BTU

The Global Leader in Thermal Technology

Pyramax Vacuum

Pyramax Technology to Eliminate Solder Voids

The Pyramax Vacuum reflow oven has been designed for inline processing of PCB assemblies or products that require low solder voiding for critical performance applications. Heat dissipation applications such as thermal pads on SMT components can benefit from vacuum processing resulting in reduced solder voids, improved thermal transfer and increased yield.

The system has been designed with the requirements of large EMS, OEMs and high-volume automotive segments in mind. Processing temperatures of up to 350°C can be achieved with vacuum levels as low as 1 Torr. Integrated controls and fully automatic vacuum operation is achieved via BTU's proprietary WINCON™, Windows™-based control system. The system has a maximum processing width of up to 457 x 457 mm (18 x 18 inches).

Key Benefits

- Solder voiding to <5%
- Thermal uniformity +/- 2°C
- Superior profile control
- Full MES integration
- Lowest liquidus time

Key Features

- Recipe controlled vacuum parameters
- Bell Jar vacuum chamber design
- Vacuum chamber process heating
- Easy maintenance access
- Pass-thru mode
- Profile Guardian ready

PROFILE GUARDIAN

Specifications*

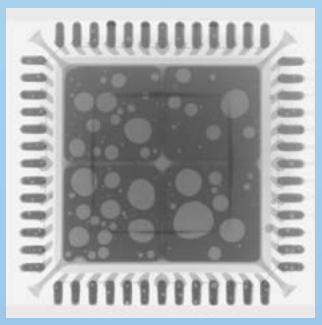
Model	Pyramax125N
Temperature Ratings:	
Process Chamber	350°C
Vacuum Chamber	300°C
Convection Heated Zones	10 top and bottom
Vacuum Chamber Internal	1 top radiant panel heater
Vacuum Chamber Heat Assist	2 heated convection zones
Conveyor System	edge rail support
Vacuum Chamber Zones	1 zone
Vacuum Chamber Size	up to 457 x 457mm (18 x 18 inches) PCB
Vacuum Specifications:	
Vacuum Level	20 Torr (1 Torr optional)
Pump Down Time	15-20 seconds (typical)
Hold Time	10-60 seconds
Refill Time	15 seconds (typical)
Atmosphere	nitrogen / air

* All specifications are subject to change without notice

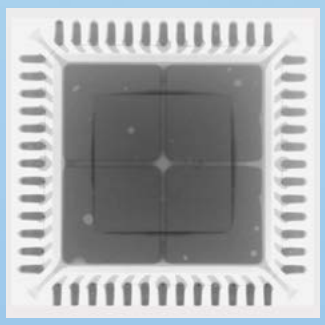
What is solder voiding?

Voiding occurs when flux or solder paste oxidation is entrapped in the solder joint. There may be several contributing factors to solder voiding. The solder paste formulation, flux type, pad design, size of the pad, thermal profile and stencil design are examples of contributing factors. A common voiding area is in thermal pads. Shown at right is an MFL processed with and without vacuum reflow. BTU's vacuum reflow solution is designed to reduce voiding to <5% (process dependent).

Traditional Reflow



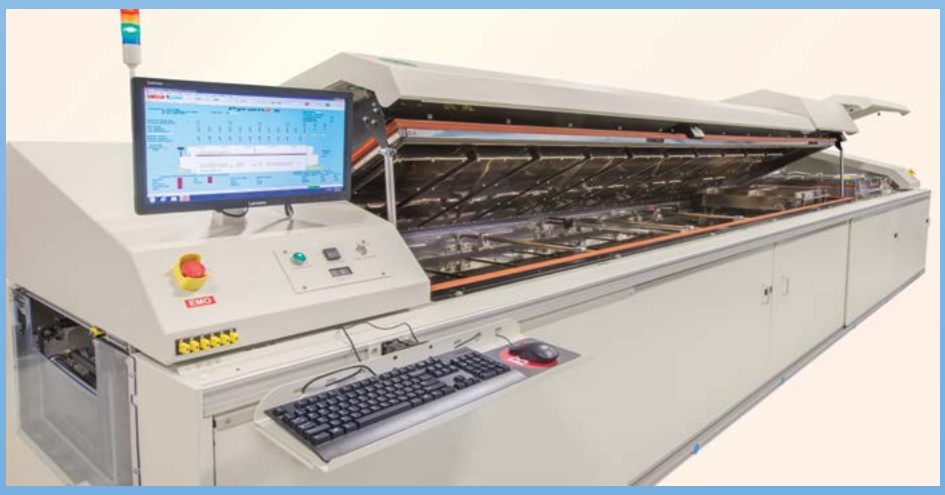
Vacuum Reflow



LEARN MORE

Scan to download the complete presentation on the operation of the Pyramax Vacuum reflow oven including voiding data generated at the Advanced Process Lab.

Vacuum Chamber



- Fully accessible design for maintenance and serviceability
- Bell jar type chamber mechanism for reliable vacuum sealing and trouble-free operation
- High precision optical sensors used for product tracking and automatic sensing operations
- Stand-alone, oil-free vacuum pump system

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