

# Integrated Infra-Red Rework Station

Statement: The company reserves the right to improve & upgrade products, product specifications and design are subject to change without notice.

# OPERATION INSTRUCTION

English



Made in China

Thank you for purchasing this product. Please read the manual carefully before operating and keep this manual for future reference.

## SPECIFICATIONS

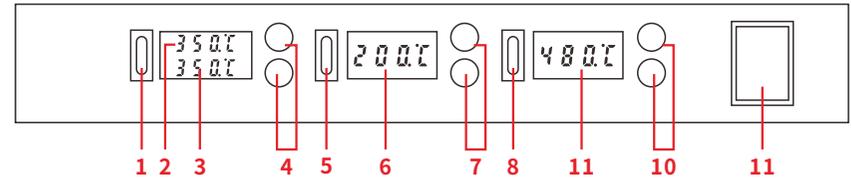
Model	1000A	1000B
Control Unit Dimensions	L288xW360xH52mm ±5mm	
Operating Ambient Temperature	0~40°C / 32~104°F	
<b>Infra-Red Heating Lamp</b>		
Luminaire	Infra-Red Lamp	
Temperature Range	100°C~350°C/212°F~662°F	
Display	LED Nixie Tube	
Effective Area	35x35mm	
<b>Pre-heater</b>		
Temperature Range	50°C~200°C/122°F~392°F	
Display	LED Nixie Tube	
Heating Surface Area	120x120mm	
<b>Hot Air Rework Station</b>		
Air Delivery	/	Brushless blower with smooth air delivery
Air Volume		≤120L/min
Temperature Range		100~480°C/212~896°F
Display		LED Nixie Tube
<b>Soldering Station</b>		
Temperature Range	200~480°C/392~896°F	
Display	LED Nixie Tube	
Tip to Ground Resistance	<2 ohms	

## I. APPLICATIONS

1. This unit is suitable for desoldering and soldering components including BGA, SOIC, CHIP, QFP, PLCC and more. It is especially suitable for desoldering BGA modules, computer CPU sockets, mobile phone circuit boards, all-types of SMD ICs, LED lights and more.
2. It can also be used for heat shrinking, drying, conformal coating removal, adhesive removal, defrosting, pre-heating, glue soldering, etc.

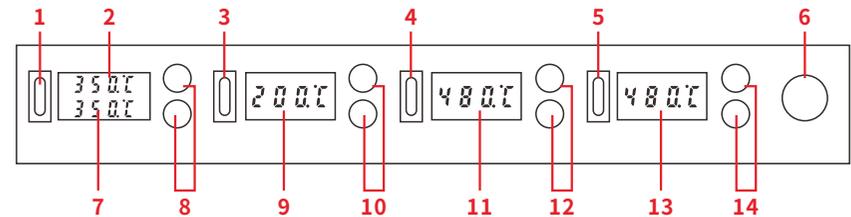
## II. REFERENCE

### Reference: 1000A's Panel



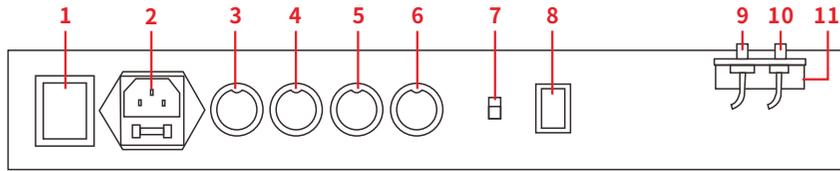
1. Power Switch (Infra-Red Lamp)
2. Temperature Display (Infra-Red Lamp)
3. Temperature Display (External Thermal-Couple)
4. Temperature Increase & Decrease Buttons (Infra-Red Lamp)
5. Power Switch (Preheater)
6. Temperature Display (Preheater)
7. Temperature Increase & Decrease Button (Preheater)
8. Power Switch (Soldering Station)
9. Temperature Display (Soldering Station)
10. Temperature Increase & Decrease Buttons (Soldering Station)
11. Power Switch (Soldering Station)

### Reference: 1000B's Panel



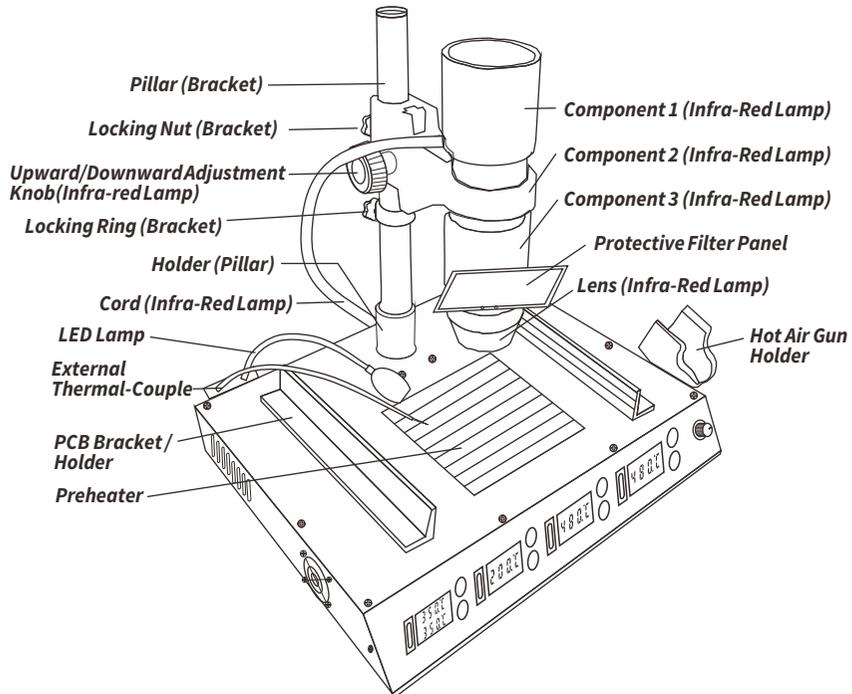
1. Power Switch (Infra-Red Lamp)
2. Temperature Display (Infra-Red Lamp)
3. Power Switch (Preheater)
4. Power Switch (Soldering Station)
5. Power Switch (Hot Air Rework Station)
6. Air Volume Adjustment Knob (Hot Air Gun)
7. Temperature Display (External Thermal Couple)
8. Temperature Increase & Decrease Buttons (Infra-Red Lamp)
9. Temperature Display (Preheater)
10. Temperature Increase & Decrease Buttons (Preheater)
11. Temperature Display (Soldering Station)
12. Temperature Increase & Decrease Buttons (Soldering Station)
13. Temperature Display (Hot Air Rework Station)
14. Temperature Increase & Decrease Buttons (Hot Air Rework Station)

### Reference: Rear Panel



- |  |  |
|--|--|
| 1. Power Switch (Master)                         | 7. °F/°C Display Unit Selector Switch            |
| 2. Socket (Power Cord)                           | 8. ON/OFF Switch (LED Lamp)                      |
| 3. Receptacle (Soldering Station)                | 9. Holder (LED Lamp)                             |
| 4. Receptacle (Hot Air Gun)                      | 10. Holder (External Thermal-Couple)             |
| 5. Receptacle (Infra-Red Lamp)                   | 11. Bracket (LED Lamp / External Thermal-Couple) |
| 6. Receptacle (LED Lamp/External Thermal-Couple) |  |

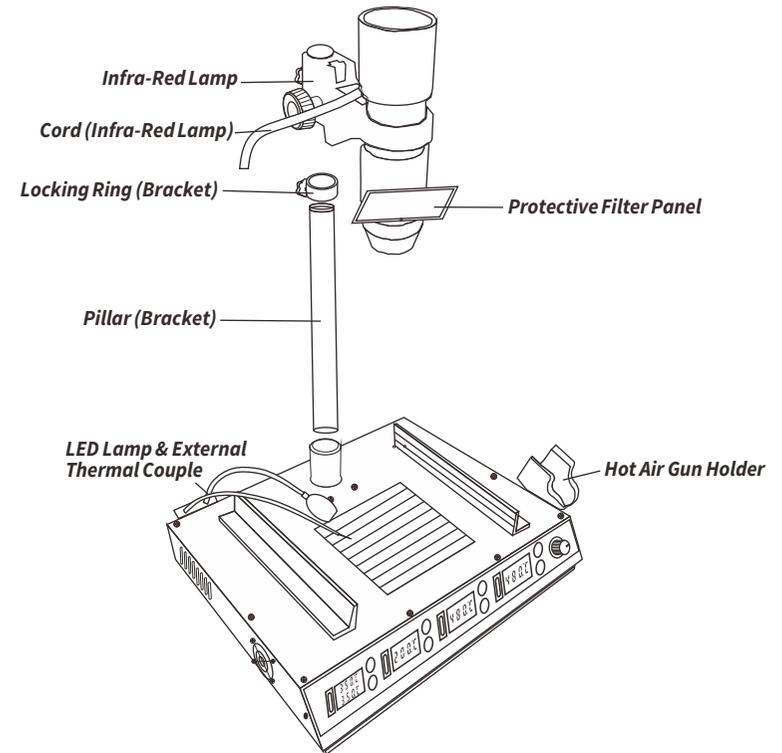
### Reference: Key Components



### III. REFERENCE

**CAUTION: DO NOT CONNECT THE STATION TO AN ELECTRICAL OUTLET WHEN INSTALLING THE COMPONENTS FOR THE STATION.**

1. Insert the pillar into the pillar holder, and tighten the pillar to the holder.
2. Install the locking ring, and secure the locking nut on the locking ring.
3. Install the Infra-Red Lamp components onto the pillar, and secure the locking nut on the locking ring.
4. Connect the Infra-Red Lamp's cord to its receptacle located in the rear of the station.
5. Install the protective filter panel onto the Infra-Red Lamp.
6. Install the hot air gun holder.
7. Install the LED Lamp and External Thermal-Couple.
8. Connect the soldering iron's cord to its receptacle located at the rear of the station.
9. Connect the hot air gun's cord to its receptacle located at the rear of the station.



## IV. OPERATION

### ● Infra-Red Lamp

#### WARNING:

1. Wear temperature-resistant protective gloves, goggles, and install the protective filter panel before using the infra-red lamp. Use appropriate light filtering measures to protect your eyes.
2. Ensure there are no flammable, fusible, or explosive components (E.g., Plastic Parts, Camera Modules, Digital Displays, LED, Normal or Electrolytic Capacitors,) inside the IR beam's effective area. If you cannot avoid having these components inside the beam's effective area, cover them with reflective wrap/paper.

#### CAUTION:

1. To get the best result for your work, use both the Infra-Red Lamp and the Pre-heater at the same time.
2. The Infra-Red Lamp has 2 different operation modes.
  - A. When the external sensor mode is selected, move the external thermal couple on the IC's surface. The system will track and control the temperature based on the data feedback from the external thermal-couple.
  - B. When the non-external sensor/thermal couple mode is selected, move the external thermal couple away from the IC.

### 1. Infra-Red Lamp (Temperature Setting)

- 1-1. Turn ON the power switch, then, turn ON the IR Lamp's power switch. Press the IR lamp temperature increase or decrease button to set the desired temperature.
- 1-2. Temperature Recommendation: When the IC's surface area is smaller than 15mm x 15mm – Set the temperature between 160°C to 200°C (320°F to 392°F)
- 1-3. Temperature Recommendation: When the IC's surface area is between 15mm x 15mm to 30mm x 30mm – Set the temperature between 200°C to 280°C (392°F to 536°F).
- 1-4. Temperature Recommendation: When the IC's surface area is larger than 30mm x 30mm – Set the temperature above 280°C(536°F).

**NOTE:** The beam is at the highest output setting at this point, please control the rework duration to avoid damaging the IC and the circuit board.

### 2. Rework (Removal)

- 2-1. Select the appropriate lens, secure the PCB, and align the IC to the IR beam. Adjust the IR lamp upward or downward to allow a distance of 15 to 20mm between the IC and the lens, and make sure the IR beam covers the IC entirely.

- 2-2. Turn ON the preheater's power switch, and the preheater will begin heating up. Allow the preheater to heat up for 5 to 10 minutes.
- 2-3. Turn ON the IR lamp power switch, set the desired operation temperature. The IR lamp will begin blinking and heating up. The IR lamp operation indicator (Located at the bottom-right corner of the IR Lamp temperature display) will turn ON. The indicator turns ON when the lamp is heating up, blinks rapidly when the temperature stabilizes, and turns OFF when the lamp is cooling. Extract the IC once the solder is melted.

### 3. Rework (Installation)

- 3-1. Clean the solder pads on the PCB.
  - 3-2. Ensure there are solder balls on the pads (stencil + solder paste), and apply a thin layer of flux.
  - 3-3. Use the IR lamp to heat up the solder paste, and use tweezers to align the IC with the solder pads once the flux had evaporated the solvent. Then, heat the solder paste until it forms solder bulbs/balls on the PCB. Once done reworking, allow the IC to cool, and take the PCB off the PCB holder to inspect the rework result. If the rework is not successful, repeat the rework procedures.
4. Once the operation is complete, turn OFF the infra-red lamp's power switch. If the station is not used for an extended period, turn OFF the power switch.

### ● Preheater

#### WARNING:

**Ensure there are no flammable, fusible, or explosive components (E.g., Plastic Parts, Camera Modules, Digital Displays, LED, Normal or Electrolytic Capacitors,) inside the IR beam's effective area.**

1. Adjust the position of the PCB holder, then, place the component that requires preheating above the preheater. Then, tighten the 4 locking nut on the PCB holder.
2. Turn ON the preheater power switch, and the preheater begins heating up. Adjust the preheater to the appropriate temperature, and the preheater will begin preheating.
3. We recommend setting the preheater from 100°C to 180°C (212°F to 356°F). When the IC's surface area is large, or there are conformal coating underneath the IC, set the temperature from 150°C to 200°C (302°F to 392°F).
4. Once the operation is complete, turn OFF the preheater's power switch. When the preheater is not used for an extended period, turn OFF the power switch.

## Soldering Station

1. Connect the soldering iron to the station, and place the iron into its holder.
2. Turn ON the station's master power switch located at the rear of the station, and then turn ON the soldering station's power switch. The soldering station's heating element will begin heating, and its operation indicator light (the dot located at the bottom-right corner of the soldering station display) will turn ON. The operation indicator light will stay constantly ON when the soldering iron is heating up, blink rapidly when the temperature stabilizes, and be turned OFF when the soldering iron is cooling off. Begin your operation once the soldering station's indicator is blinking rapidly to indicate the temperature's stabilization.

**CAUTION:** Upon the first use of the soldering tip, set the temperature to 250°C/482°F. When the iron is just hot enough to melt the solder, coat the tip with a layer of solder (the use of rosin core solder is recommended), then set the temperature to your desired value.

300

Indicator for program tracking temp. at high speed and making temp. compensation.

3. When the operation is complete, use a wet sponge or metal wool ball to clean the soldering iron tip. Tin the tip with a new layer of solder, then put the soldering iron back to its holder and turn OFF the soldering station's power switch. If the station is not in use for an extended period, turn OFF the station's master power switch located at the rear of the station and DISCONNECT the power cord.

## Hot Air Rework Station

1. Set the rework station correctly, and install the hot air gun holder on the side of the station. Select and install the desired hot air nozzle (we recommend using nozzles with larger diameters).
2. Connect the station's power cord to an electrical outlet.
3. Turn ON the master power switch located at the rear of the station, then turn ON the hot air rework station's power switch. The hot air gun will begin heating up. Press the temperature adjustment buttons to set the desired temperature. Adjust the air volume adjustment knob to set the desired air volume. Begin your work once the hot air temperature stabilizes.

The hot air rework station's operation indicator light (the dot located at the bottom-right of its temperature display) will stay ON constantly when the hot air gun is heating up, blink rapidly when the temperature is stabilized, and be turned OFF when the hot air gun is cooling. Begin operation once the temperature has stabilized. Once the temperature is stabilized, such a status is clearly indicated with the rapidly flashing operation indicator. The precision PID program is tracking and compensating the hot air gun's temperature every millisecond, the hot air gun's temperature is now in stable, and precise thermostatic state.

300

Indicator for program tracking temp. at high speed and making temp. compensation.

4. When the operation is complete, turn OFF the hot air rework station's power switch. The heating power to the hot air gun will be turned OFF automatically. The hot air gun will only put out air without heating up, and the hot air gun's heating element will begin cooling off. When the temperature drops below 100°C (212°F), the hot air rework station's temperature display and the blower will turn OFF. If the station is not in use for an extended period, turn OFF the master power switch located at the rear of the station.

## V. FUNCTION CONFIGURATION

### °F/°C Display

Toggle the °F/°C display selector switch to select either the Fahrenheit or Celsius display mode.

### Temperature Calibration

**Universal Setting calibration procedure for the preheater, soldering station, and hot air rework station.**

1. Turn ON the power switches for the preheater, soldering station, and hot air rework station. Press and hold both the temperature increase and decrease buttons for approximately 3 seconds for the respective stations. The temperature display will then show value "00".
2. Press the temperature increase or decrease button to set the calibration temperature value for the respective stations.
3. Once done entering, stop operating for approximately 3 seconds, the system automatically saves the data and exits the setting interface.
4. The calibration temperature can be entered from -50°C to 50°C (-58°F to 122°F).

### Infra-Red Lamp (Power Adjustment)

1. Turn ON the IR lamp power switch, press and hold both the IR lamp temperature increase and decrease buttons.

2. Then, turn ON the power switch. Continue holding and wait until the IR lamp temperature display shows value “20”, then, release the buttons.
3. Press the IR lamp temperature increase or decrease button to set the temperature calibration value (simulated value).
4. The greater the temperature calibration value (simulated value) entered, the less the temperature compensation will be. The simulated value can be entered from 5 to 80.

### ● External Thermal-Couple (Calibration)

1. When the IR lamp is in operation, press and hold both the IR lamp temperature increase and decrease buttons for approximately 3 seconds. The external thermal-couple display will show value “00”.
2. Press the IR lamp temperature increase or decrease button to set the required temperature calibration value.
3. Once done entering, stop operating for approximately 3 seconds, the system saves the setting data and exits the setting interface.
4. The calibration value can be set from -50°C to 50°C (-58°F to 122°F).

## ● VI. MAINTENANCE & PRECAUTIONS

### ● Hot Air Rework Station

1. Keep the air outlet clear and free of blockages at all times.
2. The installation of the hot air gun nozzles MUST be carried out ONLY when the steel pipe and nozzle have cooled. Install the nozzle correctly, DO NOT install the nozzle with brute force, pull the edge of the nozzle with tweezers, or over-tighten the screws.
3. Select the appropriate nozzle based on your operation requirements (temperature may vary when you use nozzles in different diameters). When using nozzles smaller than the standard machine nozzles, you MUST use the maximum air volume with a relatively lower temperature setting. Complete this operation in the shortest possible duration to avoid damaging the hot air gun.
4. Keep a minimum distance of 2mm between the object and the hot air gun's air outlet.
5. DO NOT allow the hot air to come in direct contact with facial parts, and beware of the danger of burn injuries. Upon the first use, the hot air gun may emit white fumes, and the white fume will dissipate in a short while.

### NOTE:

*The station's hot air gun and soldering iron handles use high-strength stainless steel tubes. The station goes through 4 times or more testing, inspection, and calibration procedures before rolling off the assembly line. The steel tube may exhibit light bronze color as a result of our quality control efforts. It is normal to have a slightly bronzed steel tube when you use a brand-new station, rest assured for regular usage.*

### ● Soldering Station

1. If a layer of oxidization forms on the surface of the soldering iron tip, a misconception can be created that the soldering tip cannot heat up properly to melt the solder and do the tinning. However, the actual temperatures of both the heating element and soldering tip are high. In such an instance, please do not increase the temperature value confusedly but use a metal wool ball to remove the oxidization following the steps below:

**A. Set the temperature to 300°C (572°F).**

**B. Once the temperature has stabilized, gently rub the soldering iron tip inside the metal wool ball.**

**C. When the oxidization is partially removed, continue applying solder onto the tip while rubbing it until the solder completely adheres to soldering tip. If the tip is too severely oxidized beyond cleaning, replace the tip with a new one.**

2. DO NOT use metal files to remove the oxidization on the soldering tip. If the soldering tip deforms or rusts, replace it with a new tip.
3. DO NOT apply excessive force on the soldering tip when soldering. Doing so will not only damage the iron tip but also not improve the heat transfer.
4. When placing the soldering iron back in its holder to idle after a high-temperature operation, adjust the temperature to 250°C (482°F) or below for idling. Failure to do so, and leaving the soldering iron tip to idle on a high-temperature setting will cause the accelerated aging of the heating element, and shorten the lifespan of the heating element and soldering iron tip.
5. After every operation, always clean the soldering iron tip, then coat it with a new layer of solder to prevent its oxidization.

### ● Infra-Red Lamp

1. Once done using the IR lamp, ONLY turn OFF the IR power switch once the cooling fan (located at the rear of the IR lamp) has finished cooling the IR lamp.
2. Select and use IR lens based on the IC's size (The beam's effective area MUST be slightly larger than the IC's surface area) for the rework. Align the lens' threads to the IR lamp, turn the IR lamp bracket's adjustment knob slowly to shorten the distance between the IR lamp and the IC (This helps with better heat transfer).

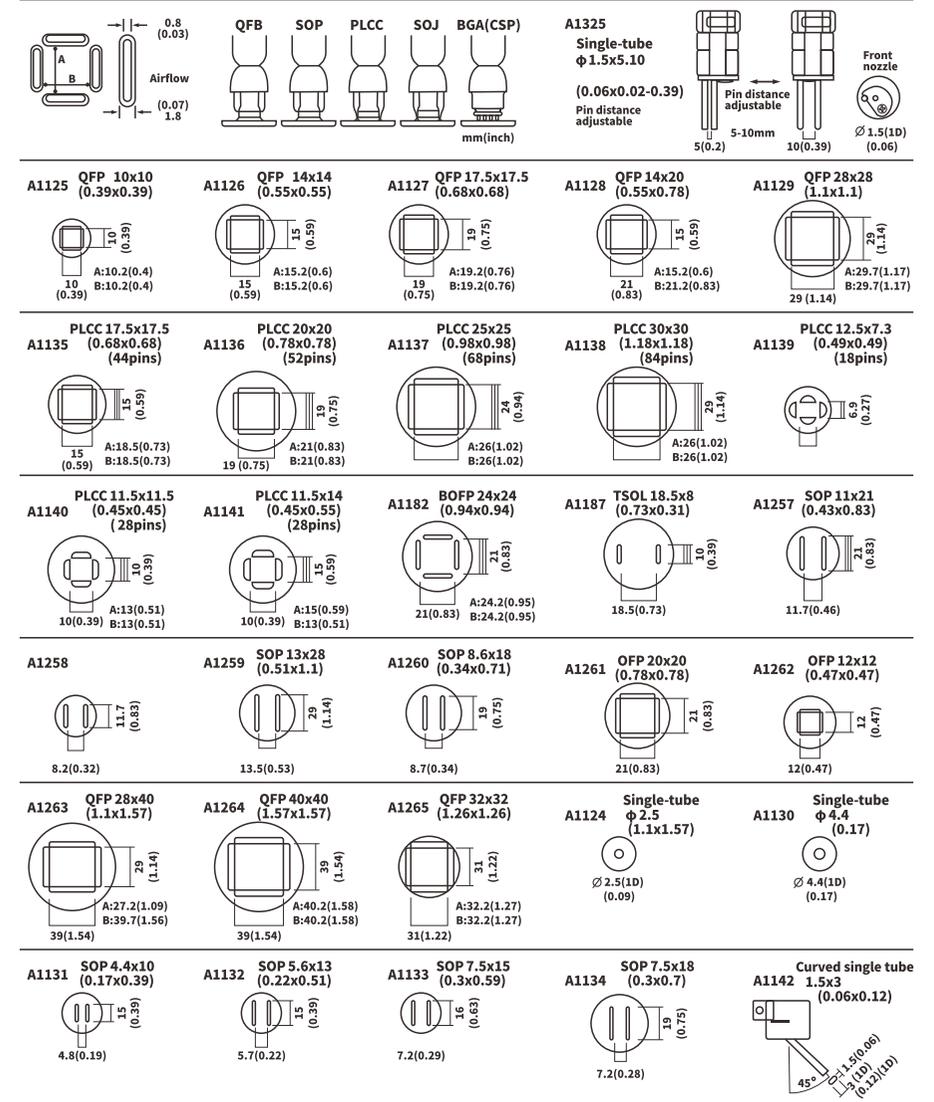
## VII. TROUBLESHOOTING

1. "S-E" – This is an indication that the soldering station's or hot air gun's sensor module is faulty. You need to replace the heating element (the heating element and the sensor modules). Or, the handle is not connected (Turn OFF the station, connect the handle and turn ON the station).
2. When replacing the heating element, take note of the original connecting order and colors of the wires which MUST NOT be connected incorrectly.

## For reference: compatible parts

### Nozzle style (specifications and sizes)

The nozzles sizes match with their corresponding IC sizes.



Tip style (specifications and sizes)

900M Series Tip Out Diam  $\phi$  6.5mm

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