

# Hand Soldering, Desoldering &

## Single Port



PS-900



MFR-1100 Series

## Dual Port Switchable



MFR-1300 Series

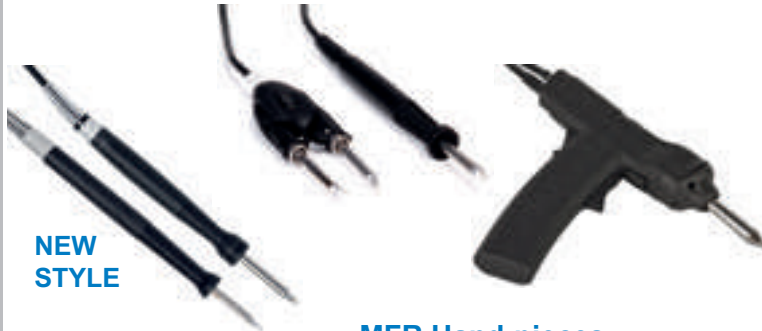


NEW MX-500 Series

M U L T I F U N C T I O N



PS-900 Tip Hand-Piece



NEW  
STYLE

MFR Hand-pieces



MX Hand-pieces

## SmartHeat® Technology

OK International is the original supplier of SmartHeat® Soldering Technology. SmartHeat® senses the exact thermal requirement for each solder joint and responds by delivering the precise amount of thermal energy required to create a reliable connection.

The result is a high degree of control without resorting to higher tip idle temperatures required by conventional heater process technologies. Consequently, the risk of component and board damage is minimized. This is especially important with the greater thermal demands required by lead-free applications.





# Rework Systems Overview

## Dual Port Simultaneous



**MFR-2200 Series**



**MX-5200 Series**

R E W O R K S Y S T E M S



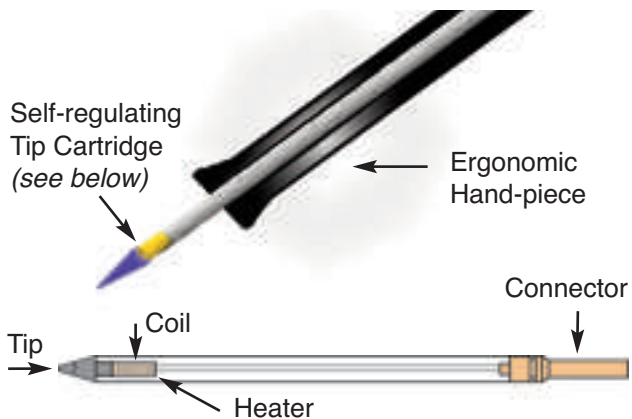
**NEW  
STYLE**

**MFR Hand-pieces**



Also compatible with the  
New MX-500 System

**MX Hand-pieces**



### SmartHeat® Soldering Technology = Variable Power / Fixed Temperature

- ▶ SmartHeat® tips and cartridges sense the load and instantly deliver the right amount of heat directly to the solder joint.
- ▶ The required solder joint temperature drives the heating process, as opposed to the idle tip temperature setting (as in a conventional iron).
- ▶ Operates at lower and safer temperatures. Power is delivered in proportion to the load. SmartHeat® technology eliminates overshoot.
- ▶ No calibration required - saves money and eliminates system down-time.

**Watch our SmartHeat® Video on YouTube or [www.metcal.com](http://www.metcal.com)**



# MX-5200 Dual Simultaneous

## Soldering, Desoldering & Rework Systems



The new MX-5200 Soldering, Desoldering and Rework Series offers the same increased power and process control as the MX-5000 Series, now with dual-simultaneous ports.

**For two users or single user with dual applications.** The MX-5200 can be operated with two hand-pieces dynamically sharing the 80 watts output power based on demand adding even more application flexibility and speed.

**Fast time-to-recovery.** Delivering increased production rates and throughput. No matter the application. The challenges of high mass components, multilayered boards and lead-free solders are seamlessly tackled by the MX-5200 super-charged power supply.

**SmartHeat process control.** Our Technology built-in every Metcal 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.

**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.

**Ergonomic Hand-pieces.** The aluminium hand-pieces 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-pieces uniquely offer users a choice of three interchangeable grips.

**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 ground has been restored, can the MX-5200 be restarted and soldering operations can be resumed.

**Built-in power indication meter** with digital display and bar graph that visually 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.

#### Four mode indicators:

**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 :** 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 sleep feature allows an operator to set the desired time to cut off power to the hand-piece (from 10 to 120min).



# MX-5200 Dual Simultaneous

## Soldering, Desoldering & Rework Systems

### SYSTEMS CONFIGURATION

PART NUMBER	MX-PS5200 Power Supply	Hand-pieces				TipSaver™ Workstands		
		MX-H1-AV	MX-H2-UF	MX-PTZ	MX-DS1	MX-W1AV	MX-W4PT	MX-W5DS
MX-5210	✓	✓				✓		
MX-5211	✓	✓ ✓				✓ ✓		
MX-5220	✓		✓			✓		
MX-5241	✓	✓		✓		✓	✓	
MX-5250	✓				✓			✓
MX-5251	✓	✓			✓	✓		✓

#### SYSTEMS WITH ONE HAND-PIECE



**MX-5210 Soldering and Rework System**  
Configured with the Advanced™ Hand-piece. 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.

Soldering cartridges:  
STTC Series and  
SMTC Series

#### SYSTEMS WITH TWO HAND-PIECES



**MX-5211 Soldering and Rework System**  
Same features as MX-5210 but configured with two Advanced™ Hand-pieces and two TipSaver™ Workstands.

Soldering cartridges:  
STTC Series and  
SMTC Series



**MX-5220 UltraFine™ Soldering System**  
Configured with the UltraFine™ Soldering Hand-piece which is a speciality tool for soldering and touch-up of very small components, restricted access or high density component packaging on a PCB.

Soldering cartridges:  
UFTC cartridges  
featuring small tip  
geometries and low  
mass, suited for small  
part soldering.



**MX-5241 Precision Tweezers, Soldering and Rework System**  
Combines both the 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.

Tweezer cartridges:  
PTTC Series.  
Soldering Cartridges:  
STTC and SMTC  
Series



**MX-5250 Plated-Through-Hole Component Desoldering System**  
Includes the MX-DS1 Desoldering hand-piece designed for through-hole desoldering.

Desoldering cartridges:  
STDC Series provide  
assuranc for fast, high  
quality results

NOTE: Unit requires shop  
air for desoldering.



**MX-5251 Soldering, Desoldering and Rework System**  
For through-hole desoldering, general soldering, and SMD rework applications. Includes two hand-pieces: the Advanced™ Hand-piece and the MX-DS1 Desoldering hand-piece. Ideal for mixed technology boards. Provides versatility for addressing soldering & rework tasks.

Desoldering cartridges:  
STDC Series  
Soldering cartridges:  
STTC and SMTC Series.

NOTE: Unit requires  
shop air for desoldering.

# MX-500 Dual Switchable Output

## Soldering, Desoldering & Rework Systems

Metcal's MX-500 Soldering and Rework System has been reimagined, adding features and a new look to a bench top icon. The system utilizes SmartHeat® Technology, where each cartridge is equipped with a self-regulating heater which 'senses' its own temperature and closely maintains its pre-set idle temperature for the life of the heater-tip. The tip temperature is determined by the inherent metallurgical properties of the heater; no external adjustment or equipment is required. The MX-500 retains switchable dual port, 40W operation while introducing numerous new features in a new housing.



### Key Features & Benefits

- ▶ A built in Net Power Meter which will display a graphical and numerical representation of the power applied to the cartridge.
- ▶ User Programmable PowerSave Mode: the time to enter PowerSave Mode is adjustable from 10 to 120 minutes.
- ▶ Ground Fault Interrupt: AC 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-500 be restarted and soldering operations can be resumed.
- ▶ Universal Power Supply: automatically senses the input line voltage and adjusts accordingly, which allows for worldwide operation without adaptors or a change in performance.
- ▶ Full compatibility with existing and previous MX upgrade kits, tip-cartridges, hand-pieces and accessories.
- ▶ Greater process control with SmartHeat® Technology
- ▶ Reduced space requirements

### SYSTEM WITH ONE HAND-PIECE



#### MX-500S Soldering / Rework System

Includes: Power supply, MX-RM3E soldering and rework hand-piece and WS1 sleeper workstand

Soldering cartridges:  
STTC Series and SMTC Series

MX-500 System configuration with MX-H2-UF hand-piece coming soon.  
Check [www.metcal.com](http://www.metcal.com) for more details.

### SYSTEMS WITH TWO HAND-PIECES



#### MX-500SPT Rework System

Includes: Power supply, MX-PTZ precision tweezer hand-piece with MX-W4PT TipSaver workstand and MX-RM3E soldering and rework hand-piece and WS1 sleeper workstand.

Tweezer cartridges:  
PTTC Series.  
Soldering Cartridges:  
STTC and SMTC Series

### POWER SUPPLY WITH NO HAND-PIECE



**MX-500P**  
MX-500 dual port switchable power supply



#### MX-500DS Desoldering System

Includes: Power supply, MX-DS1 desoldering hand-piece with MX-W5DS TipSaver workstand and MX-RM3E soldering and rework hand-piece and WS1 sleeper workstand

Desoldering cartridges:  
STDC Series  
Soldering cartridges:  
STTC and SMTC Series.

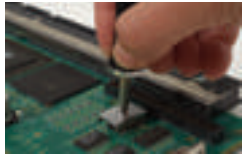
NOTE: Unit requires shop air for desoldering.

NOTE: Additional Hand-pieces and Upgrade Kits are available, see pages 7 and 8

# MX Series Hand-pieces

## Soldering, Desoldering & Rework Systems

The MX-500 AND MX-5200 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. The hand-pieces below are compatible with existing MX-500 and MX-5200 Systems as well as backward compatible with previous MX-500 and MX-5000 Systems



### Hand-pieces

### Cartridges

<p><b>MX-RM3E</b> Metcal Hand-piece</p>		<p><b>STTC Soldering Cartridges</b> See pages 10-11.</p>
<p><b>MX-H1-AV</b> Metcal Advanced™ Hand-piece</p>		<p><b>SMTC Rework Cartridges</b> See pages 13-14.</p>
<p><b>MX-H2-UF</b> Metcal UltraFine™ Hand-piece</p>		<p><b>UFTC Ultra Fine Soldering Cartridges.</b> See page 12.</p>
<p><b>MX-PTZ</b> Metcal Precision Tweezer Hand-piece</p>		<p><b>PTTC Tweezer Cartridges.</b> See page 15. Also available are TATC Cartridges for the previous TALON hand-piece and the existing MX-TALON-01 upgrade kit. See page 15.</p>
<p><b>MX-DS1</b> Metcal Desoldering Hand-piece</p>		<p><b>STDC Desoldering Cartridges.</b> See page 16.</p>



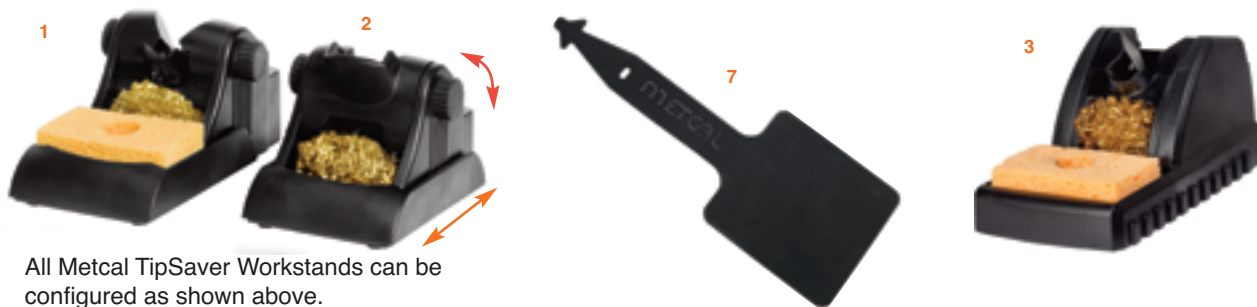
Hand-pieces and Grips		
MX-H1-AV	1	Metcal Advanced™ Hand-piece with cord, soldering and rework, two grips included (see *)
MX-H1GR	2	Grip Metcal Advanced™ Hand-piece with black sleeve in ring pattern (*)
MX-H1GS	3	Grip Metcal Advanced™ Hand-piece with black scallop pattern
MX-H1GKG	4	Grip Metcal Advanced™ Hand-piece with green knob pattern (*)
MX-H1-BSR-5		Replacement Sleeve only, black ring pattern (pack of 5) - For MX-H1-AV and MX-H1GR
MX-H1-BSS-5		Replacement Sleeve only, black scallop pattern (pack of 5) - For MX-H1-AV and MX-H1GS
MX-H1-GSK-5		Replacement Sleeve only, green knob pattern (pack of 5) - For MX-H1-AV and MX-H1GKG
MX-H2-UF	5	Metcal UltraFine™ Hand-piece with cord, fine soldering, two grips included (see **)
MX-H2GR	6	Grip Metcal UltraFine™ Hand-piece with black sleeve in ring pattern (**)
MX-H2GRS	7	Short 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-H2-BSR-5		Replacement Sleeve only, black ring pattern (pack of 5) - For MX-H2-UF and MX-H2GR
MX-H2-BSS-5		Replacement Sleeve only, black ring pattern (pack of 5) - For MX-H2-UF and MX-H2GS
MX-H2-GSK-5		Replacement Sleeve only, black ring pattern (pack of 5) - For MX-H2-UF and MX-H2GKG
MX-RM3E	8	Metcal Soldering / Rework Hand-piece
MX-PTZ	9	Metcal Precision Tweezer Hand-piece, SMD rework
MX-DS1	10	Metcal Desoldering Hand-piece
MX-RM8E		Metcal Desoldering Hand-piece Cord for MX-DS1
MX-RM5E		Standard Robotic cable (1.83m / 6ft) with connector for Soldering/Rework cartridges
MX-RM6E		Metcal Soldering / Rework Hand-piece for long reach cartridge access

NOTE: Cartridges are not included with hand-pieces. A cartridge removal pad (MX-CP1 see page 8) is included with every hand-piece.

# MX Series Accessories

Workstands and Accessories		
MX-W1AV	1	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	2	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
WS1	3	Sleeper Soldering Workstand for MX-RM3E hand-piece
WST		Talon Workstand for MX-TALON hand-piece
AC-Y10	4	Yellow sponge, pack of 10
AC-YS3-P		Yellow sponge, pack of 50
AC-BP	5	Brass pad, pack of 10
AC-BRUSH		Soft Brass Brush
MX-CP1	7	Cartridge removal pad
AC-CK2		Green Lead Free identification ring for STTC cartridges (pack of 50)
AC-PTP1		Rubber tip cleaning pad insert for all MX workstands (pack of 1)
AC-PTP3		Rubber tip cleaning pad insert for all MX workstands (pack of 3)
AC-PTP10		Rubber tip cleaning pad insert for all MX workstands (pack of 10)

Accessories for MX-DS1 Desoldering Hand-piece	
MX-DCF1	Chamber Liners (pack of 15) and Filters (pack of 6)
MX-DCF1L	Chamber Liners (pack of 40)
MX-DCF1F	Filters (pack of 20)
AC-TC	8 Desolder Tip Cleaner
AC-CB1-P	Desolder Chamber Cleaning Brush (pack of 25)
AC-CB2-P	Tube Cleaning Brush (pack of 6)
MX-DSL2	Seal Cartridge
MX-DSB	Swivel Connector
MX-DLA	Desolder Gun Latch Adjustment (pack of 10)
MX-DMK1	Maintenance Kit
MX-DAH4	ESD air hose for MX-DS1 Desoldering Hand-piece
MX-DSL1	Seal Chamber
MX-DVC1	Venturi Cartridge
MX-DAR1	Air Regulator and Filter



All Metcal TipSaver Workstands can be configured as shown above.

UPGRADE KITS GUIDE: HAND-PIECE AND WORKSTAND							
PART NUMBER	Hand-pieces				Workstands		
	MX-H1-AV <small>Metcal Advanced™</small>	MX-H2-UF <small>Metcal UltraFine™</small>	MX-PTZ <small>Precision Tweezers</small>	MX-DS1 <small>Desoldering</small>	MX-W1AV	MX-W4PT	MX-W5DS
MX-UK1	✓				✓		
MX-UK2		✓			✓		
MX-UK4			✓			✓	
MX-UK5				✓			✓

All upgrade kits include a hand-piece and a workstand.



MX-TALON-01 Upgrade kit is also available for the MX-500 Series. It includes the previous MX-TALON hand-piece and WST workstand (as shown right). The TALON hand-piece is for use with TATC cartridges only.

# MX Series Specifications

## Soldering, Desoldering & Rework Systems



### MX-5200

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
Rated Power Consumption	125W
<b>Output Power</b>	<b>Single mode: 80 Watts max. per channel *</b> <b>Dual Mode: 80 Watts shared dynamically *</b>
<b>Output Frequency</b>	<b>13.56 MHz *</b>
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=182 cm (72"), burn proof, ESD safe
Hand-piece Connector	F connector
Weight of the power supply	7.4 lbs (3.35 kg)

\* RF SmartHeat Technology provides greater power. More details at [www.metcal.com/smarheat](http://www.metcal.com/smarheat)

### MX-500

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
Rated Power Consumption	70 W
<b>Output Power</b>	<b>40 Watts max. RF SmartHeat Power *</b>
<b>Output Frequency</b>	<b>13.56 MHz *</b>
Power Supply Dimensions w x d x h	12.1 cm (4.8") x 12.1 cm (4.8") x 2.2 cm (8.8")
Certification / Marking	cNRTLus, 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=182 cm (72"), burn proof, ESD safe
Hand-piece Connector	F connector
Weight of the power supply	5.85 lbs (2.65 kg)

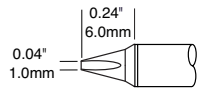
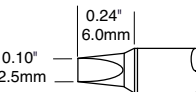
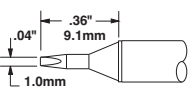
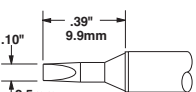
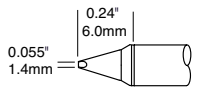
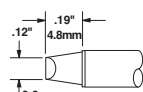
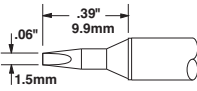
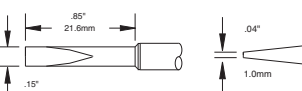
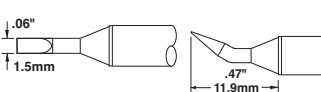
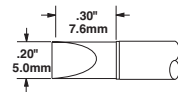
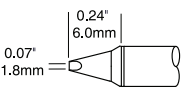
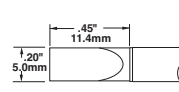
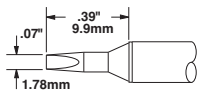
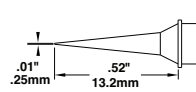
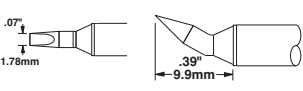
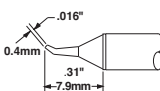
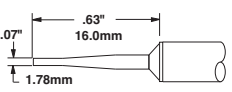
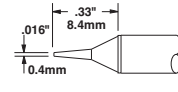
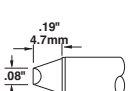
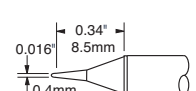
\* RF SmartHeat Technology provides greater power. More details at [www.metcal.com/smarheat](http://www.metcal.com/smarheat)



# STTC Soldering Cartridges

## STTC SOLDERING CARTRIDGES

Compatible with: MX-500, MX-5000 and MX-5200 Systems / MX-RM3E and MX-H1-AV hand-pieces

CHISEL		STTC-125P STTC-825P	CHISEL		STTC-136P STTC-836P	
		STTC-525 STTC-025 STTC-125 STTC-825			STTC-536 STTC-036 STTC-136 STTC-836	
		STTC-138P STTC-838P			STTC-513 STTC-013 STTC-113 STTC-813	
		STTC-538 STTC-038 STTC-138 STTC-838			STTC-020 STTC-120 STTC-820	
		STTC-599 STTC-099 STTC-199 STTC-899			STTC-517 STTC-017 STTC-117 STTC-817	
		STTC-137P STTC-837P			STTC-565 STTC-065 STTC-165 STTC-865	
		STTC-537 STTC-037 STTC-137 STTC-837		CONICAL		STTC-590 STTC-090 STTC-190 STTC-890
		STTC-598 STTC-098 STTC-198 STTC-898				STTC-526 STTC-026 STTC-126 STTC-826
		STTC-542 STTC-042 STTC-142 STTC-842				STTC-522 STTC-022 STTC-122 STTC-822
		STTC-514 STTC-014 STTC-114				STTC-145P STTC-845P

5 = 500 Series and 0 = 600 Series for temperature sensitive applications - 1 = 700 Series for most standard applications.  
8 = 800 Series for Ceramic and high thermal demand applications.

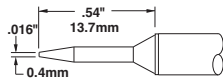
# STTC Soldering Cartridges



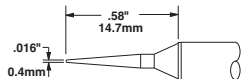
## STTC SOLDERING CARTRIDGES

Compatible with: MX-500, MX-5000 and MX-5200 Systems / MX-RM3E and MX-H1-AV hand-pieces

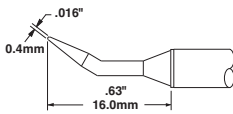
CONICAL



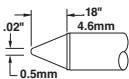
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STTC-006  
STTC-106  
STTC-806



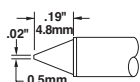
STTC-545  
STTC-045  
STTC-145  
STTC-845



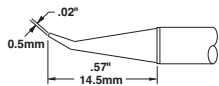
STTC-540  
STTC-040  
STTC-140  
STTC-840



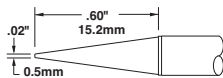
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STTC-011  
STTC-111



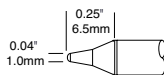
STTC-516  
STTC-016  
STTC-116  
STTC-816



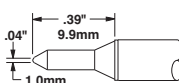
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STTC-044  
STTC-144  
STTC-844



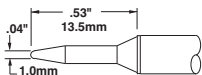
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STTC-143  
STTC-843



STTC-101P  
STTC-801P

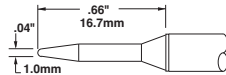


STTC-531  
STTC-031  
STTC-131

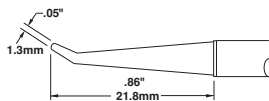


STTC-501  
STTC-001  
STTC-101

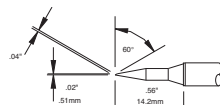
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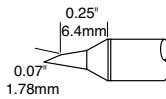
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STTC-007  
STTC-107



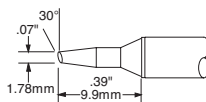
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STTC-041  
STTC-141  
STTC-841



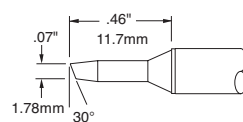
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STTC-046  
STTC-146  
STTC-846



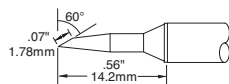
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STTC-847P



STTC-535  
STTC-035  
STTC-135



STTC-505  
STTC-005  
STTC-105



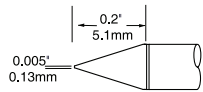
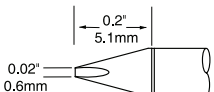
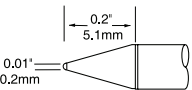
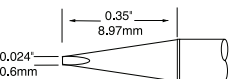
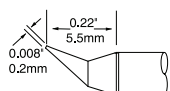
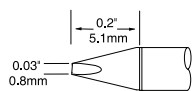
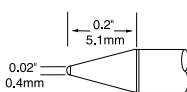
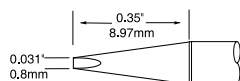
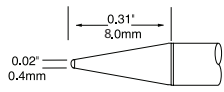
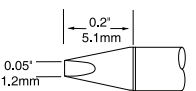
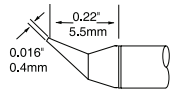
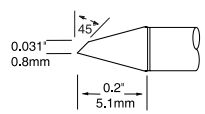
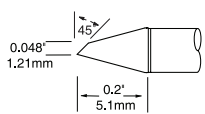
STTC-547  
STTC-047  
STTC-147  
STTC-847

BEVEL

5 = 500 Series and 0 = 600 Series for temperature sensitive applications - 1 = 700 Series for most standard applications.  
8 = 800 Series for Ceramic and high thermal demand applications.

# UFTC UltraFine Soldering Cartridges



UFTC ULTRAFINE SOLDERING CARTRIDGES		Compatible with: MX-500, MX-5000 and MX-5200 Systems and MX-H2-UF hand-piece			
CONICAL		UFTC-7CN01	CHISEL		UFTC-7CH06
		UFTC-7CN02			UFTC-7CHL06
		UFTC-7CNB02			UFTC-7CH08
		UFTC-7CN04			UFTC-7CHL08
		UFTC-7CNL04			UFTC-7CH12
		UFTC-7CNB04			
HOOF		UFTC-7DRH408			
		UFTC-7DRH412			

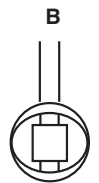
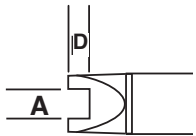
7 = 700 Series for most standard applications

# SMTC Rework Cartridges

Compatible with: MX-500, MX-5000 and MX-5200 Systems / MX-RM3E and MX-H1-AV hand-pieces  
 All dimensions shown are in mm (inches)

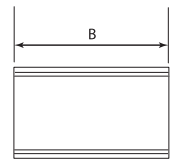
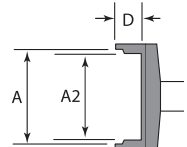
## SMTC REWORK CARTRIDGES

SLOT



	A	D	B	SMT TYPE
SMTC-505 SMTC-005 SMTC-105	1.7 (.068)	1.27 (.05)	2.5 (.10)	SOT-32
SMTC-596 SMTC-096 SMTC-196	1.78 (.070)	1.02 (.040)	1.02 (.040)	Chip 0402, 0603
SMTC-588 SMTC-088 SMTC-188	2.03 (.080)	1.52 (.60)	1.27 (.050)	Chip 0402, 0603, 0805
SMTC-501 SMTC-001 SMTC-101	2.3 (.090)	1.8 (.070)	1.3 (.050)	Chip 0805
SMTC-502 SMTC-002 SMTC-102	3.6 (.14)	1.8 (.07)	1.5 (.06)	Chip 1206,1210
SMTC-132	3.81 (.150)	2.54 (.10)	2.41 (.095)	Chip Box B EIA SOPM-3528
SMTC-536 SMTC-036 SMTC-136	4.8 (.190)	4.06 (.16)	2.8 (.110)	Chip Box B EIA SOPM-4532
SMTC-503 SMTC-003 SMTC-103	4.83 (.190)	1.91 (.075)	2.03 (.080)	Chip 1812

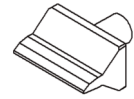
TUNNEL



	A	A2	D	B	SMT TYPE
SMTC-004 SMTC-104	5.08 (.20)	5.08 (.20)	2.3 (.90)	4.32 (.17)	SOIC-8
SMTC-006 SMTC-106	5.08 (.20)	5.08 (.20)	2.3 (.90)	10.16 (.40)	SOIC-14, 16
SMTC-0142 SMTC-1142	5.18 (.204)	5.18 (.204)	2.54 (.100)	8.89 (.350)	SOIC-14
SMTC-047 SMTC-147	8.51 (.335)	8.51 (.335)	5.08 (.200)	6.35 (.250)	DPAC
SMTC-126	8.64 (.340)	8.0 (.315)	1.88 (.074)	18.8 (.740)	SOJ-28, SOM-32
SMTC-007 SMTC-107	9.53 (.375)	9.53 (.375)	3.20 (.125)	18.3 (.720)	SOIC-28
SMTC-009 SMTC-109	9.53 (.375)	9.53 (.375)	3.18 (.125)	15.75 (.620)	SOIC-24
SMTC-010 SMTC-110	9.53 (.375)	9.53 (.375)	3.20 (.125)	13.20 (.520)	SOIC-20
SMTC-040 SMTC-140	11.43 (.450)	10.40 (.410)	1.90 (.075)	25.9 (1.02)	SOJ-40, SOM-32

5 = 500 Series & 0 = 600 Series for temperature sensitive applications. 1 = 700 Series for most standard applications.

# SMTC Rework Cartridges



## SMTC REWORK CARTRIDGES

Compatible with: MX-500, MX-5000 and MX-5200 Systems / MX-RM3E and MX-H1-AV hand-pieces. All dimensions shown are in mm (inches)

QUAD	SMT TYPE	A	A2	D	B	B2	SMT TYPE	BLADE TYPE				
		(.330)	(.330)	(.100)	(.330)	(.330)						
 	SMTC-0121	8.38	8.38	2.54	8.38	8.38	SQFP 48 (EJA)	SMTC-064 SMTC-164	5mm (.20") Short			
	SMTC-1121	10.16	9.14	3.80	10.16	9.14	PLCC 20					
	SMTC-0112	11.18	11.18	2.54	11.18	11.18	SQFP 64 (EJA)	SMTC-560 SMTC-060 SMTC-160 SMTC-860	10mm (.40") Long			
	SMTC-1112	12.19	11.18	2.79	13.21	12.19	TQFP 44					
	SMTC-0120	12.70	11.56	3.80	12.70	11.56	PLCC 28					
		SMTC-1113	12.70	11.43	3.80	15.24	13.97	PLCC 32	SMTC-561 SMTC-061 SMTC-161 SMTC-861	15.75mm (.62") Long		
		SMTC-1116	13.34	12.32	2.79	13.34	12.32	TQFP 80				
		SMTC-1132	15.49	14.48	2.79	15.49	14.48	VQFP 100 (EJA)				
			SMTC-0118	16.51	16.51	3.30	22.48	22.48	QFP 100 Rectangular	SMTC-562 SMTC-062 SMTC-162 SMTC-862	22mm (.86") Long	
			SMTC-143	17.78	16.76	3.80	17.78	16.76	PLCC 44			
			SMTC-1114	20.32	19.30	3.80	20.32	19.30	PLCC 52			
				SMTC-014	25.27	19.30	3.80	25.27	19.30	PLCC 68	SMTC-0BL050 SMTC-1BL050 SMTC-8BL050	5mm (.20") Short
				SMTC-117	26.42	26.42	3.30	26.42	26.42	QFP 100 Square		
				SMTC-118	26.42	26.42	3.30	26.42	26.42	QFP 100 Square		
				SMTC-5175						SMTC-5175	SMTC-5172 SMTC-0172 SMTC-1172 SMTC-8172	5mm (.20") Short
				SMTC-0175						SMTC-0175		
				SMTC-1175						SMTC-1175		
				SMTC-8175						SMTC-8175		
					SMTC-5174						SMTC-5174	SMTC-5171 SMTC-0171 SMTC-1171 SMTC-8171
	SMTC-0174									SMTC-0174		
	SMTC-1174									SMTC-1174		
	SMTC-8174									SMTC-8174		
	SMTC-5167						SMTC-5167	SMTC-5161 SMTC-0161 SMTC-1161	15mm (.59") Short			
	SMTC-0167						SMTC-0167					
	SMTC-1167						SMTC-1167					
	SMTC-8167						SMTC-8167					
		SMTC-5169						SMTC-5169	SMTC-5173 SMTC-0173 SMTC-1173 SMTC-8173	25mm (1.0") Long		
		SMTC-0169						SMTC-0169				
		SMTC-1169						SMTC-1169				
		SMTC-8169						SMTC-8169				
		SMTC-0183						SMTC-0183	SMTC-5177 SMTC-0177 SMTC-1177 SMTC-8177	35mm (1.38") Long		
		SMTC-1183						SMTC-1183				
		SMTC-8183						SMTC-8183				
		SMTC-0170						SMTC-0170				
		SMTC-0170						SMTC-0170	SMTC-5166 SMTC-0166 SMTC-1166	5mm (.20") Short		
		SMTC-1170						SMTC-1170				
		SMTC-8170						SMTC-8170				
		SMTC-0147						SMTC-0147				
		SMTC-0147						SMTC-0147	SMTC-5178 SMTC-0178 SMTC-1178 SMTC-8178	10mm (.40") Short		
		SMTC-1147						SMTC-1147				
		SMTC-8147						SMTC-8147				
		SMTC-0147						SMTC-0147				
		SMTC-0147						SMTC-0147	SMTC-5179 SMTC-0179 SMTC-1179 SMTC-8179	15mm (.59") Short		
		SMTC-1147						SMTC-1147				
		SMTC-8147						SMTC-8147				
		SMTC-0147						SMTC-0147				
		SMTC-0147						SMTC-0147	SMTC-5180 SMTC-0180 SMTC-1180 SMTC-8180	25mm (1.0") Long		
		SMTC-1147						SMTC-1147				
		SMTC-8147						SMTC-8147				
		SMTC-0147						SMTC-0147				
		SMTC-0147						SMTC-0147	SMTC-5181 SMTC-0181 SMTC-1181 SMTC-8181	35mm (1.38") Long		
		SMTC-1147						SMTC-1147				
		SMTC-8147						SMTC-8147				
		SMTC-0147						SMTC-0147				

5 = 500 Series & 0 = 600 Series for temperature sensitive applications. 1 = 700 Series for most standard applications. 8 = 800 Series for Ceramic and high thermal demand applications.

# PTTC Tweezer Cartridges

## TATC Talon Cartridges

Compatible with: MX-5000 and MX-5200 Systems and MX-PTZ Precision Tweezers hand-piece

Compatible with: MX-500 Systems and MX-Talon hand-piece

PTTC TWEezer CARTRIDGES		
CONICAL	<p>0.016" 0.4mm</p> <p>0.90" 23mm</p>	<p>PTTC-601 PTTC-701 PTTC-801</p>
	<p>0.016" 0.4mm</p> <p>0.56" 14.3mm</p>	<p>PTTC-701B PTTC-801B</p>
BLADE	<p>0.05" 1.3mm</p> <p>0.65" 16.5mm</p>	<p>PTTC-602 PTTC-702 PTTC-802</p>
	<p>0.08" 2.0mm</p> <p>0.65" 16.5mm</p>	<p>PTTC-603 PTTC-703 PTTC-803</p>
	<p>0.14" 3.5mm</p> <p>0.48" 12.1mm</p> <p>30°</p>	<p>PTTC-608B PTTC-708B PTTC-808B</p>
	<p>0.28" 0.7mm</p> <p>22°</p> <p>0.25" 6.3mm</p> <p>0.50" 12.7mm</p>	<p>PTTC-604 PTTC-704 PTTC-804</p>
	<p>0.28" 0.7mm</p> <p>22°</p> <p>0.63" 16mm</p> <p>0.50" 12.7mm</p>	<p>PTTC-605 PTTC-705 PTTC-805</p>
	<p>0.28" 0.7mm</p> <p>22°</p> <p>0.81" 20.5mm</p> <p>0.50" 12.7mm</p>	<p>PTTC-606 PTTC-706 PTTC-806</p>
	<p>0.28" 0.7mm</p> <p>22°</p> <p>1.10" 28mm</p> <p>0.50" 12.7mm</p>	<p>PTTC-607 PTTC-707 PTTC-807</p>


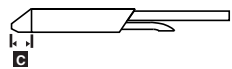
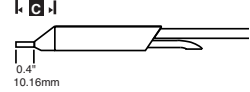
TATC TALON CARTRIDGES	
<p>0.49" 12.45mm</p> <p>0.02" 0.5mm</p> <p>0.13" 0.35mm</p>	<p>TATC-609</p>
<p>0.49" 12.45mm</p> <p>0.02" 0.5mm</p> <p>0.047" 1.2mm</p>	<p>TATC-601</p>
<p>0.05" 1.27mm</p> <p>3.75" 95.25mm</p>	<p>TATC-608</p>
<p>0.10" 2.54mm</p> <p>0.40" 10.16mm</p> <p>0.25" 6.35mm</p>	<p>TATC-602</p>
<p>0.03" 0.76mm</p> <p>0.40" 10mm</p> <p>0.43" 10.93mm</p>	<p>TATC-605</p>
<p>0.05" 1.27mm</p> <p>0.62" 15.75mm</p> <p>0.33" 8.38mm</p>	<p>TATC-603</p>
<p>0.05" 1.27mm</p> <p>0.81" 20.57mm</p> <p>0.33" 8.38mm</p>	<p>TATC-604</p>
<p>0.03" 0.76mm</p> <p>1.1" 27.94mm</p> <p>0.30" 7.62mm</p>	<p>TATC-606</p>

6 = 600 Series for temperature sensitive applications. 7 = 700 Series for most standard applications.  
8 = 800 Series for Ceramic and high thermal demand applications.

# STDC Desolder Cartridges

Compatible with: MX-500 MX-5000 and MX-5200 Systems, MX-DS1 Desoldering hand-piece  
All dimensions shown are in mm (inches)

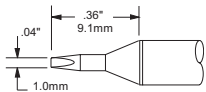
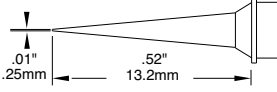
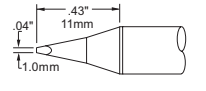
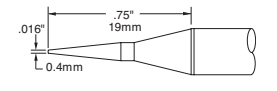
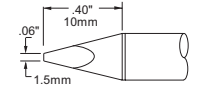
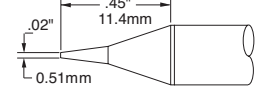
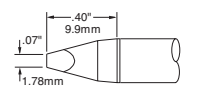
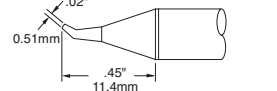
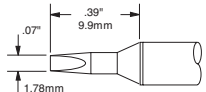
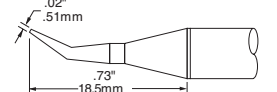
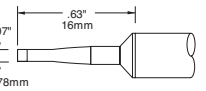
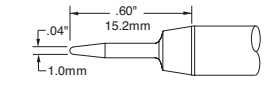
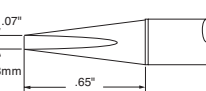
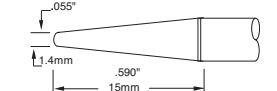
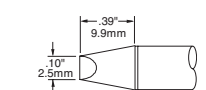
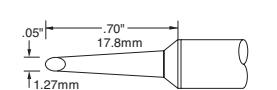
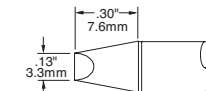
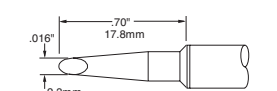
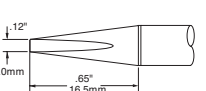
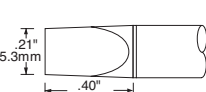
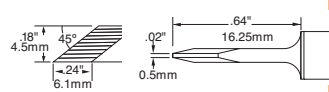
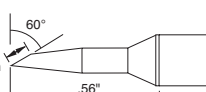
## STDC DESOLDER CARTRIDGES

	A	B	C	TYPE	
	STDC-102 STDC-802	0.64 (.025)	1.40 (.055)	11.43 (.45)	Standard
	STDC-103 STDC-803	0.76 (.029)	1.68 (.066)	11.17 (.44)	Standard
	STDC-104 STDC-804	1.02 (.04)	1.78 (.07)	10.92 (.43)	Standard
 <p>Standard</p>	STDC-105 STDC-805	1.27 (.05)	2.03 (.08)	10.66 (.42)	Standard
	STDC-106 STDC-806	1.52 (.06)	2.29 (.09)	10.41 (.41)	Standard
	STDC-107 STDC-807	2.41 (.09)	3.18 (.12)	9.14 (.36)	Standard
	STDC-703L STDC-803L	0.76 (.03)	1.68 (.06)	21.33 (.84)	Long Reach
 <p>Long Reach</p>	STDC-704L STDC-804L	1.02 (.04)	1.79 (.07)	21.08 (.83)	Long Reach
	STDC-705L STDC-805L	1.27 (.05)	2.03 (.08)	20.82 (.82)	Long Reach

1 = 700 Series (standard length) and 7 = 700 Series (long reach) for most standard applications.  
8 = 800 Series for Ceramic and high thermal demand applications.

# SSC Soldering Cartridges

Compatible with: Previous SP200 System and new MFR-1160 & MFR-1161 Systems with MFR-H6-SSC Hand-piece

SSC SOLDERING CARTRIDGES				
CHISEL	 <p>SSC-671A SSC-771A</p>	CONICAL	 <p>SSC-690A SSC-790A</p>	
	 <p>SSC-625A SSC-725A</p>		 <p>SSC-645A SSC-745A</p>	
	 <p>SSC-638A SSC-738A</p>		 <p>SSC-622A SSC-722A</p>	
	 <p>SSC-637A SSC-737A</p>		 <p>SSC-626A SSC-726A</p>	
	 <p>SSC-672A SSC-772A</p>		 <p>SSC-654A SSC-754A</p>	
	 <p>SSC-642A SSC-742A</p>		 <p>SSC-601A SSC-701A</p>	
	 <p>SSC-670A SSC-770A</p>		 <p>SSC-674A SSC-774A</p>	
	 <p>SSC-636A SSC-736A</p>		HOOF	 <p>SSC-667A SSC-767A</p>
	 <p>SSC-613A SSC-713A</p>			 <p>SSC-639A SSC-739A</p>
	BEVEL		 <p>SSC-646A SSC-746A</p>	KNIFE
 <p>SSC-617A SSC-717A</p>		 <p>SSC-673A SSC-773A</p>		
 <p>SSC-647A SSC-747A</p>				

6 = 600 Series for temperature sensitive applications - 7 = 700 Series for most standard applications.



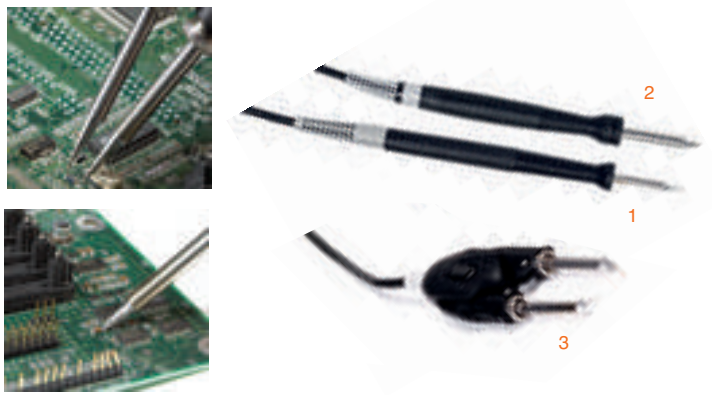
# MFR-2200 Series Dual Output

## Simultaneous Soldering & Rework Systems



The MFR-2200 Series features dual output capability allowing users to select operation of one hand-piece or two hand-pieces **simultaneously**.

The MFR-2200 Systems below offer a choice of three hand-pieces, however two additional hand-pieces including the desoldering option are also available as upgrade kits (see pages 21 & 23).



Systems	MFR-PS2200 Power Supply	MFR-H1-SC2 Soldering Cartridge Hand-piece	MFR-H2-ST2 Soldering Tip Hand-piece	MFR-H4-TW Tweezer Hand-piece	WS1 Universal Soldering Workstand	MFR-WSPT Tweezer Workstand
Picture Reference		1	2	3		
MFR-2210	1	1			1	
MFR-2220	1		1		1	
MFR-2240	1			1		1
MFR-2211	1	2			2	
MFR-2222	1		2		2	
MFR-2241	1	1		1	1	1

### NEW STYLE MFR Tip and Cartridge Hand-pieces.



**Slimmer grip for added comfort and handling.**



# MFR-1100 Series Single Output

## Soldering & Rework Systems



The MFR-1100 Single Output Series is designed to minimize your training investment, maximize application solutions and increase productivity.

This Series is compact and **versatile** and can be used with either a soldering tip, cartridge or tweezers hand-piece. A shop air desoldering option is also available as an upgrade kit (see pages 21 & 23).



Systems	MFR-PS1100 Power Supply	MFR-H1-SC2 Soldering Cartridge Hand-piece	MFR-H2-ST2 Soldering Tip Hand-piece	MFR-H4-TW Tweezer Hand-piece	MFR-H6-SSC SSC Cartridge Hand-piece	WS1 Soldering Workstand	MFR-WSPT Tweezer Workstand	WS2 Soldering Workstand
Picture Reference		1	2	3	4	5		6
MFR-1110	1	1				1		
MFR-1120	1		1			1		
MFR-1140	1			1			1	
MFR-1160	1				1			1
MFR-1161	1	1			1	1		1

Note: The MFR-1160 replaces the Metcal SP200 Soldering System. The MFR-H6-SSC hand-piece accepts the same SSC cartridges.

**SxP**  
Soldering Cartridges

**RxP**  
Rework Cartridges

Full range on pages 29-30

**SxV**  
Soldering Tips

**CxV**  
Blade Tips

Full range on pages 26-27

**TxP**  
Tweezer Cartridges

Full range on page 31

**SSC**  
Soldering Cartridges  
(Previous SP200 System)

Full range on page 17

# MFR-1100 & MFR-2200 Series

## Soldering & Rework Systems



MFR-2200 and MFR-1100 series



MFR-2200, MFR-1100 and MFR-1300 series (shown on page 14)

### Key Features & Benefits

- ▶ SmartHeat® Technology provides exceptional power for high thermal demand applications
- ▶ Single or Dual simultaneous outputs allow for single or dual hand-piece use
- ▶ Five hand-pieces available for increased application solutions for soldering, desoldering (upgrade kit) and rework on one system
- ▶ Each hand-piece has a comprehensive range of cartridges or tips for maximum flexibility
- ▶ Ergonomic hand-pieces for operator safety and comfort

#### Other Accessories Available:

<b>MFR-CA3</b>	Coil Assembly for Tip Hand-piece (MFR-H2-ST2)
<b>WS1G</b>	Auto-sleep Workstand, Green
<b>MFR-PM70</b>	Power Meter
<b>AC-CP2</b>	Cartridge / Tip Removal Pad
<b>AC-BP</b>	Brass Pad (for Workstand) - Pack of 10

### Technical Specifications

Power Supply	MFR-1100	MFR-2200
Ambient Operating Temperature	10 - 40°C (50°F - 104°F)	10 - 40°C (50°F - 104°F)
Maximum Enclosure Temperature	55°C (131°F)	55°C (131°F)
Input Line Voltage	100 - 240 VAC	100 - 240 VAC
Power Consumption	70 Watts maximum	130 Watts maximum
Input Line Frequency	50/60 Hz grounded circuit *	50/60 Hz grounded circuit *
Output Power	60 Watts at 22°C *	60 Watts at 22°C per output (2 outputs)*
Output Frequency	450 KHz	450 KHz
Power Cord (3-wire)	183 cm 18/3 SJT	183 cm 18/3 SJT
Dimensions (approx.) W x D x H	90mm (3.5") x 142mm (5.6") x 197mm (7.8")	170mm (7") x 200mm (8") x 152.5mm (6")
Weight	2.3kg (5.05 lbs)	2.97 kg ( 6.55 lbs)
Surface Resistivity	10 <sup>5</sup> -10 <sup>9</sup> Ohms	10 <sup>5</sup> -10 <sup>9</sup> Ohms
Certification / Marking	cTUVus, CE	cTUVus, CE

#### Soldering Handle and Coil Assembly

Tip-to-Ground Potential	< 2 mV RMS	< 2 mV RMS
Tip-to-Ground Resistance	<2 ohms	<2 ohms
Idle Temperature Repeatability	± 1.1°C (2°F) in still air	± 1.1°C (2°F) in still air
Handle Cord Assembly Length	122 cm – burn proof, ESD safe	122 cm – burn proof, ESD safe
Connector	8-pin circular DIN	8-pin circular DIN
Workstand W x D x H	100 mm (4") x 200 mm (8") x 100 mm (4")	100 mm (4") x 200 mm (8") x 100 mm (4")
Workstand Weight	0.69 kg (1.51 lbs)	0.69 kg (1.51 lbs)

\* RF SmartHeat Technology provides greater power. More details at [www.metcal.com/smarheat](http://www.metcal.com/smarheat)

# MFR-1150 Single Output

## Soldering & Desoldering Systems with Venturi

The MFR-1150 Desolder System with Venturi Workstand provides a compact and easy **shop air option**.

### Key Features & Benefits

- ▶ Venturi workstand
- ▶ 2 in 1 Desolder hand-piece (Pistol or Pencil)
- ▶ **MFR-H5-DS & MFR-WSDSX are compatible for use with all MFR systems (available under MFR-UK5 upgrade kit)**
- ▶ Uses DxP desolder cartridges and replaceable coil assembly (MFR-HDCA)



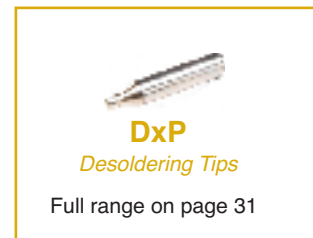
Part No.	Description
<b>MFR-1150</b>	Complete System
<i>Includes:</i>	
<b>MFR-PS1100</b>	Power Supply
<b>MFR-H5-DS</b>	Desolder hand-piece
<b>MFR-WSDSX</b>	Workstand with venturi box for desolder hand-piece
<b>MFR-FTKIT</b>	Fittings and air hose kit
<b>AC-TC</b>	Desolder tip cleaner tool

### Technical Specifications

MFR-PS1100 Power Supply	
Input Line Voltage	100-240 VAC
Power Consumption	65 Watts max.
Input Line Frequency	50/60Hz *
Output Power	60 Watts Max *
Output Frequency	450 KHz
Dimensions W x D x H	90mm x 200mm x 152.5mm (3.5" x 8" x 6")

\* RF SmartHeat Technology provides greater power. More details at [www.metcal.com/smartheat](http://www.metcal.com/smartheat)

MFR-1150 System	
Idle Tip temperature stability	+/- 1.1°C (2°F) in still air
Ambient Operating Temperature	10 - 40°C (50 - 104°F)
Maximum Enclosure Temperature	55°C (131°F)
Tip to ground Potential	<2mV
Tip to ground resistance	<2 Ohms
Surface resistivity	10 <sup>5</sup> – 10 <sup>9</sup> Ohm
Approvals	cTUVus, CE



Collection chamber replacement



Remove grip for Pencil config.



**MFR-UK5 Upgrade Kit**  
Compatible with all MFR Series Power Supplies

MFR-H5-DS Desolder Hand-piece	
Power Cord (3-wire)	183cm (72")
Solder Hand-piece cable length	152 cm (60"), burn proof, ESD safe
Hand piece connector	8 pin power connector
MFR-WSDSX Workstand	
Input voltage	24V
Input power	15W
Workstand dimensions	100mm x 200mm x 140mm (4" x 8" x 5.5")
Noise level	< 55 dB
Recommended Air pressure input	550kPa (80PSI) - Shop air only
Vacuum suction force	0.85 bar (25" Hg)

# MFR-1300 Dual Switchable Output

## Soldering & Desoldering Systems with Internal Air

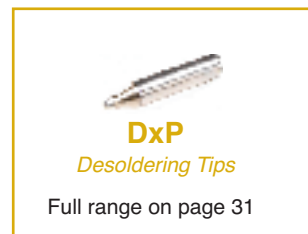
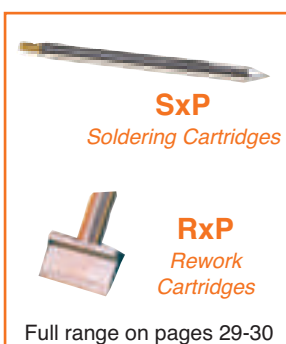
The MFR-1300 Desoldering and Rework System features a innovative desoldering hand-piece and a power supply with an **internal pump** providing 0.7 bar of vacuum suction force making through-hole desoldering easy.

### Key Features & Benefits

- ▶ Self-contained powerful vacuum pump
- ▶ 2 in 1 ergonomic and flexible hand-piece
- ▶ Recyclable collection chamber with increased capacity
- ▶ Quick and easy change collection chamber
- ▶ Dual switchable output
- ▶ Powered by Smartheat® Technology
- ▶ Compatible with previous MFR Desolder range



Part No.	Description
<b>MFR-1350</b>	Desolder System with Internal Pump*
<b>MFR-1351</b>	Solder / Desolder System with Internal Pump**
<i>Includes:</i>	
<b>MFR-PS1300</b>	Power Supply
<b>MFR-H5-DS</b>	Desolder hand-piece*
<b>MFR-H1-SC2</b>	Solder Cartridge hand-piece*
<b>MFR-WSDSU</b>	Workstand for Desolder hand-piece*
<b>WS1</b>	Workstand for Solder hand-piece*



### Technical Specifications

	MFR-1350/51
Input Line Voltage	100-240 VAC
Input Line Frequency	50/60Hz
Power Consumption	110 Watts max. (Power Supply MFR-PS1300)
<b>Output Power</b>	<b>60 Watts Max *</b>
<b>Output Frequency</b>	<b>450 KHz *</b>
Idle Tip temperature stability	+/- 1.1°C (2°F) in still air
Ambient Operating Temperature	10 - 40°C (50 - 104°F)
Maximum Enclosure Temperature	55°C (131°F)
Noise level	< 55 dB
Vacuum suction force	0.7 bar (21in Hg at Vacuum pump at sea level)
Power Cord (3-wire)	183cm (72")
Desolder Hand-piece cable length	152 cm (60"), burn proof, ESD safe
Solder Hand-piece cable length	122 cm (48"), burn proof, ESD safe
Hand piece connector	8 pin power connector
Tip to ground Potential	<2mV
Tip to ground resistance	<2 Ohms
Surface Resistivity	10 <sup>5</sup> – 10 <sup>9</sup> Ohms
Approvals	cTUVus, CE
Dimensions (approx.) W x D x H	170mm x 200mm x 152.5mm (7" x 8" x 6")
Workstand dimensions	100mm x 200mm x 100mm (4" x 8" x 4")

\* RF SmarHeat Technology provides greater power. More details at [www.metcal.com/smarheat](http://www.metcal.com/smarheat)



Pencil



Pistol

# Accessories and Spare Parts

## For MFR and PS Series

### Hand-pieces and replacement coils

PS-HC3		Soldering Handle with PS-CA3 Coil Assembly (PS-900)
PS-H3	1	Soldering Handle without Coil Assembly (PS-900)
PS-CA3	2	Coil Assembly for PS-HC3 / PS-H3 Hand-piece (PS-900)
MFR-H1-SC2	3	Cartridge Solder / Rework Hand-piece (MFR)
MFR-H2-ST2	4	Tip Solder Hand-piece (MFR)
MFR-CA3		Coil Assembly for MFR-H2-ST2 Hand-piece (MFR)
MFR-H4-TW	5	Precision Tweezer Hand-piece (MFR)
MFR-H6-SSC	6	SSC Cartridge Solder Hand-piece (MFR)
MFR-H5-DS	7	Desolder Hand-piece
MFR-HSREC		Cartridge Solder / Rework Hand-piece with long cord (1.83m / 6ft)
MFR-HSRLR	8	Cartridge Solder / Rework Hand-piece with long reach access

### Workstands

WS1		Universal Auto Sleep Workstand
WS2		Round Auto Sleep Workstand
WS2-NS	9	Solder Workstand (PS-900)
MFR-WSPT	10	Non Sleeper Precision Tweezer Workstand
MFR-WSDSX	11	Venturi Workstand for Desolder Hand-piece
MFR-WSDSU		Non Sleeper Workstand for Desolder Hand-piece
WS1CB		Solder Rework Cradle Replacement for WS1 Workstand
WS2CB		Solder Rework Cradle Replacement for WS2 Workstand
MFR-WSDSCB		Replacement cradle for all MFR Desolder Workstands
AC-PTP-1		Rubber tip cleaning pad insert* (1)
AC-PTP-3		Rubber tip cleaning pad insert* (3)
AC-PTP-10		Rubber tip cleaning pad insert* (10)

\* for all rectangular MFR workstands

### Upgrade Kits

MFR-UK1		Solder Cartridge Hand-piece (MFR-H1-SC2) and Workstand (WS1)
MFR-UK2		Solder Tip Hand-piece (MFR-H2-ST2) and Workstand (WS1)
MFR-UK4		Tweezer Cartridge Hand-piece (MFR-H4-DS) and Workstand (MFR-WSPT)
MFR-UK5		Desolder Hand-piece (MFR-H5-DS) and Workstand (MFR-WSDSX)
MFR-UK6		Solder Cartridge Hand-piece (MFR-H6-SSC) and Workstand (MFR-WS2)
MFR-H5-DS-C		Desolder Hand-piece (MFR-H5-DS) and Workstand cradle (MFR-WSDSCB)

### Lead-Free Process Identification

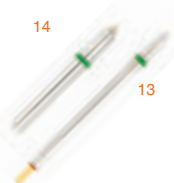
WS1G	12	Green Universal Auto Sleep Workstand
WS2G		Green Solder Workstand (PS-900)
WS1CG		Green Solder Rework Cradle Replacement for WS1 Workstand
WS2CG		Green Solder Rework Cradle Replacement for WS2 Workstand
AC-CK1	13	Green Identification Ring for OKi Cartridges (Pack of 50)
AC-CK3		Green Identification Ring for SSC Cartridges (Pack of 50)
AC-CK4	14	Green Identification Ring for OKi Tips (Pack of 50)

### Miscellaneous Accessories

AC-BRUSH	15	Soft Brass Brush
AC-CP2		Cartridge and Tip Removal Pad
AC-FX1	16	Fume Extraction Kit
AC-IK		Interlocking / Mounting Kit
MFR-PM70		Power Meter for MFR Series
PS-PM900		Power Meter for PS-900
AC-Y10		Yellow Sponge for WS1 Workstand (Pack of 10)
AC-YS4		Yellow Sponge Round for WS2 Workstand (Pack of 10)
AC-BP		Brass Pad (Pack of 10)

### Desoldering Accessories

MFR-DC10	17	Disposable Collection Chamber for MFR-H5-DS (pack of 10)
MFR-DC100		Disposable Collection Chamber for MFR-H5-DS (pack of 100)
MFR-HDCA	18	Coil Assembly for MFR Desolder Hand-piece
MFR-PG		Replacement Pistol grip for MFR-H5-DS Hand-piece
AC-SK1		Seal Kit Collection Chamber (pack of 2)
AC-VP		Vacuum Port
AC-VL		ESD Air Hose
AC-VPF		Vacuum Port Filter (pack of 5)
LM-PS		Power supply for MFR-WSDSX with multi plug adapters
AC-TC		Desoldering Tip Cleaner Tool



# PS-900 Production Soldering



The PS-900 provides power and exceptional SmartHeat thermal control in a **small benchtop footprint**.

### Key Features & Benefits


- ▶ SmartHeat® temperature control
- ▶ Ergonomic, lightweight handle
- ▶ Rugged cast aluminum housing
- ▶ Added plating thickness to tips
- ▶ Low cost, quick-change heater coil



Part No.	Description
<b>PS-900</b>	Complete System
<i>Includes:</i>	
<b>PS-PW900</b> 1	Power Supply
<b>PS-HC3</b> 2	Hand-piece (PS-H3) and Coil Assembly (PS-CA3)
<b>WS2-NS</b> 3	Workstand, Black
<b>SFV-CH15A</b> 6	Economical and Affordable Chisel Solder Tip 1.5mm (.06")
<i>Other Accessories Available:</i>	
<b>PS-H3</b> 4	Hand-piece only, NO PS-CA3 Coil Assembly
<b>PS-CA3</b> 5	Coil Assembly for SxV Soldering Tips and CxV Blade Tips ONLY
<b>WS2</b>	Auto-sleep Workstand, Black
<b>WS2G</b>	Auto-sleep Workstand, Green
<b>AC-CP2</b>	Tip Removal Pad



**SxV**  
*Soldering Tips*



Full range on pages 26-27

**CxV**  
*Blade Tips*



Full range on page 27

### ONLY AVAILABLE ON PS-900 SYSTEM AND FOR USE WITH PHT TIPS

<b>PS-CA1</b> 7	Coil Assembly for PHT Soldering Tips ONLY
<b>PS-HC1</b>	Hand-piece (PS-H3) and Coil Assembly (PS-CA1)
<b>PS-H3</b> 8	Hand-piece only, NO PS-CA1 Coil Assembly



**PHT**  
*Light Load, Fine Access Soldering Tips*



Full range on page 28



# PS-900 Production Soldering

## Technical Specifications

### Power Supply

Ambient Operating Temperature	10 - 40°C
Maximum Enclosure Temperature	65°C
Input Line Voltage	100 - 240 VAC
Power Consumption	90 Watts max.
<b>Input Line Frequency</b>	<b>50/60 Hz *</b>
<b>Output Power</b>	<b>60 Watts max.*</b>
Output Frequency	450 KHz
Power Cord (3-wire)	183 cm 18/3 SJT
Dimensions W x D x H	80 x 160 x 115 mm (3.1" x 6.3" x 4.5")

\* RF SmartHeat Technology provides greater power. More details at [www.metcal.com/smartheat](http://www.metcal.com/smartheat)

### Soldering Handle and Coil Assembly

Tip-to-Ground Potential	< 2 mV
Tip-to-Ground Resistance	< 2 ohms
Idle Temperature Repeatability	± 1.1°C in still air
Handle Cord Assembly Length	122 cm – burn proof, ESD safe
Connector	3-pin power connector
Overall length (with tip)	230 mm (9.06") with standard tips
Grip diameter	13 mm (0.51")
Tip to grip	58 mm (2.28")
Tip shaft diameter	8.0 mm (0.31")
Tip length	82 mm (3.23") to 93 mm (3.66") (typical)
Workstand W x D x H	105 x 175 x 90 mm (4.1" x 6.9" x 3.5")



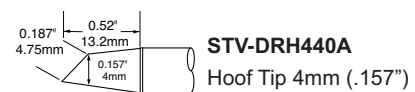
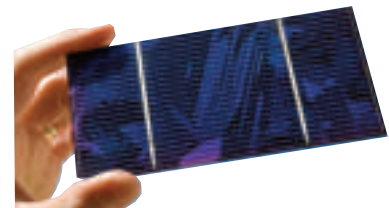
Tip Soldering Hand-Piece with PS-CA3 Coil Assembly

## PS-900-Solar

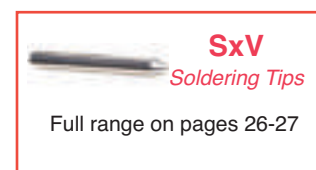


### Key Features & Benefits

- ▶ Superior photo voltaic tabbing and buss soldering
- ▶ SmartHeat reduces thermal stress on solar cells
- ▶ Reduces the likelihood of micro-cracking
- ▶ Produces a controlled, high quality solder joint
- ▶ Calibration-free system
- ▶ Specially designed STV-DRH440A hoof tip for high performance



Part No.	Includes
PS-900-Solar	PS-PW900 Power Supply, PS-900-PC9 Hand-piece with long cord (274cm / 9ft) & <b>PS-CA3 Coil Assembly</b> , STV-DRH440A soldering tip, WS2-NS Workstand, AC-CP2 tip removal pad





# SxV Soldering Tips



Compatible with: PS-900, MFR-1120, MFR-2220, MFR-2222 Systems, PS-HC3, MFR-H2-ST and MFR-H2-ST2 hand-pieces, PS-CA3, MFR-CA2 and MFR-CA3 Coil Assemblies

SxV SOLDERING TIPS				
CHISEL	<b>NEW</b>  SFV-CH10A STV-CH10A SCV-CH10A	CHISEL	 SFV-CH25 STV-CH25 SCV-CH25	
	 SFV-CH10AR STV-CH10AR SCV-CH10AR		 SFV-CH30AR STV-CH30AR SCV-CH30AR	
	 SFV-CH10 STV-CH10 SCV-CH10		<b>NEW</b>  SFV-CH50A STV-CH50A SCV-CH50A	
	<b>NEW</b>  SFV-CH15A STV-CH15A SCV-CH15A		 SFV-CH50AR STV-CH50AR SCV-CH50AR	
	 SFV-CH15AR STV-CH15AR SCV-CH15AR		 SFV-CH50 STV-CH50 SCV-CH50	
	 SFV-CHB15 STV-CHB15 SCV-CHB15		CONICAL	 SFV-CNL03AR STV-CNL03AR SCV-CNL03AR
	 SFV-CH18AR STV-CH18AR SCV-CH18AR			<b>NEW</b>  SFV-CNB04A STV-CNB04A SCV-CNB04A
	 SFV-CH20 STV-CH20 SCV-CH20			<b>NEW</b>  SFV-CN05A STV-CN05A SCV-CN05A
	<b>NEW</b>  SFV-CH24A STV-CH24A SCV-CH24A			 SFV-CNB04AR STV-CNB04AR SCV-CNB04AR
	 SFV-CH25AR STV-CH25AR SCV-CH25AR			 SFV-CNL04 STV-CNL04 SCV-CNL04

F = FR4 / Fiber Glass, for most standard applications T = Temperature Sensitive C = Ceramic for high thermal demand applications.

# SxV Soldering Tips

## CxV Blade Tips



Compatible with: PS-900, MFR-1120, MFR-2220, MFR-2222 Systems, PS-HC3, MFR-H2-ST and MFR-H2-ST2 hand-pieces, PS-CA3, MFR-CA2 and MFR-CA3 Coil Assemblies

SxV SOLDERING TIPS					
CONICAL		SFV-CN05AR STV-CN05AR SCV-CN05AR	HOOF		SFV-DRH420AR STV-DRH420AR SCV-DRH420AR
		SFV-CN05 STV-CN05 SCV-CN05			SFV-DRH20CP STV-DRH20CP SCV-DRH20CP
		SFV-CNB05 STV-CNB05 SCV-CNB05			SFV-DRH430AR STV-DRH430AR SCV-DRH430AR
		SFV-CNL10A STV-CNL10A SCV-CNL10A			SFV-DRH630AR STV-DRH630AR SCV-DRH630AR
		SFV-CNL10AR STV-CNL10AR SCV-CNL10AR			SFV-DRH420A STV-DRH420A SCV-DRH420A
		SFV-CNL10 STV-CNL10 SCV-CNL10			SFV-DRH30CP STV-DRH30CP SCV-DRH30CP
		SFV-CNL14 STV-CNL14 SCV-CNL14			SFV-DRH440R STV-DRH440R SCV-DRH440R
		SFV-DRH20 STV-DRH20 SCV-DRH20			SFV-DRH640AR STV-DRH640AR SCV-DRH640AR
		SFV-CNL20 STV-CNL20 SCV-CNL20			SFV-DRH40CP STV-DRH40CP SCV-DRH40CP
		SFV-WV20 STV-WV20 SCV-WV20			SFV-DRH440A STV-DRH440A SCV-DRH440A
KNIFE		SFV-DRK45A STV-DRK45A SCV-DRK45A		SFV-DRK30AR STV-DRK30AR SCV-DRK30AR	
		SFV-DRK50 STV-DRK50 SCV-DRK50		SFV-DRK45AR STV-DRK45AR SCV-DRK45AR	
		CxV BLADE TIPS	A		
		CFV-BL100	CCV-BL100	10mm (.40")	
		CFV-BL250	CCV-BL250	25mm (1")	
		CFV-BL350	CCV-BL350	35mm (1.4")	
		CFV-BL400	CCV-BL400	40mm (1.6")	
		CFV-BL500	CCV-BL500	50mm (2")	

F = FR4 / Fiber Glass, for most standard applications T = Temperature Sensitive C = Ceramic for high thermal demand applications.

# PHT Soldering Tips



PHT SOLDERING TIPS		Compatible with: PS-800, PS-800E and PS-900 Systems and PS-CA1 Coil Assembly	
CHISEL		PHT-750315 PHT-650315	CONICAL
		PHT-750325 PHT-650325	
		PHT-750326 PHT-650326	
		PHT-750335 PHT-650335	
		PHT-751355 PHT-651355	
		PHT-751367 PHT-651367	
CONICAL		PHT-751384 PHT-651384	HOOF
		PHT-752017 PHT-652017	
		PHT-752327 PHT-652327	
		PHT-752035 PHT-652035	
		PHT-752335 PHT-652335	
		PHT-752337 PHT-652337	
		PHT-753035 PHT-653035	
		PHT-752057 PHT-652057	
		PHT-753067 PHT-653067	
		PHT-753077 PHT-653077	
	PHT-754627 PHT-654627		
	PHT-754667 PHT-654667		
	PHT-754687 PHT-654687		
	PHT-754487F PHT-654487F		
	PHT-654497 PHT-754497		
	PHT-654697		
KNIFE		PHT-755437 PHT-655437	KNIFE
		PHT-755477 PHT-655477	

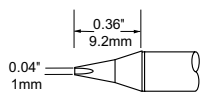
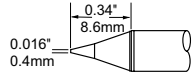
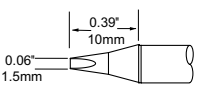
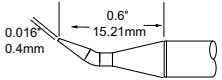
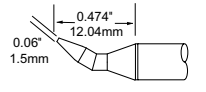
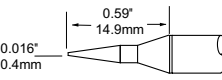
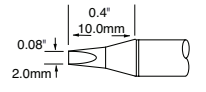
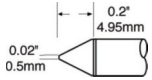
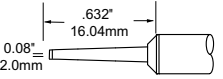
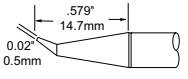
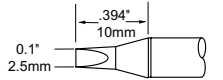
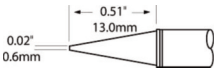
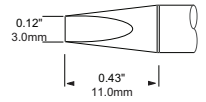
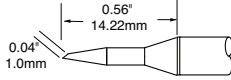
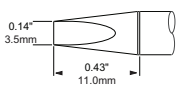
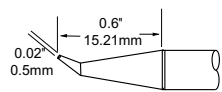
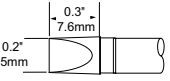
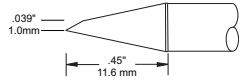
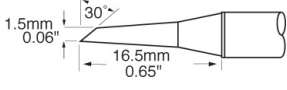
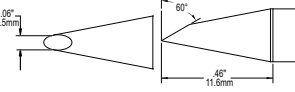
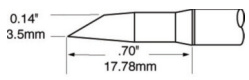
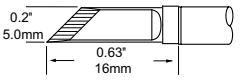
75 = 750 Series for most standard applications - 65 = 650 Series for temperature sensitive applications

# SxP Soldering & Rework Cartridges



## SxP SOLDERING & REWORK CARTRIDGES

Compatible with: MFR-1110, MFR-1161, MFR-1351, MFR-2211, MFR-2241 Systems and MFR-H1-SC hand-piece

CHISEL		SFP-CH10 STP-CH10 SCP-CH10	CONICAL		SFP-CN04 STP-CN04 SCP-CN04		
		SFP-CH15 STP-CH15 SCP-CH15			SFP-CNB04 STP-CNB04 SCP-CNB04		
		SFP-CHB15 STP-CHB15 SCP-CHB15			SFP-CNL04 STP-CNL04 SCP-CNL04		
		SFP-CH20 STP-CH20 SCP-CH20			SFP-CN05 STP-CN05 SCP-CN05		
		SFP-CHL20 STP-CHL20 SCP-CHL20			SFP-CNB05 STP-CNB05 SCP-CNB05		
		SFP-CH25 STP-CH25 SCP-CH25			SFP-CNL06 SCP-CNL06		
		SFP-CH30 STP-CH30 SCP-CH30		BEVEL		SFP-BVL10 STP-BVL10 SCP-BVL10	
		SFP-CH35 STP-CH35 SCP-CH35			HOOF		SFP-DRH05 STP-DRH05 SCP-DRH05
		SFP-CH50 STP-CH50 SCP-CH50					SFP-DRH610 STP-DRH610 SCP-DRH610
							SFP-DRH15 STP-DRH15 SCP-DRH15
			SFP-DRH615 STP-DRH615 SCP-DRH615				
			SFP-DRH35 STP-DRH35 SCP-DRH35				
		KNIFE		SFP-DRK50 STP-DRK50 SCP-DRK50			

F = FR4 / Fiber Glass, for most standard applications T = Temperature Sensitive C = Ceramic for high thermal demand applications.

# RxP Rework Cartridges

Compatible with: MFR-1110, MFR-1161, MFR-1351, MFR-2211, MFR-2241 Systems, MFR-H1-SC and MFR-H1-SC2 hand-pieces. All dimensions shown are in mm (inches)

RxP REWORK CARTRIDGES		A	B	D	SMT TYPE			
BLADE		RFP-BL1 RCP-BL1	10 (0.41)	-	-	-		
		RFP-BL2 RCP-BL2	15.6 (0.62)	-	-	-		
		RFP-BL3 RCP-BL3	22.1 (0.87)	-	-	-		
TUNNEL		RFP-DL1 RCP-DL1	5.18 (0.204)	10.16 (0.40)	3.22 (0.127)	Tunnel SOIC-14-16		
		RFP-DL2 RCP-DL2	5.18 (0.204)	4.32 (0.17)	2.29 (.09)	Tunnel SOIC-8		
		RFP-DL3 RCP-DL3	6.86 (.270)	11.15 (0.44)	2.29 (.09)	Tunnel SOIC-16		
SLOT		RFP-SL1 RCP-SL1	2.34 (.092)	1.37 (.054)	1.78 (.07)	0805 Chip Package		
		RFP-SL2 RCP-SL2	3.48 (.137)	1.63 (.064)	1.78 (.07)	1206 Chip Package		
QUAD		RFP-QD4 RCP-QD4	12.70 (.500)	11.43 (.450)	3.81 (.150)	15.24 (.600)	13.97 (.550)	PLCC 32
		RFP-QD6 RCP-QD6	17.78 (.700)	16.76 (.660)	3.81 (.150)	17.78 (.700)	16.76 (.660)	PLCC 44
		RFP-QD7 RCP-QD7	25.27 (.995)	24.38 (.960)	5.59 (.220)	25.27 (.995)	24.38 (.960)	PLCC 68
		RFP-QD10 RCP-QD10	20.32 (.800)	19.30 (.760)	3.81 (.150)	20.32 (.800)	19.30 (.760)	PLCC 52
		RFP-QD15 RCP-QD15	13.34 (.525)	12.32 (.485)	2.79 (.110)	13.34 (.525)	12.32 (.485)	TQFP 80
		RFP-QD19 RCP-QD19	16.13 (.635)	16.13 (.635)	3.30 (.130)	16.13 (.635)	16.13 (.635)	QFP 44
		RFP-QD20 RCP-QD20	16.51 (.650)	16.51 (.650)	3.30 (.130)	22.48 (.885)	22.48 (.885)	QFP 100

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# TxP Tweezer Cartridges DxP Desoldering Tips

Compatible with: MFR-1140, MFR-2240, MFR2241 Systems and MFR-H4-TW hand-piece

TxP Tweezer Cartridges			
BLADE		TFP-BLP1 TTP-BLP1 TCP-BLP1	1.0mm x 14mm (.04" x .55")
		TFP-BLP2 TTP-BLP2 TCP-BLP2	2.0mm x 14mm (.08" x .55")
		TFP-CNP1 TTP-CNP1 TCP-CNP1	Conical 0.4mm x 19.1mm (.015" x .75")
HEAVY DUTY			<b>A</b>
		TFP-BLH40 TTP-BLH40 TCP-BLH40	6.35mm (.25")
		TFP-BLH50 TTP-BLH50 TCP-BLH50	16mm (.62")
		TFP-BLH60 TTP-BLH60 TCP-BLH60	20.5mm (.81")
		TFP-BLH70 TTP-BLH70 TCP-BLH70	28mm (1.1")

Compatible with: MFR-1150, MFR-1350, MFR-1351 systems with MFR-H5-DS hand-piece and previous MFR-DSX, -DSI, -SDX, -SDI Systems with MFR-HDS hand-piece.  
All dimensions shown are in mm (inches)

DxP Desoldering Tips		A	B	TYPE
 <p><b>Standard</b></p> <p><b>Long Reach</b></p>	DFP-CN2 DCP-CN2	0.64 (.025)	1.78 (.070)	Standard
	DFP-CN3 DCP-CN3	0.76 (.030)	2.03 (.080)	Standard
	DFP-CN4 DCP-CN4	1.02 (.040)	2.28 (.090)	Standard
	DFP-CN5 DCP-CN5	1.27 (.050)	2.64 (.104)	Standard
	DFP-CN6 DCP-CN6	1.52 (.060)	2.84 (.112)	Standard
	DFP-CN7 DCP-CN7	2.41 (.095)	3.63 (.143)	Standard
	DFP-CNL3 DCP-CNL3	0.76 (.030)	2.03 (.080)	Long Reach
	DFP-CNL4 DCP-CNL4	1.02 (.040)	2.28 (.090)	Long Reach
	DFP-CNL5 DCP-CNL5	1.27 (.050)	2.64 (.104)	Long Reach

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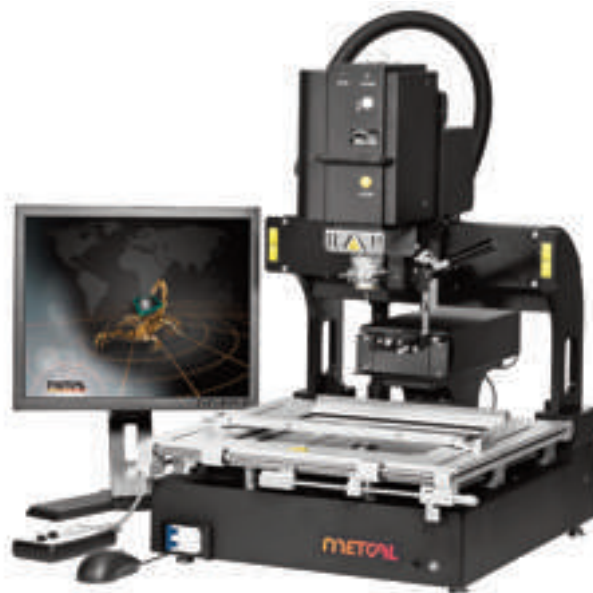
# Convection Rework Overview

## SYSTEMS SERIES

M A N U A L   A N D   M O D U L A R   S Y S T E M S



MRS-1100A Modular Rework System



APR Scorpion Rework Systems

F O R   S M A L L   T O   M E D I U M

## HANDHELD SERIES

P R E - H E A T E R S



PCT-1000 Programmable Pre-Heater



PCT-100 Pre-Heater

D I G I T A L

A N A L O G



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