EQUIPMENT** Continuous mesh-belt brazing furnace

03

DIFFUSION BONDING

Filler-Free • Multilayer & Microchannel Joining



- BEST FOR** Stacked/multilayer assemblies, etched microchannels, filler-sensitive structures
- HOW IT WORKS** Solid-state bonding through heat, pressure and atomic diffusion
- WHY CHOOSE IT** Filler-free joining; no molten filler intrusion into fine channels
- EQUIPMENT** Vacuum or controlled-atmosphere pressure-assisted systems

PROCESS COMPARISON

Factor	Vacuum Brazing	Controlled-Atmosphere Brazing (CAB)	Diffusion Bonding
Atmosphere	Vacuum / partial pressure	Controlled / reducing	Vacuum or controlled atmosphere
Filler Metal	Yes	Yes	No conventional brazing filler
Bonding Pressure	Normally not required	Normally not required	Applied pressure required
Production Mode	Batch	Continuous	Batch or pressure-assisted continuous
Relative Throughput	Low-Medium	High	Low-Medium-High / process-dependent

TYPICAL APPLICATIONS

Liquid cold plates, vapor chambers, microchannel heat exchangers, power electronics cooling assemblies, and advanced electronic packaging for AI and data centers, electric vehicles, semiconductor systems, and other high-performance thermal-management applications. Systems can be configured for aluminum, copper, stainless steel, titanium, nickel-based and other specialty-metal joining applications, depending on the selected process and filler/material system.

HAVE A JOINING APPLICATION?

Send us your material, assembly size, joining process, thermal profile and production requirement.



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