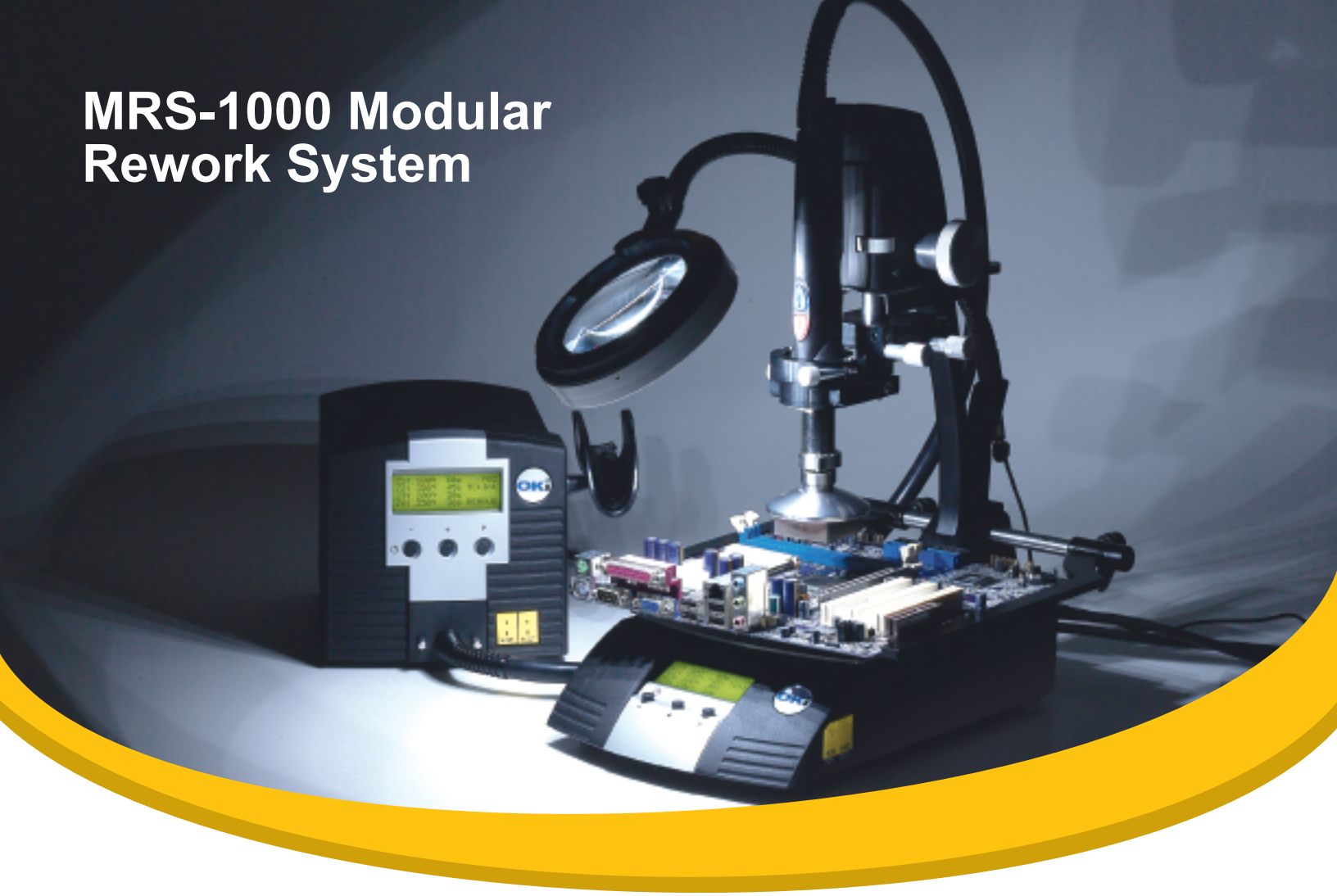
MRS-1000 Modular Rework System



Create Your Own Rework System

The MRS-1000 Modular Rework System is an integrated convection rework system for the removal and placement of BGA/CSP and SMT components.

The MRS-1000 is comprised of a hand held convection tool, preheater, and adjustable tool holder with board holder to create a manually assisted rework system. A series of nozzles, targeting a variety of applications, and 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-1000 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.

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Configure the System to your Needs.

The 4 components below can be purchased as a complete system (MRS-1000) or as separate items. You choose.

1 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-1000 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-1000 Adjustable Tool Holder. In this mode the HCT-1000 provides timing control for both units and the ATH-1000 allows repeatable place and remove operations.

HN Series Nozzles

A series of 14 Nozzles are available for use with the MRS-1000 / 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.

2 ATH-1000 Adjustable Tool Holder

The ATH-1000 Adjustable Tool Holder is designed to work with the HCT-1000 or as part of the MRS-1000 System. The tool holder features a board holder, locking hand-piece retainer, Z axis stop and mounting configurations for stand-alone operation or integrated as part of the MRS-1000. The ATH-1000 is sturdy and easy to attach to the PCT-1000 Programmable Preheater when incorporated into the MRS System.

ATH-BASE can be ordered separately when the ATH-1000 is used as a standalone unit.

Two Adjustable Tool Holder models are available:

- The **ATH-1000A** 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.

- The **ATH-1000B** uses the Basic Head assembly and provides 4" of Z axis adjustment.

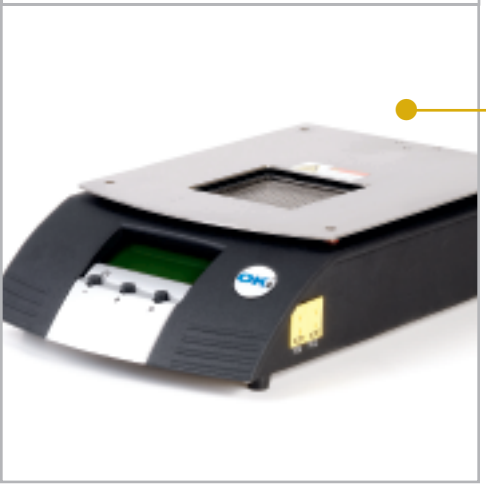
MRS-1000 Features

- 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

LM-1000 Light Magnifier 3

The LM-1000, Light Magnifier, is an integrated light and magnifier. It features a 4x magnification lens and an integrated LED lighting system for shadow free illumination. Use it as part of the MRS Modular Rework System by attaching it to the back of the ATH-1000 tool holder or configure it for standalone operation with its own optional base plate (LM-BP).

LM-BP can be ordered separately when the LM-1000 is used as a standalone unit.



PCT-1000 Programmable Preheater 4

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 the highly advanced heater design found on sophisticated OK International rework systems. Its convection heater creates a vortex effect that efficiently directs and concentrates heat.

MRS-1000 Applications

The MRS-1000 is perfect for removal and placement 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.
- Automaticity lifts the component at the end of the cycle, preventing operators from prematurely lifting components and damaging expensive PCBs.

System and Accessories Selection

Part Number	Description
MRS-1000A	**Modular Rework System Advanced** *Incl.: HCT-1000, PCT-1000, ATH-1000A and LM-1000*
MRS-1000B	**Modular Rework System Basic** *Incl.: HCT-1000, PCT-1000, ATH-1000B and LM-1000*
HCT-1000	**Programmable Hand Held Convection Tool**
HCT-PS1000	HCT-1000 Power Supply
HCT-HV1	Hand-piece with integral vacuum, cord and connector
HCT-FS2	Footswitch, Dual, HCT-1000
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
HCT-NC	Nozzle Carrier, HCT-1000 Nozzles
HCTA-TH1	Hand-piece Tool Holder
HNA-1	Nozzle Adapter
HCTA-NW1	Nozzle Wrench
AC-TCK-24-36	Thermocouple
HCTA-CC	Communications Cable
HCT-HTRASSY	Heater Assembly
ATH-1000A	**Adjustable Tool Holder, Advanced Head** (no base)
ATH-1000B	**Adjustable Tool Holder, Basic Head** (no base)
ATH-BASE	Base Assembly for ATH-1000A and ATH-1000-B
LM-1000	**Light Magnifier** (no base)
LM-BP	Base Plate for Light Magnifier
PCT-1000	**Programmable Preheater**
AC-TCK-24-36	Thermocouple
PCT-FS1	PCT-1000 Foot Switch

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.

Board Holder Options and Accessories

BH-1000	Post-Rail Board Holder (incl. 4 posts, 2 rails with sliding clips, 4 support pins and flat-head support)
ATH-RAIL-12	Board Holder Rail for ATH-1000, 12" (*ATH-RAIL-8, rail 8" is supplied as standard with MRS-1000 A/B and ATH-1000 A/B*)
BH-PK1000	Board Holder Pin Kit (incl. 2 discs, 2 long pins, 2 short pins)

BH-1000

BH-PK1000

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
Temperature Range	25°C to 350°C (77°F to 622°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-1000		ATH-1000 (with 8" rail) PCB Handling Capability	
Weight	6.5 lbs. (2.9kg)	Maximum board size	12" x 12" (305mm x 305mm)
Magnification	4x	Rework area	10" x 10" (254mm x 254mm)
Lighting	8 LEDs, white	Maximum thickness	.25" (6mm)
Power	24V DC	Maximum board size (with optional 12" rail)	16" x 16" (406mm x 406mm)
		Rework area (with optional 12" rail)	14" x 14" (356mm x 356mm)