



# VeroTherm™ FAR

## Fluxless Formic Acid Reflow System



With its patented 4-zone single wafer chamber for high-precision, tunable process control and its industry-leading throughput of more than 60 wafers per hour, the YES VeroTherm™ FAR system is a game changer for advanced packaging reflow applications.

Proven subsystems and YES's four decades of vacuum technology expertise come together in this low-maintenance, small-footprint system that saves on floor space, chemical consumption, production time, and overall ownership cost.

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**Yield Engineering Systems, Inc.**

Call: **1-510-954-6889** (worldwide) or **1-888-YES-3637** (US toll free)

[www.yieldengineering.com](http://www.yieldengineering.com)



# VeroTherm™ FAR

## Fluxless Formic Acid Reflow System

- » Industry's best reflow performance extendable to sub-55 $\mu$ m (down to 12 $\mu$ m) bump pitch, multi-substrate die stacks
- » Low vacuum technology enables wicking-free reflow for high aspect ratio (> 75% reflowed bump height/diameter) bumps across wafer and die locations
- » Designed to minimize formic acid usage per wafer, and to prevent salt formation inside the chamber that causes wafer surface contamination
- » Prevents thermal shock wafer breakage by utilizing convective N<sub>2</sub> cooling and radiation
- » High throughput and low CoO
- » Space-saving footprint under 6 m<sup>2</sup>

### BEST REFLOW PERFORMANCE

- Industry's best reflow performance with patented 4-zone single wafer chamber design
- High yield with void-free, high-quality underfill and bump self-alignment performance for different aspect ratio (height/diameter) bumps
- Wafer rotation enables superior temperature uniformity (<+/-1%) due to averaging effects
- User-friendly GUI, SECS/GEM compliance, and OSHA-standard formic acid safety system
- High aspect ratio reflowed bump H/D (> 75%) achieved

### HIGH THROUGHPUT

- > 55 WPH for emerging applications and mature bumping technologies
- Dual process modular architecture for high throughput with precise single wafer process control
- Rapid heating and cooling with Z-axis lift for controlled movement between heating zone and cooling zone
- 10°C/sec ramp heating and fast transition to solder bump and copper pillar solidification

### LOW COST OF OWNERSHIP

- Smallest footprint (<6 m<sup>2</sup>) by replacing inline process with vertical processing
- Low preventive maintenance and fast qualification due to single wafer, vacuum-based process
- 10L single wafer chamber and vacuum-based process for efficient chemical utilization
- Designed to minimize formate salt issues and achieve FEOL particle performance
- 350x less formic acid usage per wafer compared to industry peers

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