FUJI GPX-CII / CPX-CII

HIGH-PRECISION INTELLIGENT AUTOMATIC SOLDER PASTE SCREEN PRINTER

PRODUCT DATA SHEET

Advanced SMT Assembly Lines • Model: GPX-CII (CPX-CII)

The **Fuji GPX-CII** (commonly referenced in industry specifications as **CPX-CII**) is an intelligent, high-rigidity solder paste printing platform engineered to establish zero-defect paste deposition for advanced surface-mount assemblies. From ultra-fine micro-apertures (0201 metric / 008004" passives, 0.3 mm pitch CSP, and micro-BGAs) to large-format panels up to 610 × 610 mm, the system delivers industry-standard ±0.020 mm @ 6σ printing accuracy. Featuring closed-loop load-cell squeegee pressure control, a rapid 7.5-second core cycle time, versatile hybrid board clamping, and bidirectional closed-loop SPI communication, the GPX-CII eliminates printing variance across high-volume and high-mix production lines.

±0.020 mm	7.5 sec	610×610 mm	10–250 N
PRINTING ACCURACY (@6Σ, CPK ≥ 2)	CORE CYCLE TIME (LOAD/ALIGN/UNLOAD)	MAX PCB PANEL DIMENSIONS	CLOSED-LOOP SQUEEGEE FORCE

Key Technological Innovations of the GPX-CII Series

Active Load-Cell Force Regulation

High-precision load cells integrated directly into the squeegee drive head continuously monitor and regulate printing pressure in real time. Compensates instantly for board warpage, ensuring uniform paste height across full-length squeegee blades.

Multi-Mode Hybrid PCB Clamping

Enables operators to select the optimal clamping mode—side clamping, top clamping, or retractable edge clamping—according to board topography. Completely eliminates edge lift and warpage on thin flex circuits, panels, and heavy backplanes.

Resource-Saving Stencil Underside Cleaner

High-efficiency cleaning head integrates programmable wet, dry, and high-vacuum cleaning sequences. Solvent dispense width automatically adapts to the active PCB width, slashing solvent consumption while preventing aperture clogging.

Bidirectional SPI Closed Loop & Auto Paste

Communicates with downstream 3D SPI systems to automatically adjust alignment offsets, trigger predictive stencil wipes, and regulate automatic cup-type solder paste feeding based on real-time paste bead diameter monitoring.

GPX-CII In-Line Printing Sequence & Closed-Loop Architecture

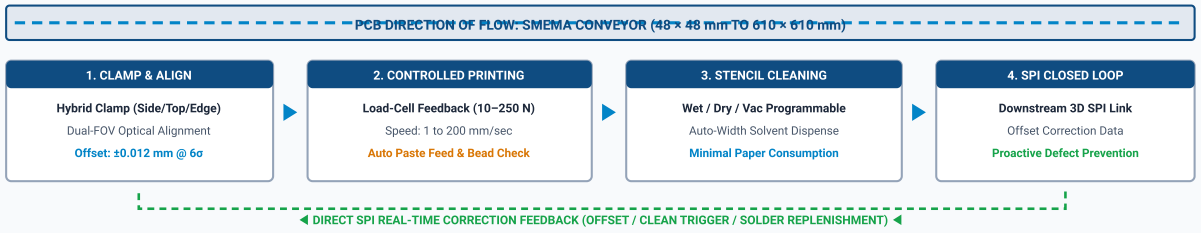


Fig. 1: Functional process flow, active load-cell squeegee mechanics, and closed-loop SPI integration on Fuji GPX-CII.

Technical Specifications & Engineering Parameters

1. PRINTING PERFORMANCE, ACCURACY & SQUEEGEE CONTROL	
Printing Accuracy (Alignment / Deposition)	±0.020 mm @ 6σ (Cpk ≥ 2.0) using CeTaQ measurement system under optimum Fuji conditions
Screen Frame Compensation Accuracy	±0.012 mm @ 6σ (Cpk ≥ 2.0) with high-rigidity 3-axis table alignment drive
Core Machine Cycle Time	Approx. 7.5 seconds (including PCB loading, optical mark reading, alignment, and unloading)
Squeegee Speed & Drive Mechanism	1 to 200 mm/sec (programmable in 1 mm/s increments); precision AC servo-driven ballscrew
Squeegee Pressure Control & Range	Real-time load-cell feedback regulation; Programmable range: 10 to 250 N
Separation Speed & Distance	0.1 to 20 mm/sec; Multi-step programmable peel-off profile for ultra-fine micro-apertures
2. STENCIL FRAME, PASTE DELIVERY & UNDERSIDE CLEANER	
Applicable Stencil Frame Sizes (L × W)	750 × 750 mm, 750 × 864 mm, 736 × 736 mm (29" × 29"); Width adjustable 550 to 750 mm without adapters
Squeegee Configuration & Blades	Double squeegee head; Metal blades (stainless steel / nickel-coated), urethane blades (various durometers)
Automated Solder Paste Supply	Cup-type automatic solder dispenser (standard paste jar) or syringe feeder with auto height sensing
Paste Roll Diameter Monitoring	Non-contact optical/laser sensing maintains optimum 15 mm paste roll diameter continuously
Stencil Underside Cleaner Unit	Automated wet / dry / vacuum wiper; width-proportional solvent spray nozzle (reduces chemical waste)
3. PCB CONVEYOR, CLAMPING & HANDLING CAPABILITIES	
Applicable PCB Dimensions (L × W)	Min. 48 mm (L) × 48 mm (W) — Max. 610 mm (L) × 610 mm (W) [Large-panel production standard]
PCB Thickness Range & Max. Weight	0.4 mm to 6.0 mm thickness / Maximum board weight: up to 5.0 kg (including carriers/pallets)
PCB Clamping System	Hybrid clamping architecture: user-selectable side clamp, top clamp, or retractable edge clamp
Board Support & Backup Pins	Vacuum backup blocks, magnetic support pins, or optional automated robotic backup pin allocation
Conveyor Transport Direction & Height	Standard Left → Right (Option: Right → Left); Conveyor pass-line height: 900 ± 20 mm
4. DIMENSIONS, UTILITIES, SOFTWARE & COMMUNICATION	
Machine Dimensions (L × W × H)	1,220 mm (L) × 1,650 mm (W) × 1,475 mm (H) [excluding signal tower and touch monitor]
Total Machine Net Weight	Approx. 1,450 kg (rigid cast-iron vibration-absorbing chassis base)
Power Supply Requirements	Single-phase AC 200 to 240 V ±10%, 50/60 Hz; Power capacity: approx. 3.0 kVA
Compressed Air Supply	0.5 to 0.7 MPa; Air consumption: approx. 50 L/min (ANR); Vacuum source integrated
Software & Line Communication	Fuji Nexim integration, Touchscreen GUI, Barcode verification, Standard SMEMA & Hermes protocols

SPI Closed-Loop & Proactive Quality Control

- **Real-Time Offset Correction:** Seamless communication with Koh Young, CyberOptics, and Parmi 3D SPI systems dynamically offsets table coordinates.
- **Predictive Cleaning Cycles:** Underside stencil wiping triggers automatically upon detecting aperture smear, preventing downstream bridged pads.
- **Traceability & Verification:** Barcode scanners verify solder paste lot, squeegee type, and stencil ID prior to line start, preventing human setup errors.

High-Rigidity Engineering & Fast Changeovers

- **Universal Stencil Clamping:** Accepts 29" × 29" and metric stencil frames from 550 to 750 mm without requiring dedicated adapter plates.
- **Automated Backup Pin Placement:** Optional robotic pin placer automatically arranges magnetic support pins based on CAD data in under 30 seconds.
- **Intuitive Touchscreen Operation:** Procedural graphical interface minimizes operator training, enabling recipe changeovers in under 2 minutes.