PALOMAR TECHNOLOGIES

Vacuum Reflow Systems
A PALOMAR solution

Making the connected world possible™

SST 3130

VACUUM PRESSURE FURNACE

A unique combination of vacuum and high pressure during reflow for optimal solder bond quality and near zero voiding in die attach, substrate attach, and package sealing applications.

Added capability for high temperature operations makes this the perfect machine for glass to metal sealing processes.

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SST 3130

VACUUM PRESSURE FURNACE

The SST 3130 is a deep chamber resistive heat vacuum and pressure furnace for void free solder joints without the use of flux, resulting in high reliability electronic components. Clean, user-friendly software combined with detailed run analyzers allows rapid process development and low operation costs.

Unparalleled temperature uniformity, high levels of vacuum, and precise control over process profiles allow for highly optimized and consistent bonding/sealing, leading to excellent product performance and quality from every run. A high temperature option allows for additional process capabilities such as brazing or glass to metal sealing.

FEATURES

- **Programmable Vacuum Furnace**
  Allows for precise control of the soldering process profile, including temperature targets, ramp rates, gas pressure, and vacuum pump control.

- **Flux-less Soldering Process Capabilities**
  Able to consistently achieve flux-free, near zero-void solder bonds for high-quality, high-reliability solder interfaces.

- **Temperature Up to 1000°C**
  Ability to reach and consistently hold temperatures up to 500°C or up to an optional 1000°C to reflow solder alloys, interconnect materials, and perform glass to metal sealing operations.

- **Precise Temperature Control**
  Control thermal cycles during reflow processes to within 5-20°C of target temperatures utilizing resistive heating for excellent product consistency.

- **Controlled Positive Pressure**
  Apply up to 60psig of inert gas pressure to collapse solder voids just before solidifying for optimal bond quality and minimal voiding.

- **Distributed Logic Control System**
  Closed-loop regulated temperature control with tuned PIDs for optimal, automatic thermal manage- ment during bonding.

- **Run Analyzer Software**
  Provides the ability to graphically review, compare, export, and inspect data from logged production runs.

- **Vacuum Level Below 50 millitorr**
  Ensure unwanted gas, contaminants, and oxides are removed thoroughly during reflow to guarantee minimal voiding.

- **Deep Process Chamber**
  High amount of overhead clearance to accommodate irregularly shaped components.

- **Single Chamber Process**
  Minimizes handling and operator intervention while expediting process times and product development turns.

- **Resistive Graphite Heating Method**
  Directly heats specialty graphite tooling boat for maximum thermal control and is compatible with legacy package applications.

HIGH PROCESS TEMPERATURE OPTION
A temperature range up to 1000°C allows this system to be used for a wide range of processes, microelectronics components, packages, and materials.

USER-FRIENDLY SOFTWARE
Clean, user-friendly software makes it easier for operators to use the machine and for program-mers to efficiently develop profiles and perform real-time process analysis.

DEEP CHAMBER WITH PRESSURE VACUUM
Deep chamber design allows for irregular shaped components or tall devices such as glass diodes to be processed.

FORMIC ACID COMPATIBLE
Able to utilize formic acid to remove oxides from bonding surfaces and solder material before reflow, ensuring optimal bond quality and minimal voiding.

TYPICAL APPLICATIONS

- Hybrid Assembly
- High Intensity LED Attach
- Power Module Assembly
- Eutectic Attach
- Hermedic Package Sealing
- Flip Chip Assembly
- Flux-less Soldering
- MMIC Die Attach
- Lead-Free Soldering
- Fiber Optic Packaging
- Automotive Device Assembly
- Glass to metal seals
- Brazing
- Pressure Sensors

SELECTED 3130 OPTIONS

• Extended Temperature Range
Optional system configuration to increase maximum process temperature to 1000°C, enabling high temperature operations such as glass to metal seals, brazing, and more.

• Cooling Water Chiller and Pump
Required chiller for vacuum furnace operation unless facility has consistent and adequate water supply for reflow processes.

• Multiple Point Temperature Recording
Optional 1 to 6 thermocouples for recording temperatures across products during reflow processes.

• Formic Acid
Formic acid delivery system to remove oxides prior to reflow for optimal bond quality and minimal voiding.

• Flux Trap
Mechanism to capture flux in streams of gas leaving the chamber to prevent contamination of lines and pumps.

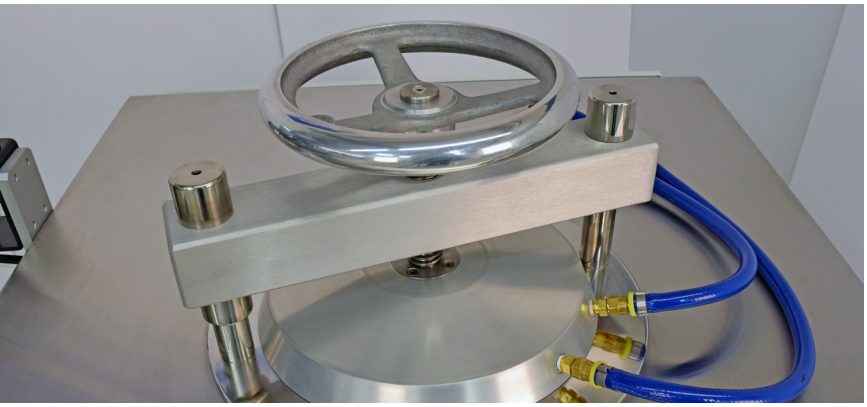
• Moisture Analyzer
Analyzer to read moisture levels in the process chamber which can be synced up to compare with process profiles.

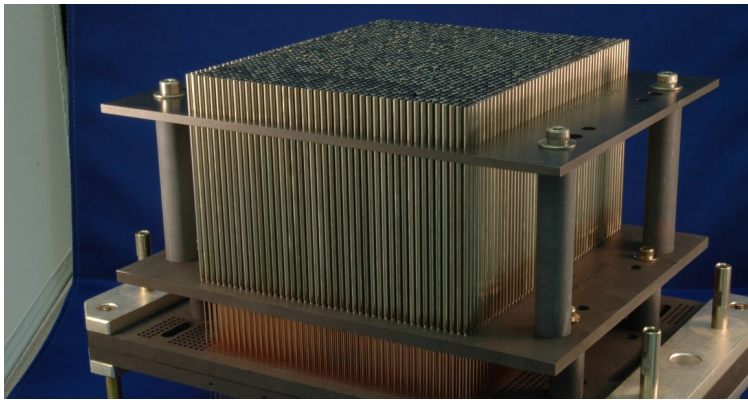
• Oxygen Analyzer
Analyzer to read oxygen levels in the process chamber which can be synced up to compare with process profiles.

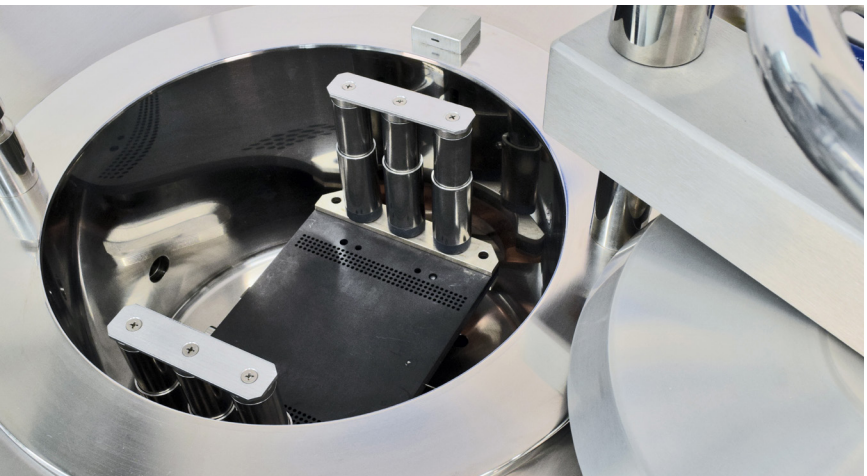
• Oil Sealed OR Dry Vacuum Pump
Option to utilize an oil sealed vacuum pump or a dry vacuum pump for more sensitive clean room environments and applications.

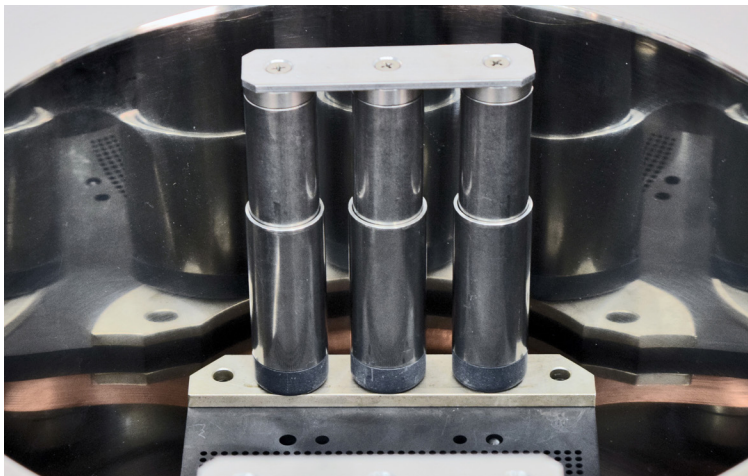
PERFORMANCE & SPECIFICATIONS	
Operating Temperature Range	Room Temperature to 500 °C (1000 °C option)
Thermal Work Zone	35"² (225 cm²) maximum
Minimum Vacuum Level	<50 mTorr (<0.067 mBar)
Maximum Chamber Gas PSI	60 psig (5 bar)
Chamber Process Area	4.75" X 5.5" (120 x 140 mm)
Chamber Depth	10" (25 cm) Deep
Clearance Over Tooling	14.6 cm
CE Certified	Available
Cooling Method	N_2 Purge
Heating Method	(removable) Resistive graphite fixture
Process Gases	N_2 required, (Ar He, forming gas optional) @ 90 psig (7 bar) minimum pressure
Dimensions (W x D x H)	54" x 43" x 53" (137 x 109 x 135 cm)
Weight	1200 lbs (545 kg)
Electrical (specify voltage)	208-240 volts, 50/60 Hz, single phase, 60 amps, 5 kW average, 13 kW peak
Vacuum Pump Type	Oil-sealed, dry vacuum (Optional)
Cooling Water (Required)	2 gpm (8 lpm) @ 20-25 °C, 2 kW minimum, 30 psig (2 bar) pressure differential

Technical Specifications are application dependent





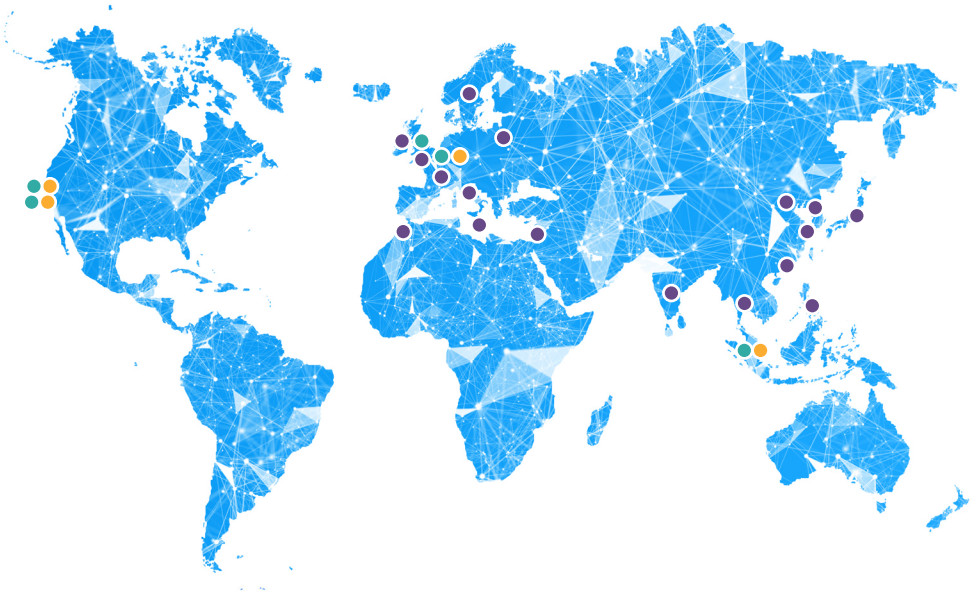




PALOMAR® TECHNOLOGIES

Making the connected world possible™

Making the connected world possible by delivering a Total Process Solution™ for advanced photonic and microelectronic device assembly processes utilized in today's smart, connected devices. With a focus on flexibility, speed, and accuracy, Palomar's Total Process Solution includes die bonders, wire and wedge bonders, vacuum reflow systems, along with Innovation Centers for outsourced manufacturing and assembly, and Customer Support services, that together deliver improved production quality and yield, reduced assembly times, and rapid ROI.



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