
Shanghai Sunton
Industry Co., Ltd
SAU50 Technical
Specification

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preface

This equipment is an intelligent storage cabinet designed for solder paste management in the SMT industry. It comprehensively solves the quality problems of solder paste caused by poor management by implementing automated functions such as solder paste reservation, refrigerated

storage, and temperature regeneration management. Additionally, it can be connected to MES/ERP systems for more efficient solder paste management.

Equipment Overview

1.1 Scope of application

1. Usage area: The line/warehouse controls the operation of refrigeration, thawing, stirring and receiving of solder paste.

1.2 Device features

1. This equipment/system is suitable for the automatic management of solder paste storage, mixing and collection. The equipment system can be used as a stand-alone machine, or it can be linked with MES for data to realize automatic refrigeration, thawing, stirring, removal and other functions of solder paste to meet production needs.

1.3 Device illustration

1.4 Example of the appearance diagram

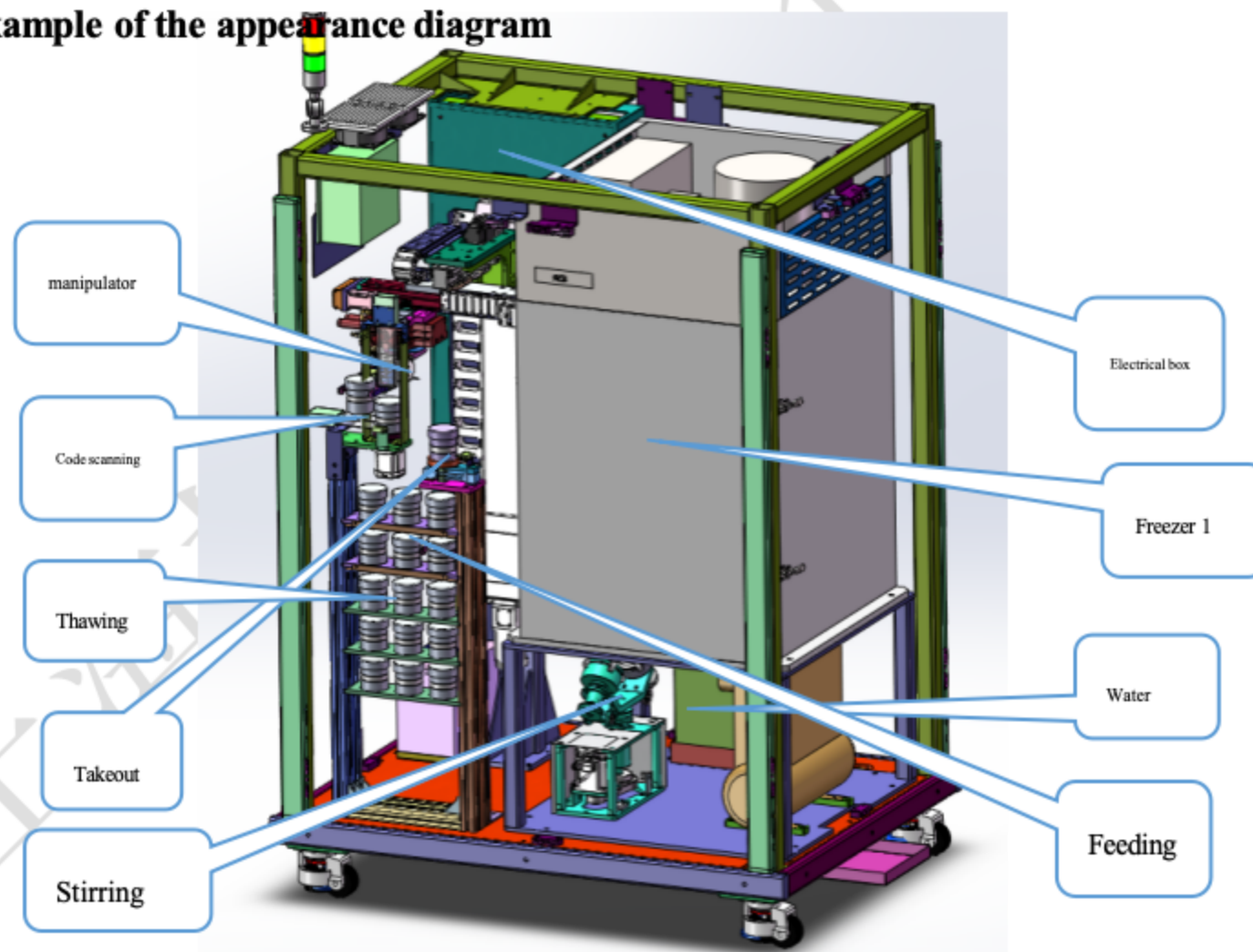


Fig.1 Schematic diagram of the shape of the solder paste cabinet

1.5 Hardware basic design requirements

1. Failure rate: $\leq 0.3\%$ (excluding human factors).
2. Specific requirements:



Figure 2 Appearance of the solder

- Device Dimensions: L1000*D1300*H1850 (excluding three-color lamp height).
- Equipment weight: 700KG

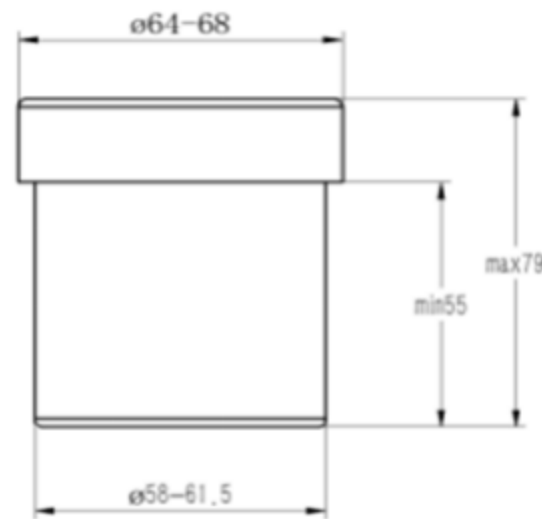


Fig.3 Solder paste bottle

size

- Solder Paste Bottle Size Range: Bottle Size:
- Equipment environment requirements: There is a certain maintenance space around the equipment, and the distance of the heat dissipation hole of the equipment ($\geq 1\text{m}$)
- Refrigeration capacity: 80 bottles of refrigeration that meet the size range of solder paste bottles;
- Refrigeration temperature: $1^{\circ}\text{C}\sim 10^{\circ}\text{C}$ can be set;

- Refrigeration method: imported inverter compressor, automatic frost;
- Feeding quantity: 6 bottles that meet the size range of solder paste bottles;
- Thawing quantity: 8 bottles that meet the size range of solder paste bottles;
- Thawing temperature: 18°C~28°C (room temperature $\pm 2^{\circ}\text{C}$);
- Temperature monitoring: refrigeration (upper, middle, lower), temperature return area, high and low temperature alarm prompt;
- Thawing time: 4 hours at room temperature >; The thawing time can be set separately according to the part number;
- Thawing method: automatic thawing/manual reservation;
- Thawing and foolproof: automatically return to the refrigerated area after the temperature recuperation time (can be set according to the control setting), and give priority to the use conditions;
- Stirring quantity: 1/2 bottle, stir with a counterweight when 1 bottle;
- Stirring speed: 500 rpm for revolution, 400 rpm for autonomy; The speed can be set, up to 1000 rpm in a single revolution;
- Mixing time: 1~10 minutes (can be set according to the model);
- Feeding method: manual feeding, automatic induction feeding at the storage position;
- Code reading method: automatic code scanning (side or top scanning);
- Barcode type: 1D code or 2D code (choose one of the two);
- Solder paste collection: permission verification collection;
- Confirm after use: cancel the code to receive the overtime alarm, and the time can be set;
- Solder paste storage: the number of times the custom part number is put into storage;
- Discharge principle: first-in, first-out (first-out according to production or expiration date), second-in-storage solder paste first-out;
- Operational permissions: Level 3 permissions
 - Level 1: Administrator, can set all functions;

- Level 2: Can be configured, such as: warehousing and reservation;
- Level 3: Can be configured, such as: leading;
- Permission recognition: 1C card + password (fingerprint recognition optional);
- Abnormal alarm style: three-color alarm light + beep + information prompt;
- Servo module: bus type design, absolute value encoder, stable and easy to protect;
- Control mode: motion control card + upper computer;
- Operation mode: Touchable PC operation;

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1.6 Data and MES

- Information traceability: scan the code to query, two-way traceability.
- Inventory Alert: Minimum Inventory Alert (Expiration or Expiry Warning)
- Data report: record query, temperature query
- MES system: standard MES docking
- Log logs: Log storage functions can query the running status and exceptions

1.7 Other:

- Power Supply Requirements: AC220V
- The design must consider easy cleaning and maintenance, safety door protection, and dust-proof components;
- Workshop temperature: $\leq 28^{\circ}\text{C}$
- The power supply inlet end of the equipment must be equipped with a switch, and it cannot be equipped with only a terminal or contactor as a power access point.

1.8 Error prevention and fool-proof requirements:

- It is necessary to have a secure access control and interlock shutdown mechanism;
- When maintaining equipment, it is necessary to consider the control and foolproof of mechanical operation and electrical status of the equipment;
- The electrical circuit of safety components such as emergency stop and access control is independent of the control circuit;

General requirements for equipment

1.9 Device operating mode

1. Device operating mode

1) Provide automatic and manual operation modes, and permission requirements are required to switch between operating modes.

2) Provide perfect fault diagnosis function, when the equipment fails, the control panel can prompt the fault type, occurrence location, and provide specific treatment methods if necessary.

2. Equipment status display, storage and usable quantity statistics.

3. Equipment status information (such as normal operation, equipment failure, etc.) needs to be collected and displayed.

4. Statistics are collected and abnormal information is displayed. For example: inventory warning, overdue warning.

1.10 Confidentiality requirements

1. All equipment manufacturers must enter into a confidentiality agreement with the buyer and abide by it unconditionally.

1.11 Equipment safety requirements

1. The equipment meets the national safety standards for mechanical and electrical equipment.
2. Safeguards must be in place to protect personnel from possible harm from intentional or unintentional entry into the hazardous area.
3. All open connections should be sealed and protected when the device is shipped.
4. The appearance and structure of equipment protection devices should be checked one by one during the design review. Post-processing and installation should not cause mechanical interference, inconvenient maintenance and related safety problems.

1.12 Equipment TECSA requirements

1. General guidelines for mechanical structure design
 - 1) Reliability should be fully considered when designing components, including mechanical strength, assembly methods, etc., to ensure that the long-term operation of the equipment will not interfere with other accessories due to deformation, fatigue and other problems, resulting in collision and friction to produce pollutants;
 - 2) Equipment vents (e.g., from fans, motors, cylinders, and valves) should not be directed towards the inside of the equipment or at least not towards the surface of the product;
 - 3) Mechanical parts must be removed from burrs and welding slag to prevent burrs and welding slag from falling off under the action of external force during equipment assembly and use;
 - 4) Equipment parts need to be reliably treated with anti-corrosion to ensure that the equipment does not rust during use;
 - 5) Parts should avoid pits, grooves, slits, steps to prevent dust accumulation, screw

fixing should be selected under the parts as much as possible, and if it cannot be designed below, it must be made into a sinking hole design and sealed to eliminate steps or grooves;

1.13 Equipment system requirements

1. Well-known computer brand, stable operation in line with production requirements.
2. The equipment computer is prohibited from installing software that is not related to the operation of the equipment; Configure the storage directory path of the log file as specified.

1.14 Measurement system requirements

1. Measuring instrument calibration management

For the measuring instruments configured on the equipment, there must be a certificate of conformity (shipment inspection report, calibration report, first verification certificate, measurement guarantee, one of the above), and within the calibration cycle (defined by one year if not specified), the conformity label will be directly affixed. If not, the seller needs to provide corresponding quality certification materials.

1.15 Random delivery of goods

1. The seller provides consumable equipment and spare parts for the annual use of this equipment
2. The seller is required to provide documentation related to the equipment, including but not limited to the following list:

serial number	name	quantity	description	remark
1	Operating instructions	1 serving	Electronic file	Including 1. Operation instructions; 2. Common fault handling, etc
2	Equipment maintenance manual	1 serving	Electronic file	Including 1. Maintenance specifications and operation instructions; 2. Description of common vulnerable maintenance items in the equipment maintenance cycle;
5	List of wearing parts	1 serving	Electronic file	Wearing part name, quantity, specification, model, or part number
6	Production inspection report	1 serving	Electronic file	equipment, refrigerator

1.16 On-site acceptance

1. The equipment is delivered by the seller to the place designated by the buyer, and the equipment is installed and debugged by the seller in the buyer's factory. The conditions for entering the preliminary acceptance of trial production are as follows:
 - a) The main equipment/components are installed within 15 days, and no important equipment or components that affect production are not installed.
 - b) Within 15 days, the main equipment stand-alone/MES docking is completed, and there is no important equipment or components that affect production and are not debugged separately.
 - c) The training of the main equipment has been completed, and there is no important equipment or components that affect production have not been trained.
 - d) Submit an acceptance application
 - e) Submit the equipment operation manual
 - f) Before the operation training (before trial production), provide the operation manual (in Chinese), which includes: equipment operation guide, (software) program manual, equipment maintenance guide, equipment troubleshooting and maintenance manual.
 - g) All wear parts are provided according to the list previously confirmed by both parties.

1.17 Final acceptance criteria

The final acceptance process begins within 30 days of the equipment arrival at the factory (if the equipment supplier is not in place for installation, commissioning, training and other reasons, the two parties will negotiate the acceptance extension time; If it is our reason, the acceptance process will be completed within a maximum of 60 days)

1. All equipment arrives and is installed.
2. All equipment processes have been debugged.
3. The rectification project of all equipment has been implemented, and there are no major remaining problems, and small problems that do not affect production must be solved within a time limit.

4. All equipment documents are handed over.
5. Provide equipment certificate and factory calibration report.
6. The solder paste controlled can meet the requirements of this technical specification and be confirmed by the relevant departments of the buyer.
7. The continuous trial operation of the equipment is assessed for 30 days, and the specific start date is consistent with the assessment start date of the entire project. If the production line continues to operate normally during the trial operation period, the equipment does not have major failures, and the requirements of the process design cycle time and equipment operating rate are met, the two parties will negotiate and decide whether to carry out the final acceptance of the project. If the equipment fails during the trial operation period, the seller shall eliminate it immediately. If the equipment has a major failure during the trial operation period or does not meet the requirements of process design cycle time and equipment operating rate, in principle, the trial operation period will be postponed to 30 days from the date of troubleshooting. The two sides negotiated and decided to postpone the number of days.

Installation, commissioning and training

1. Unless otherwise required in writing, the seller is responsible for distribution, installation and commissioning of the equipment.
2. The seller should purchase construction clothing (one-piece clothing, work hat, labor protection shoes, etc.) according to the buyer's requirements
3. The seller should bring the necessary equipment for construction
4. The seller needs to arrange commuting time according to the buyer's requirements (generally needs to be synchronized with the buyer's production time), and if necessary, arrange evening shift personnel
5. The seller provides free training to the buyer's related personnel. The content includes the normal use of equipment, maintenance, fault analysis and troubleshooting, operation safety and emergency handling procedures.
6. Two weeks before the arrival of the equipment, the seller shall notify the buyer of the electrical requirements for the equipment to facilitate the buyer's technical preparations.

7. After the goods arrive at the user unit, the seller arrives at the site within 3 days after receiving the buyer's notice, and the seller is responsible for organizing assembly and commissioning. The cost of assembly, commissioning, and training is included in the total bid price, and the seller shall be responsible for repairing and repairing the goods if they are confirmed to be wrong, missing, lost or damaged after unpacking.
8. The seller shall send technicians to be responsible for on-site installation, commissioning, commissioning and equipment performance testing of the contracted equipment, and send technicians to explain to the buyer on site. The seller shall be fully responsible for the equipment meeting the technical indicators specified in each contract. The acceptance standard of equipment installation and commissioning shall be subject to the relevant technical terms of the contract;

Quality assurance and after-sales service

1. The warranty period of the equipment is 12 months from the date of official acceptance of the equipment, during which the seller is responsible for free repair and maintenance of the equipment (except for wearing parts). If there is any abnormal equipment quality, the seller's after-sales service personnel shall arrive at the equipment site within 24 hours after receiving the buyer's notice.
2. After the warranty period expires, the seller shall still be responsible for repairing and maintaining the equipment, but only charge reasonable working hours and reasonable transportation costs, involving the replacement and purchase of equipment-related accessories, and the seller will only charge the cost of accessories.
3. The bidder shall set up (equip) an after-sales service agency in the buyer's country, and be equipped with more than 3 senior engineers with after-sales service and process support for more than 3 years. (The bidder should provide the address, contact number and list and contact information of the maintenance engineer of the after-sales service organization)
4. The maintenance engineer should provide a 24-hour service consultation hotline, and should actively cooperate after receiving the consultation call, and if necessary, after negotiation between the two parties, the manufacturer's engineer should rush to the buyer's site within 24 hours.

5. The seller should have a spare parts depot in the country, and the spare parts in the spare parts depot should be sufficient and in a tax-paid state for easy access at any time.

Controlled files

1. Cover: Contains basic information such as file name, version number, date, and approver.
2. Table of contents: Lists the sections and their page numbers in the document.
3. Introduction: Briefly introduce the background, purpose, and scope of application of SAU50 products.
4. Technical parameters: List the technical parameters of SAU50 products in detail, such as size, weight, performance, material, etc.
2. Design requirements: Describe the relevant standards, specifications and requirements that SAU50 products need to follow during the design stage.
3. Production process: Introduce the process, methods and requirements used in the production process of SAU50 products.
4. Inspection and testing: Describe the inspection and testing methods required for SAU50 products during the production process, as well as relevant standards and specifications.
5. Product Quality Assurance: Describe the quality assurance measures of SAU50 products during production, use, and maintenance.
6. Safety and environmental protection: Explain the safety and environmental protection requirements that SAU50 products need to follow during the design and use.
7. Packaging, Shipping, and Storage: Introduce the packaging, transportation, and storage

methods of SAU50 products.

8. Installation, commissioning and acceptance: Explain the relevant requirements and standards of SAU50 products in the process of installation, commissioning and acceptance.
9. After-sales service: Describe the after-sales service content and method of SAU50 products.
10. References: Lists the relevant standards and literature cited in the document.
11. Appendix: Including technical drawings, tables, examples, etc.
12. Revision History: Records historical revisions to the SAU50 technical specification.
13. Approval page: Contains the signature, date and other information of the relevant personnel

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