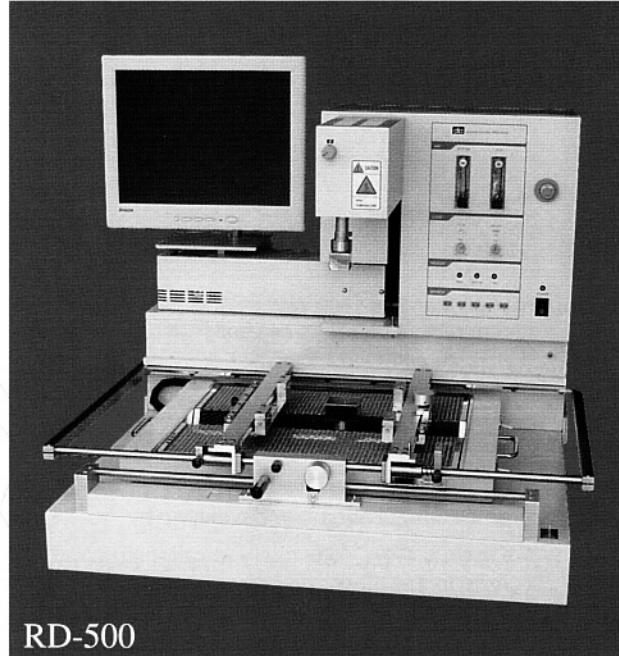
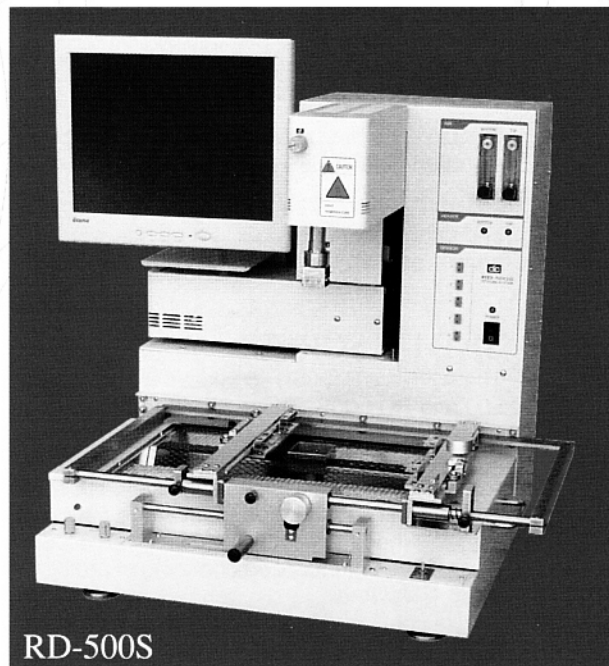


RD SERIES BGA/SMT REWORK MACHINES FOR STABLE AND SAFE REWORK

Designed for Standard or Lead Free Solders, Large or Small Boards, Large or Small Components



RD-500

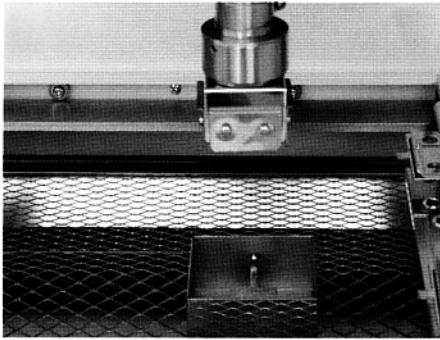


RD-500S

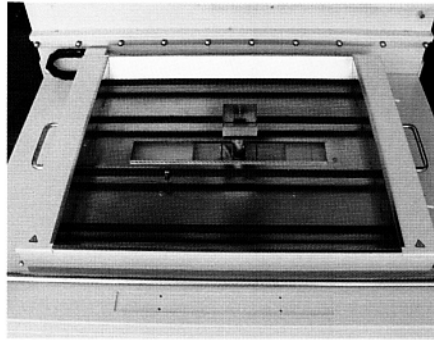
- High Powered Upper and Lower Hot Air Heaters
- IR Area Heating System
- Complete PC Control and Auto-Profiling Software
- 5 Thermocouple Input Capability
- Integrated Component Preparation System
- Semi-Auto Placement
- Extensive Safety Features

HEATING SYSTEM

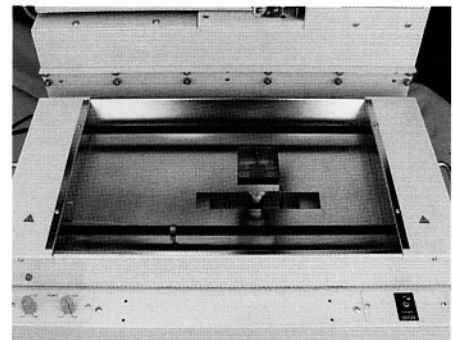
Both the RD-500 and the RD-500S feature 700 watt upper and lower hot air heaters. By delivering hot air from above and below, these units are able to evenly heat the component and solder connections from above and below. This results in much safer removal and placement heating profiles. In addition the RD-500 comes with a standard IR area heater. It uses a series of 4 rod type heating elements that provide 400 watts each for a total of 1600 watts of power. This is enough to heat the largest of PCBs evenly in order to prevent board warpage while removing or placing the component. The RD-500S has an optional area heater with 2 rod type heating elements for a total of 800 watts of power.



Upper and Lower Heaters for the RD-500 and RD-500S. 700 Watts Above and 700 Watts Below the Board

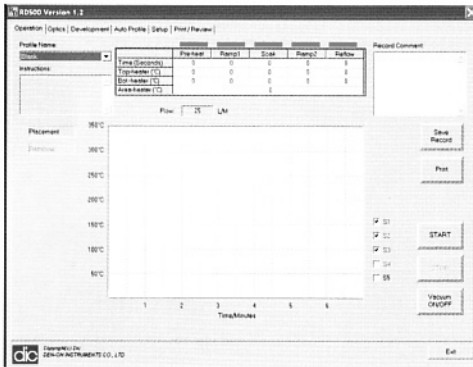


RD-500 Standard 1600 Watt IR Area Heater Shown without Safety Screen and PCB Holder for Clarity



RD-500S Optional 800 Watt IR Area Heater Shown without Safety Screen and PCB Holder for Clarity

SOFTWARE AND SET-UP SOFTWARE TABS



Operation-The operation tab is where the standard operator will access the profiles that have been developed by the engineer or technician.

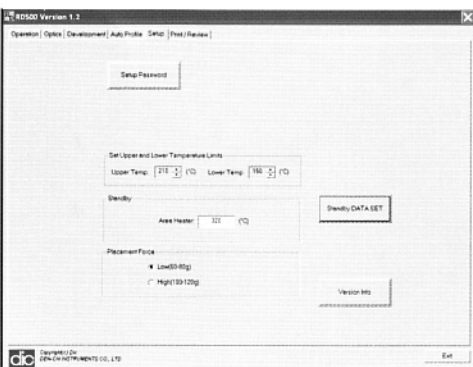
Optics-The Optics tab is where the operator or technician will deploy the Optics Arm. In this mode the component is picked from the Optics Arm and then aligned to the board.

Development-The Development tab is where profiles developed and or modified.

Auto-Profile -The Auto-Profile tab is a function that allows the technician or engineer to take a thermocoupled board, enter the desired soak and reflow times and temperature and then with the push of a button, easily develop a profile for the board and component.

Setup -The Set-up tab is where the basic functions of the machine are set. The standard defaults are good for most applications.

Print/Review-The Print/Review tab allows the user to pull up existing profiles and print them on a printer set up either locally or on a LAN network. A second profile can also be overlaid over the first profile.



SET-UP SCREEN

The software Set-up Tab takes the user to several basic set-up options for the RD-500 and RD-500S. These described below along with the default settings.

Password - When this button is pressed, the user is given the option to setting a password. If a password is set, when a user tries to access the Development Tab, the user will be prompted to enter the password. If the password is not given correctly then the user will not be given access to this screen. This option will prevent the unauthorized changing of profile temperatures and times. The default is for no password.

Upper and Lower Temperature Limits - These are not actually limits, but two green reference lines that can be seen in the Operation, Development and Auto-profile Screens in the time/temperature graph. The defaults are 150 and 210 degrees which are the generally accepted soak and reflow temperatures for eutectic solder.

Standby Temperature - This is a temperature that is set for the Area Heater when a profile is not being run. This allows the Area Heater to be in a ready condition to run a profile at anytime. The default is for 320 degrees.

Placement Force - This is setting that adjusts the amount of force used to place the component. This is a friction setting on the vacuum pick. It therefore has only two gross settings. The default on this is Low (60-80 grams).

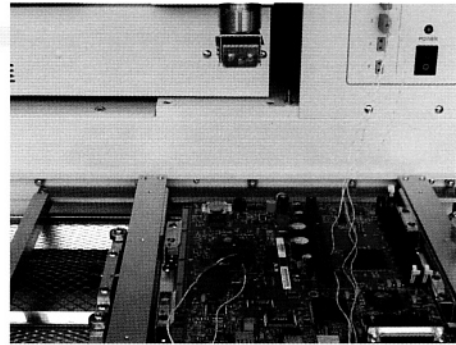
AUTO-PROFILING AND PROFILE DEVELOPMENT

The RD-500 and RD-500S use the same software package.

One of the primary features of these units is the ease of developing profiles. There are two ways to develop profiles. The user can either start with one of 5 Default profiles that come standard with the software, or a new profile can be developed using the Auto-Profile function. Below this function is described in more detail.

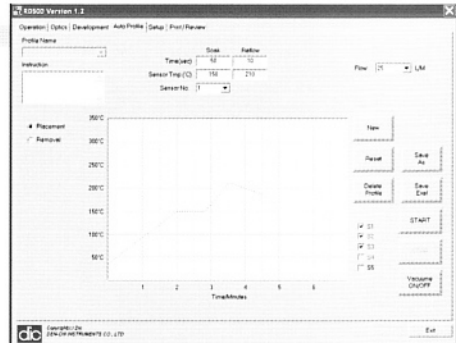
Step 1

A board that has at least one thermocouple attached on a ball of the target component is connected to one of the Sensor Inputs on the front of the RD-500 or RD-500S.



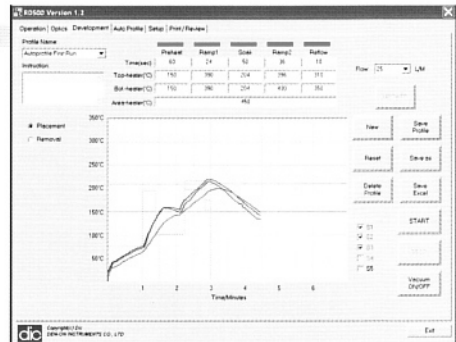
Step 2

The user sets the desired Soak and Reflow Times and Temperatures. For Lead Free solders, the user just enters the manufacturer's recommended numbers. The Auto-Profiling software will do all the work.



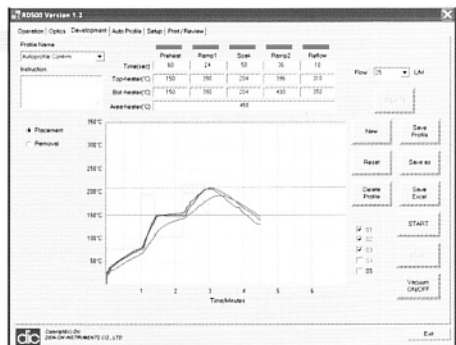
Step 3

The start button is pushed and the profile is developed. Note that the first data that is captured shows overshoot on both the Soak and the Reflow. This is not a problem since the Auto-Profiling software will automatically recalculate and correct for this overshoot.



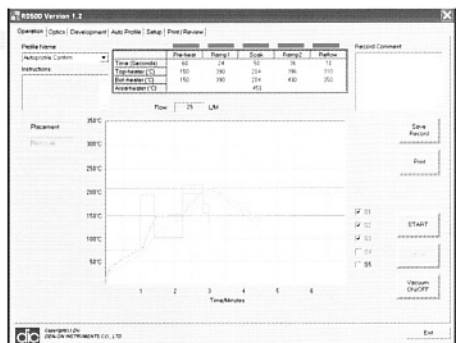
Step 4

The profile is run again to confirmed the accuracy. In some cases some modification will be necessary. But this is a simple process and in many cases is not even necessary.



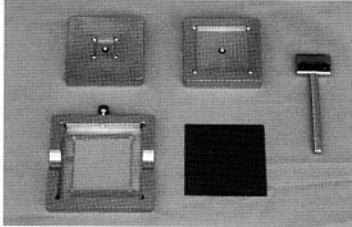
Step 5

When the operator goes to use the profile in the Operation Tab the temperature graph will appear but have a somewhat lighter color.



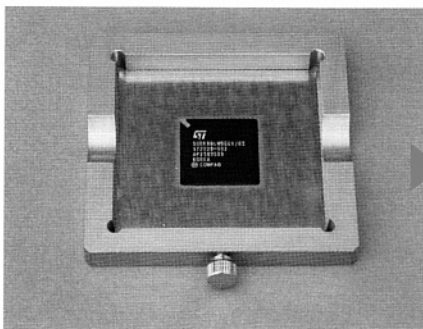
COMPONENT PREPARATION, ALIGNMENT AND PLACEMENT

The RD-500 and RD-500S both come with a stenciling kit that allows the user to apply either solder or flux paste directly to the balls or lands of a component. Stencils are optional and made to match the customer's component. The Stencil Kit is also used by the RD-500 as the tool to load the component into the nozzle. Once the component is prepped and loaded into the nozzle, it is aligned to the board via the prism and camera in the Optics Arm. The image is put onto the computer screen via a video capture card. This allows the user to zoom in or out depending on the component size. There is also a split screen function in order to facilitate alignment on very large components.



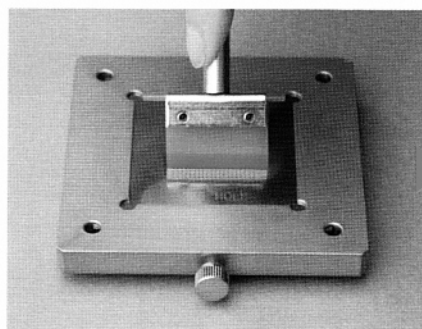
■ Stencil Kit

These are the contents of the Stenciling Kit. Note: The Stencil is an optional part.



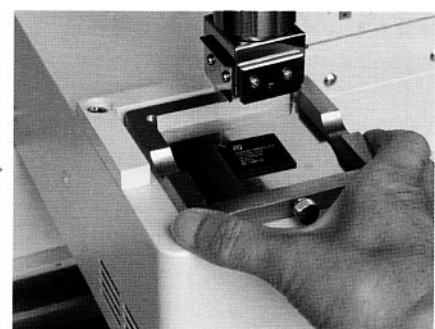
Step 1

Place the component in the appropriate stencil.



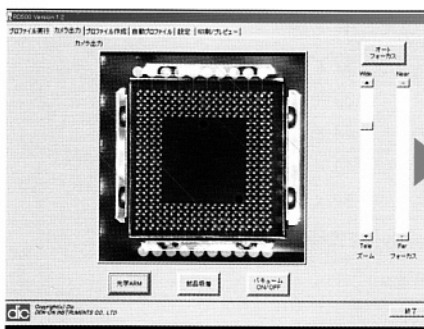
Step 2

Apply solder or flux paste to the component.



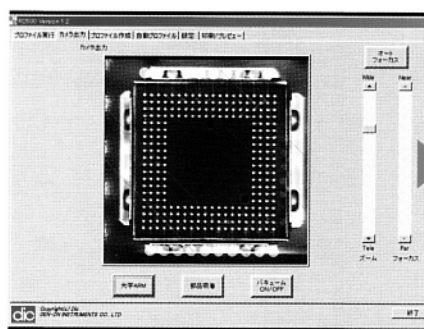
Step 3

Deploy the Optics Arm and place the stencil and component into the stop on the top of the Optics Arm.

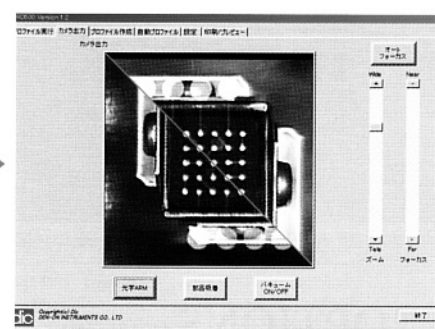


Step 4

Using the table movement knobs, align the PCB to the component. If a theta adjustment is necessary, use the Theta Knob on the Heater Head.



Once the Component and the PCB are aligned the screen will look like this.



Step 5

If the component is large and has many balls, use the Digital Screen Splitter to enlarge the view on the two corners of the component. There are two levels of enlargement and can be seen as two blue lines on the screen.

SAFETY FEATURES

Both the RD-500 and RD-500S feature some unique safety features that make operating the machine simple and safe. They include:

Initialization Check - When the machine is initially powered up, the software will check all the major motion sensors and heating functions of the machine. If there is any problem an error will show and the software will prevent the machine from continuing operation.

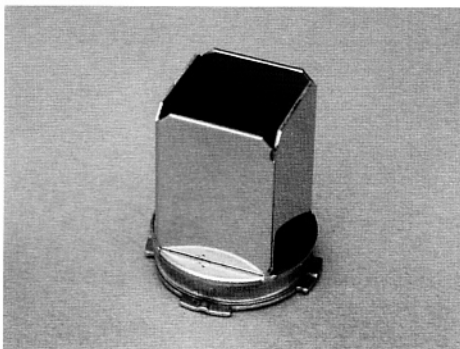
Emergency Shut-off Switch (RD-500 Only) - This stops the machine function anytime it is pressed. The machine cannot be operated until this Switch is reset.

Air-flow Sensor - There is an internal air flow sensor that will automatically stop the machine operation if the air flow is cut off from the unit.

Heater Overload Sensor - This is a function that automatically stops the machine operation if power to either heater is stuck in an "on" condition for more an extended period of time.

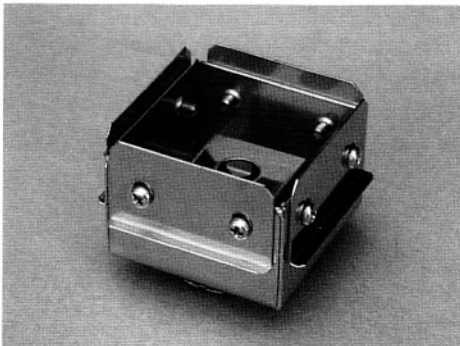
Thermo-Shut Off Switch - This is a heat sensor that is attached to outside of the upper heater. If for any reason the heaters overheat this sensor will cut off power going directly to the heating element. Once they sense that the heat is below a certain level, the power to the heating element is once again restored and the machine can be started.

NOZZLES



Nozzle without Adjustable Walls for ANZ-07 to ANZ-15

Part #	Size In MM (Inside Dimension)
ANZ-07*	7 X 7
ANZ-09*	9 X 9
ANZ-13*	13 X 13
ANZ-15*	15 X 15
ANZ-18	18 X 18
ANZ-20	20 X 20
ANZ-22	22 X 22
ANZ-24	24 X 24
ANZ-26	26 X 26



Nozzle with Adjustable Walls for ANZ-18 to ANZ-52

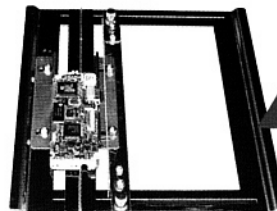
Part #	Size In MM (Inside Dimension)
ANZ-28	28 X 28
ANZ-30	30 X 30
ANZ-32	32 X 32
ANZ-35	35 X 35
ANZ-37	37 X 37
ANZ-39	39 X 39
ANZ-44	44 X 44
ANZ-49	49 X 49
ANZ-52	52 X 52

*These nozzles do not have the adjustable wall.

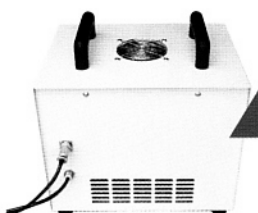
OPTIONS



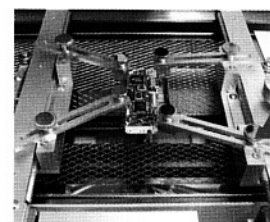
Table with drawer, wheels and adjustable leveling feet



Small PCB holder



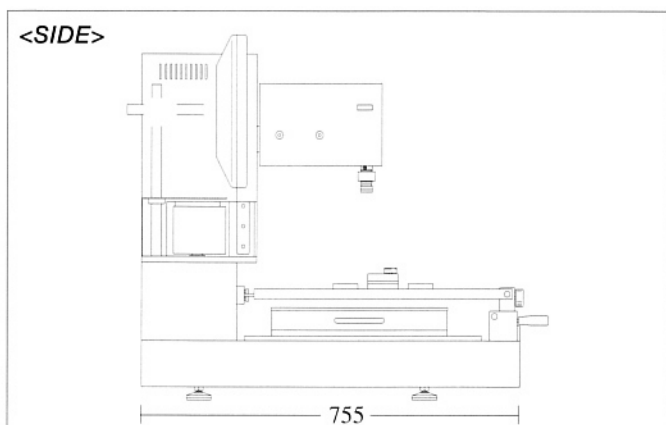
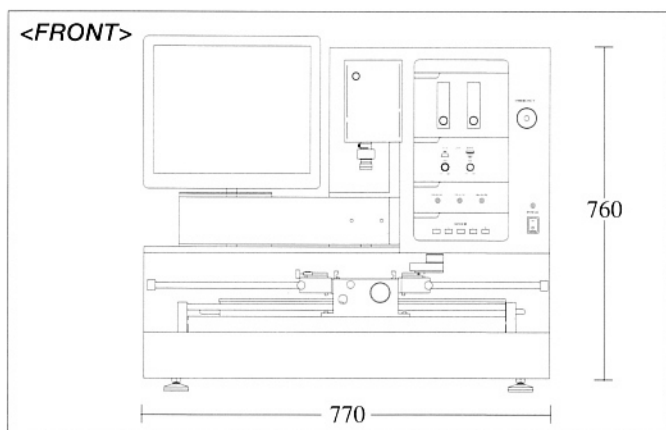
Compressor pump available in AC100V-120V or AC200V-230V models



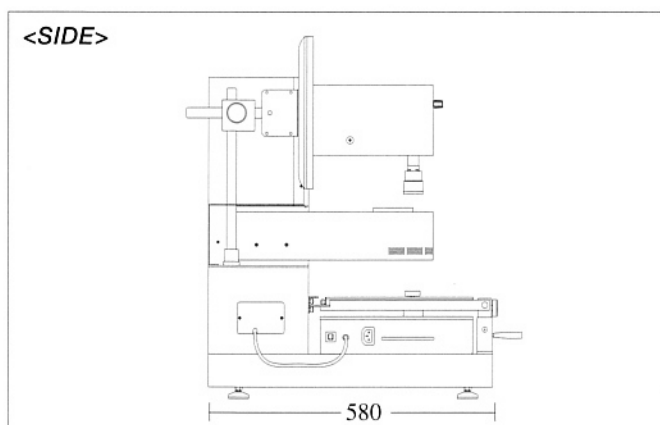
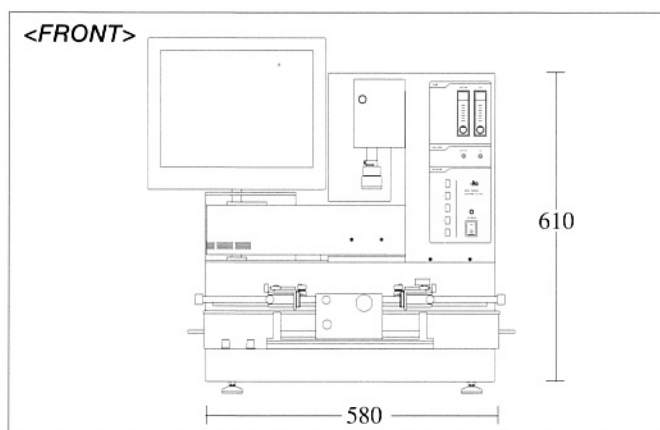
Odd size/shape PCB holder

■ SPECIFICATION AND DRAWING

■ RD-500



■ RD-500S



RD-500	Specification	RD-500S
500mm x 600mm	Maximum Board Size	400mm x 420mm
2mm - 50mm	Device Size Range	2mm - 50mm
+/- 0.025mm	Overall Placement Accuracy	+/- 0.025mm
700 Watt Hot Air	Top Heater	700 Watt Hot Air
700 Watt Hot Air	Bottom Heater	700 Watt Hot Air
Standard 400 Watt x 4 IR 1600 Watt Total	Area Heater	Optional 400 Watt x 2 IR 800 Watt Total
100 - 500°C	Temperature Setting Range Top and Bottom Heaters	100 - 500°C
0 - 500°C	Temperature Setting Range Area Heater	0 - 500°C
PC with Windows XP Pro	Computer/Controller	PC with Windows XP Pro
15 Inch Flat Panel	Video Display	15 Inch Flat Panel
770W x 755D x 760H	Overall Dimensions (less computer)	580W x 580D x 610H
Approximately 78kgs	Overall Weight	Approximately 50kg.
60 liters/minute 1-10kgf/cm ² (0.1 - 1.0MPa)	Air Requirements	60 liters/minute 1-10kgf/cm ² (0.1 - 1.0MPa)
AC200-230V 3.0kw	Electrical Requirements	AC100-120V or AC200-230V 1.4kw (2.2kw with Area Heater)

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