
S h a n g h a i S u n t o n
I n d u s t r y C o . , L t d

HC-800 Technical
Specifications

上海旭同实业有限公司

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preface

This equipment is a smart storage cabinet designed for solder paste management in the SMT industry. It comprehensively solves the solder paste quality problems caused by poor management by automating functions such as solder paste reservation, cold storage, and thawing management. In addition, it can be connected to systems such as MES/ERP for more efficient solder paste management.

Equipment overview

1.1 Scope of application

- 1. Use area: lineside/warehouse controls the operations of refrigeration, thawing, stirring and requisitioning of solder paste.

1.2 Equipment features

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

1.3 Hardware basic design requirements

- 1. Failure rate: $\leq 0.3\%$ (except human factors).



Figure 1 Schematic diagram of the shape of the solder paste cabinet

2. Specific requirements:

- Equipment appearance size: L2640*D1930*H2100 (excluding three-color

lamp height)

- Equipment weight: 1500KG

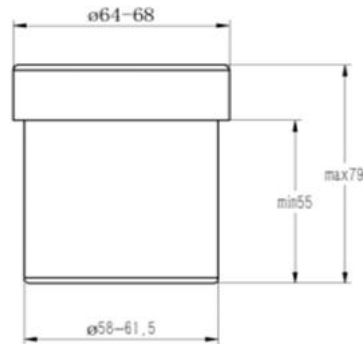


Figure 3 Solder paste bottle size

- Solder paste bottle size range: bottle size:
- Equipment environment requirements: There is a certain maintenance space around the equipment, and the distance between the heat dissipation holes of the equipment is ($\geq 1\text{m}$)
- Refrigerated capacity: 860 bottles of refrigerated capacity to meet the size range of solder paste bottles;
- Refrigeration temperature: $1^{\circ}\text{C}\sim 10^{\circ}\text{C}$ can be set;
- Refrigeration mode: imported inverter compressor, automatic frost;
- Feeding quantity: 160 bottles of feeding to meet the size range of solder paste bottles;
- Thawing quantity: 80 bottles to meet the size range of solder paste bottles;
- Thawing temperature: $18^{\circ}\text{C}\sim 28^{\circ}\text{C}$ (room temperature $\pm 2^{\circ}\text{C}$);
- Temperature monitoring: refrigeration (upper, middle and lower), back temperature zone, high and low temperature alarm prompt;
- Thawing time: > 4 hours at room temperature; The heating time can be set individually according to the part number;
- Thawing mode: automatic thawing/manual reservation;
- Thawing and fool-proof: automatically return to the refrigerated area when the temperature is overtaken (can be set according to the control and control),

- and give priority to the use if the use conditions are met;
- Stirring quantity: 1/2 bottle, stir with counterweight when 1 bottle;
 - Stirring speed: 500 rpm for revolution, 400 rpm for rotation; The speed can be set, and the maximum speed of a single revolution can be up to 1000 rpm;
 - Stirring time: 1~10 minutes (can be set according to the model);
 - Feeding method: manual feeding, automatic induction feeding of storage location;
 - Code reading method: automatic code scanning (side or top code scanning);
 - Barcode type: 1D code or QR code (choose one of the two);
 - Solder paste collection: Permission verification and collection;
 - Confirmation of exhaustion: cancel the code and receive the timeout alarm, the time can be set;
 - Solder paste restocking: the number of inbound times for custom part numbers;
 - Discharging principle: first-in, first-out (first-out according to production or expiration date), second-in-warehousing solder paste first-out;
 - Operation permissions: Level 3 permissions
 - Level 1: Administrator, who can set all functions;
 - Level 2: can be configured, e.g. warehousing and reservation;
 - Level 3: Can be configured, e.g. requisition;
 - Authority identification: 1C card + password (fingerprint recognition optional);
 - Abnormal alarm mode: three-color alarm light + buzzer + information prompt;
 - Servo module: bus design, absolute encoder, stable and easy to protect;
 - Control mode: motion control card + upper computer;
 - Operation mode: touch PC operation;

1.4 Data and MES

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

1.5 Other:

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

1.6 Error-proofing and fool-proof requirements:

- Security access control and chain shutdown mechanism are required;
- It is necessary to consider the control and fool-proof of the mechanical action and electrical state of the equipment when the equipment is maintained;
- The electrical circuit of emergency stop, access control and other safety components is independent from the control loop;

General requirements for equipment

1.7 Equipment operating mode

1. Equipment operating mode

1) Provide automatic and manual operation modes, and permission requirements are required for switching operation modes.

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

2. The status of the equipment is displayed, and the storage and usable quantity statistics are displayed.

3. You need to collect and display equipment status information (such as normal operation,

equipment failure, etc.).

4. Statistics need to be collected and anomaly information displayed. Such as: inventory warning, overdue warning.

1.8 Confidentiality Requirements

1. All equipment manufacturers are required to sign a confidentiality agreement with the buyer and unconditionally abide by it.

1.9 Equipment security requirements

1. The equipment conforms to the national safety standards for mechanical and electrical equipment.
2. Protective measures must be provided to protect personnel from possible harm, intentionally or unintentionally entering the hazardous area.
3. All open connections should be sealed and protected at the time of shipment of the equipment.
4. The appearance and structure of the equipment guards need to be checked one by one during the design review. Post-processing and installation must not cause mechanical interference, inconvenient maintenance and related safety issues.

1.10 Equipment TECSA requirements

1. General Principles for the Design of Mechanical Structures
 - 1) Reliability should be fully considered in the design of 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 and pollutants;
 - 2) Equipment vents (e.g., from fans, motors, cylinders, and valves) should not be oriented towards the inside of the equipment or at least not towards the surface of the product;
 - 3) The machined 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 the assembly and use of the equipment;
 - 4) Equipment parts need to be reliably anti-corrosion treatment to ensure that the

equipment does not rust during use;

- 5) The parts should avoid pits, grooves, slits, and steps to prevent dust accumulation, and the screws should be fixed under the parts as much as possible.

1.11 Equipment system requirements

1. A well-known computer brand, which meets the production requirements and runs stably.
2. It is forbidden to install software that is not related to the work of the equipment; Configure the directory path of the log file as required.

1.12 Measurement system requirements

1. Calibration management of measuring instruments

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 is sufficient), and within the calibration cycle (if not specified, it is defined as one year), the qualification label is directly affixed. If not, the seller shall provide the corresponding quality certification materials.

1.13 Random deliverables

1. The seller provides consumables and spare parts for one year's use of this equipment
2. The seller is required to provide documentation related to the equipment, including but not limited to the following lists:

serial number	name	quantity	description	remark
1	Operating instructions	1 serving	Electronic files	Includes: 1. Operating instructions; 2. Common fault handling, etc
2	Equipment Maintenance Manual	1 serving	Electronic files	Including: 1. Maintenance specifications and operating instructions; 2. Description of common vulnerable maintenance items in the equipment maintenance cycle;
5	List of consumables	1 serving	Electronic files	The name, quantity, specification, model or part number of the consumable part
6	Production inspection report	1 serving	Electronic files	equipment, refrigerator

1.14 On-site acceptance

1. The equipment shall be delivered by the seller to the place designated by the buyer, and

the equipment shall be installed and debugged by the seller in the buyer's factory, and the equipment shall be accepted and confirmed by the relevant departments and personnel of the buyer and meet the conditions for initial acceptance of production. The conditions for entering the initial 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 has been completed, and no important equipment or components that affect production have not been debugged stand-alone.
- c) The training of the main equipment is completed, and there is no important equipment or components that affect the production are not trained.
- d) Submit an acceptance application
- e) Submit the equipment operation manual
- f) Before the operation training (before trial production), provide the operation instructions (in Chinese), the operation instructions include: at least: equipment operation guide, (software) program manual, equipment maintenance guide, equipment troubleshooting and maintenance manual.
- g) All wearing parts are provided according to the list previously agreed by both parties.

1.15 Final Acceptance Criteria

The final acceptance process will start within 30 days of the equipment arriving at the factory (if the installation, commissioning, and training of the equipment supplier are not in place, the two parties will negotiate the acceptance extension time; If this is our case, the acceptance process will be completed within a maximum of 60 days)

1. All equipment arrives and is installed.
2. All equipment process commissioning has been completed.
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. The documentation of all equipments is handed over.
5. Provide equipment certificate and factory calibration report.
6. The controlled solder paste can meet the requirements of this technical specification and be confirmed by the relevant departments of the buyer.
7. The reliability assessment of the continuous test operation of the equipment is 30 days, and the specific starting date is consistent with the assessment start date of the whole project. If the production line runs normally continuously during the trial operation period, the equipment does not have major failures, and the process design beat and equipment operation rate requirements 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 immediately eliminate it. If there is a major failure of the equipment during the trial operation period or does not meet the requirements of the process design beat and the equipment operating rate, in principle, the trial operation period will be extended to 30 days from the date of troubleshooting. The number of days to be postponed will be decided by both parties through consultation.

Installation, commissioning and training

1. Unless otherwise requested in writing, the Seller is responsible for delivery, installation and commissioning of the equipment.
2. The seller shall purchase construction clothing (coveralls, work hats, labor protection shoes, etc.) that meet the requirements according to the buyer's requirements
3. The seller shall provide its own equipment required for construction
4. The seller needs to arrange the commuting time according to the buyer's requirements (generally need to be synchronized with the buyer's production time), and if necessary, arrange the night shift staff
5. The seller provides training to the buyer's related personnel free of charge. The content includes the normal use of the equipment, maintenance, fault analysis and elimination, 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 use of the equipment, so as to facilitate the buyer's

technical preparations.

7. After the goods arrive at the user unit, the seller will arrive at the site within 3 days after receiving the buyer's notice, and the seller will be 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 it is confirmed that the goods are wrong, missing, lost or damaged after unpacking.
8. The seller shall send technical personnel to be responsible for the on-site installation, commissioning, trial operation and equipment performance testing of the contracted equipment, and shall send technical personnel to the buyer to conduct on-site explanations. The seller shall be solely responsible for the equipment to meet the specifications specified in the contract. The acceptance criteria for equipment installation and commissioning are 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 formal acceptance of the equipment, during which the seller is responsible for free repair and maintenance of the equipment (except for wearing parts). If the quality of the equipment is abnormal, 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 expiration of the warranty period, the seller shall still be responsible for the repair and maintenance of 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 the accessories.
3. The bidder shall set up (equip) after-sales service organization 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 shall 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 24-hour service consultation telephone, and should actively cooperate after receiving the consultation call, if necessary, after negotiation

between the two parties, the manufacturer's engineer should arrive at the buyer's site within 24 hours.

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

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