METCAL

Precision Systems for the Electronics Bench

SOLDERING, DESOLDERING AND REWORK SYSTEMS

METCAL

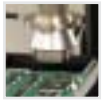
Since 1982, Metcal has been the industry's single source of high-performance, precision systems for the electronics bench. Always ahead of the competition, Metcal's soldering/desoldering stations, BGA/CSP/QFP rework equipment and fume extraction systems continue to set the standard for reliability, flexibility and cost-effective performance.

Recently, Frost & Sullivan awarded Metcal the prestigious "Market Engineering Leadership Award," recognizing Metcal as the leader in the world SMT rework and repair equipment market, in part through dominant market share, but also because of our continuing "technology innovation."

By listening to customers, focusing on their specific needs and working as their technology partner, we continue the quest for excellence, economy and innovation – aimed at helping each customer meet increasingly complex electronics manufacturing challenges.

Welcome to Metcal.

Contents



SmartHeat®

SmartHeat®

SmartHeat® Technology

The Metcal Difference

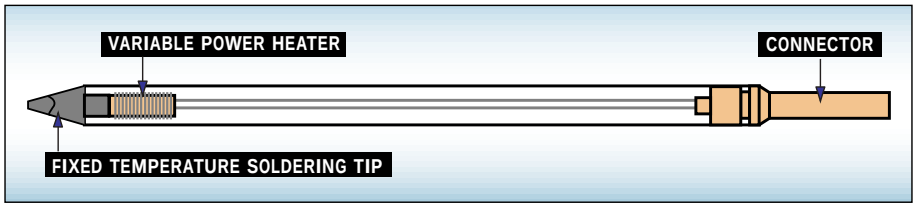
In production environments where a single component can cost hundreds of dollars and rework and repair can sometimes be more costly than the components involved, process control is vital. Metcal improves product quality, increases productivity and reduces manufacturing costs with its patented SmartHeat® technology. As SmartHeat® maintains a constant tip temperature, automatically delivering the exact amount of power required for the task, consistent results are guaranteed and component/PCB damage is virtually eliminated. Metcal's SmartHeat® systems offer task-specific versatility with no limits, no barriers and absolutely no compromise.

What Is SmartHeat®?

Unlike conventional soldering irons, SmartHeat® administers heat directly from the heater to the joint. Metcal tip cartridges detect the thermal load and instantly adjust the power in order to deliver the right amount of heat precisely where it is needed. If the tip cools while transferring heat to a joint, SmartHeat® immediately responds by safely increasing the power to maintain a constant tip temperature. As a result, operators are relieved of the responsibility of regulating the tip temperature, thus eliminating the risk of thermal damage to the component or to the PCB.

SmartHeat® soldering systems comprise three basic elements: a high frequency power supply, a tip cartridge and a hand-piece. The cartridge contains the solder tip, a heater and the wire coil.

When the temperature of the heater (a copper bar coated with a magnetized iron/nickel alloy) reaches a certain level (its Curie Point), it stops absorbing energy and the temperature becomes



constant. Energy from the power supply feeds a steady current to the coil. This creates an electrical field from which the heater absorbs energy, turns it into heat and transfers it to the iron/nickel alloy. When soldering has drawn heat from the heater to the extent that the tip begins to cool, the alloy reacts by taking on more energy in order to reheat the tip. In this way, SmartHeat® self-regulates the tip temperature to within ±1.1°C of a set point regardless of thermal load and without any need for adjustment.

Trouble-Free Tip Replacement

The heat-resistant pad supplied with the unit allows you to easily insert and remove the tip cartridge. The simplicity of this process ensures there is no loss of productivity, no need for additional tools and no reason for two soldering systems to be heating at the same time.

The SmartHeat® Route To Lead-Free Hand Soldering

Switching to lead-free hand soldering does not necessarily mean that you will have to invest in new equipment or adjust your existing process. As SmartHeat's variable power and fixed temperature guarantee a repeatable tip temperature under a wide variety of thermal loads, the system can easily adapt to meet the higher temperatures demanded by lead-free applications without any need for modification.

No Calibration Required For Easy ISO 9000 Compliance

To define the parameters for soldering with a SmartHeat® system, simply record the tip cartridge part number. As the heater's alloy dictates the temperature, calibration is not required. Indeed, there are no dials, buttons or calibration tools, typical of other systems, with which you can adjust SmartHeat's temperature. This avoids all risk of unauthorized operator intervention. Throughout the cartridge's lifetime, temperature drift is less than a few degrees. A letter to confirm SmartHeat's self-calibration capacity is available on request.

MX-500

Soldering, Desoldering & Rework System

Industry Standard, Soldering, Desoldering And Rework System

Metcal's MX-500 Soldering, Desoldering & Rework System is the benchmark against which other soldering, desoldering and rework systems are measured. Flexible, fast and powerful, the MX-500 Soldering, Desoldering & Rework System raises bench-top conduction soldering to a new level of process control, productivity and throughput.

Higher Throughput At Lower Temperatures

Unlike conventional soldering/rework systems that rely on stored energy, Metcal systems use SmartHeat® for direct power on demand. Despite its capacity to work at lower, safer temperatures, SmartHeat® still delivers the fastest temperature recovery, joint-to-joint, in the industry.

Versatility Without Compromise

Metcal's MX-500 Soldering, Desoldering & Rework System handles both SMT and through-hole soldering/rework with one power supply at the bench. With two switchable outputs, the system can be adapted to your exact needs, using two of the three tools available (soldering iron, Talon® tweezers, desolder gun) to configure the most powerful bench-top soldering/rework system on the market. In addition, the MX-500 Soldering, Desoldering & Rework System's power supply has an automatic shut-off, which helps maximize tip cartridge life, and a standard four year warranty.

Unrivalled Comfort And Simplicity

The short tip-to-grip distance, characteristic of the Metcal hand-piece, improves process precision, especially for fine-pitch applications. The easy-squeeze design of Metcal's Talon® tweezers has been ergonomically designed for superior performance, unmatched comfort and optimum control.

MX-500S SMT SOLDERING/REWORK SYSTEM

Part No.	Description
MX-500S-11	Two Port 100/120 VAC, Solder System
MX-500S-21	Two Port 220/240 VAC, Solder System
INCLUDES	
MX-500P	Two Port Switchable Power Supply with Power Cord*
MX-RM3E	Rework Hand-Piece with Cord
MX-WS4	Workstand
AC-YS3	Sponge
AC-CP2	Cartridge Removal Pad

MX-500TS SMT REWORK/TALON® SYSTEM

MX-500TS-11	Two Port 100/120 VAC, Solder/Talon® System
MX-500TS-21	Two Port 220/240 VAC, Solder/Talon® System
INCLUDES	
MX-500P	Two Port Switchable Power Supply with Power Cord*
MX-TALON	Talon® Hand-Piece with Cord
MX-WS5	Workstand
MX-RM3E	Rework Hand-Piece with Cord
MX-WS4	Workstand
AC-YS3	Sponge (2)
AC-CP2	Cartridge Removal Pad (2)

TALON® UPGRADE KITS

MX-TALON-01	Talon® Upgrade Kit
INCLUDES	
MX-TALON	Talon® Hand-Piece with Cord
MX-WS5	Workstand
AC-YS3	Sponge
AC-CP2	Cartridge Removal Pad

SM-TALON-02	Talon® Upgrade with Switchbox for Older STSS Systems
INCLUDES	
MX-TALON	Talon® Hand-Piece with Cord
MX-WS5	Workstand
AC-YS3	Sponge
AC-CP2	Cartridge Removal Pad
STSS-SW1E	Switchbox with Storage Tray

Tip cartridges sold separately from all systems. *220/240 VAC systems do not include power cords.

Soldering, Desoldering & Rework System

MX-500

Pistol Grip SMT Desoldering/Rework System

The MX-500DS Desoldering/Rework System converts shop air into a powerful Venturi vacuum to clean through-holes quickly and efficiently. Paper solder collection liners within the hand-piece barrel are easy to maintain and are an improvement upon traditional glass tubes.

Please note: The MX-500DS Desoldering/Rework System requires shop air for desoldering. If shop air is not available, Metcal recommends the SP440 Self-Contained Desoldering System.

MX-500DS SMT DESOLDERING/REWORK SYSTEM

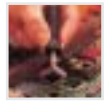
Part No.	Description
MX-500DS-11	Two Port 100/120 VAC, Desolder/Solder System
MX-500DS-21	Two Port 220/240 VAC, Desolder/Solder System
INCLUDES	
MX-500P	Two Port Switchable Power Supply with Power Cord*
MX-DS1	Desoldering Hand-Piece
MX-RM3E	Rework Hand-Piece with Cord
MX-RM8E	Desoldering Cord
MX-DAH4	ESD Air Hose with Fitting
MX-WS5	Workstand
AC-YS3 (x2)	Sponge (2)
AC-CP2 (x2)	Cartridge Removal Pad (2)
AC-CB1	Cleaning Brush
AC-CB2	Tube Cleaning Brush
MX-DCF1	Chamber Liner and Filter Pack
AC-TC	Desoldering Tip Cleaner

DESOLDER UPGRADE KIT

MX-D001	Desolder Upgrade Kit
INCLUDES	
MX-DS1	Desoldering Hand-Piece
MX-RM8E	Desoldering Cord
MX-DAH4	ESD Air Hose with Fitting
MX-WS5	Workstand
MX-YS3	Sponge
MX-CP2	Cartridge Removal Pad
AC-CB1	Cleaning Brush
AC-CB2	Tube Cleaning Brush
MX-DCF1	Chamber Liner and Filter Pack
AC-TC	Desoldering Tip Cleaner

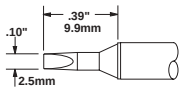
Tip cartridges sold separately from all systems. *220/240 VAC systems do not include power cords.

STTC Soldering Tip Cartridges



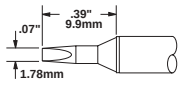
STTC soldering tip cartridges are for use with the MX and the STSS soldering/rework hand-pieces only. They cannot be used with the SP systems, the Talon® or desoldering hand-pieces.

FREQUENTLY USED TIP CARTRIDGES



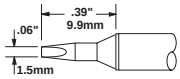
STTC-X36* Chisel 30° .10" (2.5mm)

For medium to heavy load joints requiring extra reach.



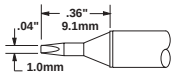
STTC-X37* Chisel 30° .07"(1.78mm)

For a wide variety of tasks. If you are choosing the first tip for your Metcal system, the STTC-037 is ideal.



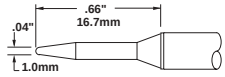
STTC-X38* Chisel 30° .06" (1.5mm)

A finer version of the STTC-037. Ideal for medium to light through-hole and general surface mount touch-up.



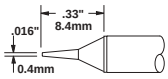
STTC-X25 Chisel 30° .04" (1.0mm)

Good for a variety of light soldering tasks. Looking for a surface mount touch-up tip? The STTC-025 should be your first choice.



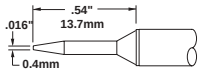
STTC-X07 Conical Sharp .04" (1.0mm)

General-purpose SMT and through-hole tip when access is limited.



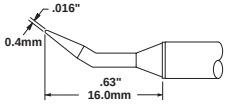
STTC-X22 Conical Sharp .016" (0.4mm)

Sharp tip cartridges for soldering SMT components or fine wire applications (not for general through-hole tasks).



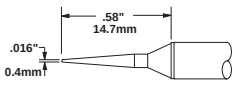
STTC-X06 Conical Sharp .016" (0.4mm)

For limited access SMT rework.



STTC-X40 Sharp Bent 30° .016" (0.4mm)

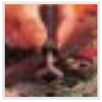
Tip for soldering SMT components. The bend makes it much easier to work on small circuits and PLCCs.



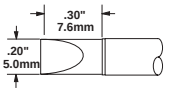
STTC-X45 Bevel 60° .016" (0.4mm)

An extended length fine tip for surface mount or fine wire applications (not for general through-hole tasks).

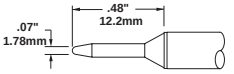
500 SERIES X=5 600 SERIES X=0 700 SERIES X=1 800 SERIES X=8, WHEN FOLLOWED BY AN *



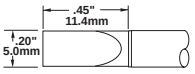
OTHER STANDARD TIP CARTRIDGES



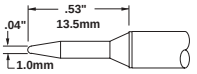
STTC-X17*
Extra Large Chisel
.20" (5.0mm)



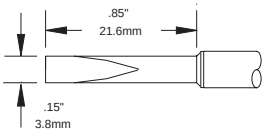
STTC-X02
Conical Sharp
.07" (1.78mm)



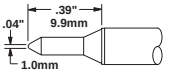
STTC-X65
Large Chisel
.20" (5.0mm)



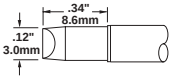
STTC-X01
Conical Sharp
.04" (1.0mm)



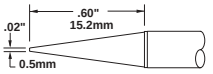
STTC-X20
Long Reach
Chisel 12°
.15" (3.8mm)



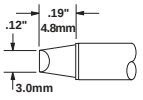
STTC-X31
Conical Sharp
.04" (1.0mm)



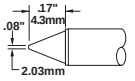
STTC-X03*
Chisel 90°
.12" (3.0mm)



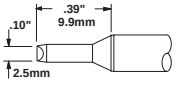
STTC-X43
Conical Sharp
.02" (0.5mm)



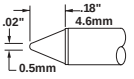
STTC-X13
Chisel 90°
.12" (3.0mm)



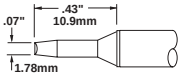
STTC-X12
Conical
.08" (2.03mm)



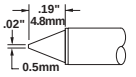
STTC-X33
Chisel 90°
.10" (2.5mm)



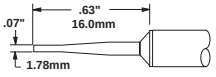
STTC-X11
Conical
.02" (0.5mm)



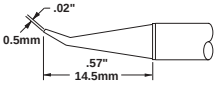
STTC-X04
Chisel 90°
.07" (1.78mm)



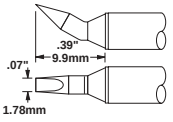
STTC-X16
Conical
.02" (0.5mm)



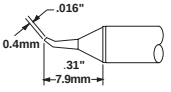
STTC-X42
Long Reach Chisel 60°
.07" (1.78mm)



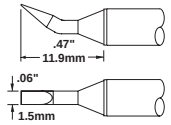
STTC-X44
Sharp Bent 30°
.02" (0.5mm)



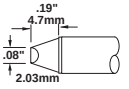
STTC-X98
Chisel Bent 30°
.07" (1.78mm)



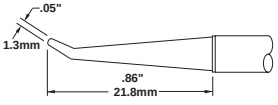
STTC-X26
Sharp Bent 30°
.016" (0.4mm)



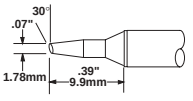
STTC-X99
Chisel Bent 30°
.06" (1.5mm)



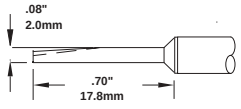
STTC-X14
Bevel 45°
.08" (2.03mm)



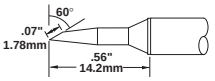
STTC-X41
Chisel 30°
.05" (1.3mm)



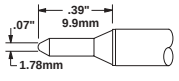
STTC-X35
Bevel 30°
.07" (1.78mm)



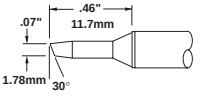
STTC-X83
Conical Grooved
.08" (2.0mm)



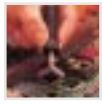
STTC-X47
Bevel 60°
.07" (1.78mm)



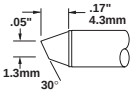
STTC-X32
Conical Sharp
.07" (1.78mm)



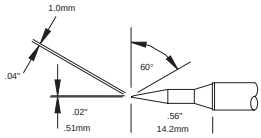
STTC-X05
Bevel 30°
.07" (1.78mm)



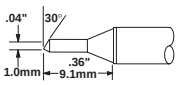

OTHER STANDARD TIP CARTRIDGES



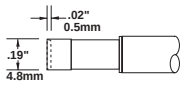
STTC-X15
Bevel 30°
.05" (1.3mm)



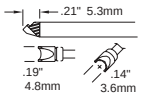
STTC-X46
Long Reach
Bevel 60°
.04" (1.0mm)



STTC-X24
Bevel 30°
.04" (1.0mm)



STTC-X70
Heat Staking
.19" (4.8mm)

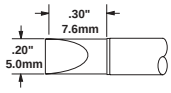


STTC-X97
Groved Semi-Rigid
Coax

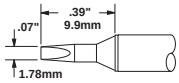
500 SERIES X=5 600 SERIES X=0 700 SERIES X=1 800 SERIES X=8, WHEN FOLLOWED BY AN *

SRTC ROBOTIC TIP CARTRIDGES

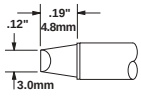
For use with robotic applications and MX-RM5E or MX-RM8E handles only. Similar to STTC tip cartridges, however, STRC Robotic Tip Cartridges have a shaft length of 3.15" (80mm) and, therefore, are not compatible with the MX-RM3E handle.



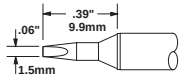
SRTC-X17*
Extra Large Chisel
.20" (5.0mm)



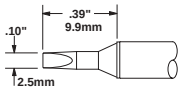
SRTC-X37
Chisel 30°
.07" (1.78mm)



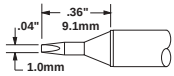
SRTC-X13
Chisel 90°
.12" (3.0mm)



SRTC-X38
Chisel 30°
.06" (1.5mm)



SRTC-X36
Chisel 30°
.10" (2.5mm)

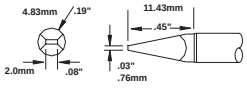


SRTC-X25
Chisel 30°
.04" (1.0mm)

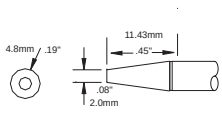
600 SERIES X=0 700 SERIES X=7 800 SERIES X=8, WHEN FOLLOWED BY AN *

PTTB BONDING TIP CARTRIDGES

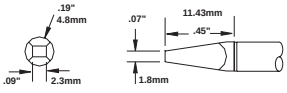
For use in low temperature plastic bonding applications, these aluminum tips can be used with all available MX handles.



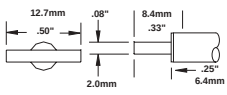
PTTB-501
Bonding Tip



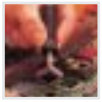
PTTB-503
Bonding Tip



PTTB-502
Bonding Tip



PTTB-504
Bonding Tip



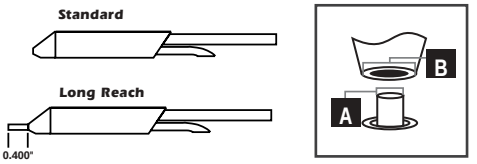
STDC Desoldering System Tip Cartridges

Depending on available access, choose one of two desoldering tip cartridge configurations: standard STDC or long reach STDC. Like all Metcal tip cartridges, STDC changeover takes just a few seconds. When desoldering through-hole components, on thermally demanding PCBs, always use the correct geometry for the task. This may mean choosing an 800 series (high temperature) tip.

STANDARD TIP CARTRIDGES

	DIAMETERS IN INCHES (mm)	
Part No.	**A**	**B**
STDC-X02	.025 (0.64)	.055 (1.40)
STDC-X03	.030 (0.76)	.066 (1.68)
STDC-X04	.040 (1.02)	.070 (1.78)
STDC-X05	.050 (1.27)	.080 (2.03)
STDC-X06	.060 (1.52)	.090 (2.29)
STDC-X07	.095 (2.41)	.125 (3.18)

600 SERIES X=0 700 SERIES X=1 800 SERIES X=8



LONG REACH TIP CARTRIDGES

Part No.	**A**	**B**
STDC-X03L	.030 (0.76)	.066 (1.68)
STDC-X04L	.040 (1.02)	.070 (1.79)
STDC-X05L	.050 (1.27)	.080 (2.03)

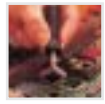
700 SERIES X=7 800 SERIES X=8

TATC Talon® Tip Cartridges

Designed for the removal of all discrete and SO symmetrical components. TATC tip cartridges for Talon® hand-pieces are always sold in pairs. Due to its shape and design, by simply rotating the Talon®, a single TATC cartridge can remove a 28 pin SOIC, a tantalum or an 0603 chip capacitor without changing tips. Metcal's new Viper Tip is shown in the main photograph below.

Part No.	**Description**
TATC-X01	Fine Point Tip .20" (5.08mm)
TATC-X02	Blades Tip .25" (6.35mm)
TATC-X03	Blades Tip .62" (5.75mm)
TATC-X04	Blades Tip .81" (20.57mm)
TATC-X05	TSOP 32 Tip
TATC-X06	Blades Tip 1.1" (27.94mm)
TATC-X08	Angled Viper Tip .05" (1.27mm)

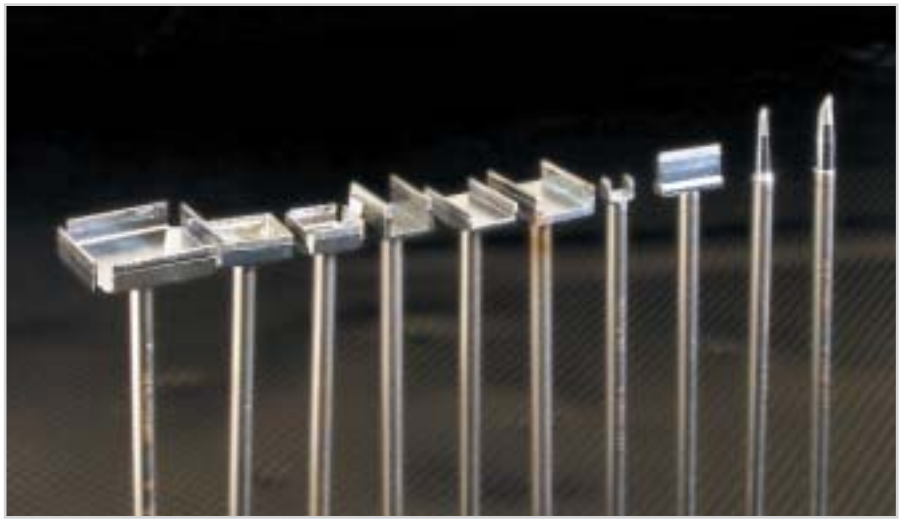
500 SERIES X=5 600 SERIES X=6

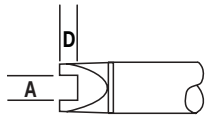


SMT Rework Tip Cartridges

Designed for reworking SMT components, SMTC tip cartridges do it all – assembly, removal and cleaning. The SMTC range includes slot, tunnel and quad tip cartridges. The SMTC range also includes hoof tips for drag soldering, blade tips to remove residual solder from pads, and knife tips for multi-lead soldering of PLCCs in tight places.

Please note: SMTC soldering tip cartridges are for use with the MX-RM3E soldering/rework hand-pieces for STSS/MX systems only. They cannot be used with SP systems, Talon® hand-pieces or desolder hand-pieces.

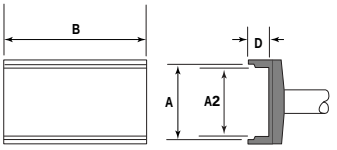




SLOT TIP CARTRIDGES

SMT TYPE	DIMENSIONS IN INCHES (mm) A	B	D	Part No.
Chip 0805	.090 (2.29)	.050 (1.27)	.070 (1.79)	SMTC-X01
Chip 1206, 1210	.140 (3.56)	.060 (1.52)	.070 (1.79)	SMTC-X02
Chip 1808, 1812	.190 (4.83)	.080 (2.03)	.075 (1.91)	SMTC-X03
Chip, Box A (EIA SOPM-3224)	.135 (3.43)	.080 (2.03)	.120 (3.05)	SMTC-X35
Chip, Box B (EIA SOPM-3528)	.150 (3.81)	.095 (2.41)	.100 (2.54)	SMTC-X32
Melf, Box B (EIA SOPM-4532)	.190 (4.83)	.110 (2.79)	.160 (4.06)	SMTC-X36
Chip, Box C (EIA SOPM-6032)	.250 (6.35)	.095 (2.41)	.130 (3.30)	SMTC-X33*
Chip, Box D (EIA SOPM-7246)	.300 (7.62)	.100 (2.54)	.140 (3.56)	SMTC-X34*
SOT-23	.068 (1.73)	.100 (2.54)	.050 (1.27)	SMTC-X05
SOT-89	.110 (2.80)	.250 (6.35)	.080 (2.03)	SMTC-X08
Chip 0402, 0603, 0805 (angled)	.080 (2.03)	.050 (1.27)	.060 (1.52)	SMTC-X88
Chip 0402, 0603	.070 (1.78)	.040 (1.02)	.040 (1.02)	SMTC-X96

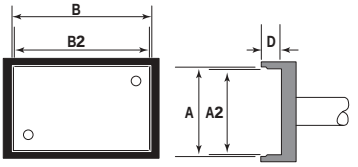
500 SERIES X=5 **600 SERIES X=0** **700 SERIES X=1** ***=NOT AVAILABLE FOR 500 SERIES**



TUNNEL TIP CARTRIDGES FOR DUAL IN-LINE PACKAGES

	DIMENSIONS IN INCHES (mm)				
SMT TYPE	**A2**	**A**	**B**	**D**	**Part No.**
DPAC	.335 (8.51)	.335 (8.51)	.250 (6.35)	.200 (5.08)	SMTC-**X**47
SO-8	.320 (8.13)	.380 (9.65)	.750 (19.05)	.240 (6.10)	SMTC-**X**107
SO-16	.330 (8.38)	.330 (8.38)	.475 (12.07)	.230 (5.84)	SMTC-**X**46*
SO-8	.335 (8.51)	.335 (8.51)	.665 (16.90)	.250 (6.35)	SMTC-**X**68**
SOIC-8	.200 (5.08)	.200 (5.08	.170 (4.32)	.090 (2.29)	SMTC-**X**04
SOIC-14,-16	.200 (5.08)	.200 (5.08)	.400 (10.16)	.090 (2.29)	SMTC-**X**06
SOIC-14	.204 (5.18)	.204 (5.18)	.350 (8.89)	.100 (2.54)	SMTC-**X**142
SOIC-24 (Mini flat pack)	.280 (7.11)	.280 (7.11)	.620 (15.75)	.125 (3.18)	SMTC-**X**77
SOIC-16 (Wide)	.320 (8.13)	.320 (8.13)	.470 (11.94)	.270 (6.86)	SMTC-**X**124
SOIC-20	.375 (9.53)	.375 (9.53)	.520 (13.21)	.125 (3.18)	SMTC-**X**10
SOIC-24	.375 (9.53)	.375 (9.53)	.620 (15.75)	.125 (3.18)	SMTC-**X**09
SOIC-28, SOL-34	.375 (9.53)	.375 (9.53)	.720 (18.29)	.125 (3.18)	SMTC-**X**07
SOIC-32	.520 (13.21)	.520 (13.21)	.805 (20.45)	.170 (4.32)	SMTC-**X**42
SOJ-28, SOM-36	.315 (8.00)	.340 (8.64)	.740 (18.80)	.074 (1.88)	SMTC-**X**26
SOJ-32, 34	.315 (8.00)	.340 (8.64)	.840 (21.34)	.125 (3.18)	SMTC-**X**140
SOJ-40, SOM-32	.410 (10.41)	.450 (11.43)	1.020 (25.91)	.075 (1.91)	SMTC-**X**40
SOJ-42	.410 (10.41)	.450 (11.43)	1.070 (27.18)	.125 (3.18)	SMTC-**X**148
SOMC-14,-16, DB-20	.270 (6.86)	.270 (6.86)	.440 (11.18)	.090 (2.29)	SMTC-**X**20
SOP-20	.270 (6.86)	.270 (6.86)	.285 (7.24)	.100 (2.54)	SMTC-**X**138
SOP-28	.420 (10.67)	.420 (10.67)	.720 (18.29)	.125 (3.18)	SMTC-**X**39
SOP-40	.460 (11.68)	.510 (12.95)	1.000 (25.4)	.125 (3.18)	SMTC-**X**134*
SOP-44	.510 (12.95)	.565 (14.35)	1.070 (27.18)	.105 (2.67)	SMTC-**X**83
TSOP-28	.470 (11.94)	.505 (12.83)	.320 (8.13)	.065 (1.65)	SMTC-**X**95
TSOP-40	.730 (18.54)	.760 (19.30)	.400 (10.16)	.120 (3.05)	SMTC-**X**154
TSOP-56	.730 (18.54)	.760 (19.30)	.556 (14.12)	.120 (3.05)	SMTC-**X**162
TSOP-32	.730 (18.54)	.760 (19.30)	.320 (8.13)	.120 (3.05)	SMTC-**X**84**

600 SERIES X=0 700 SERIES X=1 *=NOT AVAILABLE FOR 600 SERIES
****=NOT AVAILABLE FOR 700 SERIES**

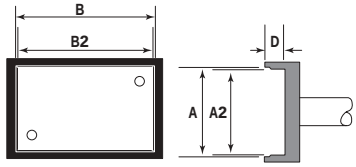


QUAD TIP CARTRIDGES FOR PLCC

SMT TYPE	A2	A	B2	B	D	Part No.
PLCC 18	.300 (7.62)	.330 (8.38)	.500 (12.70)	.530 (13.46)	.150 (3.81)	SMTC-**X**11
PLCC 20	.360 (9.14)	.400 (10.16)	.360 (9.14)	.400 (10.16)	.150 (3.81)	SMTC-**X**12
PLCC 28	.370 (9.40)	.410 (10.41)	.570 (14.48)	.610 (15.49)	.150 (3.81)	SMTC-**X**103
PLCC 32	.450 (11.43)	.500 (12.70)	.550 (13.97)	.600 (15.24)	.150 (3.81)	SMTC-**X**16
PLCC 28	.455 (11.56)	.500 (12.70)	.455 (11.58)	.500 (12.70)	.150 (3.81)	SMTC-**X**13
PLCC 44	.660 (16.76)	.700 (17.78)	.660 (16.76)	.700 (17.78)	.150 (3.81)	SMTC-**X**14
PLCC 68	.960 (24.38)	.995 (25.27)	.960 (24.38)	.995 (25.27)	.220 (5.59)	SMTC-**X**18*
PLCC 68 dual•	.960 (24.38)	.995 (25.27)	.960 (24.38)	.995 (25.27)	.220 (5.59)	SMTC-**X**28
PLCC 84 dual•	1.165 (29.59)	1.195 (30.35)	1.165 (29.59)	1.195 (30.35)	.220 (5.59)	SMTC-**X**29
PLCC 52	.760 (19.30)	.800 (20.32)	.760 (19.30)	.800 (20.32)	.150 (3.81)	SMTC-**X**17*
PLCC 84	1.165 (29.59)	1.195 (30.35)	1.165 (29.59)	1.195 (30.35)	.220 (5.59)	SMTC-**X**19*

600 SERIES X=0 700 SERIES X=1 FOR ALL QUADS USE 700 SERIES TIP CARTRIDGES
***=NOT AVAILABLE FOR 600 SERIES**

Please note: •Dual tip cartridges require two power supply units and two hand-pieces. A Dual Hand-Piece Support (MX-DHS) is also recommended.

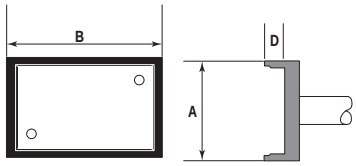


QUAD TIP CARTRIDGES FOR QFP

SMT TYPE	DIMENSIONS IN INCHES (mm) A2	A	B	B2	D	Part No.
SQFP 48 (EIAJ)	.330 (8.38)	.330 (8.38)	.330 (8.38)	.330 (8.38)	.100 (2.54)	SMTC-**X**121
SQFP 64 (EIAJ)	.440 (11.18)	.440 (11.18)	.440 (11.18)	.440 (11.18)	.100 (2.54)	SMTC-**X**120
TQFP 44	.440 (11.18)	.480 (12.19)	.480 (12.19)	.520 (13.21)	.110 (2.79)	SMTC-**X**159
TQFP 80	.485 (12.32)	.525 (13.34)	.485 (12.32)	.525 (13.34)	.110 (2.79)	SMTC-**X**132
QFP 48	.550 (13.97)	.550 (13.97)	.550 (13.97)	.550 (13.97)	.130 (3.30)	SMTC-**X**115
VQFP 100 (EIAJ)	.570 (14.48)	.610 (15.49)	.570 (14.48)	.610 (15.49)	.110 (2.79)	SMTC-**X**118
QFP 128 (3.2 mm fp)	.620 (15.75)	.620 (15.75)	.860 (21.84)	.860 (21.84)	.130 (3.30)	SMTC-**X**133
QFP 44	.635 (16.13)	.635 (16.13)	.635 (16.13)	.635 (16.13)	.130 (3.30)	SMTC-**X**21
QFP 100 (rectangular)	.650 (16.51)	.650 (16.51)	.885 (22.48)	.885 (22.48)	.130 (3.30)	SMTC-**X**43
QFP 64, 80	.675 (17.15)	.675 (17.15)	.910 (23.11)	.910 (23.11)	.130 (3.30)	SMTC-**X**15
QFP 100	.805 (20.45)	.805 (20.45)	.805 (20.45)	.805 (20.45)	.190 (4.83)	SMTC-**X**45*
QFP 144	.805 (20.45)	.840 (21.34)	.805 (20.45)	.840 (21.34)	.075 (1.91)	SMTC-**X**122
QFP 132	.985 (25.02)	1.020 (25.91)	.985 (25.02)	1.020 (25.91)	.125 (3.18)	SMTC-**X**86
QFP 100 (square)	1.040 (26.42)	1.040 (26.42)	1.040 (26.42)	1.040 (26.42)	.130 (3.30)	SMTC-**X**44*
QFP 208 DUAL•	1.125 (28.58)	1.770 (44.96)	1.125 (28.58)	1.170 (44.96)	.114 (2.90)	SMTC-**X**81
QFP 120,160 DUAL•	1.165 (29.59)	1.200 (30.48)	1.165 (29.59)	1.200 (30.48)	.120 (3.05)	SMTC-**X**48
PQFP 240 DUAL•	1.290 (32.77)	1.330 (33.78)	1.290 (32.77)	1.330 (33.78)	.110 (2.79)	SMTC-**X**125
QFP 304 DUAL•	1.600 (40.64)	1.650 (41.91)	1.650 (41.91)	1.600 (40.64)	.200 (5.08)	SMTC-**X**158**

600 SERIES X=0 700 SERIES X=1 FOR ALL QUADS USE 700 SERIES TIP CARTRIDGES
***= NOT RECOMMENDED FOR 600 SERIES **= NOT AVAILABLE FOR 600 SERIES**

Please Note: •Dual tip cartridges require two power supply units and two hand-pieces. A Dual Hand-Piece Support (MX-DHS) is also recommended.

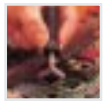


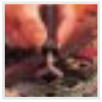
SOCKET TIP CARTRIDGES (TIP INSIDE SOCKET)

SMD COMPONENT	A	B	D	Part No.	Recommended Part No.
PLCC-20 SOCKET	.360 (9.14)	.360 (9.14)	.115 (2.91)	SMTC-**X**144	SMTC-1144
PLCC-32 SOCKET	.456 (11.58)	.556 (14.12)	.120 (3.05)	SMTC-**X**109	SMTC-1109
PLCC-84 SOCKET DUAL•	1.160 (40.64)	1.160 (40.64)	.115 (2.91)	SMTC-**X**145	SMTC-1145

600 SERIES X=0 700 SERIES X=1 FOR ALL QUADS USE 700 SERIES TIP CARTRIDGES

Please Note: •Dual tip cartridges require two power supply units and two hand-pieces. A Dual Hand-Piece Support (MX-DHS) is also recommended.





Speciality Tip Cartridges

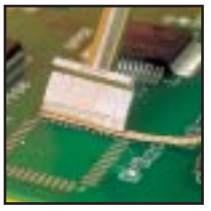
BLADE TIP CARTRIDGES

SMTC-X110**
Blade
Dual Heater Quad
1.55" (39.37mm)

SMTC-X62
Blade
0.870" (22.10mm)
Long

SMTC-X61
Blade
0.620" (15.75mm)
Long

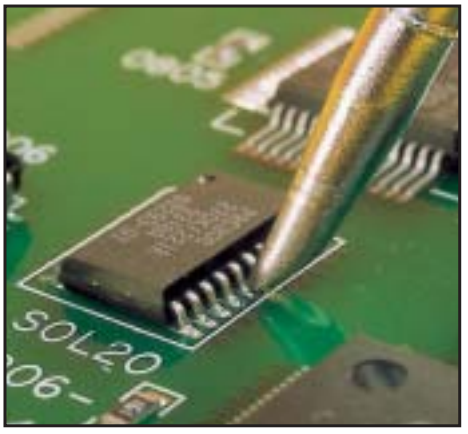
SMTC-X60
Blade
0.410" (10.41mm)
Long

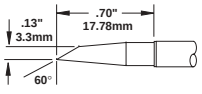


500 SERIES X=5 600 SERIES X=0 700 SERIES X=1 800 SERIES X=8

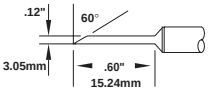
****=NOT AVAILABLE FOR 500 OR 800 SERIES**

HOOF AND KNIFE TIP CARTRIDGES FOR DRAG SOLDERING

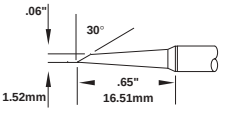




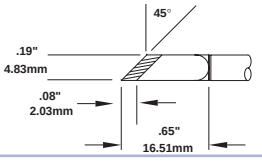
SMTC-X147*
Hoof



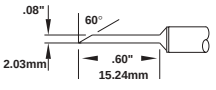
SMTC-X170*
Long Reach Hoof



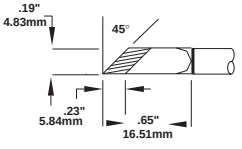
SMTC-X167**
Mini-Hoof



SMTC-X161*
Knife
(Tinned Area, .08"
2.03mm)



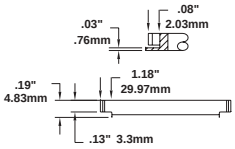
SMTC-X169*
Long Reach Hoof



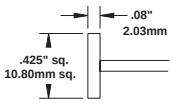
SMTC-X173
Knife
(Increased Tinned Area,
.23" 5.84mm)

500 SERIES X=5 600 SERIES X=0 700 SERIES X=1 800 SERIES X=8

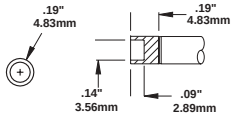
***=NOT AVAILABLE FOR 800 SERIES **=NOT AVAILABLE FOR 500 OR 800 SERIES**



SMTC-X98**
SMT Connector
28 Pin



SMTC-X136**
Hot Plate
.425" sq. (10.8mm sq.)



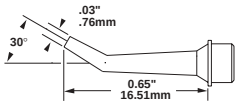
SMTC-X100
Micro XMT
Small Package
Co-Axial Tip

500 SERIES X=5 600 SERIES X=0 700 SERIES X=1 800 SERIES X=8

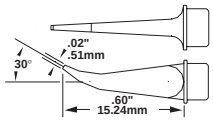
****=NOT AVAILABLE FOR 500 OR 800 SERIES**

Microfine Rework Tip Cartridges

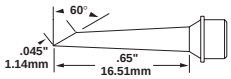
The Microfine rework tip cartridge series is designed for reworking 0201 and 0402 or microfine components in tight spaces with the help of a microscope. This series includes tips that can be used to remove 0402 and 0201 components from the topside approach or can also be used for multi-lead drag soldering on micro PLCC and QFP components with access problems. Depending on your application, one of these tips will meet your micro component rework needs.



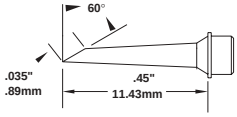
SMTC-X171
Use to remove 0201 and 0402 components from a "topside" angle. This design increases microscope viewing when reworking/removing micro chip capacitors/components.



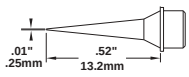
SMTC-X172
Designed for fine drag soldering and point-to-point soldering. This tip increases access between components and allows for lead to lead or solder bridge clean-up.



SMTC-X174
Long reach micro hoof tip designed with a smaller surface area than the mini-hoof for optimal drag soldering of components in tight spots.

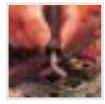


SMTC-X175
Micro-hoof tip designed with a smaller surface area than the mini-hoof for drag soldering of small/micro leaded components.

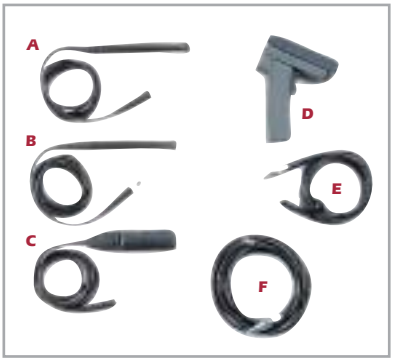


STTC-X90
Microfine tip designed for soldering and touch-up of micro components such as 0201s and 0402s.

500 SERIES X=5 600 SERIES X=0 700 SERIES X=1 800 SERIES X=8

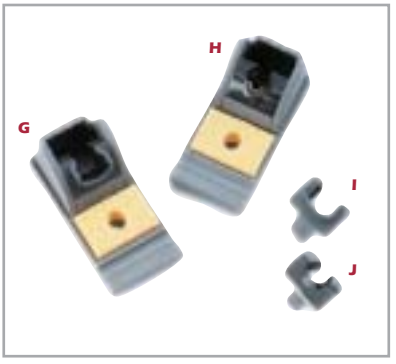


MX-500
Accessories & Spare Parts



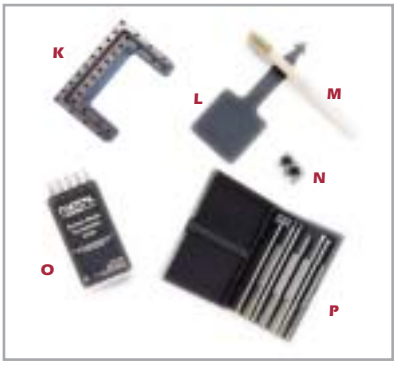
HAND-PIECES AND CORDS

Part No.		Description
A	**MX-RM3E**	ESD Solder Handle W/CP2 for MX-500 Systems
B	**MX-RM6E**	ESD Long Reach Solder Handle W/CP2 for MX-500
C	**MX-TALON**	Talon® Hand-Piece with Cord
D	**MX-DS1**	Desolder Hand-Piece
E	**MX-RM8E**	DS1 Desolder Cord
F	**MX-DAH4**	ESD Air Hose, U.S standard fitting
	MX-RM5E	Standard Robotic Cable, 1-piece, 6' (1.83m)**



WORKSTAND ITEMS

G	**MX-WS5**	DS1/Talon® Workstand with YS3 Sponge
H	**MX-WS4**	MX Workstand with YS3 Sponge
I	**MX-WSC5**	Talon® Cradle
J	**MX-WSC4**	MX-RM3E / 6E Cradle
	AC-YS1-P	WS1 Sponge (1.7" x 2.7" x 1.0") (Pack of 50)**
	AC-YS3-P	MX, SP & DP Workstand Sponge (Pack of 50)**



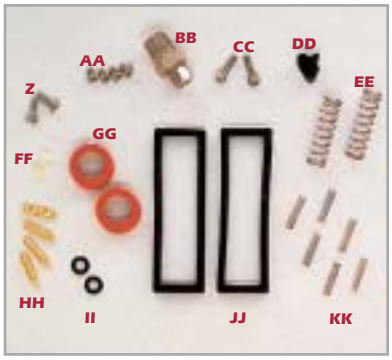
MISCELLANEOUS ACCESSORIES

K	**AC-TSTAND**	Tip Stand
L	**AC-CP2**	Cartridge Removal Pad
M	**AC-BRUSH-P**	Soft Brass Brush Cleaner (Pack of 6)
N	**MX-DHS**	Dual Handle Support (use with dual heater SMTCs)
O	**STSS-TEMPLATE**	SMTC Tip Selection Template
P	**AC-TCASE**	Tip Case for STTC/SSC (holds 10 tips)*
	MX-FX2	Fume Extraction Tube and Clamp**

*** Tips not included ** Not shown**

DESOLDERING ACCESSORIES

Q	**MX-DCF1**	DS1 Filter Pack: 15 chamber liners, 6 fume filters
	MX-DCF1L	DS1 Chamber Liners (Pack of 40)**
	MX-DCF1F	DS1 Fume Filters (Pack of 20)**
R	**MX-DAR1**	Air Regulator and Filter with Fittings
S	**AC-TC-P**	Desolder Tip Cleaner (Pack of 12)
T	**AC-CB1-P**	Desolder Chamber Cleaning Brush (Pack of 25)
U	**AC-CB2-P**	Desolder Tube Cleaning Brush (Pack of 6)
V	**MX-DVC1**	Venturi Cartridge for Desolder Gun
W	**MX-DSL1**	DS1 Chamber Seal
X	**MX-DSL2**	DS1 Cartridge Seal
Y	**MX-DSB**	Desolder Gun Swivel Bushing



DESOLDERING MAINTENANCE KIT

MX-DMK1		DS1 Maintenance Kit

INCLUDES

Z		Long Phillips Screws (Pack of 2)***
AA		Short Phillips Screws (Pack of 4)***
BB	**MX-DSB**	Desolder Gun Swivel Bushing
CC		Hex Screws (Pack of 2)***
DD	**MX-DLA**	Desolder Gun Latch Adjustment (Pack of 10)
EE		Large Springs (Pack of 2)***
FF		Nylon Screws (Pack of 2)***
GG	**MX-DSL2**	DS1 Cartridge Seal (Pack of 2)
HH		Hinge Pins (Pack of 4)***
II		O-Rings (Pack of 2)***
JJ	**MX-DSL1**	DS1 Chamber Seal (Pack of 2)
KK		Small Springs (Pack of 6)***
	MX-DUC	DS1 Upper Chamber (Type II Desolder Tool only)**

**** Not shown *** Not sold separately**

OTHER SYSTEM COMPONENTS

POWER SUPPLY AND POWER METER

MX-500P-11	Two Port 100/120 VAC Power Supply
MX-500P-21	Two Port 220/240 VAC Power Supply*
MX-NPM	Net Power Meter

***220/240 VAC Power Supply does not include power cord.**




SP200 Soldering System

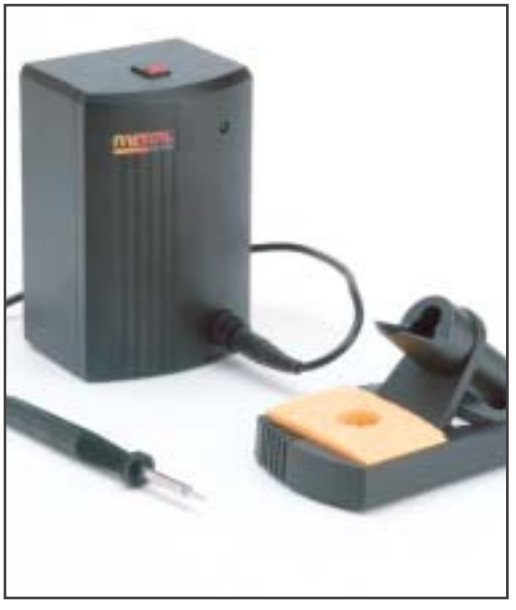
Economical Soldering System Cuts Costs, Not Corners

The SP200 Soldering System is the most cost-effective and easiest to use compact soldering system available today.

For flawless soldering, technicians need only select the correct tip cartridge, insert it into the hand-piece and switch on. As the unit works at a lower temperature than a conventional iron and requires no calibration, operators always apply the correct level of thermal energy needed to produce solder joints of the highest quality without risking component or PCB damage.

In addition, the system's design is extremely reliable, with very few parts that ever need repairing, ensuring that the SP200 Soldering System is practically maintenance-free.

Metcal's SP200 Soldering System, for through-hole soldering and SMT touch-up, is designed to perfectly complement our MX-500 Soldering, Desoldering & Rework System.



SP200 SOLDERING SYSTEM

System Includes Power Supply With Power Cord*, Hand-Piece With Cord, Workstand With Sponge And Cartidge Removal Pad

Part No.	Description
SP200-11	115 VAC Soldering System
SP200-21	220/240 VAC Soldering System*

***220/240 VAC system does not include power cords**

ACCESSORIES & SPARE PARTS

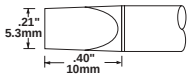
SP-PW1-10	Power Supply with Power Cord
SP-PW1-20	Power Supply with Power Cord*
AC-CP2	Cartridge Removal Pad
AC-YS3-P	Workstand Sponge (Pack of 50)
AC-BRUSH-P	Soft Brass Brush Cleaner (Pack of 6)
AC-TCASE	Tip Case (holds 10 tips)**
AC-TSTAND	Tip Stand
SP-HC1	ESD Solder Handle W/CP2 for SP200 Systems
SP-OR	O-Ring Replacement Kit
SP-WSK1	SP Workstand with YS3 Sponge
SP-CRADLE	Universal Cradle

***220/240 VAC system does not include power cords**
****Tips not included**

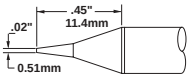
Tip Cartridges For Soldering Applications

The SP200 Soldering System's tip cartridges are designed to suit a wide range of soldering applications. For optimum performance, operators should select the tip that allows maximum contact with the work surface. We suggest that you start with a 600 series tip cartridge.

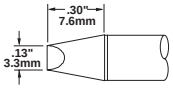
SP200 SOLDER TIP CARTRIDGES



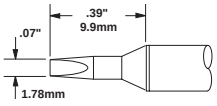
SSC-X17A
Extra Large Chisel
.21" (5.3mm)



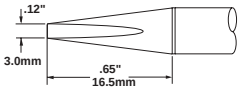
SSC-X22A
Conical Sharp
.02" (0.51mm)



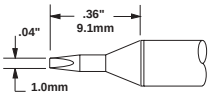
SSC-X13A
Chisel 90°
.13" (3.3mm)



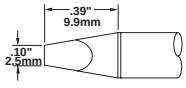
SSC-X72A
Conical Chisel
.07" (1.78mm)



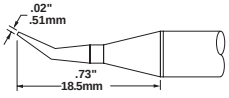
SSC-X46A
Long Reach Chisel
.12" (3.0mm)



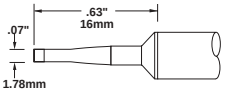
SSC-X71A
Conical Chisel
.04" (1.0mm)



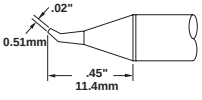
SSC-X36A
Chisel 30°
.10" (2.5mm)



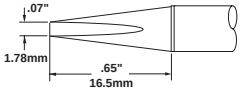
SSC-X54A
Sharp Bent 30°
.02" (0.51mm)



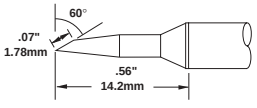
SSC-X42A
Long Reach Chisel 60°
.07" (1.78mm)



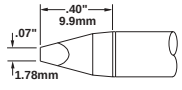
SSC-X26A
Sharp Bent 30°
.02" (0.51mm)



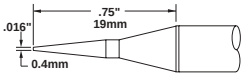
SSC-X70A
Long Chisel
.07" (1.78mm)



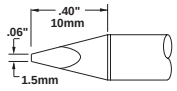
SSC-X47A
Bevel 60°
.07" (1.78mm)



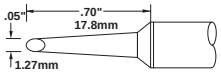
SSC-X37A
Chisel 30°
.07" (1.78mm)



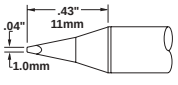
SSC-X45A
Bevel 60°
.016" (0.4mm)



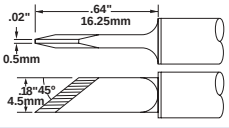
SSC-X38A
Chisel 30°
.06" (1.5mm)



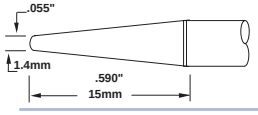
SSC-X67A
Drag Soldering Tip
(Mini-Hoof)



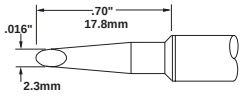
SSC-X25A
Chisel 30°
.04" (1.0mm)



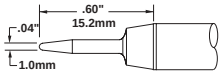
SSC-X61A
Drag Soldering Tip
(Knife)



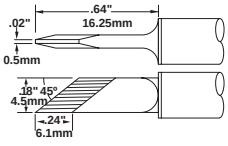
SSC-X74A
Conical Sharp
.055" (1.4mm)



SSC-X39A
Drag Soldering Tip
(Hoof)

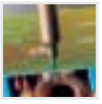


SSC-X01A
Conical Sharp
.04" (1.0mm)



SSC-X73A
Drag Soldering Tip
(Increased Tinned
Area, .24" 6.1mm)

500 SERIES X=5 600 SERIES X=6 700 SERIES X=7

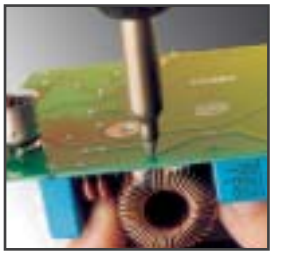


Self-Contained Desoldering System

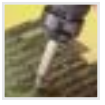
Powerful, Portable Through-Hole Rework

Metcal's SP440 Self-Contained Desoldering System is specifically designed for through-hole rework, delivering powerful and portable desoldering.

The system's built-in vacuum pump clears through-holes quickly and completely, making it ideally suited to areas without shop air. This lightweight, ergonomic pencil grip desoldering tool maximizes operator productivity and reduces the risk of damage to components and substrates.



Using SmartHeat® technology, the SP440 Self-Contained Desoldering System supplies higher Watt density power at lower temperatures than other desoldering tools with no overshoot. Its 50-Watt power rating and tips, specifically designed to maximize heat transfer, make the system ideal for heavy load desoldering of components on ground-planes and multi-layer PCBs.



Advanced Operating And Safety Features

The SP440 Self-Contained Desoldering System has a number of features, which combine to ensure that it is the most reliable and cost-effective solution available for self-contained desoldering. The system's time-out feature switches off the power supply after a 30-minute redundancy period, thus significantly extending tip life and conserving energy.

Coupled with these features are elements that reflect our dedication to operator and process safety. The SP440 Self-Contained Desoldering System's ESD cable and vacuum line are burn-proof, which safeguards operators from injury and prevents damage to expensive process elements. The unit's readily accessible paper solder collection chamber renders the former glass cartridges obsolete and speeds the desoldering process.

Desoldering Tips

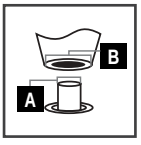
The SP440 Self-Contained Desoldering System's tips are available in two temperature ranges: 600 and 700 series. To ensure the best results, choose a tip with an interior diameter only slightly larger than that of the lead on the component to be desoldered.

SP440 DESOLDERING SYSTEM

System Includes Power Supply With Power Cord*, Hand-Piece Assembly, Workstand Kit With Sponge, Tip Cleaners And Cartidge Removal Pad

SP440-11	115 VAC Self-Contained Desoldering System
SP440-21	220/240 VAC Self-Contained Desoldering System*

***220/240 VAC system does not include power cords**



TIP RANGE

DIAMETER IN INCHES (mm)

Part No.	A	B
SDC-X02	.025 (0.64)	.055 (1.40)
SDC-X03	.030 (0.76)	.060 (1.52)
SDC-X04	.040 (1.02)	.070 (1.78)
SDC-X05	.050 (1.27)	.080 (2.03)
SDC-X06	.060 (1.52)	.090 (2.29)
SDC-X07	.095 (2.41)	.125 (3.18)

600 SERIES X=6 700 SERIES X=7

ACCESSORIES & SPARE PARTS

SP-PW3-11	Power Supply with Power Cord
SP-PW3-21	Power Supply with Power Cord*
DP-DSG2	Hand-Piece Assembly (handle, cord, vac line, coil assembly)
DP-WSK2	SP440 Workstand Kit with YS3 Sponge
DP-SL3	Front Seal for DSG2
AC-TC-P	Tip Cleaners (Pack of 12)
AC-CP2	Cartridge Removal Pad
DP-CA2	Coil Assembly
DP-CC	Solder Collection Chamber for DSG2
DP-CF	Filter Pack (12 fume filters, 24 chamber liners)
DP-LF	Filter Pack (5 inline filters)
DP-VB1	Valve Body Assembly (clip, valve, ESD vac. hose)
DP-VL1	Vacuum Line, ESD
DP-WSC2	SP440 Cradle
AC-YS3-P	Workstand Sponge (Pack of 50)

***220/240 VAC system does not include power cords**

QX2 Convection Rework System

Convection Rework Made Easy

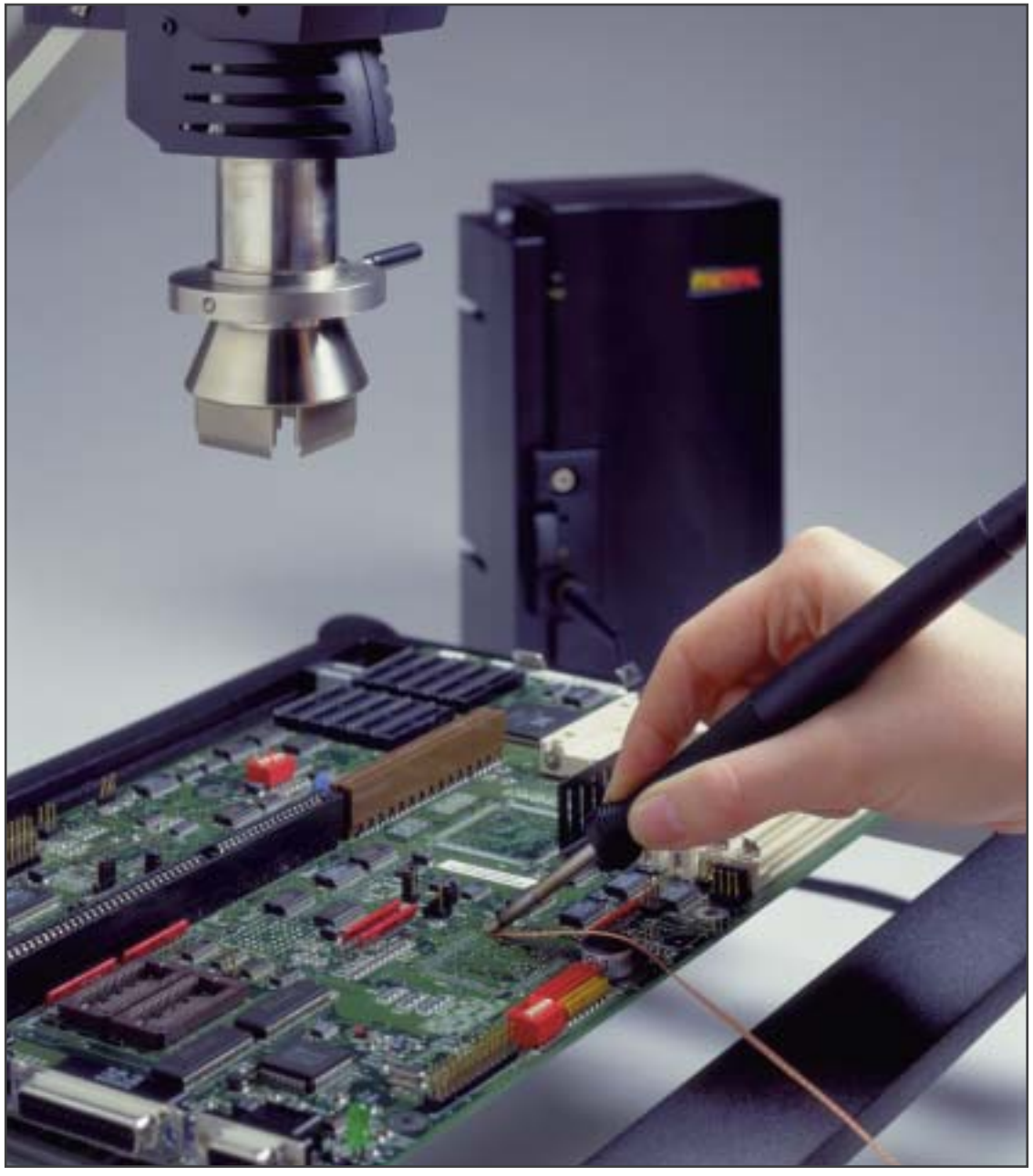
The QX2 Convection Rework System combines sophisticated process control and wide-ranging capabilities with a user-friendly, ergonomic design to speed and simplify the rework process. With its constant temperature and variable power, the QX2 Convection Rework System minimizes the risk of thermal damage, providing a safe environment for delicate components and substrates.

In comparison with other convection systems, the simplicity and power of this machine is clear. Simplified push-button controls and advanced automation reduce the need for extended operator training while greatly reducing the likelihood of human error. Older convection systems are difficult to operate and require extensive user training. This is not the case with the QX2 Convection Rework System. Even its initial set-up is a fast and easy process, requiring no special tools.

Please note: The QX2 Convection Rework System is shown below alongside a Metcal BVX-100 Fume Extraction System which is available separately.

Precise Nozzles Increase Flexibility

A wide range of focused convection nozzles is available for the QX2 Convection Rework System. These direct heat precisely where it is needed. With Metcal's quick-release system, these nozzles can be changed in seconds, for unsurpassed speed and flexibility.



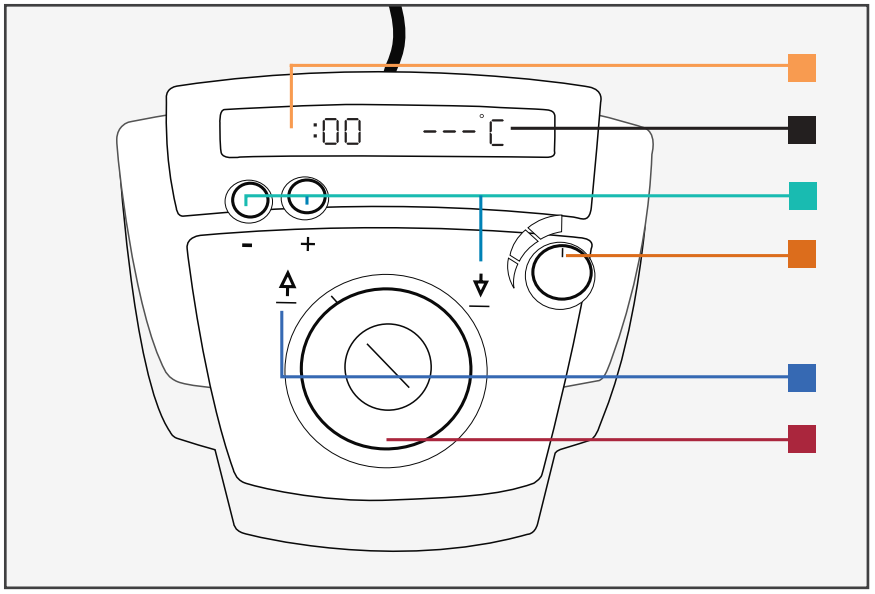
Streamlined Operation

The QX2 Convection Rework System's vacuum pick-up gently removes components after reflow. The time of each removal cycle is stored and displayed as a guide to help operators quickly establish a minimum time for component placement. The system then automatically turns off the heat to minimize the risk of thermal shock to adjacent components or to the PCB itself. An integrated under-board pre-heater is also available to prevent the warping of large boards during rework.

Operators can fine-tune the power by adjusting the airflow rate, but to minimize thermal stress, the system automatically sustains the heater exhaust temperature while maintaining a consistently low set point temperature. To accommodate any process change, including the use of new soldering alloys, the manufacturing engineer can easily reprogram this set temperature.

Advanced Process Control

The system's digital controller clearly displays critical parameters during operation while its automated functions reduce process variability. Its expanded level of process control provides superior quality of operation and final product, with less scrap and greater throughput.



Remote Controller Functions

Timer: By counting up during removal and down during attachment, the timer removes subjective guesswork from the rework process.

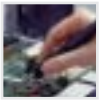
Temperature Display: Displays the temperature of the heater exhaust or the temperature measured by an auxiliary thermocouple in either °F or °C. The heater exhaust temperature is preset at 662°F (350°C) and may be reset by the process engineer to anywhere between 482°F (250°C) and 842°F (450°C) by entering an unlock code.

Attach Mode: This mode reflows a new component to the PCB. By adjusting the time stored in Remove mode with the **+ -** keys, you can ensure an appropriate reflow time, which may be adjusted on the fly if desired.

Airflow Selector: The airflow selector determines the rate at which thermal energy is transferred to the component.

Remove Mode: This mode activates the vacuum pick-up, which applies a gentle upward force to the component. When component lift off is sensed, the heater is automatically turned off.

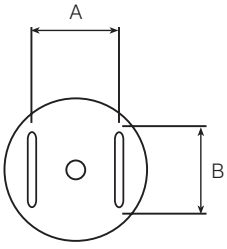
Start/Stop Button: Pressing the Start/Stop button initiates or ends the Remove or Attach cycle. In Remove mode, stopping the cycle also shuts off the vacuum, to release components after lift off.

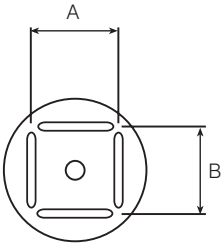


QX2 Convection Rework Nozzles

Metcal has a comprehensive range of nozzles for the QX2 Convection Rework System. For non-standard components we offer a custom nozzle program. Please contact your local Metcal representative for more information about custom nozzles.

STANDARD NOZZLE RANGE





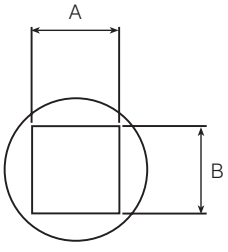
DIMENSIONS IN INCHES (mm)

Part No.	Component Types	A	B
NZ-D1113	Nozzle Dual	0.43 (11)	0.51 (13)
NZ-D1116	Nozzle Dual (for SOL 28)	0.43 (11)	0.63 (16)
NZ-D1420	Nozzle Dual	0.55 (14)	0.79 (20)
NZ-D2109	Nozzle Dual	0.35 (09)	0.83 (21)
NZ-D2113	Nozzle Dual	0.51 (13)	0.83 (21)
NZ-Q11	Nozzle Quad (for PLCC 20)	0.43 (11)	0.43 (11)
NZ-Q13	Nozzle Quad (for PLCC 28)	0.51 (13)	0.51 (13)
NZ-Q1415	Nozzle Quad	0.55 (14)	0.60 (15)
NZ-Q17	Nozzle Quad	0.67 (17)	0.67 (17)
NZ-Q18	Nozzle Quad (for QFP 80)	0.71 (18)	0.71 (18)
NZ-Q19	Nozzle Quad (for PLCC 44)	0.75 (19)	0.75 (19)
NZ-Q1925	Nozzle Quad (for QFP 100)	0.75 (19)	0.98 (25)
NZ-Q22	Nozzle Quad	0.87 (22)	0.87 (22)
NZ-Q23	Nozzle Quad	0.91 (23)	0.91 (23)
NZ-Q27	Nozzle Quad (for PLCC 68)	1.06 (27)	1.06 (27)
NZ-Q28	Nozzle Quad	1.10 (28)	1.10 (28)
NZ-Q32	Nozzle Quad (for PLCC 84, QFP 208)	1.26 (32)	1.26 (32)
NZ-Q33	Nozzle Quad (for QFP 120/128/144/160)	1.30 (33)	1.30 (33)
NZ-Q35	Nozzle Quad	1.38 (35)	1.38 (35)
NZ-Q38	Nozzle Quad	1.50 (38)	1.50 (38)
NZ-Q43	Nozzle Quad	1.70 (43)	1.70 (43)

Box Reflow Nozzles

In addition to our broad range of standard nozzles, we also offer a range of box reflow nozzles designed for the removal of shielding cans, connectors and other square components.

BOX REFLOW NOZZLES



INTERNAL DIMENSIONS IN INCHES (mm)

Part No.	Component Types	A	B
NZ-B23	Nozzle Box	0.91 (23)	0.91 (23)
NZ-B27	Nozzle Box	1.06 (27)	1.06 (27)
NZ-B33	Nozzle Box	1.30 (33)	1.30 (33)
NZ-B35	Nozzle Box	1.38 (35)	1.38 (35)
NZ-B40	Nozzle Box	1.57 (40)	1.57 (40)
NZ-B44	Nozzle Box	1.73 (44)	1.73 (44)

QX2 Convection Rework System

TECHNICAL SPECIFICATIONS

	QX2-S-11	QX2-S-21
Input Voltage	90-132 VAC, 50/60 Hz	220-260 VAC, 50/60 Hz
Convection System		
Heater	550 W	550 W
Rated Current	5 Amps	2.5 Amps
Airflow	20-50 l/min	20-50 l/min
Source Temperature (Default Set Point)	662°F	350°C
Source Temperature Range	482°F - 842°F	250°C - 450°C
Pre-Heater		
Heater	950 W	950 W
Rated Current	8.5 Amps	4.5 Amps
Heating Surface	6" x 6"	152mm x 152mm
Board Temperature Range	194°F - 248°F	90°C - 120°C
Board Holder		
Minimum Board Size	2" x 2"	50mm x 50mm
Maximum Board Size	14" x 18"	360mm x 460mm
Weights		
Convection Rework System	18 lb	8.2 kg
Board Holder	5.5 lb	2.5 kg
Pre-Heater	6.4 lb	2.9 kg
Outer Dimensions (W x D x H)		
Convection Rework System (Operating)	11.5" x 20.5" x 14.2"	292mm x 521mm x 361mm
(Stored)	11.5" x 16.8" x 21.0"	292mm x 427mm x 533mm
Board Holder	20.5" x 15.0" x 5.0"	521mm x 381mm x 127mm
Pre-Heater	8.2" x 15.5" x 2.5"	208mm x 394mm x 64mm

FEATURES

Vacuum	Self-contained
Operator	Moveable controller with: •Start/Stop button •Airflow control •Time control •LCD display •Remove/attach control
Component Removal	Automatic component lift off and heater shut off
Component Attachment	Manual, timer controlled
Nozzle Attachment/Removal	Push on, quick-release
Other	Auxiliary thermocouple port for component temperature monitoring

SYSTEMS

QX2-S-11
115V Convection Rework System

QX2-SBH-11
115V Convection Rework System with Board Holder

QX2-SBP-11
115V Convection Rework System with Board Holder & Pre-Heater

QX2-S-21
230V Convection Rework System*

QX2-SBH-21
230V Convection Rework System with Board Holder*

QX2-SBP-21
230V Convection Rework System with Board Holder & Pre-Heater*

115V CONVECTION REWORK SYSTEM INCLUDES:

QX2-P-11	Power Supply, 115V
QX2-CT	QX2 Controller
AC-WT	Work Tray
AC-RP	Nozzle Removal Pad
AC-CC1	QX2 Controller Cable
AC-CC2	Pre-Heater Control Cable
AC-VC	Vacuum Cup Kit

230V CONVECTION REWORK SYSTEM INCLUDES:

QX2-P-21	Power Supply 230V*
QX2-CT	QX2 Controller
AC-WT	Work Tray
AC-RP	Nozzle Removal Pad
AC-CC1	QX2 Controller Cable
AC-CC2	Pre-Heater Control Cable
AC-VC	Vacuum Cup Kit

ACCESSORIES

AC-BH	Board Holder
AC-BP-11	Board Holder/Pre-Heater Kit 115V
AC-BP-21	Board Holder/Pre-Heater Kit 230V*
AC-PH-11	Pre-Heater 115V
AC-PH-21	Pre-Heater 230V*
AC-BS	Board Support

*** 230V systems do not include power cords**

SMT-1160

SMT-1160 Hot Air Pencil

Non-Contact Hot Air Rework Station

With its precise forced air convection, Metcal's SMT-1160 Hot Air Pencil is designed for those rework applications requiring very low thermal stress, including SMDs and temperature-sensitive ceramic capacitors. This non-contact system, with variable temperature flow, can also capably remove SMT chip capacitors and SOICs.

The SMT-1160 Hot Air Pencil is equipped with a broad range of features for assured effectiveness and sensitivity of operation. These include an ESD-safe housing and hand-piece, variable airflow control, variable closed-loop temperature control, a nitrogen input facility to suit inert soldering applications and specialized split, fan and fine nozzle options.

The SMT-1160 Hot Air Pencil's capacity for non-contact soldering avoids alignment disruption and eliminates the risk of thermal shock to components.

SMT-1160 HOT AIR PENCIL

System Includes Hot Air Pencil Hand-Piece, 3 Piece Nozzle Kit (NK-1060A), Workstand And Variable Temperature Module

SMT-1161-V	115V Hot Air Pencil Rework Station
SMT-1162-V	230V Hot Air Pencil Rework Station

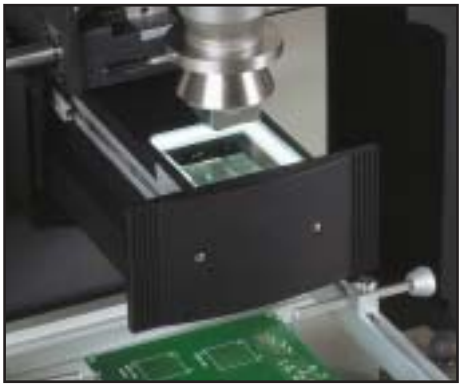
ACCESSORIES & SPARE PARTS

SHP-1060A	Hot Air Pencil Hand-Piece
VP-50	Vacuum Pencil with Nozzle kit
VTM-1	Variable Temperature Module
S6-025	Fine Nozzle 0.025" (0.64mm)
S6-FAN	Fan Nozzle 0.347" x 0.030" (8.8mm x 0.76mm)
S6-SOIC	Dual Nozzle 0.265" (6.7mm)
S6-SOL	Dual Nozzle 0.428" (10.9mm)
NK-1060A	3 Piece Nozzle Kit (includes 16812, 16813, 16846)
17319S	Pump Assembly
16806	Collar Sub-Assembly SHP-1060A
16844	Nipple Assembly SHP-1060A
AC-HAPWS	Workstand
AC-HAPWSC	Replacement Workstand Cradle
16812	Nozzle, Oval, .101" (2.57mm)
16813	Nozzle, Round, .080" (2.03mm)
16846	Nozzle, Sharp 30°, .080" (2.03 mm)

Metcal Product Lines

Array Package Rework

Metcal Array Package Rework systems are advanced, versatile machines offering the repeatability, accuracy and thermal control essential for the safe and effective rework of today's leading edge BGA, CSP, Land Grip Array (LGA), micro SMD, Micro-lead Frame (MLF) and Bumped Chip Component packages. For more information on the full line of Metcal Array Package Rework products, visit www.metcal.com, or contact your local Metcal representative.



Fume Extraction

For the safety of your operators and working environment, Metcal offers a full line of fume extraction systems. From volume to tip to bench-top fume extraction, Metcal has systems to purify the air by filtering harmful smoke and particulates from the working area. Fume extraction systems are also useful for extracting potentially noxious fumes from the use of certain adhesives and chemicals on the workbench. For more information on the full line of Metcal Fume Extraction products, visit www.metcal.com, or contact your local Metcal representative.

Global

Metcal Global Locations

Menlo Park, California, is home to Metcal's corporate headquarters, and the central location for research and development, manufacturing and administration.

To meet the needs of customers throughout the world, Metcal has sales, service and distribution centers in North America, Asia, and Europe. Drawing on its organizational strengths and industry experience, Metcal's distribution network offers seamless, proactive support and access to the company's full range of products - around the globe.

Wherever electronics manufacturing facilities are located, Metcal's network of expertly trained distributors is there, to supply essential technical support and advanced process solutions.

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