# MRS-1100A
# Modular Convection Rework System





***The MRS-1100A Modular Rework System is an integrated convection rework system for the removal and reflow of BGA/CSP and SMT components.***

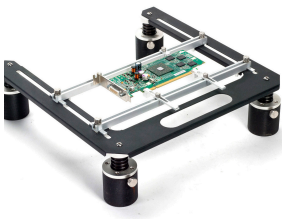
The MRS-1100A is comprised of a hand held convection tool, preheater, adjustable tool holder, and free-standing board holder to create a manually assisted rework system. A series of nozzles, targeting a variety of applications, and optional light magnifier round out the product offering for this system.



With standard features such as programmability, a digital display, program storage of up to 50 profiles, this system is not only versatile, but also easy and efficient to work with. A choice of board holders and accessories are available that make the system capable of handling multiple sizes of PCBs.



The MRS-1100A allows you the choice of using either the embedded profiling capability that can be configured to operate at a fixed temperature, or a four zone programming option. The unit also allows the temperature to be controlled either at the heat output (internal) or at the board (external). The “external” control function uses a thermocouple which can be placed on the board or a component.



# Configure the System to your Needs.

***The 4 components below can be purchased as a complete system (MRS-1100A) or as separate items.***

## HCT-1000 Programmable Hand Held Convection Tool



The HCT-1000 System is a fully programmable hand held convection rework tool that can both remove and place SMT components. It features digital controls, internal or external thermocouple feedback control, program storage of up to 50 profiles and integrated vacuum pick-up for component placement and removal. Additionally, with multiple modes of operation including manual, 4 zone heating, and as part of the MRS-1100A System, the HCT-1000 stands out as a versatile convection tool.

The hand-piece features vacuum and reflow buttons allowing the process to be operated manually or automatically through a profile when used as part of the Modular Rework System (MRS). Additionally, the vacuum has automatic lift off of components, at the end of the removal profile, taking guesswork out of the operators' hands and improving process control.

As part of the MRS System, the HCT-1000 is connected via a cable to the PCT-1000, and may be used with ATH-1100A Adjustable Tool Holder. In this mode the HCT-1000 provides timing control for both units and the ATH-1100A allows repeatable place and remove operations.

## ATH-1100A Adjustable Tool Holder



The ATH-1100A Adjustable Tool Holder is designed to work with the HCT-1000 or as part of the MRS-1100A System. The tool holder uses the Advanced Head Assembly which features 4" of Z axis adjustment, ½" fine adjustment of the X & Y axis as well as 30° θ adjustment. It also features locking hand-piece retainer, Z axis stop and mounting configurations for stand-alone operation or integrated as part of the MRS-1100A. The ATH-1100A is sturdy and easy to attach to the PCT-1000 Programmable Preheater when incorporated into the MRS System.

## PCT-1000 Programmable Preheater



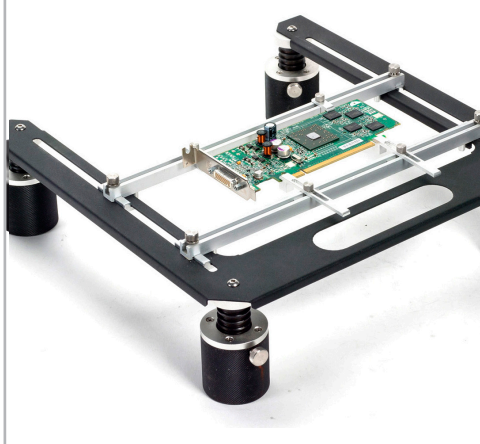
The PCT-1000 is a programmable preheater that provides users the ability to increase heat capacity with highly controlled thermal output. The PCT-1000 can be used in a variety of processes including soldering, desoldering, SMD rework operations and, with its added heat capacity, will provide faster production rates while lowering overall process temperatures.

The preheater can be used in two modes; manual for constant heater temperature, and profile for greater control to maintain PCB board temperature with external thermocouple feedback.

With four programmable heating zones and one cooling zone, users select time and temperature targets, creating a preheat thermal profile. The PCT-1000 also has an advanced heater control function where the temperature is controlled either at the heater output (internal) or at the board (external thermocouple).

The PCT-1000 is equipped with an advanced convection heater creating a vortex effect that efficiently directs and concentrates heat.

## BH-2000 Board Holder



The BH-2000 is a free-standing board holder that provides a solid and stable base for a variety of PCB's. The unit features easily adjustable rails to accommodate boards 8" (203mm) x 12" (305mm).

## MRS-1100A Features

- Digital display for repeatable temperature settings and profile control
- Automatic control of the preheater for simple operation
- Easy profile creation for operator repeatability
- Integrated vacuum pickup for easy component removal
- Hand held or tool holder mounted for operator comfort
- Manual mode for quick setup
- External thermocouple for process setup and verification
- Digital controlled airflow for repeatable results
- X, Y, Z and Theta controls for component alignment
- Adjustable PCB holder for easy change outs
- Automatic vacuum lift off at the end of the cycle
- Password lockout of programmed profiles

## MRS-1100A Applications

The MRS-1100A is perfect for removal and reflow of SMT Components. Specific examples of applications include:

- Simple removal and replacement of delicate SMT components.
- Quick, easy and cost effective removal of BGA & CSP that will later be placed with your dedicated Array Package Rework System, this increases the productivity of your rework area and reduces your technicians workload.
- Automatically lifts the component at the end of the cycle preventing operators from prematurely lifting components and damaging expensive PCBs.

## ACCESSORIES

### Light Magnifier Add-on

The **LM-1000A** Light Magnifier is an integrated light and magnifier. It features a 4x magnification lens and an integrated LED lighting system for shadow free illumination. Supplied with base plate. The LM-1000A includes: LM-1000 Light Magnifier and LM-BP base plate.



LM-1000A

LM-BP

### Adjustable Tool Holder Option

The ATH-1100A can be attached to the PCT-1000 or used as a standalone unit thanks to its base plate.

**ATH-BASE** Optional Base plate for ATH-1100A.

### Other Board Holder Options

**BH-1000**

Post-Rail Board Holder(incl. 4 posts, 2 rails with sliding clips, 4 support pins and flat-head support)



BH-1000

**BH-PK1000**

Board Holder Pin Kit (incl. 2 discs, 2 long pins, 2 short pins)



BH-PK1000

### Nozzles for HCT-1000

A series of 14 Nozzles are available for use with the MRS-1100A / HCT-1000. The nozzles fit applications reworking components of all sizes from (including, but not limited to) BGAs, QFPs, LGAs, PLCC and SOIC. A custom nozzle program is also available.

**HCT-NC**

Carrier for HN Series Nozzles



HN Series Nozzles

### Other Accessories for HCT-1000

**HCT-FS2**

Footswitch, Dual, HCT-1000

**HCT-HTRASSY**

Heater Assembly

**AC-TCK-40-36**

Thermocouple 40 AWG, pack of 2

HCT-NC





HCT-FS2

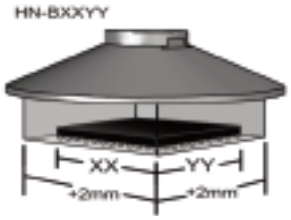
# Systems and Nozzles Selection

| Part Number | Description |
|---|---|
| **MRS-1100A** | **Modular Rework System Advanced**. *Incl.: HCT-1000, PCT-1000, ATH-1100A and BH-2000* |
| **HCT-1000** | **Programmable Hand Held Convection Tool** *Incl.:* |
| HCT-PS1000 | HCT-1000 Power Supply |
| HCT-HV1 | Hand-piece with integral vacuum, cord and connector |
| HCTA-VC50-5 | Vacuum Cup, 3/16” (5.00mm), pack of 5 |
| HCTA-VC64-5 | Vacuum Cup, ¼” (6.4mm), pack of 5 |
| HCTA-VC80-5 | Vacuum Cup, 5/16” (8mm), pack of 5 |
| HCTA-VC11-5 | Vacuum Cup, 7/16” (11mm), pack of 5 |
| HCTA-TH1 | Hand-piece Tool Holder |
| HNA-1 | Nozzle Adapter |
| HCTA-NW1 | Nozzle Wrench |
| AC-TCK-36-36 | Thermocouple 36 AWG, pack of 2 |
| HCTA-CC | Communications Cable 4ft |
| HN-J0005 | 5mm Ø nozzle |
| **ATH-1100A** | **Adjustable Tool Holder, Advanced Head** (no base) |
| **PCT-1000** | **Programmable Preheater** *Incl.:* |
| AC-TCK-36-36 | Thermocouple 36 AWG, pack of 2 |
| PCT-FS1 | PCT-1000 Foot Switch |
| **BH-2000** | **Free Standing Board Holder** |



| Nozzles | Component Dimension* |
|---|---|
| **HN-B0707** | 7mm X 7mm, CSP, LGA44 |
| **HN-B1010** | 10mm X 10mm, CSP, LGA178, LCC28 |
| **HN-B1414** | 14mm X 14mm |
| **HN-B1408** | 14mm X 8mm, CSP, SOIC24M |
| **HN-B1515** | 15mm X 15mm, BGA |
| **HN-B1818** | 18mm X 18mm, PLCC44,CSP, TQFP100, BGA |
| **HN-B2525** | 25mm x 25mm, BGA , PLCC68 |
| **HN-B1809** | 18.2mm X 8.5mm,SOJ28, SOIC28M, TSOP32 |
| **HN-B2519** | 24.5mm X 18.5mm, QFP100, QFP80 |
| **HN-B2727** | 27mm X 27mm, BGA |
| **HN-B3232** | 32mm X 32mm, BGA |
| **HN-B3535** | 35mm X 35mm, BGA |
| **HN-B4040** | 40mm X 40mm, BGA |
| **HN-J0005** | 5mm Ø, DISCRETE |

* For the nozzle internal dimension, 2mm have been added to each side to allow for component access.




## TECHNICAL SPECIFICATIONS

| | PCT-1000 | HCT-1000 |
|---|---|---|
| Size | 13" x 8" x 3" (330 x 203 x 76mm) | 9" x 7" x 6 " (229 x 178 x 152) |
| Weight | 7.5 lbs (3.4kg) | 12 lbs. (5.4kg) |
| Rated Power | 1200 W | 600 W |
| Input Voltage | 100-240 VAC, 50/60 Hz | 100-240 VAC, 50/60 Hz |
| Storage Temperature | 0°C to 50°C (32°F to 122°F) | 0°C to 50°C (32°F to 122°F) |
| Air Flow | 19 cfm | 5-25 l/minute |
| Vacuum Pump | | 15" Hg (381mm Hg) |
| Noise Level | | <55 dB |
| Source Temperature Range | 25°C to 400°C (77°F to 752°F) | Up to 450°C (840°F) |
| Operational Modes | Setup, Run, Manual, Active Setup | |
| Display | LCD 20 x 4 display segments | |
| Number of Programs | 50 memory locations | |
| Number of Zones | 5 (4 Heat Zones, 1 Cool Down Zone) | |

| LM-1000A | | BH-2000 | |
|---|---|---|---|
| Magnification | 4x | Maximum board size | 8” x 12” (203mm x 305mm) |
| Lighting | 8 LEDs, white | Maximum thickness | .25” (6mm) |
| Power | 24V DC | | |
| Lens Size | 90mm diameter | | |

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