SUNEAST SUNFLOW S/350

HIGH-PRECISION IN-LINE MODULAR SELECTIVE SOLDERING SYSTEM

PRODUCT DATA SHEET

Industrial PCBA Assembly Lines • Model: SunFlow S/350

The **Suneast SunFlow S/350** is a high-precision, in-line selective soldering system engineered for modern high-mix and medium-to-high volume lead-free electronics manufacturing. Featuring Suneast's field-proven electromagnetic solder pump with zero mechanical wear, intelligent micro-drop fluxing, dual top/bottom preheating, and precision servo-driven multi-axis articulation, the SunFlow S/350 guarantees flawless solder penetration and minimal ΔT across multi-layer, high-thermal-mass PCBA assemblies.

±0.05 mm	350 mm	350 °C	≤ 21 kW
AXIS REPEATABILITY	MAX PCB PROCESS WIDTH	MAX SOLDER TEMPERATURE	MAX POWER CONSUMPTION

Key Technological Advantages of the SunFlow Series

Electromagnetic Solder Pump

Proprietary non-rotor induction pump eliminates moving impellers and mechanical wear. Delivers laminar, ultra-stable wave heights with drastically reduced dross formation and minimal maintenance requirements.

High-Precision Drop-Jet Fluxing

Standard high-frequency micro drop-jet applicator applies precise micro-droplets in spot or vector paths. Wettable target width reaches down to 2.0 mm, cutting chemical consumption by up to 85% compared to spray systems.

Dual-Zone Top & Bottom Preheating

Combines bottom high-response quartz IR emitters (zoned to PCB dimensions for energy economy) with top-side forced-convection hot air. Ensures uniform thermal soaking and active flux performance on high-layer boards.

Hybrid Conveyor & Edge Proximity

Synchronized pin-chain conveyor through fluxing and preheating stages, transitioning to a high-rigidity roller drive in the soldering zone. Allows reliable edge clearance soldering as close as 3.0 mm from PCB borders.

Selective Soldering Process Flow & Module Alignment

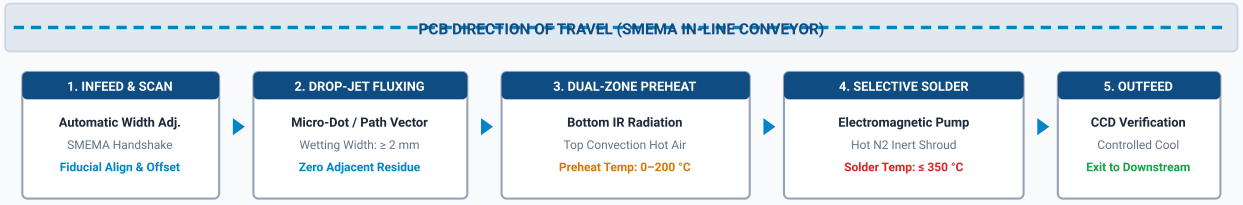


Fig. 1: Functional module layout and in-line operational flow of the Suneast SunFlow S/350 selective soldering system.

Technical Specifications & Engineering Parameters

1. SOLDER POT & ELECTROMAGNETIC WAVE GENERATOR (LEAD-FREE / ROHS COMPLIANT)	
Solder Pump Mechanism	Proprietary induction electromagnetic pump (zero moving parts, zero mechanical wear)
Solder Pot Capacity / Material	Approx. 13 – 15 kg / Special ceramic-coated cast alloy (anti-erosion)
Maximum Soldering Temperature	350 °C (Control accuracy: ±2.0 °C via closed-loop PID)
Solder Nozzle Types & Sizes	Single nozzle standard (Inner Ø 3.0 to 12.0 mm; standard inner Ø 6.0 mm wettable alloy)
Wave Height Stability	±0.2 mm with automatic solder level & wave height detection calibration
2. MICRO-FLUXING & MULTI-STAGE PREHEATING SYSTEM	
Flux Applicator Type	High-precision micro drop-jet dispenser (standard) / Atomizing spray nozzle (optional)
Applicator Pattern & Spot Size	Point / Vector path line deposition; minimum wettable spot diameter: 2.0 mm
Bottom Preheating Configuration	Zoned high-efficiency infrared (IR) quartz emitters, programmable to board dimension
Top Preheating Configuration	Forced-air hot convection heating covering preheat zone and soldering zone
Preheat Temperature Range	0 – 200 °C (Temperature display accuracy: ±2.0 °C)
3. PCB CONVEYOR & MULTI-AXIS MOTION DRIVE	
Applicable PCB Dimensions	Min. 120 mm (L) × 50 mm (W) — Max. 450 mm (L) × 350 mm (W)
PCB Thickness & Max. Load	0.8 – 6.0 mm (including pallet/jig) / Max. load weight: 5.0 kg
Component Clearances	Top side: 120 mm / Bottom side: 30 mm / PCB edge clearance: ≥ 3.0 mm
Drive Mechanism & Repeatability	AC Servo motor system + high-precision ground ball screws; Repeatability: ±0.05 mm
Conveyor Type & Speed	Hybrid pin-chain & precision roller system; Speed: 0.2 – 12.0 m/min
4. ELECTRICAL, PNEUMATICS, NITROGEN & FACILITY REQUIREMENTS	
Power Supply Requirement	AC 3-phase 5-wire, 380V (±10%), 50/60 Hz; Max installed power: < 21 kW
Nitrogen (N_2) Supply & Consumption	Pressure: 0.3 MPa; Flow rate: ~1.2 m³/h; Recommended purity: > 99.95%
Compressed Air Supply	Operating pressure: 0.5 – 0.8 MPa (clean, dry, filtered air)
Communication & Interface	Standard SMEMA interface (Upstream / Downstream protocol)
Machine Dimensions & Weight	Approx. 2970 (L) × 1620 (W) × 1700 (H) mm / Approx. 2000 kg

Nitrogen (N_2) Inert Environment & Wave Dynamics

- **Heated Nitrogen Blanket:** Envelopes the solder nozzle in a hot, inert N_2 atmosphere, virtually eliminating tin oxide dross and solder ball formation.
- **Wetting Enhancement:** Greatly accelerates intermetallic bonding and hole fill on thick multi-layer backplanes and high-copper inner layers.
- **Quick-Change Nozzles:** Proprietary alloy nozzles ensure up to 2 months continuous service lifetime with simple, rapid swap-outs.

Vision System, Programming & Traceability

- **Live CCD Monitoring:** High-definition camera provides real-time display of solder joint wetting and dynamic wave behaviour on dual monitors.
- **Flexible Programming Modes:** Support for direct Gerber file import, high-resolution board image mapping, or direct online teaching.
- **Independent Parameters:** Every single solder joint can be assigned bespoke preheat, travel speed, z-height, and dwell duration values.