SUNEAST SL120 (1.2M)

FULL-AUTOMATIC HIGH-PRECISION VISUAL SOLDER PASTE SCREEN PRINTER

PRODUCT DATA SHEET

Long-Board SMT Assembly Lines • Model: SL120 (1200 mm)

The **Suneast SL120** is a high-rigidity, fully automatic visual screen printing platform specially engineered for large-format and extra-long printed circuit boards up to 1,200 × 360 mm. Widely recognized as the premier printing solution for LED lighting strips, architectural luminaire boards, automotive backlights, and power distribution substrates, the SL120 integrates high-resolution German Basler CCD vision alignment, self-balancing suspended squeegees, a programmable 3-stage demolding system, and an ultra-rigid finite-element-analyzed (FEM) cast machine bed to achieve reliable ±0.025 mm printing repeatability across extended strokes.

1,200 mm	±0.025 mm	< 10 sec	1,500 mm
MAX PCB LENGTH CAPACITY	PRINTING REPEATABILITY	CORE CYCLE TIME (EXCL. PRINT)	MAX STENCIL FRAME LENGTH

Key Technological Innovations of the SL120 Series

1.2m Large-Format Printing Platform

Built upon a heavy stress-relieved cast base engineered by Finite Element Modeling (FEM) to eliminate torsional deflection over long squeegee strokes. Handles extra-length panels from 80 × 50 mm up to 1,200 × 360 mm with stencils up to 1,500 mm.

German Basler High-Precision CCD Vision

Features dual look-up / look-down Basler CCD optical acquisition with uniform coaxial and multi-channel ring illumination. Accurately identifies diverse fiducial geometries, pads, and apertures with an alignment precision of ±0.01 mm.

Self-Balancing Squeegee & 3-Stage Release

Suspension squeegee head automatically balances print pressure (0–20 kg) across the full blade length. Multi-step programmable peel-off demolding (0.1–20 mm/s) guarantees crisp aperture clearance and prevents bridging on fine-pitch features.

Hybrid Clamping & Large Vacuum Nesting

Combines programmable side clamping, pneumatic top-down clamping, and flexible magnetic support tooling. Optional full-length vacuum chamber prevents thin 0.2 mm flex boards and LED strips from flexing or lifting during squeegee pass.

SL120 Large-Format Printing Architecture & Alignment Flow

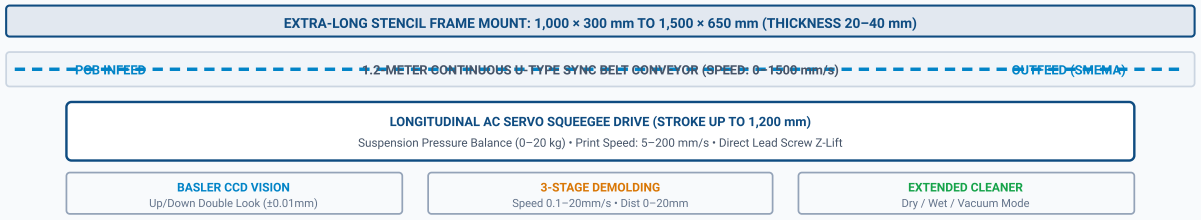


Fig. 1: 1.2-meter long-board transport layout, high-rigidity squeegee drive, and optical alignment subsystems on Suneast SL120.

Technical Specifications & Engineering Parameters

1. LARGE-FORMAT PRINTING SYSTEM & SQUEEGEE DYNAMICS	
Print Speed Range & Control	5 to 200 mm/sec fully adjustable; high-rigidity AC servo drive with direct lead screw lifting
Squeegee Head Architecture	Suspension scraper head with automatic mechanical pressure balancing across 1.2m width
Squeegee Pressure Range & Angle	0 to 20 kg programmable; standard 60° blade angle (metal steel squeegee; polyurethane optional)
Substrate Demolding (Peel-Off)	Three-section grading separation; Speed: 0.1 to 20 mm/s • Separation stroke: 0 to 20 mm
Printing & Positional Accuracy	Printing Repeatability: ±0.025 mm • Mechanical Positioning Accuracy: ±0.01 mm
2. STENCIL FRAME, 2D VISION & STENCIL CLEANING SYSTEM	
Supported Stencil Frame Dimensions	Min. 1,000 (X) × 300 (Y) mm — Max. 1,500 (X) × 650 (Y) mm; Frame thickness: 20 to 40 mm
Optical Vision Camera Unit	Germany Basler 1/3" CCD camera, 640 × 480 pixels (pixel size 5.6 μm × 5.6 μm), look-up / look-down double photo
Illumination & Field of View	Coaxial lighting + 4-channel adjustable ring LED lighting; Optical Field of View (FOV): 9 mm × 7 mm
Recognizable Fiducials & 2D Inspection	Circle, rectangle, rhombus, and custom PCB pads (Ø 1–2 mm); Integrated 2D paste inspection with NG alarm
Stencil Underside Cleaning Modes	Dry wipe, solvent wet wipe, and high-vacuum cleaning modes; automatic solvent level sensing alarm
3. PCB CONVEYANCE, CLAMPING & SUPPORT MECHANICS	
Applicable PCB Dimensions (L × W)	Min. 80 mm (L) × 50 mm (W) — Max. 1,200 mm (L) × 360 mm (W) [Dedicated for 1.2m LED lines]
PCB Thickness & Warpage Tolerance	0.2 mm to 6.0 mm (supports carriers/jigs for substrates < 0.4 mm); Allowable warpage: < 1% diagonal
PCB Clamping Architecture	Side clamping and pneumatic top clamping standard (hybrid software switchable); edge margin ≥ 2.5 mm
Under-Board Support Tooling	Magnetic support pins, magnetic flat blocks, optional vacuum chamber table, and flexible universal support
Conveyor Transport Type & Speed	U-type synchronous belt; Speed: 0 to 1,500 mm/s (1 mm/s increments); Rail height: 900 ± 40 mm
4. OPERATIONAL TIMINGS, UTILITIES & FACILITY REQUIREMENTS	
Operational Cycle Times	Core cycle time: < 10 sec (excluding printing and cleaning); Line changeover: < 5 min; Programming: < 10 min
Machine Dimensions & Net Weight	2,350 mm (L) × 1,350 mm (W) × 1,590 mm (H) [excluding signal tower] / Weight: Approx. 1,500 kg
Electrical Power Supply	Single-phase AC 220V ±10%, 50/60 Hz; Total installed power capacity: approx. 3.0 kW
Compressed Air Requirements	4.5 to 6.0 kgf/cm² (0.45 – 0.60 MPa clean dry filtered air)
Control Architecture & Interfaces	Industrial PC running Windows OS (EN/CN GUI), standard SMEMA in/out interface, optional 15-min UPS

High-Aspect Ratio Stencil Release & 2D Inspection

- **Programmable 3-Section Demolding:** Stepped separation velocity profile ensures cleanly sheared paste bricks without dog-ears or aperture clogging on long stencils.
- **Integrated 2D Paste Inspection:** Optical post-print check detects bridging, aperture clogging, and insufficient solder volume before downstream line transit.
- **One-Button Calibration:** Automated machine calibration routine quickly recalibrates axis offsets to factory tolerances without requiring manual dial gauges.

Industry 4.0, Line Integration & Changeover Speed

- **Rapid Recipe Changeover:** Switch product widths, clamping modes, and print recipes in under 5 minutes through intuitive Windows-based software.
- **Full SMEMA Compliance:** Integrates seamlessly with upstream bare board loaders, downstream conveyors, and SPI systems.
- **Smart Traceability:** Barcode scanning and batch data logging provide complete production history and statistical analysis for quality audits.