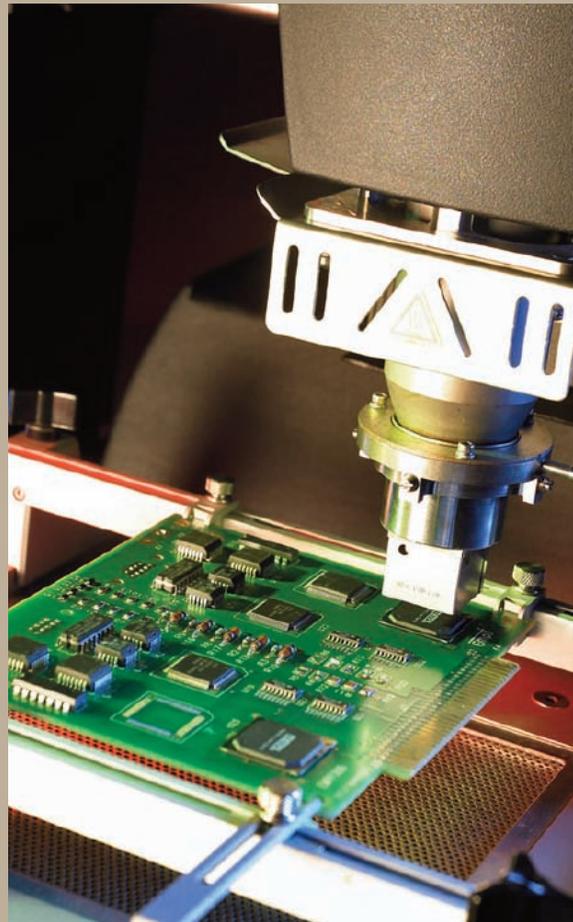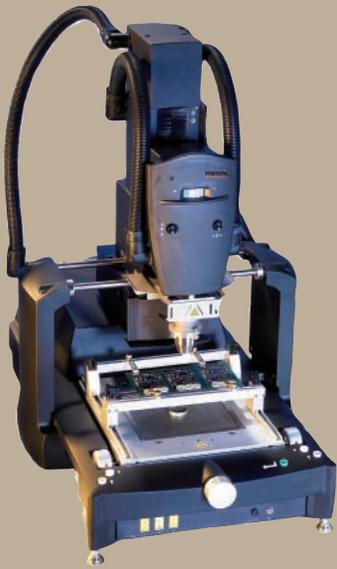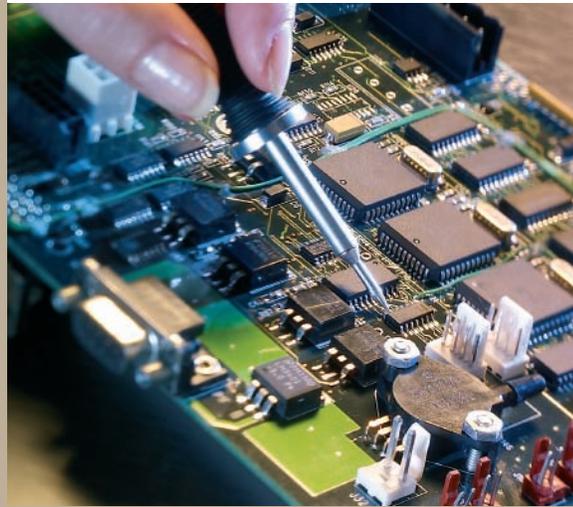# METCAL

Power. Precision. Performance.

Power. Precision. Performance.

The MX-5000 Soldering, Desoldering and Rework System is the next generation of the trusted Metcal Soldering Systems that enable increased productivity and process control for a wide range of applications. Building on the renowned strengths of its popular MX-500 predecessor, the MX-5000 Series increases output power, adds process feedback, and improves application flexibility with new hand-pieces.

More power. With nearly double the power of its predecessor, the MX-5000 time-to-recovery increases production rates and throughput. The challenges of high mass components, multilayered boards and lead-free solders are seamlessly matched.

Improved ergonomics. The MX-5000 Series offers two new soldering hand-pieces. The Metcal Advanced™ Hand-piece for soldering and rework provides a cooler, lighter weight and more comfortable feel for the operator. And, the Metcal UltraFine™ Hand-piece features a new generation of extremely fine diameter cartridges in a slim profiled handle. Both of these hand-piece designs advance manual dexterity and ergonomics resulting in productivity gains and operator comfort. All Hand-pieces are forward and backward compatible, and all STTC cartridges tips will function with both MX-500 and MX-5000 Systems.

Greater process control. SmartHeat® Technology in every MX-5000 System means that soldering and rework are always performed at safe, controlled temperatures. Metcal users know that moderate fixed temperatures, where power is varied, provide the best assurance for a well controlled soldering and rework process. The MX-5000 is ESD safe and features incoming AC ground monitoring circuitry. This AC (mains) ground monitor detects power line ground failures and immediately alerts the operator and shuts down the system. Only after the power line has been restored, can the MX-5000 be restarted and soldering operations can be resumed.

Metcal Gives You Choices

The MX-5000 Series provides users with a wide range of choices to address conduction soldering and rework processes. At the core of each system is a microprocessor controlled power supply that provides more power, the highest level of precision and advanced user features for greater process control.

It has a built-in power indication meter with digital display and bar graph that dynamically provides the operator with feedback on the status of the soldering operation. Whether using a large mass rework tip for QFPs or a fine-point soldering tip, the power indication meter is a valuable resource for making consistent, acceptable solder joints.

The system has four mode indications: "Ready Mode": the hand-piece is removed from the workstand, ready for soldering or rework. "Power Mode": the hand-piece's tip is in contact with the load. The power indication meter provides graphical and numeric feedback on the system power output. "Sleep Mode" (Programmable sleep from 10 to 120min): the hand-piece is at rest in the workstand; power is reduced to the hand-piece. "Powersave Mode": power to the hand-piece is shut off. This programmable feature allows a supervisor to set the desired time to cut off power to the hand-piece.

Hand-pieces: Comfort and Productivity
The four hand-pieces available for the MX-5000 will make the task at hand seem effortless. The **Metcal Advanced™ Soldering Hand-piece** [MX-H1-AV] is a general purpose tool for single task soldering, touch-up soldering, Surface Mount Device (SMD) rework, and pad clean-up. This hand-piece uniquely offers users a choice of three interchangeable grips to meet operator preferences for comfort and feel, ultimately resulting in higher levels of productivity. The Metcal Advanced™ Hand-piece uses the highly popular STTC and SMTC Series cartridges.

A new speciality tool, the **Metcal UltraFine™ Hand-piece**, is designed for very fine soldering on mini and micro components. The new series of UFTC cartridges include geometries as small as 0.2 mm (.0078"). A slim handle and cool-to-the-touch feel and, like the Metcal Advanced™ Hand-piece, its interchangeable grips, promote operator acceptance and productivity.

For efficient and ergonomic removal of discreet and SOIC components, the **Precision Tweezers Hand-piece** will increase productivity with greater removal speed and increased precision. The tweezers, using the PTTC Series of cartridges, are able to rework devices as small as 0201 by combining fine-tip soldering cartridges and a multiple axis hand-piece adjustability to achieve proper tip alignment.

The high power **Desoldering Hand-piece, MX-DS1**, is designed for plated-through-hole component desoldering. The easy-to-grip handle allows the task to be completed quickly and comfortably. This "shop-air" hand tool, in combination with the MX-5000 Series power supply, provides unprecedented thermal performance on difficult ground planes and other high-mass applications.

Workstand: Improved Tip Life, More User Options, Increased Ergonomics
The **Metcal TipSaver™ Workstand** improves tip life as well as operator ergonomics. This "Auto-Sleep" Workstand reduces the power to the hand-piece when it is placed in the Metcal TipSaver™ Workstand. Reduction in power will substantially decrease tip oxidation, a major cause of reduced tip life.

The TipSaver™ Workstand gives users a choice for configuration with soft, coiled brass tip cleaner or with both the brass cleaner and the traditional sponge holder. Many users prefer the brass-only option, as this reduces the potential to introduce contaminants to the tip, which can occur with poorly maintained sponges.

This new workstand has an adjustable angle cradle that allows operators to select and lock the angle for tool placement in the holder to meet their preference. This can positively impact ergonomics and productivity.

Systems Configurations
and Recommended Applications

MX-5010 Soldering and Rework System
The MX-5010 is configured with the Metcal Advanced™ Hand-piece. This system is highly effective for soldering applications including: lead-free, high mass components or boards, thermally sensitive components requiring low operating temperature, high volume production soldering and touch-up soldering operations. For these applications, STTC Series (see pages 6 & 7) soldering cartridges are offered in dozens of geometries and sizes.

In addition, the MX-5010 can be used for conduction rework of SMDs when using SMTC Series soldering cartridges with such geometries as: blade, tunnel and quad styles that provide exact part fit up. Even more, the high power MX-5010 System is ideally suited for quickly and efficiently heating high-mass tips in this range, increasing operator throughput. A variety of SMTC soldering cartridge geometries are available (see pages 8 & 9).

MX-5000 Soldering Hand-pieces
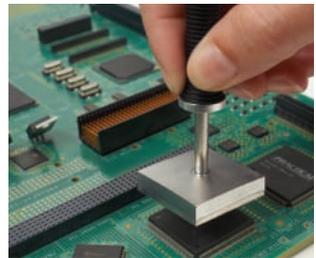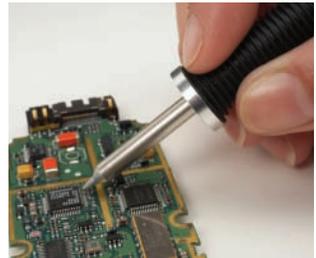a. MX-RM3E
b. MX-H1-AV
c. MX-H2-UF

MX-PTZ Precision Tweezers Hand-piece
also compatible with MX-500 System.

MX-DS1 Desoldering Hand-piece also
compatible with MX-500 System

Metcal TipSaver™ Workstand
with or without sponge

MX-5020 UltraFine™ Soldering System

The MX-5020 includes the new Metcal UltraFine™ Soldering Hand-piece. Using the all-new UFTC cartridges, the hand-piece is a specialty tool for soldering and touch-up of very small components, restricted access or high density component packaging on a PCB. The new range of UFTC cartridges (see page 10) feature tip geometries of 0.2 mm (.0078") to 1.2 mm (.047"). With their relatively small geometries and low mass, as compared to the STTC Series, these are suited for low-mass or small part soldering.

New UltraFine™ Hand-piece

MX-5041 Precision Tweezers, Soldering and Rework System

The MX-5041 combines both the Metcal Advanced™ Hand-piece and the Precision Tweezers Hand-piece. Users get maximum application flexibility for soldering and reworking the widest range of surface mount components. When switching hand-pieces, tips reach operating temperature in seconds by simply pressing the Output Selector/Command Button.

MX-PTZ Tweezer Hand-piece

MX-5050 Plated-Through-Hole Component Desoldering System

Users challenged by very large ground planes or lead-free solders, when desoldering through-hole devices, now have a new, high-power solution with the Metcal MX-5050. With constant temperature and variable power, the system safely and rapidly responds to the thermal load demands of the application. The exceptional power of the MX-5050 System's power supply coupled with the high mass STDC desoldering cartridges (see page 10) provide assurance for fast, high quality results.

MX-5051 Soldering, Desoldering and Rework System

For unmatched rework versatility, the MX-5051 addresses through-hole desoldering, general soldering, and SMD rework applications. The system includes two hand-pieces. The Metcal Advanced™ Hand-piece with a selection of soldering and SMD rework cartridges and the Metcal MX-DS1 Desoldering hand-piece for through-hole desoldering. This configuration is ideal for mixed technology boards and provides the greatest versatility for addressing soldering and rework tasks.

MX-DS1 Desoldering Hand-piece

SYSTEMS CONFIGURATION GUIDE								
PART NUMBER	MX-PS5000 Power Supply	Hand-pieces				TipSaver™ Workstands		
		MX-H1-AV Advanced™ Hand-piece	MX-H2-UF UltraFine™ Hand-piece	MX-PTZ Precision Tweezers	MX-DS1 Desoldering Gun	MX-W1AV TipSaver™ Workstand for Advanced™ & Ultra-Fine™ Hand-pieces	MX-W4PT TipSaver™ Workstand for Precision Tweezers	MX-W5DS TipSaver™ Workstand for Desoldering Gun
MX-5010	✔	✔				✔		
MX-5020	✔		✔			✔		
MX-5041	✔	✔		✔		✔	✔	
MX-5050	✔				✔			✔
MX-5051	✔	✔			✔	✔		✔

All systems include: power supply, appropriate hand-pieces and workstands, power cord, cartridge removal pad, sponge, brass tip cleaning pad, user guide. MX-H1-AV and MX-H2-UF Hand-pieces include three grips per hand-piece.
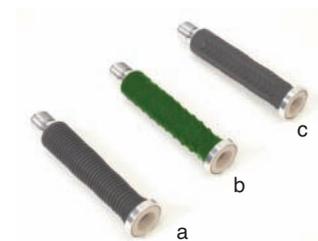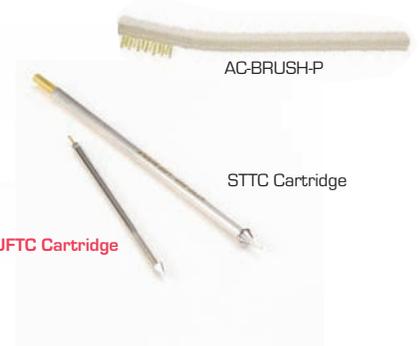
Three grips available
a. MX-H1GR
b. MX-H1GKG
c. MX-H1GS

MX-H1-AV
Advanced™ Hand-piece
(6.75", 171mm long)

MX-H2-UF
New UltraFine™ Hand-piece
(4.75", 120mm long)

AC-BRUSH-P

New UFTC Cartridge

STTC Cartridge

PART NUMBER	DESCRIPTION
Power Supply	
MX-PS5000	Power supply, 100 to 240 VAC input, dual switched port, LCD display
Note: power supply includes AC power cord and User Guide	
Hand-pieces and Grips	
MX-H1-AV	Metcal Advanced™ Hand-piece with cord, soldering and rework, three grips included
MX-H1GR	Grip Metcal Advanced™ Hand-piece with black sleeve in *ring* pattern (ref a page 3)
MX-H1GS	Grip Metcal Advanced™ Hand-piece with black *scallop* pattern (ref c page 3)
MX-H1GKG	Grip Metcal Advanced™ Hand-piece with green *knob* pattern (ref b page 3)
MX-H2-UF	Metcal UltraFine™ Hand-piece with cord, fine soldering, three grips included
MX-H2GR	Grip Metcal UltraFine™ Hand-piece with black sleeve in *ring* pattern
MX-H2GS	Grip Metcal UltraFine™ Hand-piece with black sleeve in *scallop* pattern
MX-H2GKG	Grip Metcal UltraFine™ Hand-piece with green sleeve in *knob* pattern
MX-PTZ	Metcal Precision Tweezers, SMD rework
MX-DS1	Metcal Desoldering Hand-piece
MX-RM8E	Metcal Desoldering Hand-piece Cord for MX-DS1
MX-DAH4	ESD air hose for MX-DS1Desoldering Hand-piece
Note: cartridges not included with hand-pieces	
Workstands and Accessories	
MX-W1AV	Metcal TipSaver™ Workstand, for Metcal Advanced™ and UltraFine™ Hand-pieces
MX-W1CR	Cradle for TipSaver™ Workstand, Advanced™ and UltraFine™ Hand-pieces, incl. knobs
MX-W4PT	Metcal TipSaver™ Workstand, for MX-PTZ Hand-piece
MX-W4CR	Cradle for Metcal TipSaver™ Workstand, MX-PTZ Hand-piece, includes knobs
MX-W5DS	Metcal TipSaver™ Workstand, for MX-DS1 Hand-piece
MX-W5CR	Cradle for Metcal TipSaver™ Workstand, MX-DS1 Hand-piece, includes knobs
AC-Y10	Yellow sponge, pack of 10
AC-BP	Brass pad, pack of 10
AC-BRUSH-P	Soft Brass Brush, pack of 6
MX-CP1	Cartridge removal pad
Note: cartridges not included with hand-pieces	
Accessories for MX-DS1 Desoldering Hand-piece	
MX-DCF1	Pack of 15 Chamber Liners and 6 Filters
MX-DCF1L	Pack of 40 Chamber Liners
MX-DCF1F	Pack of 20 Filters
MX-DAR1	Air Regulator and Filter
AC-TC	Desolder Tip Cleaner
AC-CB1	Chamber Cleaning Brush
AC-CB2	Tube Cleaning Brush
MX-DVC1	Venturi Cartridge
MX-DSL1	Seal Chamber
MX-DSL2	Seal Cartridge
MX-DSB	Swivel Connector
MX-DLA	Desolder Gun Latch Adjustment (pack of 10)
MX-DMK1	Maintenance Kit (for content refer to www.okinternational.com)

Note: Users of the MX-500 System that have either an MX-RM3E Hand-piece or MX-TALON Tweezer-Action Hand-piece can still use these hand-pieces with the MX-5000 System. However, for improved operator comfort and ergonomics, the new Metcal Advanced™ Hand-piece (STTC and SMTC cartridges) and the MX-PTZ Precision Tweezers are highly recommended.

MX-5000 SERIES SYSTEM SPECIFICATIONS

Ambient Operating Temperature	10 - 40°C
Maximum Enclosure Temperature	55°C
Input Line Voltage	100 - 240 VAC, grounded circuit
Input Line Frequency	50/60 Hz
Power Consumption	125W
Output Power (Max.)	80 Watts max. Per channel at 22°C ambient temperature
Output Frequency	13.56 MHz
Power Cord 3-Wire	183 cm (72") SJT
Power Supply Dimensions w x d x h	12.1 cm (4.8") x 13.0 cm (5.1") x 23.5 cm (9.3")
Certification / Marking	cTUVus, CE
Tip-to-Ground Potential	<2mV
Tip-to-Ground Resistance	<2 ohms
Idle Temperature Stability	± 1.1°C in still air
Hand-piece Cable Length	L=122 cm (48"), burn proof, ESD safe
Hand-piece Connector	F connector
Workstand Dimensions w x d x h	8.6 cm (3.4") x 19.1 cm (7.5") x 8.3 cm (3.3")
Weight of the power supply	7.4 lbs (3.35 kg)
Weight of the workstand	1.05 lbs (.476 kg)
Warranty Power Supply	5 years

Please note when doing Personal Appliance Testing: The MX-5000 has ground detection circuitry (for operators and work piece safety), this however shows up on a PAT tester. When PAT testing this product, the correct reading will be 1 Meg Ohm on the insulation test.

UPGRADE KITS GUIDE: HAND-PIECE AND WORKSTAND

PART NUMBER	Hand-pieces				Workstands		
	MX-H1-AV Metcal Advanced™	MX-H2-UF Metcal UltraFine™	MX-PTZ Precision Tweezers	MX-DS1 Desoldering	MX-W1AV	MX-W4PT	MX-W5DS
MX-UK1	✔				✔		
MX-UK2		✔			✔		
MX-UK4			✔			✔	
MX-UK5				✔			✔

Upgrade kits include a hand-piece and workstand. Upgrade kits are a recommended option when adding a hand-piece to ensure that the appropriate Auto-Sleep Workstand is used.

Hand-piece Selection Guide

The MX-5000 Series offers users a choice of hand-pieces to meet the customer's application needs. Each hand-piece has its own range of cartridges with many choices available for tip geometry and temperature.

Hand-pieces

MX-H2-UF
Metcal
UltraFine™
Hand-piece

MX-H1-AV
Metcal
Advanced™
Hand-piece

MX-PTZ
Metcal
Precision
Tweezer
Hand-piece

MX-DS1
Metcal
Desoldering
Hand-piece

Tips

UFTC

STTC

SMTC

PTTC

STDC
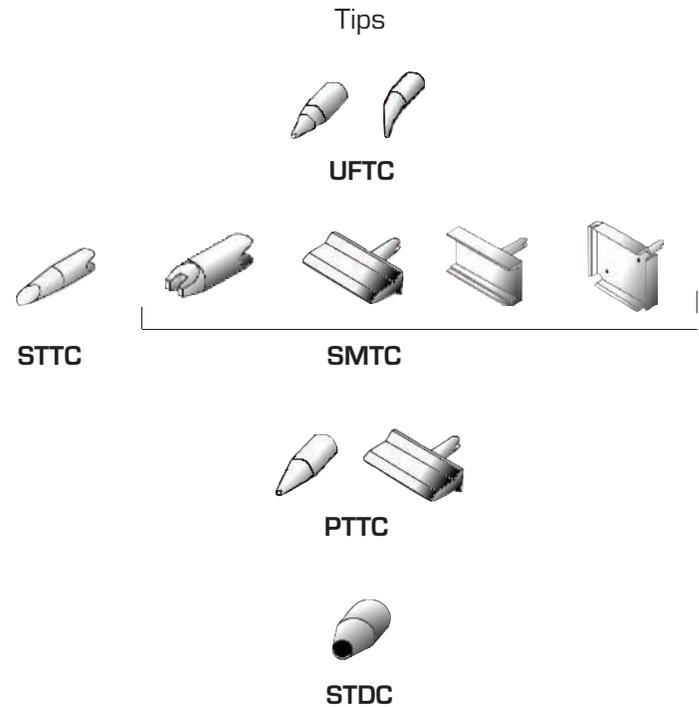
Note: The 4 MX-5000 Hand-pieces shown above are backward compatible with the MX-500.

Optimizing Results with Proper Geometry Selection

Selecting the correct cartridge geometry is extremely important to ensure high levels of heat transfer efficiency.
To optimize the soldering process and to take better advantage of your soldering system's available power, always consider using tip geometries with the largest possible contact area. While long, small diameter, pointed tips are attractive for limited access to components, they may not promote heat transfer to the soldering joint as well as short, blunt-faced geometries.

This guide shows the selection of cartridges available for the Metcal MX-5000 Soldering, Desoldering and Rework Systems. Metcal offers a comprehensive range of cartridges for production soldering, touch-up soldering, pad clean-up, SMD component, and through-hole desoldering.

Cartridges for Metcal Advanced™ Hand-piece

STTC Cartridges
STTC Cartridges provide a wide range of soldering geometrics for through-hole and SMD rework. For use with the MX-RM3E and the Metcal Advanced™ Hand-piece (MX-H1-AV).

STTC Power Cartridges
Power cartridges are optimized for power delivery, ideal for high thermal demand applications including lead-free soldering processes and high mass substrates and components. These cartridges are designed with tip geometries to promote thermal transfer resulting in significant performance improvement.

STTC-**145P**✦

Cartridge, Conical,
0.4mm (0.016")
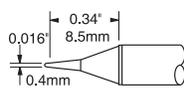
STTC-**147P**✦

Cartridge, Bevel,
1.78mm (0.07"), 60°

STTC-**125P**✦

Cartridge, Chisel,
1mm (0.04"), 30°
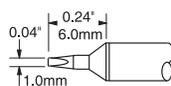
STTC-**136P**✦

Cartridge, Chisel,
2.5mm (0.1"), 30°
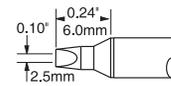
STTC-**137P**✦

Cartridge, Chisel,
1.78mm (0.07"), 30°
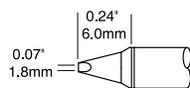
STTC-**1173P**✦

Cartridge, Knife,
5mm (0.2")
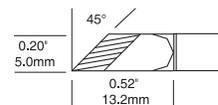
1 = 700 Series for most standard applications. 0 = 600 Series and 5 = 500 Series also available for temperature sensitive applications.
✦ 8 = 800 Series for ceramic and high thermal demand applications.
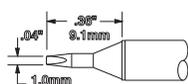*To order these series, replace 1 with either 0, 5 or 8 (where available). Only the cartridges marked with this symbol ✦ are available in 800 Series.*

Chisel Cartridges *NOTE: where indicated with an ✳, there is a power cartridge version which can improve performance.*

The following tips should be selected based on the work area to be soldered. Where possible the tip selected should deliver maximum contact to the work area and have as short a taper as possible for good thermal transfer. Long tapered and bent tips should only be selected where accessibility is limited.
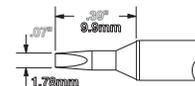
STTC-**125**✳✦

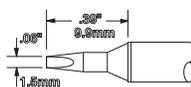Cartridge, Chisel,
1mm (0.04"), 30°

STTC-**137**✳✦
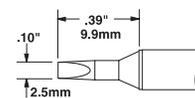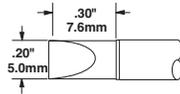
Cartridge, Chisel,
1.78mm (0.07"), 30°

STTC-**138**✳✦

Cartridge, Chisel,
1.35mm (0.053"), 30°

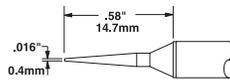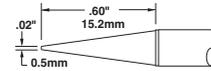STTC-**136**✳✦

Cartridge, Chisel,
2.5mm (0.1"), 30°

1 = 700 Series for most standard applications. 0 = 600 Series and 5 = 500 Series also available for temperature sensitive applications.
✦ 8 = 800 Series for ceramic and high thermal demand applications.
To order these series, replace 1 with either 0, 5 or 8 (where available). Only the cartridges marked with this symbol ✦ are available in 800 Series.

Chisel Cartridges

STTC-117✦

Cartridge, Chisel, 5mm (0.2"), 30°

.30" 7.6mm
.20" 5.0mm

STTC-142

Cartridge, Chisel, Long, 1.78mm (0.07"), 60°
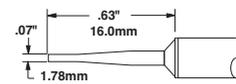
.07"
.63" 16.0mm
1.78mm

1 = 700 Series for most standard applications. 0 = 600 Series and 5 = 500 Series also available for temperature sensitive applications.
✦ 8 = 800 Series for ceramic and high thermal demand applications.
To order these series, replace 1 with either 0, 5 or 8 (where available). Only the cartridges marked with this symbol ✦ are available in 800 Series.

Conical Cartridges   NOTE: where indicated with an ✶, there is a power cartridge version which can improve performance.

STTC-145✶

Cartridge, Conical, 0.4mm (0.016")

.58" 14.7mm
.016"
0.4mm

STTC-143✦

Cartridge, Conical, 0.5mm (0.02")

.02"
.60" 15.2mm
0.5mm

STTC-140✦

Cartridge, Conical, Bent, 0.4mm (0.016"), 30°

.016"
0.4mm
.63" 16.0mm
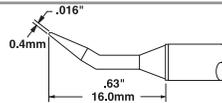
STTC-190✦

Cartridge, Conical, 0.25mm (0.01")

.01" .25mm
.52" 13.2mm

STTC-126✦

Cartridge, Conical, Bent, 0.4mm (0.016"), 30°

.016"
0.4mm
.31" 7.9mm
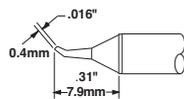
STTC-122✦

Cartridge, Conical, 0.4mm (0.016")

.016"
.33" 8.4mm
0.4mm

STTC-144✦

Cartridge, Conical, Bent, 0.5mm (0.02"), 30°

.02"
0.5mm
.57" 14.5mm
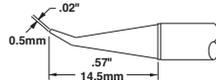
STTC-101✶

Cartridge, Conical, 1mm (0.04")
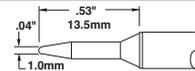
.04"
.53" 13.5mm
1.0mm

1 = 700 Series for most standard applications. 0 = 600 Series and 5 = 500 Series also available for temperature sensitive applications.
✦ 8 = 800 Series for ceramic and high thermal demand applications.
To order these series, replace 1 with either 0, 5 or 8 (where available). Only the cartridges marked with this symbol ✦ are available in 800 Series.

Bevel Cartridges   NOTE: where indicated with an ✶, there is a power cartridge version which can improve performance.

STTC-147✶

Cartridge, Bevel, 1.78mm (0.07"), 60°

60°
.07" 1.78mm
.56" 14.2mm
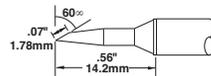
STTC-146

Cartridge, Bevel, Long, 1mm (0.04"), 60°
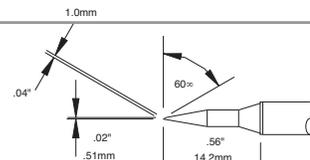
1.0mm
.04"
60°
.02" .51mm
.56" 14.2mm

1 = 700 Series for most standard applications. 0 = 600 Series and 5 = 500 Series also available for temperature sensitive applications.
To order these series, replace 1 with either 0 or 5.

SMTC Cartridges

SMTC Cartridges provide a wide range of options to address specialized soldering and rework applications including BGA pad cleaning blades, drag hoof, knife tips as well as a slot tunnel and quad cartridges for the most popular PLCC, SOIC and SOP devices. For use with the Metcal Advanced™ Hand-piece (MX-H1-AV).

Blade Cartridges

Blade cartridges are designed to allow effective and quick cleaning of PCB pads. This range of blade geometries is highly effective for utilizing the available power of the MX-5010 Systems. Metcal's SmartHeat® Technology enables a dynamic and exceptionally fast response to load demands resulting in a virtually risk-free pad cleaning process.

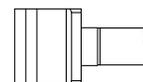|	
SMTC-164✦✦	Cartridge, Blade, 5mm (0.2")
SMTC-160	Cartridge, Blade, 10mm (0.4")
SMTC-161	Cartridge, Blade, 15.75mm (0.62")
SMTC-162✦✦	Cartridge, Blade, 22mm (0.86")

1 = 700 Series for most standard applications. 0 = 600 Series and 5 = 500 Series also available for temperature sensitive applications.
* 8 = 800 Series for ceramic and high thermal demand applications. To order these series, replace 1 with either 0, 5 or 8 (where available).*
*✦✦ Not available in 500 and 800 Series.*

Hoof Tip Cartridges

With solder deposited on the face of the hoof tip, users can gently drag the tip across an array of leads resulting in fast and effectively formed solder connections. These geometries are ideal for multi-lead soldering of J-lead or gull wing components. Smaller diameter tips such as the SMTC-x167 allow for multi-lead soldering in confined spaces. Of special note, hoof tips have a large contact area and enhance heat transfer. Consider these for high thermal demand applications.
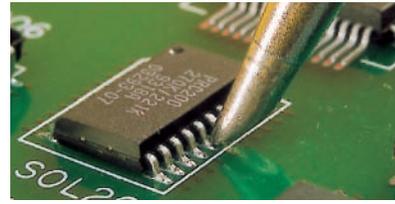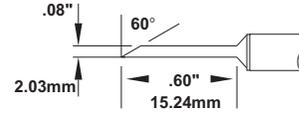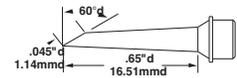
SMTC-**1**175
Cartridge, Hoof,
0.89mm (0.035"), 60°
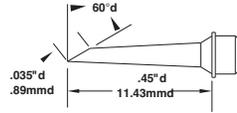
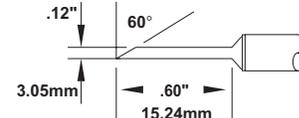SMTC-**1**169♦♦♦
Cartridge, Hoof, Long,
2mm (0.08"), 60°

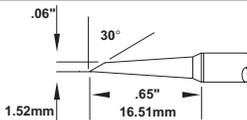SMTC-**1**174
Cartridge, Hoof, Long,
1.1mm (0.04"), 60°

SMTC-**1**170♦♦♦
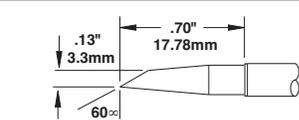Cartridge, Hoof, Long,
3mm (0.12"), 60°

SMTC-**1**167♦
Cartridge, Hoof,
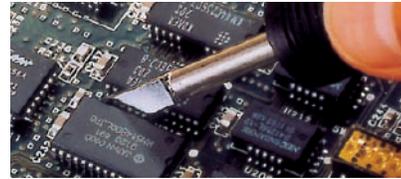1.5mm (0.06"), 60°

SMTC-**1**147♦♦
Cartridge, Hoof,
3.3mm (0.13"), 60°

1 = 700 Series for most standard applications. 0 = 600 Series and 5 = 500 Series also available for temperature sensitive applications. 8 = 800 Series for ceramic and high thermal demand applications. To order these series, replace 1 with either 0, 5 or 8 (where available). ♦ Not available in 500 Series. ♦♦ Not available in 800 Series. ♦♦♦ Not available in 500 and 800 Series.
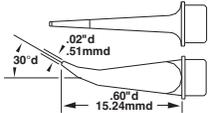
Knife, Conical and Hook Cartridges

Knife tip cartridges for multi-lead soldering allows users to quickly and easily solder lead arrays rather than point-to-point soldering. Knife tips are particularly suited to soldering of J-leaded components such as PLCCs and DRAMs.
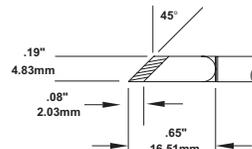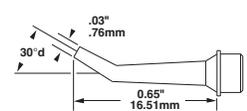
SMTC-**1**172
Cartridge, Hook, Long,
0.5mm (0.02")

SMTC-**1**161
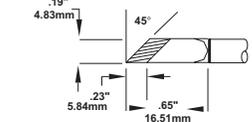Cartridge, Knife, Thin Tin
Length, 4.8mm (0.18")

SMTC-**1**171
Cartridge, Conical, Bent,
0.76mm (0.03")

SMTC-**1**173
Cartridge, Knife, Wide
Tin Length, 4.8mm
(0.18")

1 = 700 Series for most standard applications. 0 = 600 Series and 5 = 500 Series also available for temperature sensitive applications. 8 = 800 Series for ceramic and high thermal demand applications. To order these series, replace 1 with either 0, 5 or 8 (where available).
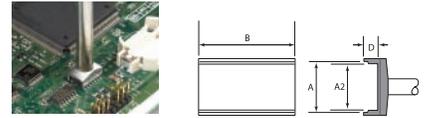
Slot Cartridges

Metcal offers a range of slot cartridges for successful removal of discrete and passive devices. Simply select the cartridge which best suits the lead width of the component. With slot cartridges it is possible to use a slightly larger cartridge and fill the void with solder to successfully remove components with slightly smaller footprints.
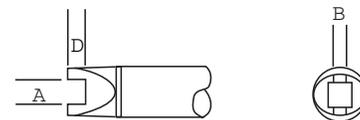
		Dim A mm (")	Dim B mm (")	Dim D mm (")
SMTC-**1**05	Cartridge, Slot, SOT-32	1.7 (0.068)	2.5 (0.100)	1.27 (0.050)
SMTC-**1**96	Cartridge, Slot, Chip 0402, 0603	1.8 (0.070)	1.0 (0.040)	1.0 (0.040)
SMTC-**1**01	Cartridge, Slot, Chip 0805	2.3 (0.090)	1.3 (0.050)	1.8 (0.070)
SMTC-**1**02	Cartridge, Slot, Chip 1206, 1210	3.6 (0.140)	1.5 (0.060)	1.8 (0.070)
SMTC-**1**36	Cartridge, Slot, Melf, Box B (EIA SOPM-4532)	4.8 (0.190)	2.8 (0.110)	4.06 (0.160)

1 = 700 Series for most standard applications. 0 = 600 Series and 5 = 500 Series also available for temperature sensitive applications. To order these series, replace 1 with either 0 or 5.

Tunnel Cartridges

Tunnel and socket cartridges are used for the removal of multi-lead, two-sided components such as SOICs, SOJs and TSOPs.
Note: The quad, tunnel and socket cartridges are component specific. The relevant components to be removed are quoted in the item descriptions. If a range of different components are removed regularly then PTTC Tweezers should be considered.

Item	Description	Dim A mm (")	Dim A2 mm (")	Dim B mm (")	Dim D mm (")
SMTC-**1**06	Cartridge, Tunnel, SOIC-14, 16	5.08 (0.200)	5.08 (0.200)	10.16 (0.400)	2.30 (0.90)
SMTC-**1**04	Cartridge, Tunnel, SOIC-8	5.08 (0.200)	5.08 (0.200)	4.32 (0.170)	2.30 (0.90)
SMTC-**1**10	Cartridge, Tunnel, SOIC-20	9.53 (0.375)	9.53 (0.375)	13.20 (0.520)	3.20 (0.125)
SMTC-**1**07	Cartridge, Tunnel, SOIC-28	9.53 (0.375)	9.53 (0.375)	18.30 (0.720)	3.20 (0.125)
SMTC-**1**40	Cartridge, Tunnel, SOJ-40. SOM-32	11.43 (0.450)	10.40 (0.410)	25.90 (1.02)	1.90 (0.075)

1 = 700 Series for most standard applications. 0 = 600 Series also available for temperature sensitive applications. To order this series, replace 1 with 0.

Quad Cartridges Four-sided devices such as QFP and PLCC can be removed using the following.
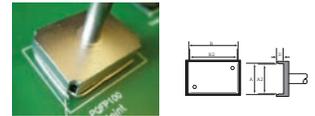
Item	Description	Dim A2 mm (")	Dim A mm (")	Dim B2 mm (")	Dim B mm (")	Dim D mm (")
SMTC-**1**118	Cartridge, Quad, VQFP-100	14.48 (0.570)	15.49 (0.610)	14.48 (0.570)	15.49 (0.610)	2.79 (0.110)
SMTC-**1**12	Cartridge, Quad, PLCC-20	9.14 (0.360)	10.16 (0.400)	9.14 (0.360)	10.16 (0.400)	3.80 (0.150)
SMTC-**1**120	Cartridge, Quad, SQFP-64	11.18 (0.440)	11.18 (0.440)	11.18 (0.440)	11.18 (0.440)	2.54 (0.100)
SMTC-**1**121	Cartridge, Quad, SQFP-48	8.38 (0.330)	8.38 (0.330)	8.38 (0.330)	8.38 (0.330)	2.54 (0.100)
SMTC-**1**13	Cartridge, Quad, PLCC-28	11.56 (0.455)	12.70 (0.500)	11.58 (0.455)	12.70 (0.500)	3.80 (0.150)
SMTC-**1**14	Cartridge, Quad, PLCC-44	16.76 (0.660)	17.78 (0.700)	16.76 (0.660)	17.78 (0.700)	3.80 (0.150)
SMTC-**1**16	Cartridge, Quad, PLCC-32	11.43 (0.450)	12.70 (0.500)	13.97 (0.550)	15.24 (0.600)	3.81 (0.150)

1 = 700 Series for most standard applications. 0 = 600 Series also available for temperature sensitive applications. To order this series, replace 1 with 0.

PTTC Tweezer Cartridges for MX-PTZ Hand-piece

The MX-PTZ Precision Tweezers Hand-piece provides an efficient and ergonomic resource to users for removal and replacement of chip and SOIC packages. Especially with larger tip geometries, where heat volume is required for an efficient process, the MX-5000 System offers exceptional speed and control over the rework process.
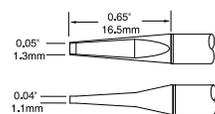
PTTC-701B
Cartridge, Tweezer, Bent, 0.4mm (0.016") Pair
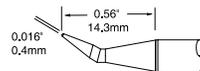
PTTC-701
Cartridge, Tweezer, Bent, 0.4mm (0.016") Pair
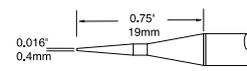
PTTC-702
Cartridge, Tweezer, Blade, 1.3mm (0.05") Pair

PTTC-703
Cartridge, Tweezer, Blade, 2mm (0.08") Pair

PTTC-708B
Cartridge, Tweezer, 3.5mm (0.12"), Pair
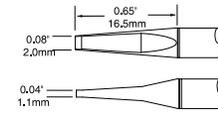
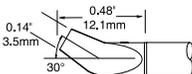**PTTC-7**06
Cartridge, Tweezer, Blade, 20.5mm (0.8") Pair
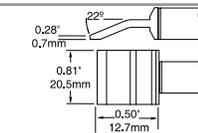
PTTC-704
Cartridge, Tweezer, Blade, 6.35mm (0.25") Pair

PTTC-707
Cartridge, Tweezer, Blade, 28mm (1.1") Pair
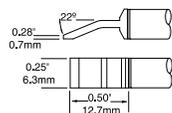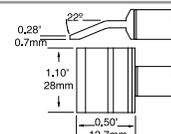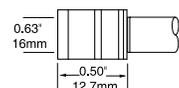
PTTC-705
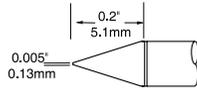Cartridge, Tweezer, Blade, 16mm (0.63") Pair

7 = 700 Series for most standard applications. 6 = 600 Series also available for temperature sensitive applications. To order this series, replace 7 with 6.

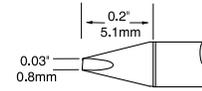# UFTC Tip Cartridges for Metcal UltraFine™ Hand-piece

NEW

UFTC-7CN01
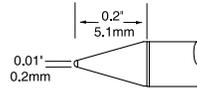
UltraFine™ Tip Cartridge, Conical
0.13mm x 5.1mm (0.005" x 0.2")

0.2"
5.1mm
0.005"
0.13mm

UFTC-7CH08

UltraFine™ Tip Cartridge, Chisel
0.8mm x 5.1mm (0.03" x 0.2")

0.2"
5.1mm
0.03"
0.8mm

UFTC-7CN02

UltraFine™ Tip Cartridge, Conical
0.2mm x 5mm (0.01" x 0.2")

0.2"
5.1mm
0.01"
0.2mm

UFTC-7CH12

UltraFine™ Tip Cartridge, Chisel
1.2mm x 5mm (0.05" x 0.2")

0.2"
5.1mm
0.05"
1.2mm
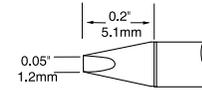
UFTC-7CN04

UltraFine™ Tip Cartridge, Conical
0.4mm x 5mm (0.02" x 0.2")

0.2"
5.1mm
0.02"
0.4mm
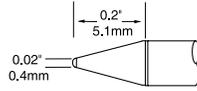
UFTC-7CHL06

UltraFine™ Tip Cartridge, Chisel, Long
0.6mm x 9mm (0.024" x 0.35")

0.35"
8.97mm
0.024"
0.6mm
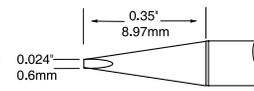
UFTC-7CNL04

UltraFine™ Tip Cartridge, Conical,
Long 0.4mm x 9mm (0.02" x 0.31")

0.31"
9.0mm
0.02"
0.4mm
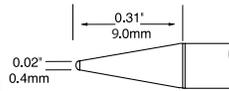
UFTC-7CHL08

UltraFine™ Tip Cartridge, Chisel, Long
0.8mm x 9mm (0.03" x 0.35")

0.35"
8.97mm
0.031"
0.8mm
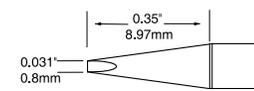
UFTC-7CNB02

UltraFine™ Tip Cartridge, Conical, Bent
0.2mm x 5.5mm (0.01" x 0.22")

0.22"
5.5mm
0.008"
0.2mm
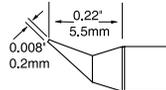
UFTC-7DRH408

UltraFine™ Tip Cartridge, Hoof, Micro
0.8mm x 5.1mm (0.03" x 0.2")

45°
0.031"
0.8mm
0.2"
5.1mm

UFTC-7CNB04

UltraFine™ Tip Cartridge, Conical, Bent
0.4mm x 5.5mm (0.02" x 0.22")

0.22"
5.5mm
0.016"
0.4mm
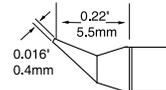
UFTC-7DRH412

UltraFine™ Tip Cartridge, Hoof, Micro
1.2mm x 5.1mm (0.048" x 0.2")

45°
0.048"
1.21mm
0.2"
5.1mm
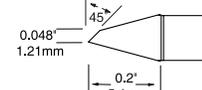
UFTC-7CH06

UltraFine™ Tip Cartridge, Chisel
0.6mm x 5.1mm (0.024" x 0.2")

0.2"
5.1mm
0.02"
0.6mm
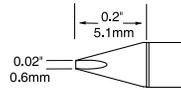
7 = 700 Series for most standard applications. UFTC Tip Cartridges are only available in 700 Series

STDC Desolder Cartridges for Desoldering Hand-piece

The Metcal MX-DS1 Desoldering Hand-piece provides exceptional ability for safely desoldering through-hole components. The high-mass STDC cartridges store a high volume of heat while maintaining a non-damaging constant temperature. Coupled with the MX-5000 power supply, heat is rapidly replenished, dynamically responding to the load conditions.

		ø A mm (")	ø B mm (")
STDC-102♦	Cartridge, Desolder	0.64mm (0.025")	1.40mm (.055")
STDC-103♦	Cartridge, Desolder	0.76mm (0.076")	1.68mm (.066")
STDC-104♦	Cartridge, Desolder	1.02mm (0.04")	1.78mm (.070")
STDC-105♦	Cartridge, Desolder	1.27mm (0.05")	2.03mm (.080")
STDC-106♦	Cartridge, Desolder	1.52mm (0.06")	2.29mm (.090")
STDC-107♦	Cartridge, Desolder	2.41mm (0.095")	3.18mm (.125")
STDC-703L♦♦	Cartridge, Desolder Long Reach	0.76mm (0.03")	1.68mm (.066")
STDC-704L♦♦	Cartridge, Desolder Long Reach	1.02mm (0.04")	1.79mm (.070")
STDC-705L♦♦	Cartridge, Desolder Long Reach	1.27mm (0.05")	2.03mm (.080")
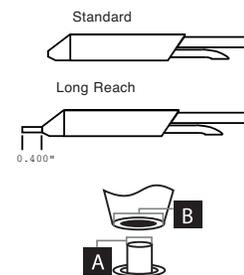
Standard

Long Reach

0.400"

B
A

♦ 1 = 700 Series for most standard applications. 8 = 800 Series for ceramic and high thermal demand applications. 0 = 600 Series also available for temperature sensitive applications. To order these series, replace 1 with 8 or 0.
♦♦ 7 = 700 Series for most standard applications. 8 = 800 Series for ceramic and high thermal demand applications. To order this series, replace 7 with 8.

Download the Surface Mount Removal Techniques using MX-5000 Soldering and Rework System technical note from www.metcal.com

Precision Advanced Package Rework

The APR-5000 Series Advanced Package Rework Systems incorporate state-of-the-art vision, and closed-loop time, temperature and airflow control. Precision placement and powerful software make the rework of complex array packages easy, fast and reliable.

Economical and easy-to-use, the APR-5000 Series deliver best-in-class BGA, CSP and QFN Rework functionality with professional performance at an affordable price. All machines incorporate the ideal combination of hardware features and automated software necessary for reworking today's high technology fine pitch array packages.

Easy-to-program multi-lingual software manages the five stages of the reflow profile: pre-heat, soak, ramp, reflow and cooling. In addition, board temperature can be monitored using flying thermocouples. Real-time adjustments can be made to all parameters while the profile is running.

To help guarantee uniformity and higher process yields, the APR-5000 Series incorporates powerful, efficient and fast response convective top reflow heater and bottom dual zone preheaters for fast ramp and tight delta temperature control across reworked component and uniform preheating across surface of the PCB.

The enhanced software is instructive and intuitive, walking the engineer through the steps of process development and then guiding the operator through the process steps to ensure consistent, repeatable execution of the automatic profile functions. Engineer also has the ability to associate tutorial to individual process file presenting step-by-step instructions that operator can reference quickly and easily in real-time.
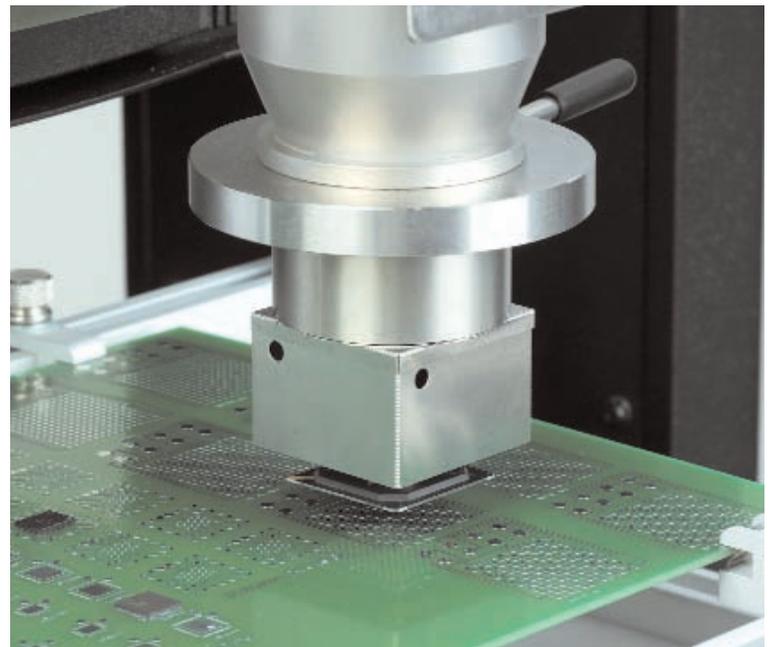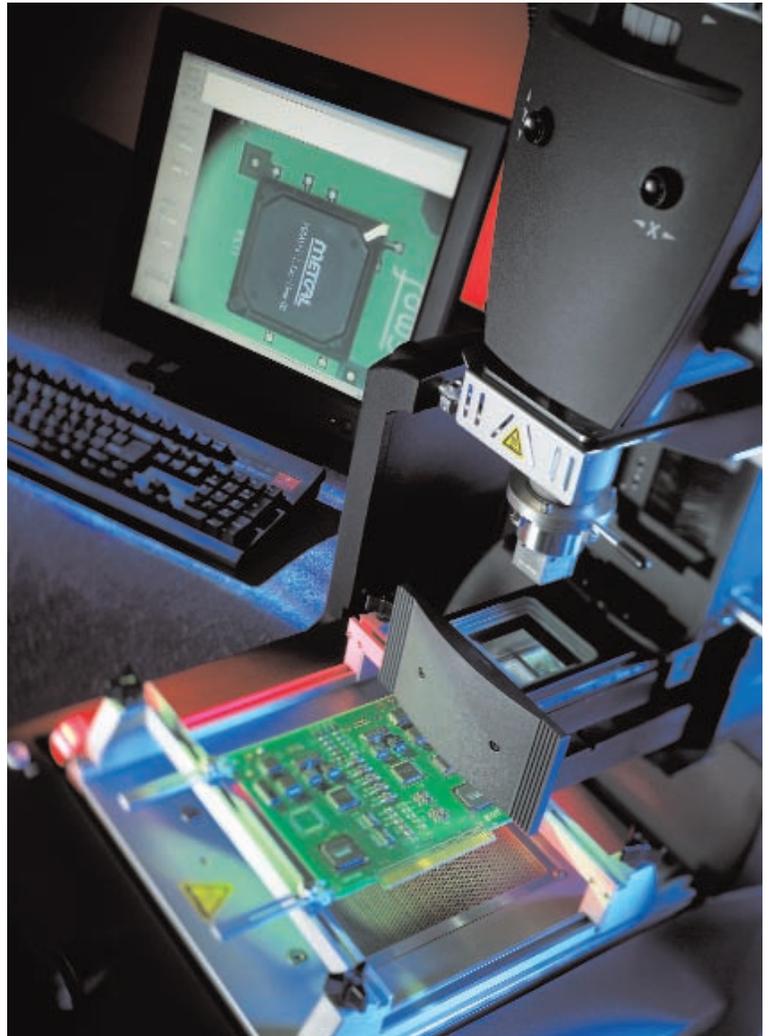
Lead-Free Compatible

As the implementation of lead-free assemblies intensifies, the APR-5000 series Advanced Package Rework Systems have the power, size and sophistication to meet the required higher, cost-sensitive performance criteria.

The innovative single reflow/placement head and dual stage preheaters help achieve a consistently small Delta T across the board and the component. Thermal damage is precluded due to the system's precisely controlled preheater; lead-free profiles can be quickly developed via the system's five thermocouples; and closed-loop, computer controls and intuitive software help operators maintain the ideal process from start to finish.

The APR-5000 Series Advanced Package Rework Systems provide full convection in both reflow heater and dual pre-heaters to provide fast ramp and precise peak reflow temperature without thermal damage to sensitive components unsuitable for heating above 250ºC. And with four heating zones and one cooling zone, the precise profiles needed for successful soldering/desoldering of lead-free packages are easily delivered.

The APR-5000 Series Advanced Package Rework Systems are distinguished by innovation and flexibility. The dual stage convective pre-heater can be switched between inner and outer stage or on simultaneously at different temperatures in any zone to meet the higher rework requirement of lead-free with much faster process times.

Higher thermal performance can be achieved, attaching reflow nozzles to both the top reflow and bottom inner stage heaters set directly above and below reworked component. Bottom nozzle has added advantage in preventing thermal damage to adjacent components on the underside of the PCB. And newly designed thermal tweezer top nozzle provides integrated mechanical action pickup for devices with limited surface area instead of standard vacuum pickup, or melting switches and video connectors on the edges of PCBs which is a major issue today.
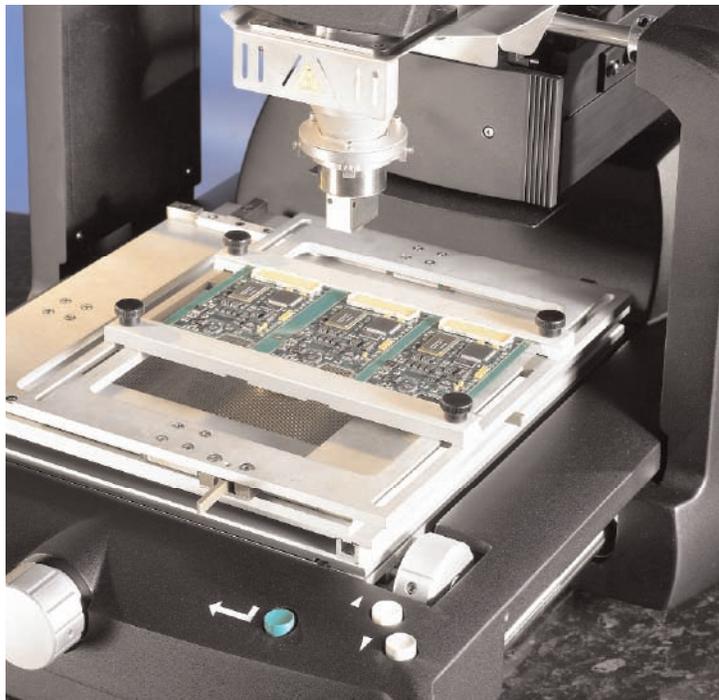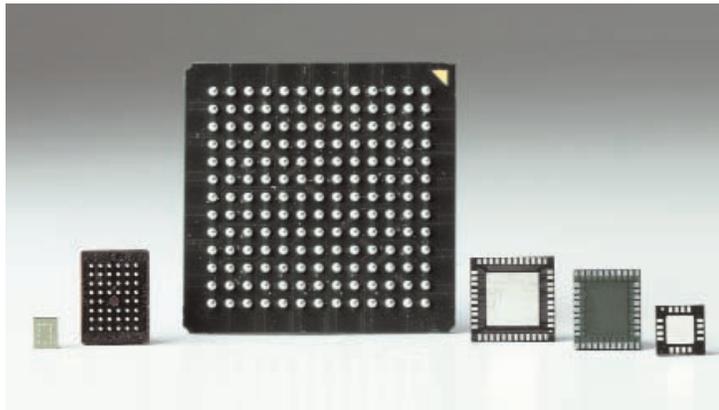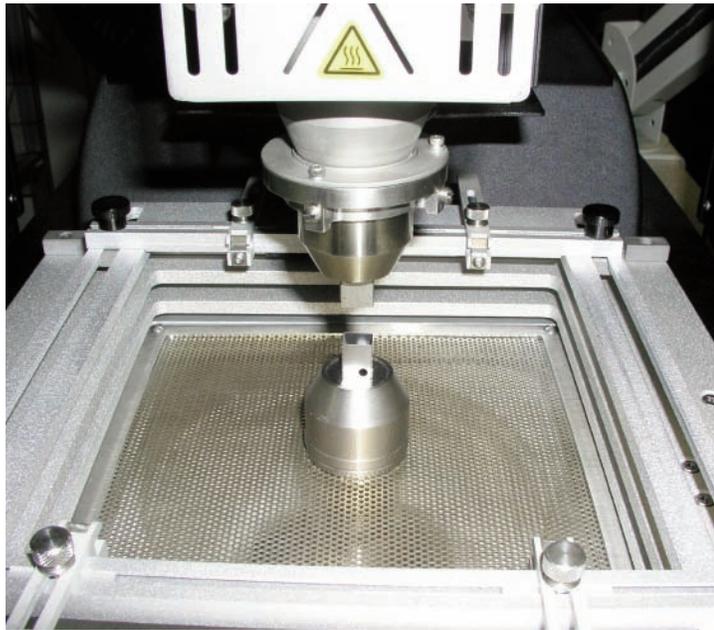
APR-5000-DZ Advanced Package Rework System

Design and functionality come together in the compact and powerful APR-5000-DZ Advanced Package Rework System. This system provides closed-loop control, optimized vision and precise component placement on a compact platform of 19" x 30" (483mm x 762mm). Self contained pumps are standard on this compact platform allowing for easy benchtop setup.

Capable of handling boards up to 15" x 7.75" (381mm x 197mm) with standard fixtures (larger PCB Holder options exist if required) with a placement accuracy to 0.001" (0.025mm) and interconnection pitches as low as 0.012" (0.3mm), the APR-5000-DZ is ideal for reworking smaller assemblies such as cell phones and laptop computers.

The APR-5000-DZ System incorporates powerful, efficient and fast response convective top reflow heater and bottom dual zone pre-heaters for delivering fast ramp and tight delta temperature control horizontally, across the surface of PCBs up to 0.25" (6.35mm) thick, and vertically between the die and ball of the reworked components.

The single reflow/placement head can be moved to the correct position for rework allowing PCB assemblies with 2" (50mm) underside components to be stationary mounted above the pre-heater. An optional XY table (APR-TAB) can be added to minimize operator fatigue and is ideal for small PCB assemblies with less than .25" (6.4mm) underside components. In addition, the APR-5000-DZ-TAB is an APR-5000-DZ system with a pre-assembled XY table.

The system also incorporates an exclusive integral vision system that makes viewing, aligning and accurately placing a component easy by allowing operators to simultaneously view the topside of the PCB and a superimposed image of the underside of the component. Then, with micrometer adjustment, images can be accurately aligned in the X, Y & Theta axes prior to placement. In addition, integrating the vision system with the machine's software eliminates the need for multiple monitors.
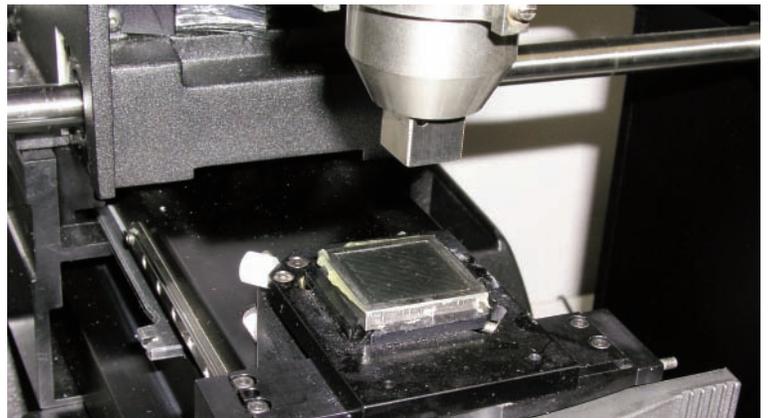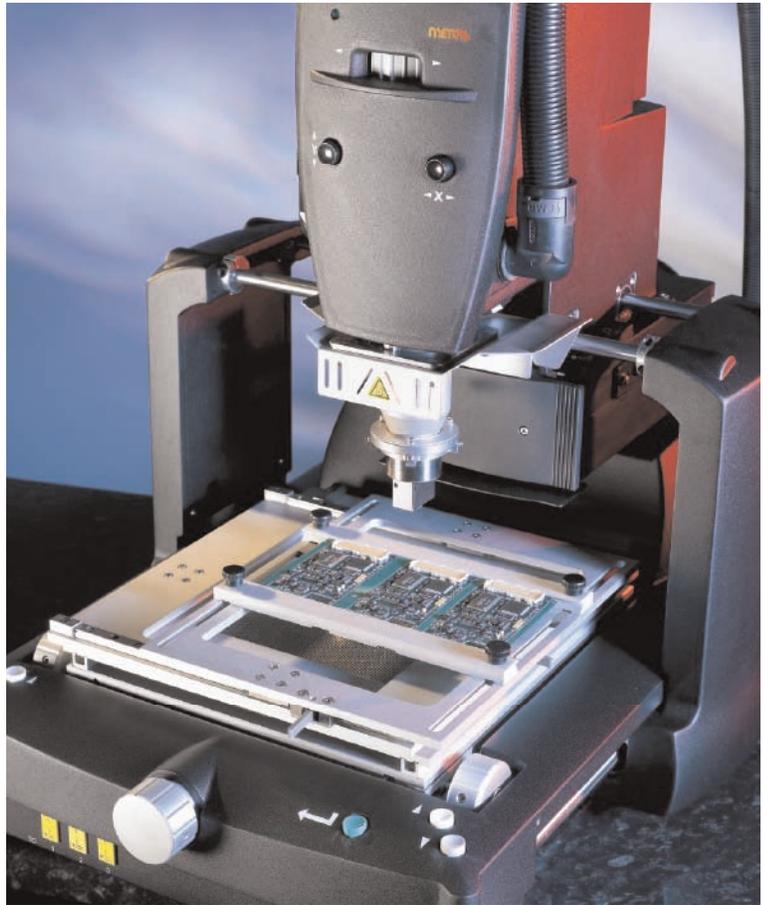
APR-5000-XLS Advanced Package Rework System

The APR-5000-XLS Advanced Package Rework System provides board capability with small board precision. This system performs precise, cost effective rework of the widest range of PCBs and component types, from large boards up to 24.5" x 24.5" (622mm x 622mm) to components down to 0.020" x 0.010" (0.5mm x 0.25mm).

The flexible APR-5000-XLS System incorporates dual stage pre-heaters and has the thermal capacity and control to execute precise profiles of both large and small PCBs, delivering uniform temperature control horizontally, across the surface of PCBs up to 0.25" (6.35mm) thick, and vertically between the die and ball of the reworked component.

Motorized X,Y, Z adjustments speed placement and help ensure process repeatability. In addition, motorized Theta axis provides 360º rotation to simplify component orientation. Together, these advanced controls reduce operator fatigue, improve placement accuracy and provide process consistency.

Featured on the APR-5000-XLS Advanced Package Rework System is an innovative Split Vision System, which allows operators to view the opposite corners of a component, including splitting on rectangular components, with the necessary magnification to make its placement and registration fast and accurate.
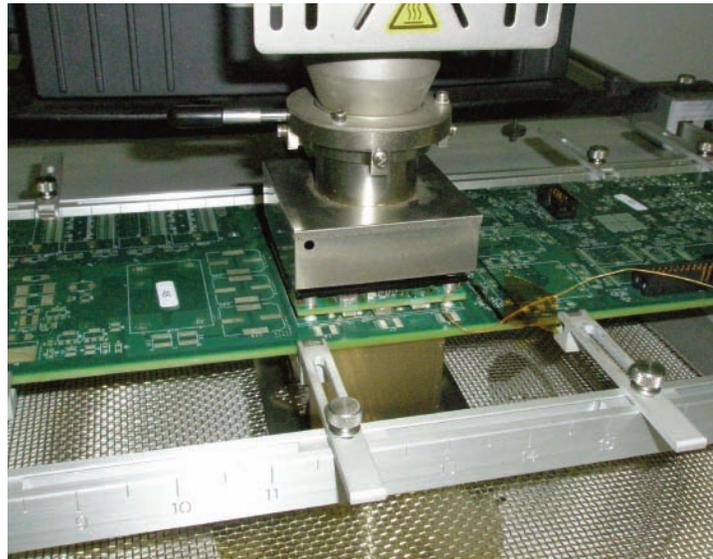
Improved performance

New features:
- New dual simultaneously operating subzones provides additional power for faster and safer rework operations.
- New software enables fast and easy profiling
- New subzone design speeds up the process while allowing the operating temperatures to remain lower protecting the component and PCB

Key benefits:
- Increased Productivity
- Precise thermal control across critical assembly regions
- Reduction of rework cycle time protects the component under rework from thermal damage.
- Better management of the narrow lead-free process window without reaching excessive peak temperatures that damage components, connectors, other solder joints and the PCB substrate

New circuit breaker / power switch with easy front access

Accessories

Component Stenciling Templates

Metcal has designed a unique tool, Component Stenciling Templates, for printing on the underside of components. This easy procedure is designed for use on PBGA, CBGA, CSP balled devices as well as Land Grid Array (LGA) components. This is an ideal process for small components and situations where traditional stencil access is limited by the close proximity of adjacent components.

Dip Transfer

This process involves dipping a component into gel flux, depositing an exact amount of flux. This process is quick, consistent and clean, and negates the need to clean after reflow. Available for both solder balled and leaded devices. All kits are supplied with a metal spatula. Ideally select a dip plate that is half the diameter of the solder balls on components.

Tape Feeder

Picking up small surface mount components with tweezers is not practical and may damage the component. This is a unique way of presenting small components to a rework machine.à la machine de réparation.

Demo PCB Kit

The board includes chip resistors, LLP, Micro SMD, QFP, PLCC, Fusion Packs, BGA and POP components to provide a versatile demonstration tool. It has also been pre drilled to allow for thermocouple attachment. Details of nozzles and rework process for the relevant component are printed on the back of the PCB.

Nozzles

A comprehensive range of standard reflow nozzles available to suit the most common array packages is available. The reflow nozzle works with vacuum pickup, the tweezer nozzle works with devices with limited area or multilayer structure by providing mechanical tweezer action pickup instead of vacuum pickup e.g. PoP, sockets, connectors, inductors, potentiometers and through-hole components.
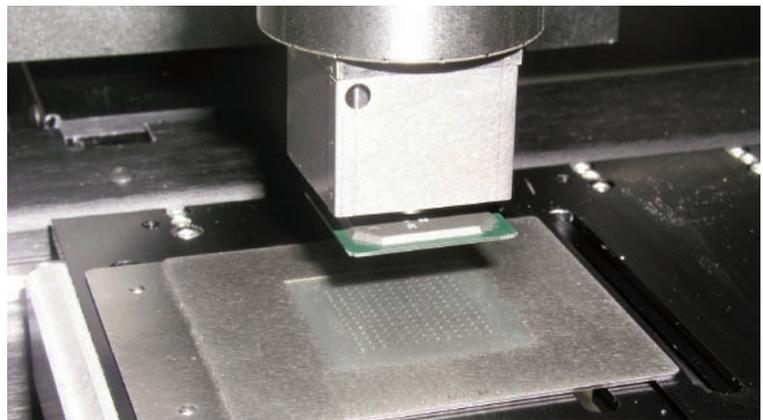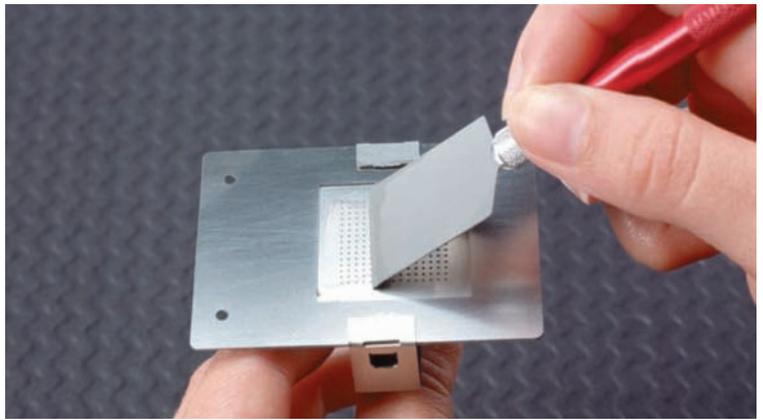
Part No.	DESCRIPTION
BRP-KIT-LGA100-04	Full kit (3pcs) w/ base fixture, pattern & body plates for LGA100-0.4mm (also incl. clamp & squeegee)
BRP-KIT-BASE	BRP kit base fixture only
BRP-KP-LGA100-04	Kit plates (2pcs), pattern and body plates only (minus base) for LGA100-0.4mm
BRP-KIT-FUSION-216	Full kit (3pcs) w/ base fixture, pattern & body plates for Fusion pack 216 (incl. clamp & squeegee)
BST-256-100	Standard BST plate, clamp & squeegee, PBGA 256, 1.0mm pitch
BST-256-127	Standard BST plate, clamp & squeegee, PBGA 256, 1.27mm pitch
BST-388-127	Standard BST plate, clamp & squeegee, PBGA 388, 1.27mm pitch
BRP-KP-FUSION-216	Kit plates pattern & body plates only (minus base) for Fusion pack 216
TF-1T	Tape Feeder, Micro SMD with thumbwheel
TF-2T	Tape Feeder, 0603 and 0402 with thumbwheel
TF-3T	Tape Feeder, 0201 with thumbwheel
NZA-490-490*	APR Reflow Nozzle 49mm x 49mm
NZA-450-450	APR Reflow Nozzle 45mm x 45mm
NZA-400-400*	APR Reflow Nozzle 40mm x 40mm
NZA-350-350*	APR Reflow Nozzle 35mm x 35mm
NZA-300-300	APR Reflow Nozzle 30mm x 30mm
NZA-270-270	APR Reflow Nozzle 27mm x 27mm
NZA-250-290	APR Reflow Nozzle 25mm x 29mm
NZA-230-230*	APR Reflow Nozzle 23mm x 23mm
NZA-280-150	APR Reflow Nozzle 28 mm x 15 mm
NZA-200-200**	APR Reflow Nozzle 20 mm x 20 mm
NZA-180-180***	APR Reflow Nozzle 18 mm x 18 mm
NZA-150-150**	APR Reflow Nozzle 15 mm x 15 mm
NZA-130-130***	APR Reflow Nozzle 13 mm x 13 mm
NZA-100-100***	APR Reflow Nozzle 10 mm x 10 mm
NZA-080-095***	APR Reflow Nozzle 8 mm x 9,5 mm
NZA-080-080**	APR Reflow Nozzle 8 mm x 8 mm
NZA-060-060***	APR Reflow Nozzle 6 mm x 6 mm
NZA-030-ROUND	APR Reflow Nozzle 3mm ID round
NZA-TW-180-180	APR Tweezer Nozzle 18mm x 18mm
NZA-TW-150-150	APR Tweezer Nozzle 15 mm x 15 mm
NZA-TW-130-130	APR Tweezer Nozzle 13 mm x 13 mm
NZA-TW-100-100	APR Tweezer Nozzle 10 mm x 10 mm
NZA-TW-080-080	APR Tweezer Nozzle 8 mm x 8 mm
NZA-TW-060-060	APR Tweezer Nozzle 6 mm x 6 mm
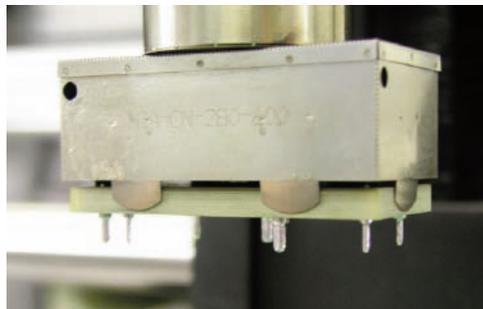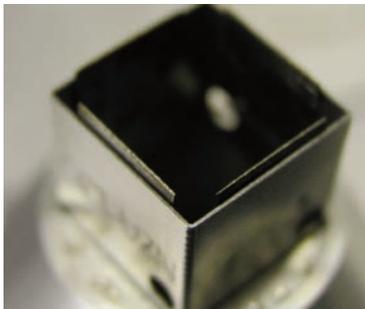
Custom Nozzle Program available including Tweezer versions. Contact us for more details.

Part No.	DESCRIPTION
NZA-555-555-CGA	APR Reflow Nozzle 55.5mm x 55.5mm (column grid array nozzle)
NZA-470-470-CGA	APR Reflow Nozzle 47mm x 47mm (column grid array nozzle)
NZA-355-455-CGA	APR Reflow Nozzle 35.5mm x 45.5mm (column grid array nozzle)
NZA-350-350-CGA	APR Reflow Nozzle 35mm x 35mm (column grid array nozzle)
DTP-BGA	Set of 3 plates, apertures 28, 35 & 45mm, depth 0.012" (0.30mm) used for 1.27mm pitch 30 Mil BGA balls (.76mm)
DTP-CSP	Set of 3 plates, apertures 10, 16 & 21mm, depth 0.006" (0.15mm) BGA/CSP used for BGAs with 12 Mil balls (.3mm dia)
DTP-40-8	8 Mil dip plate standard for 1mm pitch BGA with 20 Mil balls 0.02" (0.5mm)
DTBK-USMD	Kit, uSMD Flux Transfer Blocks, set of 2 blocks, depth 0.003" (0.08mm) and 0.004" (0.10mm) used for solder balls 6-8 Mil (.15-2mm dia)
DTBK-FC	Kit, Flip Chip Flux Transfer Blocks, set of 2 blocks, depth 0.001" (0.025mm) and 0.002" (0.051mm)
APR-NK	APR-5000 Nozzle Kit (*Includes 1 of each)
APR-NK-CSP	APR-5000 CSP and Micro SMD Nozzle Kit (**Includes 1 of each)

[*** 1 included in both kits]

Part No.	SYSTEMS DESCRIPTION
APR-5000-DZ-ML	200-240 VAC Advanced Package Rework System
APR-5000-DZ-TAB-ML	200-240 VAC Advanced Package Rework System with XY Table
APR-5000-XLS-ML	200-240 VAC Advanced Package Rework System with Split Vision
APR-5000-XL-ML	200-240 VAC Advanced Package Rework System
Systems will be configured with desktop PC and monitor.	
Systems Include (*APR-5000-DZ/-TAB, **APR-5000-XL / -XLS, ***APR-5000-DZ-TAB)	
VNZ-19	Vacuum Pick-Up Nozzle 19mm O/D***
VNZ-12	Vacuum Pick-Up Nozzle 12mm O/D
VNZ-08	Vacuum Pick-Up Nozzle 8mm O/D
VNZ-05	Vacuum Pick-Up Nozzle 5mm O/D
VNZ-03	Vacuum Pick-Up Nozzle 3mm O/D (2.39mm/.094" internal & 3.17mm/.128" external)
VNZ-01	Vacuum Pick-Up Nozzle 1mm O/D (.76mm/.03" internal & 1.56mm/.06" external)
VNZ-005	Vacuum pick up nozzle 0.5mm OD (.25mm/.010" int. & 1.02-0.76mm/.04-.03" ext.)
FS-APR	PCB Support Finger Short (4 included)*
FSS-APR	PCB Support Finger Short (8 included)**
FSL-APR	PCB Support Finger Short (4 included with APR-5000, 8 with APR-5000-XLS/XL)
UBS-APR	Under Board Support*
UBS-APR-XL	Under Board Support**
APR-TC3	Colour Fine Gauge Thermocouples (includes 3)*
APR-TC5	Colour Fine Gauge Thermocouples (includes 5)**
19782	Adjustable BGA Centering Nest**
20987	Adjustable CSP Centering Nest
20534	Squeegee Blade Holder for Printing
APR-TAB	XY Table***
SOFT-APR-5000-DZ	Installation Software*
SOFT-APR-5000-XL	Installation Software**
APR-XL-PHNK	Pre-Heater Nozzle Kit** includes: Software, Pre Heater Nozzle 50mm, Pre Heater Nozzle 45mm, Pre Heater Nozzle 35mm, Pre Heater Nozzle, Base
Optional Accessories	
FS-APR-2	PCB Support Finger Short (Pack of 2)
FL-APR-2	Large PCB Support Finger Long for PCBs from 2.2mm to 6mm (Pack of 2)
FSL-APR-2	PCB Spring Support Finger Long (Pack of 2)
FSS-APR-2	PCB Spring Support Finger Short (Pack of 2)
FLS-APR-2	Large PCB Finger Short for PCBs from 2.2mm to 6mm (Pack of 2)
FLL-APR-2	Large PCB Finger Long for PCBs from 2.2mm to 6mm (Pack of 2)
FLSS-APR-2	Large PCB Spring Finger Short for PCBs from 2.2mm to 6mm (Pack of 2)
FLSL-APR-2	Large PCB Spring Finger Long for PCBs from 2.2mm to 6mm (Pack of 2)
PF-1	Print Preparation Plate
VAC-P100	Self-adhesive plates for removal of non-uniform components
APR-LRK	PCB Large Rail Kit (for use on APR-5000-DZ) - Fits boards up to 12" x 12" (30.5cm x 30.5cm)
APR-TAB	XY board holder and placement table for APR-5000-DZ

APR-TAB

TECHNICAL SPECIFICATIONS

	APR-5000-DZ/-TAB	APR-5000-XLS/-XL
Input Voltage	200 - 240 VAC	200 - 240 VAC
	50/60 Hz	50/60 Hz
	20 Amp Single Phase	25 Amp Single Phase
Power Consumption:		
System Total	2600 W	5100 W
Pre-Heater:		
Inner Zone	900 W	1400 W
Outer Zone	1800 W	2800 W
Reflow Heater	550 W	550 W
Temperature	Closed-Loop Control	Closed-Loop Control
Control Type	(RTD Sensors)	(RTD Sensors)
Maximum Source Temperature:		
Reflow Head	400ºC (752ºF)	400ºC (752ºF)
Pre-Heater	350ºC (662ºF)	350ºC (662ºF)
Airflow Control	Pre-Set to 8,16 &24 l/min,	Pre-Set to 8,16 &24 l/min
Supply	Self-Contained Pump	Self-Contained Pump
Nitrogen Input	Standard Feature	Standard Feature
	(requires 65psi or 4.6 bar)	(requires 65psi or 4.6 bar)
Component Handling		
Maximum Size	49 mm x 49 mm (1.9" x 1.9")	40 x 40 mm (1.6" x 1.6") XL,
		55 mm x 55 mm (2.16" x 2.16") XLS
Minimum Size	0.51 x 0.25 mm (0.020" x 0.010")	0.51 mm x 0.25 mm (0.020" x 0.010")
Maximun Weight	55g (1.94oz)	55g (1.94oz) or 84g (3oz) with VNZ-19
PCB Handling Capability	X x Y	
Standard	381 mm x 197 mm (15" x 7.75")	622 mm x 622 mm (24.5" x 24.5")
With optional large rail kit APR-LRK	381 mm x 273 mm (15" x 10.75")	Not available
Rework Area	X x Y	
Head Adjustment	228 mm x 197 mm (9" x 7.75")	622 mm x 622 mm (24.5" x 24.5")
Aligned inner	165 x 165 mm (6.5" x 6.5")	445 mm x 445 mm (17.5" x 17.5")
	preheater and reflow heater	not suggested without XY table
Maximum Thickness	6 mm (0.25")	6 mm (0.25")
XY Table	Standard on APR-5000-DZ-TAB-ML	Not available
	Optional on APR-5000-DZ-ML	
Vision		
Maximum Field of View	40mm x 40mm (1.6" x 1.6")	55mm x 55mm (2.2" x 2.2")
Option champs partagés (APR-5000-XLS)	Not available	Corner crossover on large component
System Dimensions W x D x H	483 x 762 x 762 mm	914 x 914 x 838 mm
	(19" x 30" x 30")	(36" x 36" x 33")
Weight	60 kg (130 lbs)	100 kg (220 lbs)
System Warranty	1 Year (Excluding Consumables)	1 Year (Excluding Consumables)
Agency Approvals	CE, cETLus	CE, cTUVus, GS

Other Accessories

APR-MRS-DEMOPCB	Demonstration PCB
APR-MRS-DEMOKIT	Demonstration PCB Kit with BGA, LGA and other components (see list below)

List of components included with the APR-MRS-DEMOKIT:
- 5 x res, zero Ohm, 0201SMR-PA-10K-0
- 5 x res, zero Ohm, 0402SMR-PA-10K-0
- 5 x res, zero Ohm, 0603SMR-PA-10K-0
- 5 x micro SMD, 4 bump, 0.5 mm pitch
- 5 x micro SMD, 5 bump, 0.5 mm pitch
- 5 x micro SMD, 8 bump, 0.5 mm pitch
- 5 x micro SMD, 10 bump, 0.5 mm pitch
- 5 x LLP LDA16A
- 5 x LLP, plastic, Quad 4x4x0.75 mm body,16LD, 0.5 mm pitch
- 5 x LLP, plastic, Quad 5x4x0.75 mm body 24LD, 0.5 mm pitch
- 5 x LLP, plastic, Quad 7x7x0.75 mm body 44LD, 0.5 mm pitch

- 4 x PBGA 27 mm 256 balls, 1.27 mm pitch
- 3 x PBGA 17 mm 256 balls, 1.0 mm pitch
- 1 x PBGA 35 mm 388 balls, 1.27 mm pitch
- 1 x POP Bottom 305 balls 12 mm, 0.5 mm pitch
- 1 x Top of POP 128 balls 12 mm, 0.65 mm pitch
- 4 x CVBGA (thin BGA) 97 balls 5 mm, 0.4 mm pitch
- 4 x LGA/MLF100 pin 12 mm fine pitch, 0.4 mm pitch
- 4 x PLCC 44 pin 16 mm, 1.27 mm pitch
- 4 x QFP 44 10 mm by 10 mm, 0.8 mm pitch
- 4 x QFP 100 14 mm by 20 mm, 0.65 mm pitch
- 4 x CTBGA 228 12 mm by 12 mm, 0.5 mm pitch
- 1 x fusion pack (combination 116 QFN & 100 QFP in one package .4 mm pitch)

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