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3 in 1 Program-Controlled Rework Station

INSTRUCTION MANUAL

CSI853B+

English



Thank you for purchasing this program-controlled rework station, this product is specially designed for lead free desoldering. Please read the instructions carefully before use. And after reading, please keep for future reference

Safety Regulations

To use this product, the following basic measures should be strictly followed to avoid hazards of electric shock, bodily injury, fire and other phenomenon.

1. In order to ensure safety, please turn off the power switch when not in use.
When not in use for an extended period, please unplug the power cord!!!
2. Serious consequences may result if non-original or non-approved parts are used.
3. Machine failure must be maintained by professional or our designated personal.
4. This product uses three wire grounding plug must be inserted into three grounding socket, do not change the plug or no use the three floating head adapter bad grounding.
5. After the rework station is switched on, its temperature can exceed 400 degrees centigrade. Do not use near flammable or explosive objects. To avoid burns, do not touch the metal part of the soldering iron.
6. Do not leave the work area when the rework station is switched on.
7. The power cord must be unplugged and the rework station Must be allowed to cool before installing or replacing parts.
8. After used, remember that cooling the unit before installation.
9. Soldering produces fumes, ensure there is adequate ventilation.
10. Please keep the air outlet clear and unobstructed.

Warning

1. If the power cord is damaged, it must be replaced by a manufacturer or a maintenance specialist to avoid danger.
2. The tool must be placed on its support when not in use.
3. Be careful when using this device in the vicinity of flammable materials; Never use this device for extended periods in the same location.
4. Be aware that heat may be transferred to distant flammable materials; Someone must be present at all times while the device is connected.
5. This device is not intended to be operated by individuals with diminished physical, sensory, or mental capacities or by those who lack experience (such as children), except in the presence of individuals qualified to provide necessary supervision and guidance;

I. Product features

1. Adopts PID programmable temperature control technology with an implantable highest-precision PID program for high-speed tracking and detection of actual soldering iron temperatures with real-time temperature correction. Miraculous temperature compensation speeds allow for minimal temperature error for temperature stability and compensation speeds.
2. Featuring hot air gun rework station.,preheating station and high power soldering station functions.
3. The hot air gun and preheating station soldering equipment have programmable functions. For the preheating station, operating time and operating temperature can be set as parameters, while for the hot air gun, operating time, operating temperature, and operating air flow can be set as parameters.
4. Featuring Celsius / Fahrenheit display conversion function, designed to meet the market needs of different regions, the temperature display function can be set to display either Celsius or Fahrenheit, depending on local practices.
5. Features $\pm 80^{\circ}\text{C}$ temperature compensation function. Temperature and display errors caused by environmental effects or replacement of parts including heating core and soldering iron tips can be corrected by using this function.
6. There are three sections of storage function, it can store different parameters, easy to choose and easy to operate.
7. The product has an operating time function, enabling users to check the product's operating time.
8. The soldering iron has a ten-minute fixed sleep function. If the soldering iron is not in use and has been in a stationary state for ten minutes, the temperature of the soldering iron will be automatically cooled to 200°C and the soldering iron shall enter sleep mode, preventing the oxidization of the soldering iron tip, both extending the lifespan of the soldering iron tip and saving energy.
9. The air gun has no wind protection function, If use a heat gun is not normal in the process of stop the wind, the heating wire to stop heating, and the prevention of the no wind burning handle, so as to greatly improve the safety performance of the product.

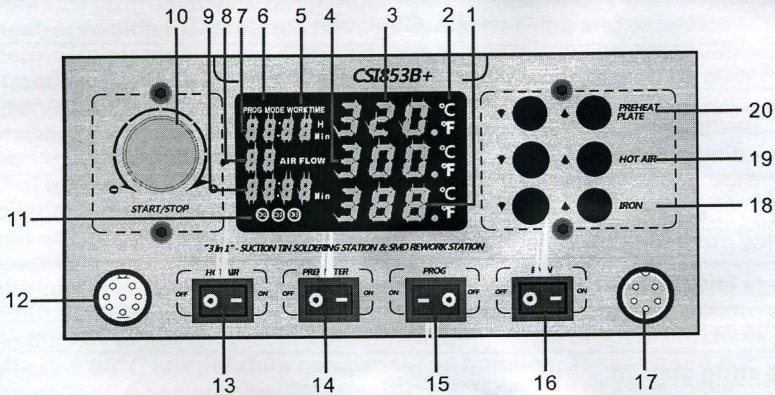
II. Using

1. Suitable for a variety of original welding, such as: SOIC, CHIP, QFP, PLCC, BGA and so on
2. It is suitable for heat shrinkage, drying, removing paint, adhesive removal, thawing, preheating, disinfection, glue welding and so on.

III. Specifications Parameter

| | |
|---|---------------------------------------|
| Model | CSI853B+ |
| Power | ≤1270W |
| Voltage range | AC 100V~125V,60Hz / AC 220V~240V,50Hz |
| Outline dimensions | L320xW220xH270mm ±5mm |
| Weight | 5.6kg |
| Working environment | 0~40°C/32~104°F |
| Storage environment | -20~80°C/-4~176°F |
| Storage humidity | 35%~45% |
| Preheating station | |
| Temperature range | 50°C~400°C/122~752°F |
| Temperature stability | ±2°C (static state) |
| Display form | LED |
| Area of Preheat Plate | 120x120MM |
| Air gun part | |
| Airflow type | Brushless fan with soft wind |
| Wind volume | ≤120L/min |
| Temperature range | 100°C-480°C/212°F-896°F |
| Display mode | LED |
| Temperature stability | ±1°C (static state) |
| handle length | ≥100CM |
| Soldering iron part | |
| Temperature range | 200°C-480°C/392°F-896°F |
| Display mode | LED |
| Temperature stability | ±1°C (static state) |
| Soldering iron tip over the ground resistance | <2ohm |
| Soldering iron tip over the ground voltage | <2mV |
| Handle length | ≥100CM |

IV. Panel Schematic



- | | |
|--|--|
| 1. Soldering iron temperature | 11. Three segment storage |
| 2. Fahrenheit/Celsius display | 12. 8 core seat (air gun handle connector) |
| 3. Preheating station temperature | 13. Air gun switch |
| 4. Air gun temperature | 14. Preheating station switch |
| 5. Working time character | 15. Program-controlled switch |
| 6. Programming mode character | 16. Soldering iron switch |
| 7. Time display | 17. 6core seat (soldering iron handle connector) |
| 8. Airflow simulation value | 18. Soldering iron plus and minus key |
| 9. Time display | 19. Air gun plus and minus key |
| 10. Programming start / stop button, air volume control button, Celsius / Fahrenheit Conversion button | 20. Preheating station plus and minus key |

V. Operation Instructions

Preheating station

1. Set up the preheating station and connect it to the power supply.
2. Move the bracket holder to an appropriate position to secure the components to be preheated above the preheat plate. Note that the bracket holder contains three slots. The lowest slot is normally used. The components to be preheated should be kept at a distance from the preheat plate, and the preheat temperature should be kept low.
3. Turn on the main switch on the back of the case, then turn on the preheating station switch. The preheat plate will heat up. Set the appropriate temperature to carry out normal preheating operations.

Air gun part

1. After the machine is set up, install the handle bracket on the side of the case, and install the air gun bracket at the back of the case, and place the handle in the air gun bracket.
2. Turn on the main switch behind the case, then turn on the air gun switch. The air gun will start to heat up. Press the air gun temperature up “▲” and down “▼” buttons to adjust the temperature, and the air flow knob to set the appropriate air flow. When the air gun operating light is flashing regularly at high speed and the temperature is stable, normal operation can be commenced.
3. After operation is completed, turn off the air gun switch. The machine will automatically cut off the power supply to the air gun heating element, and enter heating element cooling mode. When the temperature falls below 100°C, the air gun display and air supply are switched off.

Soldering station

1. The soldering iron is connected, put the handle on soldering iron holder.
2. Turn on the soldering iron power switch, the heating wire start heating, set the appropriate temperature according to the iron temperature by pressing plus key “▲” iron and minus key “▼”, when the soldering iron working indicator right flashing rule of high speed temperature into the state can be normal operation.
3. After finish work, use high temperature cleaning sponge cleaning the residue on iron tip, re-coated with a layer of new tin, put the soldering iron into the holder, you can turn off the power.

Preheating station and air gun combination programming operation instructions

1. Put the machine well.
2. Install the air gun bracket and a suitable air gun nozzle, then fixed the air gun handle on the bracket.
3. Move scaffold card board and select the appropriate position to place the preheat components above the preheating plate.
4. Adjust the air gun bracket so that the air gun is good to the components which need to be welded
5. Open air gun, preheating station, programmable switch, click “START/STOP” to start, the machine will work to set a good program. For example, preheating station set up the preheating time is 20 minutes, the temperature is 200°C, hot air gun temperature is 320°C, fan is 60 stalls, time is 5 minutes. After starting the program, preheating station start heating to 200°C, preheat for 20 minutes, then start the air gun, the temperature rose to 320°C, air gun and preheating station will stop to work after 5 minutes.

Note: The last 10 seconds of warning to stop working, that remind the removed components.

Attached: Technical section-rework process (for reference only)

The air gun with preheating station to facilitate the welding of large flat integrated circuit IC, double sided board and large components desoldering.

- **Remove the components**

1. The first successful repair is removing the motherboard fault location component, the solder heated to the melting point, and then carefully take components from the board.
2. The heating control is a key factor to repair, welding material must be completely melted, so as avoid to damage the pad and a copper element in the removed. At the same time the temperature is not too high, to prevent the circuit board heating due to excessive motherboard distortion.

- **Heating of circuit boards and components**

1. The advanced rework system uses microcomputer to control the heating process, as close as possible to the specifications given by the solder paste manufacturer, and shall be combined with the top and bottom heating.
2. To supplement, at the bottom of the heating circuit board for heat conduction loss, and increase the temperature of the circuit board; and the top heating is used for heating elements, in addition to use a large area at the bottom of the heater can eliminate circuit board caused by local heating excessive distortion.
3. Can use three methods to the motherboard heating, conduction, convection, and heat conduction effects. When heating the heat source and the motherboard contact (such as the electric heating board) circuit board components does not apply to the back.
4. The heating element (or top heating) is generally used for gas nozzle, carefully control of the top heating element, make components uniform heat, is extremely important, especially critical for small components (Figure 1).

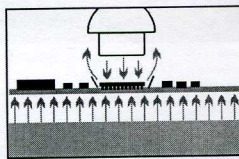


Figure 1

5. In addition to avoid rework of components around again reflow or blow away the small patch component, nozzle thermal isolation and these components must be, in repair stations surrounding components on a thin layer of the cover plate or mask. The mask technique is very effective, but also can be used for model time consuming. BGA desoldering nozzle, it can reduce the damage of desoldering process on the removal of welding components near the element and the circuit board.

VI. Function Description

Temperature compensation setting

1. Turn on the power switch, press temperature plus and minus key for 3 seconds, the temperature display window shows "00", and flash.
2. Set the compensation temperature according to press temperature plus and minus key
3. Stop 5 seconds, automatically save the settings and exit, set up is completed. Temperature compensation range: -80°C ~ 80°C .

Fahrenheit/Celsius temperature display conversion settings

1. Turn on the power switch, open air gun or iron or preheating switch.
2. Long press the "START/STOP" button for 3 seconds, the display shows " $^{\circ}\text{C}$ " flashing.
3. Rotate the "START/STOP" button to set Fahrenheit or Celsius temperature display.
4. Stop 15 seconds, automatically save the settings and exit setup is completed.

Note: The temperature compensation and the Fahrenheit / Celsius conversion setting are performed in a non programming mode.

Hot air gun and preheating station combination programming setting

Preheating station preheating time



Preheating station temperature



Air gun temperature



Air gun working time



Air gun air volume

1. Connect the air gun handle.
2. Turn on the power switch, turn on the programming switch, the air gun switch and the preheating station switch.
3. long press the "START/STOP" button for 3 seconds, the display shows "20:00" flashing, as shown in figure 2.



Figure 2

4. Rotate the "START/STOP" key, or press the preheating station temperature plus and minus key, to set time of the preheating station, press the "START/STOP" button to determine, and go to the preheat table temperature setting, "200" flashing, as shown in figure 3.



Figure 3

5. Rotate the "START/STOP" key, or press the preheating station temperature plus and minus key, to set time of the preheating station, press the "START/STOP" button to determine, and at the same time to the air gun air volume settings, "60" flashing, as shown in figure 4.

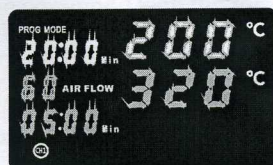


Figure 4

6. Rotate the "START/STOP" button or press air gun temperature plus and minus key to set air volume, determined by pressing the "START/STOP" key, at the same time to the time of air gun work settings, "05:00" flashing, as shown in figure 5.

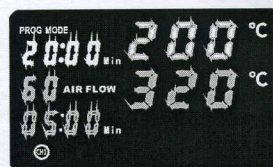


Figure 5

7. Rotate the "START/STOP" key, or press the air gun temperature plus and minus key to set the working time, press the "START/STOP" button to determine, and go to the gun temperature settings, "320" flashing, as shown in figure 6.



Figure 6

8. Rotate the "START/STOP" key, or press air gun temperature plus and minus key to set the temperature, press the "START/STOP" button to determine, and exit the set state, set to complete.

Three segment storage settings

1. Non programming mode, click the "START/STOP" button to convert CH1, CH2, CH3 three segment storage, and set up set the required operating parameters.
2. Standby mode programming, rotate the "START/STOP" key to convert CH1, CH2, CH3 three segment storage, and set the required operating parameters.

VII. Use Notice

1. Please ensure the outlet is clear, must free from any blockages or obstructions.
2. After the work is completed, put the air gun handle on the frame, turn off air gun switch, the machine automatically cooled to display "---", then turn off the whole device power switch in the back of the chassis.
3. When using the machine standard nozzles other than the smaller nozzle, must set air volume to the maximum, avoid long time use damage the air gun.
4. In regards to the usage requirements, choose the appropriate hot air nozzle, different hot air nozzle will cause the temperature to be slightly different, and please maintain the distance between the outlet and the object must be at least 2mm.
5. When the iron is used for the first time, please pay attention to check the iron tip warming condition, when the tip can melt the tin wire, please plate some tin on tip, then adjust to the desired temperature.
6. The tip temperature should not be too high, too high temperature would weaken the tip function. When interval using ,can lowering the temperature.
7. Should be regularly use clean sponge to clear soldering tip, after finish use, should wipe clean soldering iron tip, plate new tin to prevent soldering iron tip oxide.
8. Preheat plate is not water poof structure, therefore, do not install the storage and use of contact with oil, water, and plastic pellets to prevent leakage and other security risks.
9. The preheat plate should avoid being forced to tap or hard objects collided causing tiles fracture, alloy resistance wire exposed affect the operating life.
10. The preheat plate DO NOT for prolonged use,and prevent chassis overheating.

Special Instructions:

Dear User! Our air gun and soldering iron handle adopt high strength stainless steel tube, the machine must be inspected or calibrated four times in normal working condition during the production process, the copper tube could be slight yellowing due to high temperature! When use the new machine first time, it is normal that the steel tube at tube at a slight yellowing, please be assured!

VIII. Display Notes

1. When the LED digital displays "---", it means the outlet temperature is below 100°C; the hot air rework station is standby mode, and the handle is placed on the handle's rack.
2. When the LED digital displays "S-E", it means the Soldering iron and Hot air rework's sensor is having a problem or handle is un-plugged, if this the case it needs to replace the heating element (heating core's element and sensor components).
3. Show "F-1 / F-2", it mean the air gun without wind protection, need to check the fan and air gun power supply circuit.

IX. The do's and don'ts

1. DO NOT install/De-install Nozzles with excessive force. DO NOT use pliers to pull the nozzle edge out, DO NOT tight the nozzle's bolt excessively.
2. Only install nozzles when the unit is cool(room temperature).
3. DO NOT use unit near flammable gas or liquid or any combustible material WHATSOEVER especially when using the unit in high-temperature operation. DO NOT face the hot air outlet or touch the soldering Iron to the human body WHATSOEVER because it is very hot and can instantly burn the skin/body. When the first use the unit might emit white smoke. But this soon will go away.
4. Replacement heater, be careful not to damage the grounding line!
5. Replacement the cable should pay attention to the order and color, can not be wrong.
6. Please replace the same model heater.

X. Replacement Instruction

Replacement of Hot Air rework heating element(Figure 7)

1. Ensure that the air gun temp fully cools down before replacing the air gun heater.
2. As Figure, loosen the two screws on the handle.
3. Screw out the handle assembly and then remove the handle's cover.
4. Gently takes out the fan, loosen the three screws and remove the fixing wiring board.
5. Turn the wiring board back and take apart the heater connection cable from the board. Please remember the cable location on the board.
6. Remove the heater and mica paper from the tube and do not break the connection on the tube.
7. Wrap a new heater well with mica paper and insert the heater to the tube in right place.
8. Connect the heater according to the original location of the connection
9. Install the handle back in apposite way of disassembling the handle.

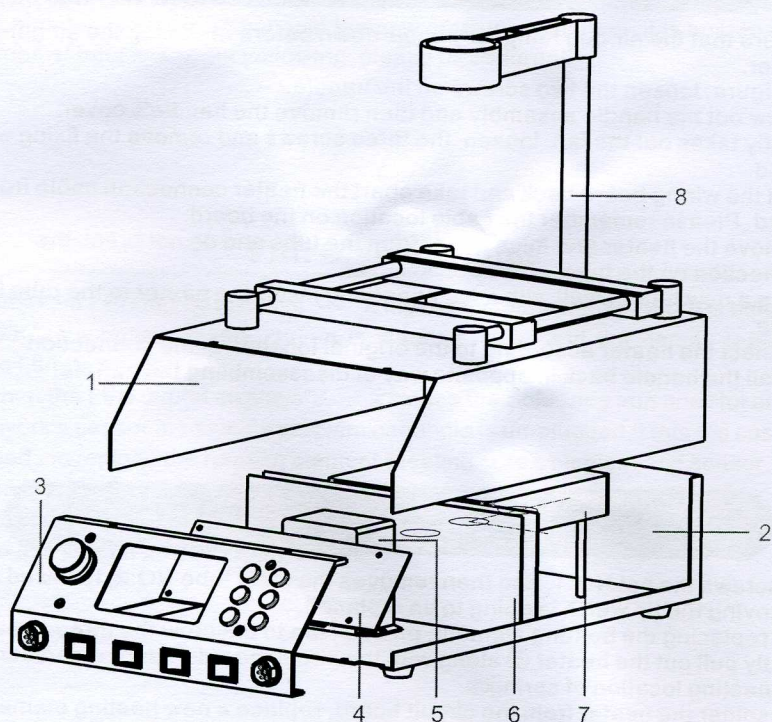
Replacement of the soldering iron's tip and soldering iron heating core's element(Figure 8)

1. Unscrews the nut NO.1, and then removes the steel tube NO.2, followed by removing the tip which is going to be replaced.
2. For replacing the heating element, please step to unscrew the thread head ④, gently pull out the heater ⑥ along with the circuit board ⑦ and remember the connecting location of spring⑤.
3. De-solder the heater from the circuit board, replace a new heating element solder the connecting wire according to the original location and install the soldering iron.

Replacement of the preheating plate(Figure 9)

1. Remove the top cover1.
2. Unscrew the screws2.
3. Remove the warm-up bracket.
4. Pull out the clamp.
5. Remove the preheated plate.

XI. Schematic Diagram of Host Disassembly



1. Top cover
2. The bottom shell
3. Panels
4. Circuit board
5. Transformer
6. Heat insulation board
7. Preheating plate
8. Air gun bracket

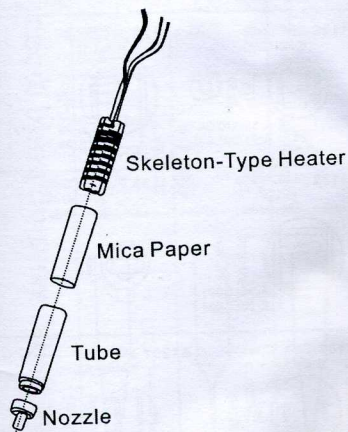


Figure 7

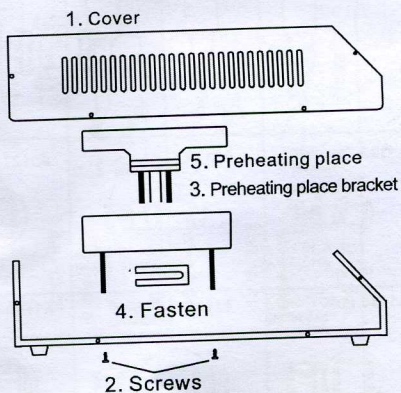


Figure 9

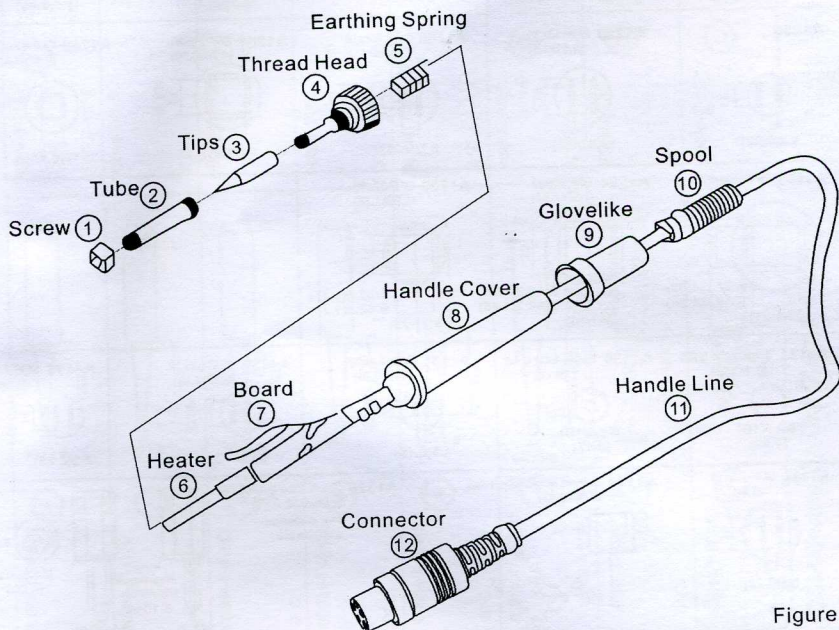
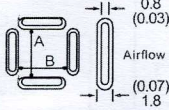
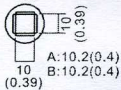
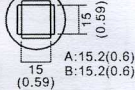
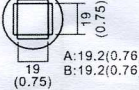
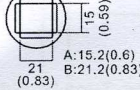
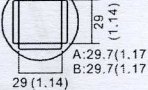
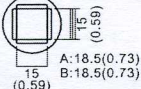
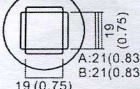
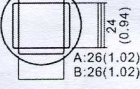
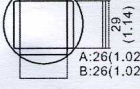

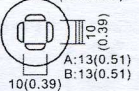
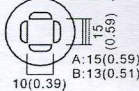
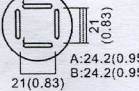
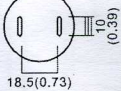
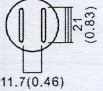



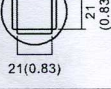
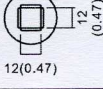
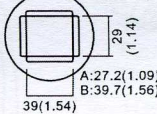
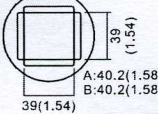
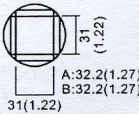





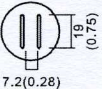
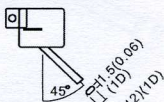
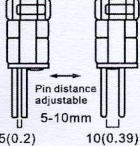



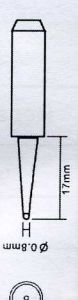


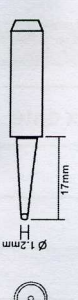
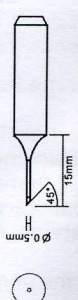

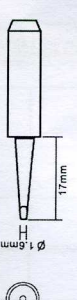
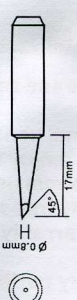
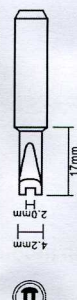
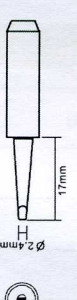
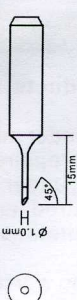
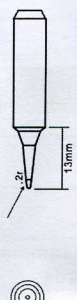
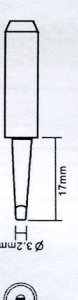
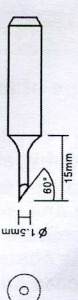
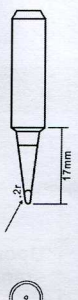
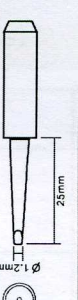
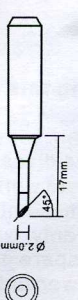
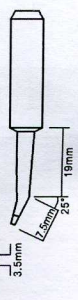
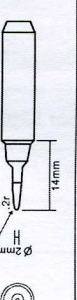
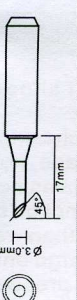
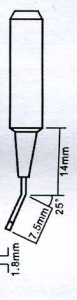

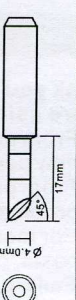
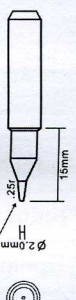
Figure 8

General parts

*Nozzle specification
and size means the IC size


|  | | | QFB | SOP | PLCC | SOJ | BGA(CSP) | mm(inch) |
|--|--|--|--|---|---|-----|----------|----------|
| A1125 QFP 10x10 (0.39x0.39)  | A1126 QFP 14x14 (0.55x0.55)  | A1127 QFP 17.5x17.5 (0.68x0.68)  | A1128 QFP 14x20 (0.55x0.78)  | A1129 QFP 28x28 (1.1x1.1)  | | | | |
| A1135 PLCC 17.5x17.5 (0.68x0.68) (44 needle)  | A1136 PLCC 20x20 (0.78x0.78) (52 needle)  | A1137 PLCC 25x25 (0.98x0.98) (68 needle)  | A1138 PLCC 30x30 (1.18x1.18) (84 needle)  | | A1139 PLCC 12.5x7.3 (0.49x0.49) (18 needle)  | | | |
| A1140 PLCC 11.5x11.5 (0.45x0.45) (28 needle)  | A1141 PLCC 11.5x14 (0.45x0.55) (28 needle)  | A1182 BOFP 24x24 (0.94x0.94)  | A1187 TSOL 18.5x8 (0.73x0.31)  | | A1257 SOP 11x21 (0.43x0.83)  | | | |
| A1258  | A1259 SOP 13x28 (0.51x1.1)  | A1260 SOP 8.6x18 (0.34x0.71)  | A1261 QFP 20x20 (0.78x0.78)  | | A1262 QFP 12x12 (0.47x0.47)  | | | |
| A1263 QFP 28x40 (1.1x1.57)  | A1264 QFP 40x40 (1.57x1.57)  | A1265 QFP 32x32 (1.26x1.26)  | | | | | | |
| A1124 Single-tube ϕ 2.5 (1.1x1.57)  | A1130 Single-tube ϕ 4.4 (0.17)  | A1131 SOP 4.4x10 (0.17x0.39)  | A1132 SOP 5.6x13 (0.22x0.51)  | | A1133 SOP 7.5x15 (0.3x0.59)  | | | |
| A1134 SOP 7.5x18 (0.3x0.7)  | A1142 Curved single tube 1.5x3 (0.06x0.12)  | A1325 Single-tube ϕ 1.5x5.10 (0.06x0.02-0.39) Pin distance adjustable  | | Front nozzle  | | | | |

Attachment: Electric welding machine using welding head model figure

| | | | | | |
|-----------------------------|---|--------------------------|---|----------------------------|---|
| 900M-T-0.8D 0°C |  | 900M-T-LB -10°C/-18°F |  | 900M-T-K 30°C/54°F |  |
| 900M-T-1.2D 0°C |  | 900M-T-0.5C 0°C |  | 900M-T-R 0°C |  |
| 900M-T-1.6D 0°C |  | 900M-T-0.8C 0°C |  | 900M-T-RT 0°C |  |
| 900M-T-2.4D 0°C |  | 900M-T-1C 0°C |  | 900M-T-SI 0°C |  |
| 900M-T-3.2D 0°C |  | 900M-T-1.5CF 0°C |  | 900M-T-I -10°C/-18°F |  |
| 900M-T-1.2LD -10°C/-18°F |  | 900M-T-2C 0°C |  | 900M-T-H -20°C/-36°F |  |
| 900M-T-SB 0°C |  | 900M-T-3C 0°C |  | 900M-T-1.8H -10°C/-18°F |  |
| 900M-T-B 0°C |  | 900M-T-4C 0°C |  | 900M-T-S4 0°C |  |

900M Series Tip Out Diam Ø6.5mm

Product certification

| | |
|---------------------|---|
| Model NO. | |
| Product ID | |
| Examine | Upon examination products meet technical standards  |
| Sales Date | |
| Date of manufacture | |

Warranty Card

Thank you for choosing this type of products, please read the following terms before using:

1. From purchasing date within 7 days, under normal use(Non-artificial damage), new package, not be disassemble and repaired ,enjoy replacement service.
2. From purchasing date within one year, under normal use, if there are quality problem, not be disassemble and repaired ,enjoy free repair service.
3. For more than warranty, we provide a lifetime warranty service, free of labor costs, charge only spare parts costs.
4. Failure to present warranty card during warranty period, the company will not be a free service.
5. Users need warranty service, please contact your original sales unit.
6. When users need warranty service, please provide warranty card and purchase invoice, or receipt of the certificate of the company seal.
7. Warranty does not include transportation costs and provide on-site service.

Maintenance records

| NO. | Date for repair | Cause | Fix date | Repairer |
|-----|-----------------|-------|----------|----------|
| | | | | |
| | | | | |
| | | | | |

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