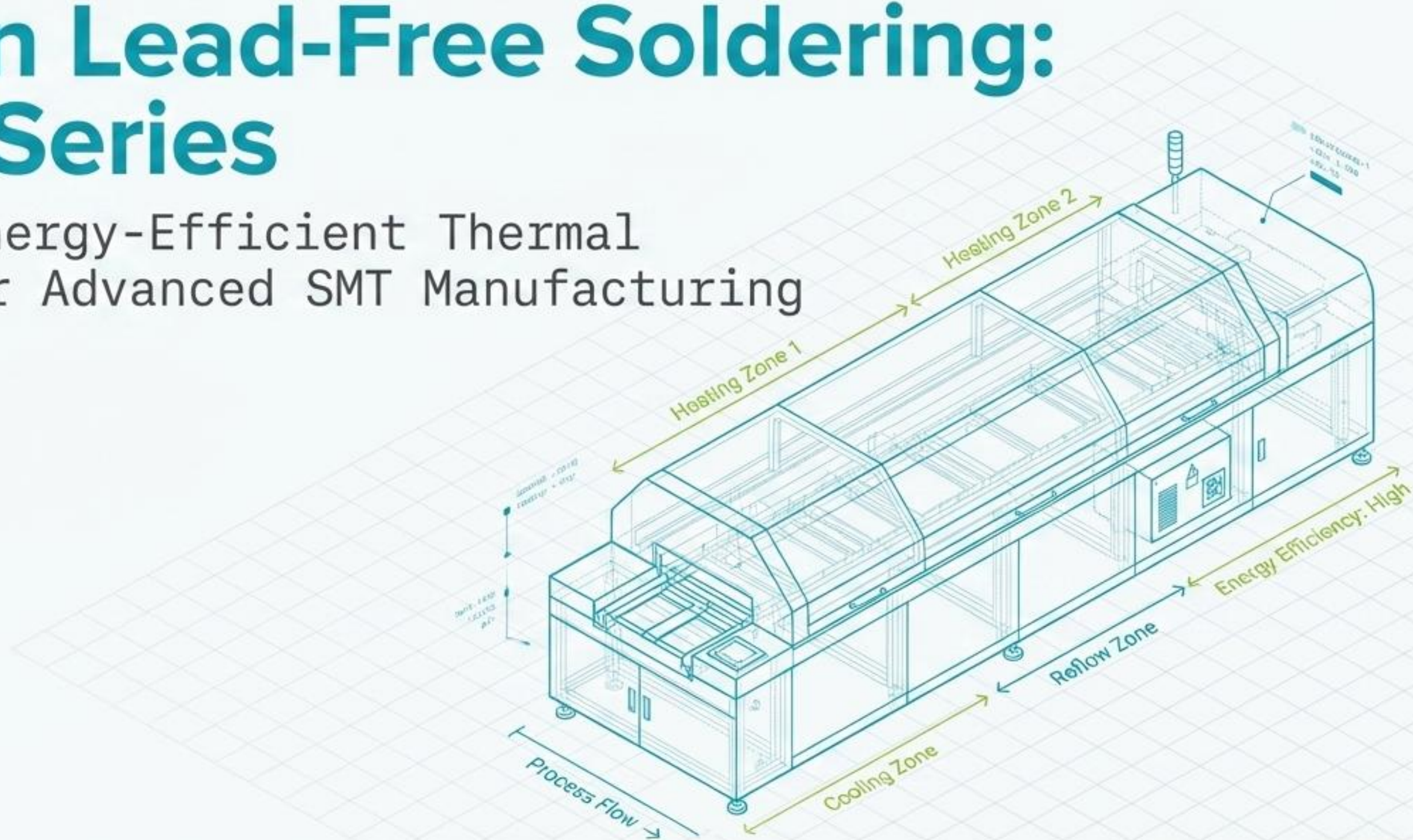
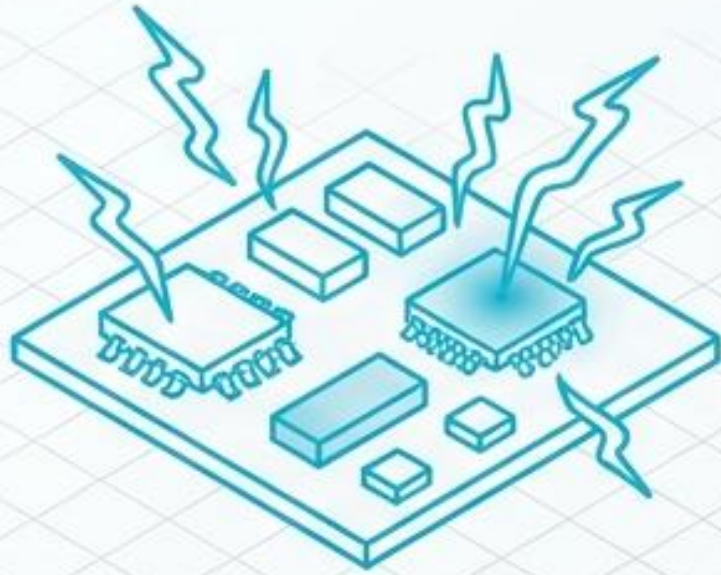


Precision Lead-Free Soldering: S-6600 Series

High-Yield, Energy-Efficient Thermal
Processing for Advanced SMT Manufacturing



The Lead-Free Challenge



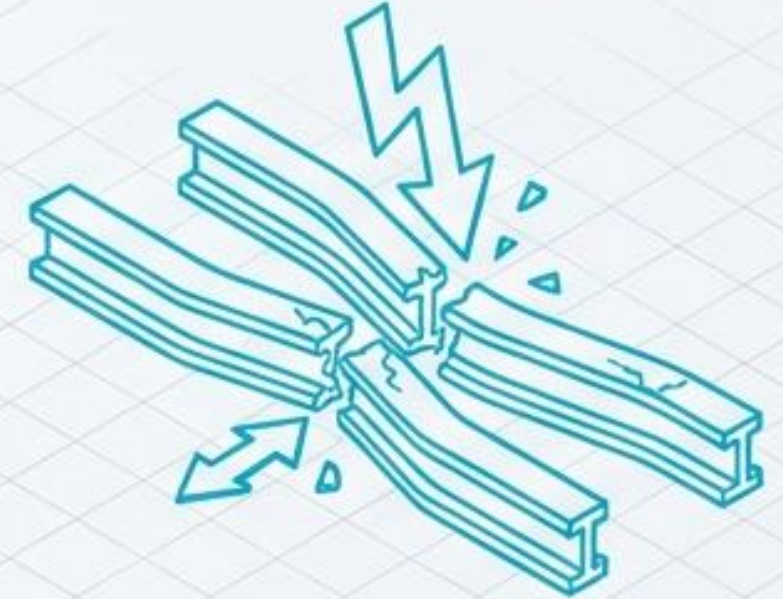
Thermal Inconsistency Yield Loss.

High-density boards and shaded components suffer uneven heat distribution, leading to cold joints or thermal damage to sensitive ICs during the high-temperature lead-free process.



Energy & Gas Inefficiency Margin Drain.

Maintaining 210-230°C reflow temperatures requires massive power draw, while poorly sealed chambers waste expensive Nitrogen (N₂), driving up hourly operating costs.



Process Instability Unplanned Downtime.

Flimsy conveyor mechanics lead to rail deformation and board jamming under high thermal stress, halting production lines.

The S-6600 Series: Engineered for the Lead-Free Standard.

Fast ROI.

15% improvement in heat transfer efficiency minimizes cycle times for complex, large-format products.



Cost-Effectiveness.

Sealed design drops N₂ consumption to an unprecedented 20-22m³/H at optimal oxygen concentrations.

Seamless Automation.

Closed-loop PID control stabilizes repetitive precision across 12 distinct heating zones.

The Precision Blueprint: Optimized Throughput & Efficiency.



Dual-Rail Throughput

Doubles production efficiency within the same physical footprint.

Synchronized closed-loop control allows stepless rate-adjusting

(0-1500mm/min base, up to 2000mm/min on PC model) for seamless line integration.



Sealed N2/O2 Chamber

Full protection sealed oven prevents gas loss. Capable of reaching lowest N2/O2 concentration of 150 ppm.

When operating at 300-800 ppm O2, N2 consumption is restricted to only 20-22m³/H.

Seamless Automation & Closed-Loop Architecture



The Core Logic

PLC + Modular Circuit. Stabilizes accurate, repetitive precision across all operations.



The Drive System

Industrial control computer manages PID (Proportional-Integral-Derivative) Closed-Loop Control combined with high-power SSR (Solid State Relay) driving. Precision maintained to $\pm 1^{\circ}\text{C}$.



Active Monitoring

Temperature monitoring system checks each zone every single second.

Auto-Cutoff: The system instantly cuts heater power and triggers an abnormal alarm if temperatures exceed the safety threshold.

The Physical Footprint

Grid Specs

Total Dimension:
L3000/3600 × W612/700 × H1220/1430mm

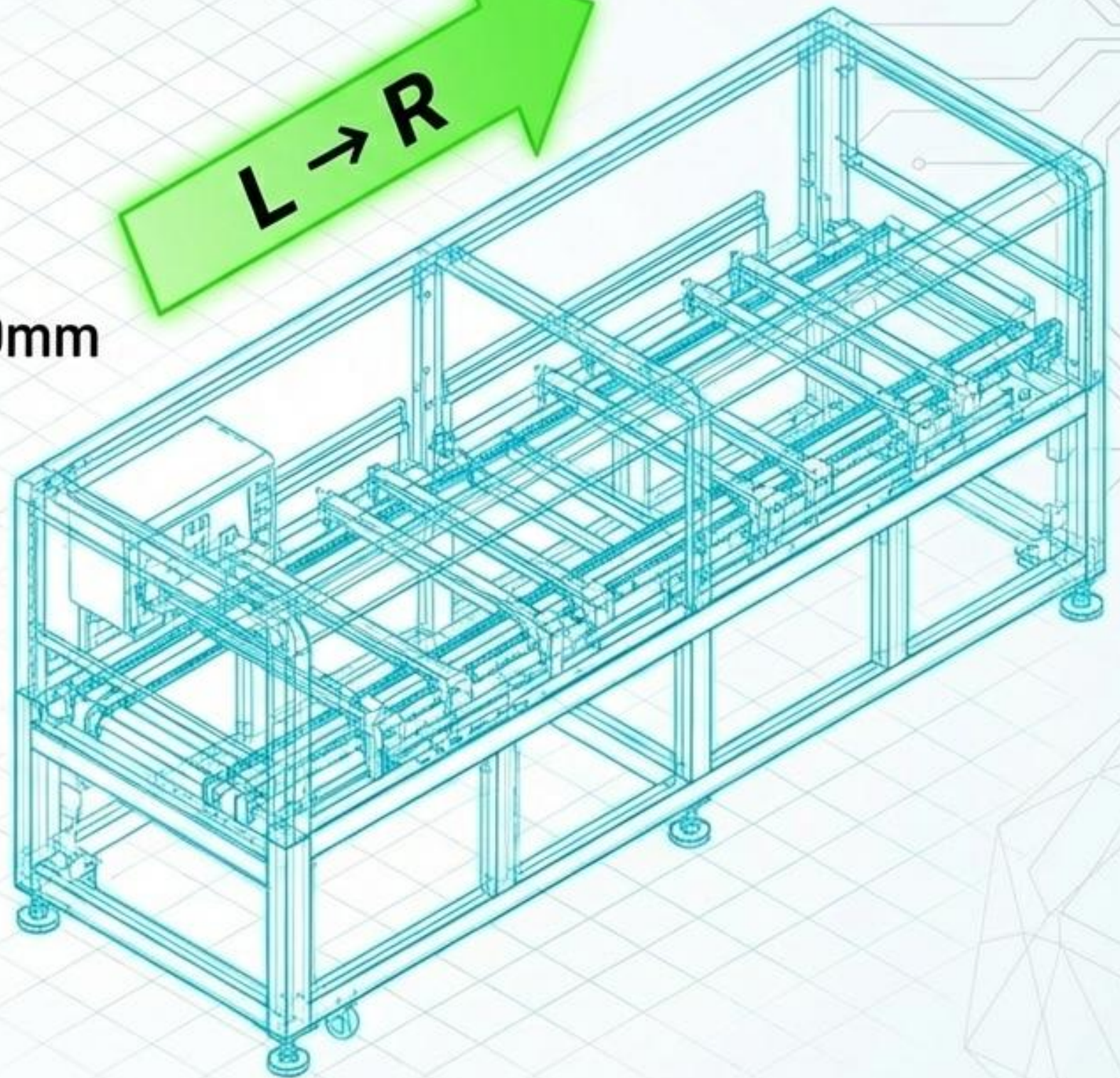
Conveyor Height: **880±20mm**

Max PCB Width: **300mm / 350mm**

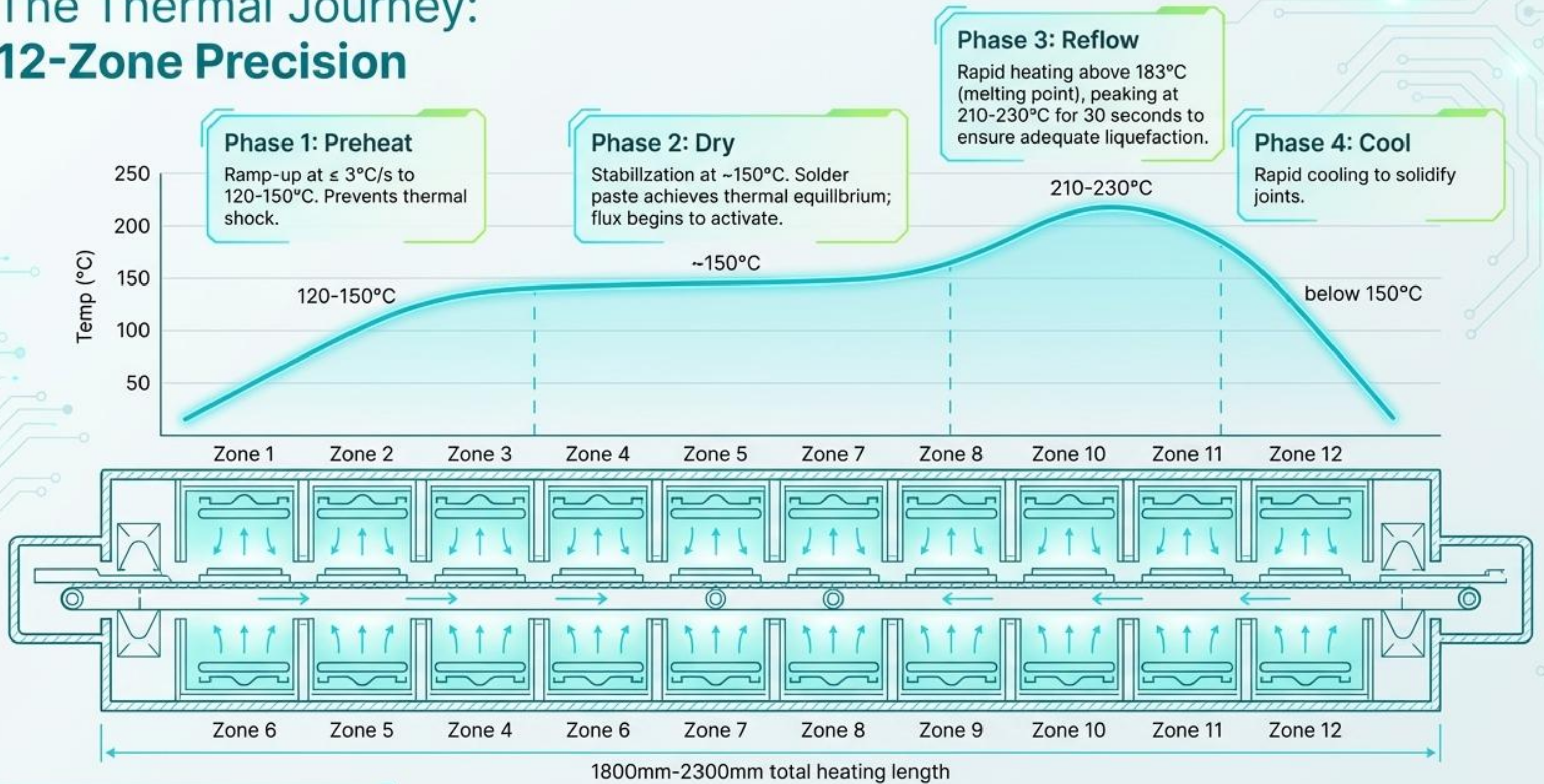
Conveyor Mechanics

Transmission Mode: **Mesh & Chain.**

Transport Stability: Machine leveled via precision bottom foot cups to maintain absolute horizontal chain tracking.

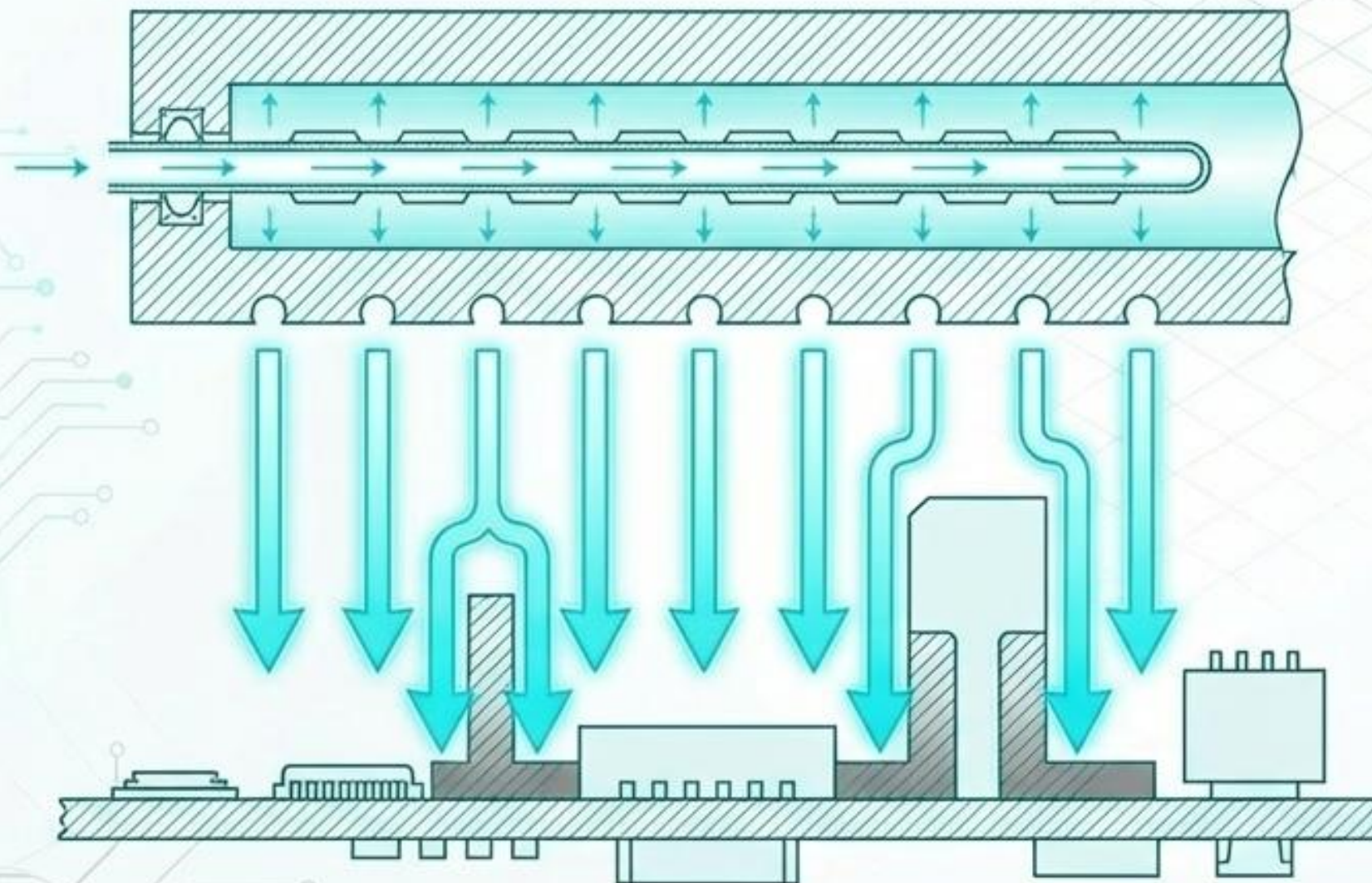


The Thermal Journey: 12-Zone Precision



Note: Bottom zones can be tuned higher to heat insensitive components from below, minimizing PCB warpage.

Laminar Convection: Heating the Shadows



- **High-Nickel Core:** Heat transfers to a full metal storage plate.
- **Precision Perforation:** Inner 6mm and outer 8mm hot air circulation holes arranged in a strict 25mm pitch.
- **Shadow Elimination:** Laminar hot air flow directly penetrates under shaded, irregularly shaped components.
- **Thermal Equilibrium:** Ensures identical components reach the exact same temperature, regardless of their position on the board or pad density.



Mechanical Stability at 350°C



Main Bracket

Reinforced main hanging bracket guarantees zero deformation under sustained lead-free thermal loads.



Hardened Rails

Transport rails undergo specialized hardening processes for maximum stability.



Zero-Jam Chain

Conveyor chain adopts a single Pin-plate design, ensuring smooth L→R transmission without board jamming or displacement.



Advanced Cooling & Flux Reclamation

Closed-Loop Airflow

New cooling configuration captures exhaust from the cooling zone.



Flux Management

Integrated filtration achieves superior flux reclamation, keeping the internal environment clean and reducing maintenance overhead.

Thermal Retention

Filtered and reclaimed air is channeled back into the oven chamber, significantly reducing overall thermal loss.

Configuration Matrix

Feature	S-6600	S-6600-PC
Heating Zones	Top 6 / Bottom 6	Top 6 / Bottom 6
Heating Length	1800mm	2300mm
Max PCB Width	300mm	350mm
Warm-up Power	10KW	24KW
Operating Power	4.5KW	3-5KW
Control Interface	Instrument Control	Industrial PC Control
Conveyor Speed	0-1500mm/min	0-2000mm/min

The S-6600-PC extends the heating zone and throughput capacity for high-volume, wide-format automated lines.



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