

MFR Multi Function Rework Systems



The All in One Solution

Imagine performing all of your production soldering, rework and desoldering tasks with just one tool. The new Multi Function Rework Systems (MFR) not only expertly perform rework, they also have tools for SMT and through-hole soldering. These flexible systems feature two switchable outputs with a comprehensive choice of tools that support today's complex PCB and component technologies.

Systems are configured with the following tools:

- Soldering and Rework
- Production Soldering
- Adjustable Desoldering Hand-Piece
- Standard Tweezer
- Precision Tweezer



Perfect for Lead-Free

The MFR Series uses SmartHeat® Technology to deliver the power required for lead-free connections. SmartHeat® Technology's variable power instantaneously senses and continuously delivers the precise thermal energy to the pad, yielding high quality solder joints while protecting sensitive components from damage.

Tip and Cartridge Options

With the MFR Series you can use heater tips or tip cartridges, each filling a specific need. Heater tips are cost effective to meet the demands of point to point, production soldering. While tip cartridges are suited for high performance and rework applications. Both options incorporate the popular quick change design OK tips are well known for, which eliminates the maintenance associated with traditional irons. The OK cartridge tip has the slimmest diameter allowing access to the tightest applications and its single piece design provides a secure ground connection protecting sensitive components.

Versatility, Performance and Value

These high performance systems can be adapted to your exact needs, whether it is cost effective production soldering, more complicated rework with cartridges, handling small components with the unique Precision Tweezer hand-piece or performing through-hole desoldering.

All units include "Auto Standby" and "Auto Off" functions which can be programmed to activate on different timing to help save tip life, especially when working on a lead-free process.

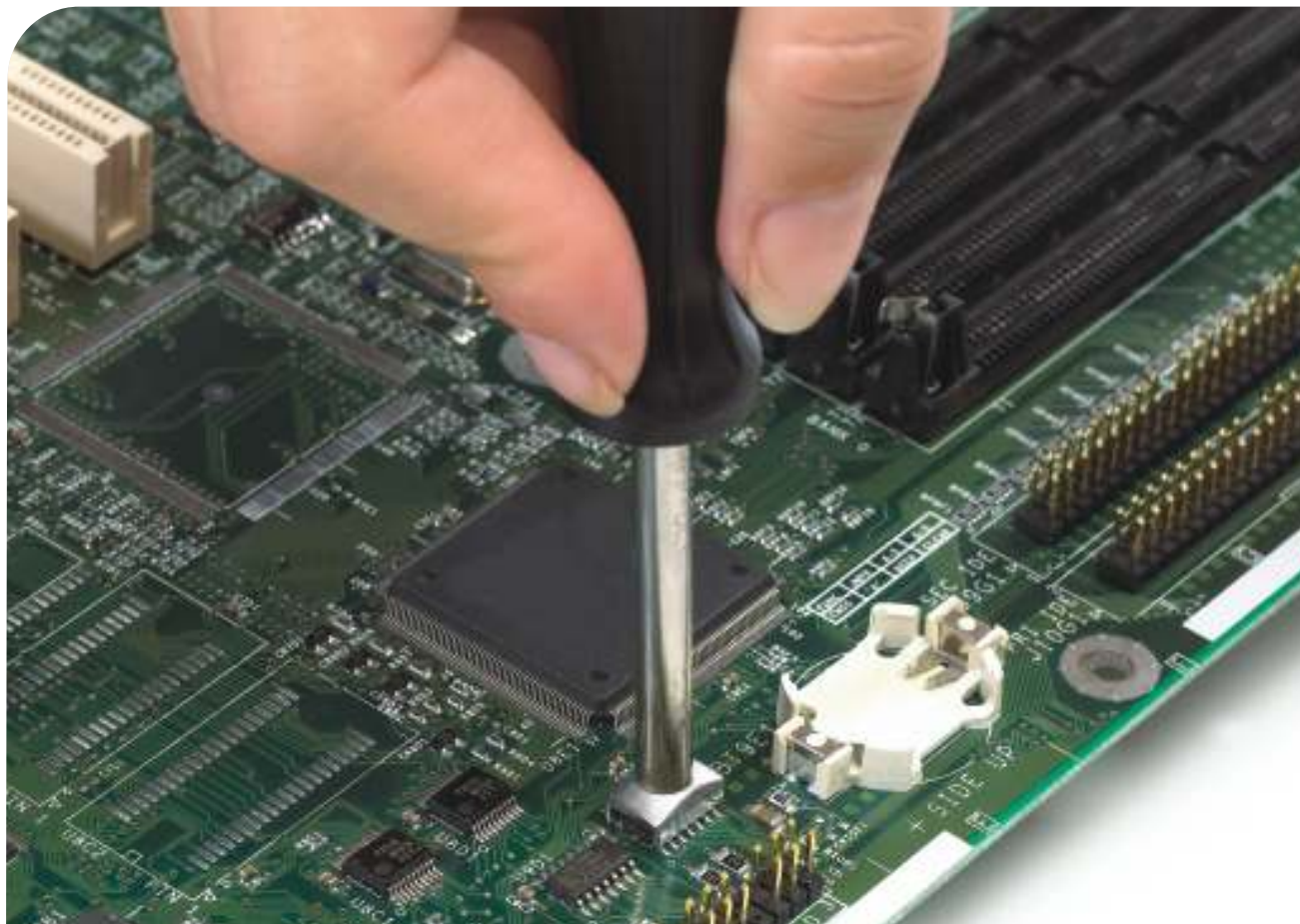
Proprietary built-in motion detection then brings the unit back to life when the operator lifts the hand-piece from the cradle. In addition, a specially designed lead-free workstand provides efficient tip cleaning and maintenance options.

And, when multiple units are used on the same bench or for the same process, smart mechanical design allows for the units to be interlocked, maximizing bench space.

Comfort and Simplicity

The short tip-to-grip distance of the MFR hand-piece improves process precision for fine pitch applications. The cartridge system provides the slimmest shaft for maximum access whilst the precision tweezer design enables rework of the smallest chips and resistors, such as 0201 chips. Ergonomic design delivers superior performance with operator comfort and control.





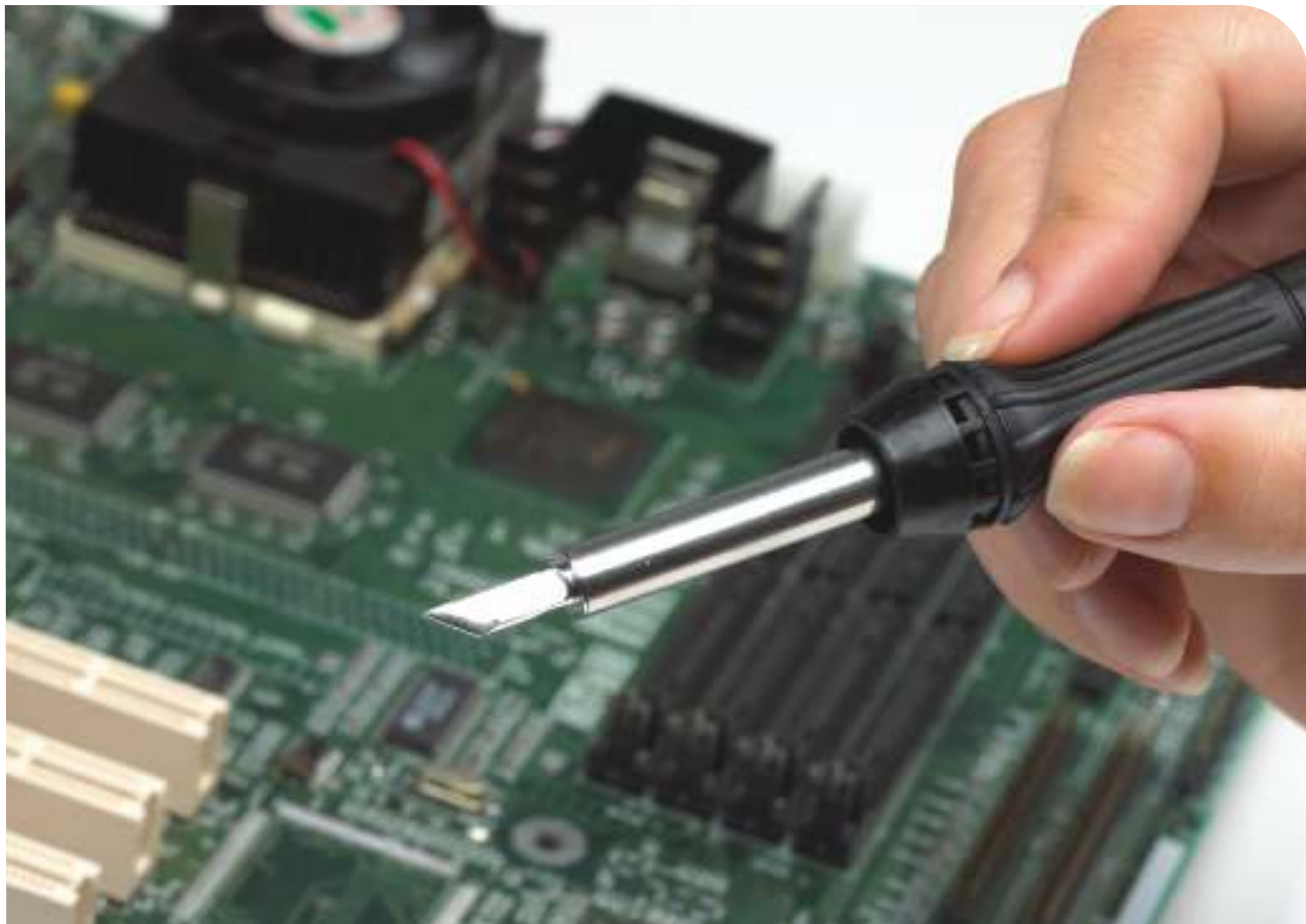
Soldering and Rework System

Cartridge heater technology provides soldering and rework performance to suit even the most demanding SMT removal and placement applications. The cartridges provide fast thermal performance and respond quickly to the load demands. A small shaft diameter provides access to tightly cramped rework areas and enables the most difficult operations to be performed effortlessly.

MFR-SRC Soldering & Rework System

Part No.	Description
MFR-SRC	Soldering and Rework System
<i>Includes</i>	
MFR-PS1K	Two Port Universal Voltage Power Supply
MFR-HSR	Soldering and Rework Hand-piece
MFR-WSSR	Soldering Workstand





Production Soldering System

The Production Solder Tip System is designed for production soldering applications where superior SmartHeat® Technology is needed to provide the performance for lead-free, but with a lower cost of ownership due to the innovative tip design. The two-piece, long life heater and cost effective tip design provide a viable production alternative for regular and lead-free soldering.

MFR-PST Production Soldering System

Part No.	Description
MFR-PST	Production Soldering System
Includes	
MFR-PS1K	Two Port Universal Voltage Power Supply
MFR-HPS	Production Soldering Hand-piece and Coil Assembly
MFR-WSSR	Soldering Workstand





Precision Tweezer, Soldering and Rework System

The Precision Tweezer has been ergonomically designed to be lightweight and easy to use for removing even the smallest of discrete components, such as 0201 packages. The Precision Tweezer has a double sided pivot for "true tweezer" action and a dual position pitch adjustment to help the operator target the component to skillfully complete the application.

MFR-PTZ Precision Tweezer, Soldering & Rework System

Part No.	Description
MFR-PTZ	Precision Tweezer, Soldering and Rework System
Includes	
MFR-PS1K	Two Port Universal Voltage Power Supply
MFR-HPT	Precision Tweezer Hand-piece
MFR-WSPT	Tweezer Workstand
MFR-HSR	Cartridge Solder / Rework Hand-piece
MFR-WSSR	Soldering Workstand



Contents of this brochure subject to change without notice



Tweezer, Soldering and Rework System

This combination system offers flexibility with the rework versatility of the Solder/Rework Cartridge Hand-piece with a standard tweezer system for discrete and SO symmetrical components

Part No.	Description
MFR-STZ	Tweezer, Soldering and Rework System
Includes	
MFR-PS1K	Two Port Universal Voltage Power Supply
MFR-HSR	Soldering & Rework Hand-piece
MFR-WSSR	Soldering Workstand
MFR-HST	Standard Tweezer Hand-piece
MFR-WSPT	Tweezer Workstand

Upgrade Kits

Add versatility to your MFR System. Hand-piece Upgrade Kits can be ordered to compliment any of the MFR Systems. Kits include both the hand-piece and workstand.

Part No.	Description
MFR-STZ-AD	Standard Tweezer Upgrade Kit, hand-piece and workstand
MFR-SRC-AD	Solder / Rework Cartridge Upgrade Kit, hand-piece and workstand
MFR-PTZ-AD	Precision Tweezer Upgrade Kit, hand-piece and workstand
MFR-PST-AD	Production / Solder Tip Upgrade Kit, hand-piece and workstand

Note: Tips and cartridges are not included and need to be ordered separately.





Versatile Pencil and Pistol Grip Combination Hand-piece System

The MFR Desoldering Systems provides superior thermal transfer to the joint, effectively reflowing the solder and then quickly and efficiently removing all solder. SmartHeat® Technology makes through-hole desoldering easy and safe from board damage. The state-of-the-art hand-piece can be adjusted from a pencil to a gun with a simple press of a button. Operators can find the most comfortable and efficient position to tackle the rework challenge. The paper solder collection chamber and filter system is quick and easy to change, and provides low cost maintenance.

Two MFR Desoldering Systems are available. The MFR-DSX system requires shop air for desoldering. If shop air is not available, the MFR-DSI features an internal vacuum pump.

Part No.	Description
MFR-DSX	Desolder System, External Air
MFR-DSI	Desolder System, Internal Air Pump
System Includes	
MFR-PS2X	Two Port Universal Voltage Power Supply, External Air (MFR-DSX only)
MFR-PS2K	Two Port Universal Voltage Power Supply, with Internal Air Pump (MFR-DSI only)
MFR-HDS	Desolder Hand-piece
MFR-WSDS	Desolder Workstand

Complete MFR System for Soldering, Desoldering and Rework

The MFR Solder / Desoldering Systems include both the innovative desoldering hand-piece and the solder/rework cartridge hand-piece to cover all your rework needs.

Two MFR Soldering / Desoldering Systems are available. The MFR-SDX system requires shop air for desoldering. If shop air is not available, the MFR-SDI features an internal pump that provides suction.



Part No.	Description
MFR-SDX	Solder / Desolder System, External Air
MFR-SDI	Solder / Desolder System, Internal Air Pump
Systems Include	
MFR-PS2X	Two Port Universal Voltage Power Supply External Air (MFR-SDX only)
MFR-PS2K	Two Port Universal Voltage Power Supply with Internal Air Pump (MFR-SDI only)
MFR-HSR	Soldering and Rework Hand-piece
MFR-WSSR	Soldering Workstand
MFR-HDS	Desoldering Hand-piece
MFR-WSDS	Desoldering Workstand

Note: Tips and cartridges are not included and need to be ordered separately.

Contents of this brochure subject to change without notice

Soldering Tip Heater Options

With hand soldering, the task is to make a quality solder connection, without damaging the substrate and without negatively impacting throughput. All of the standard MFR Series power tips & rework cartridges are designed for use with glass fiber (FR4) PCB substrates. This is denoted by the second letter in the part number: "F". For example: SFP-CH10, DFP-CN3, and SFV-CNL10.

However, some specialist applications require working with thermally demanding or temperature sensitive substrates, such as ceramic hybrids or flexible circuits. OK International has developed specialty heaters that quickly deliver the necessary power, but operate at temperatures that minimize the risk of substrate damage. These are denoted by replacing the "F" in the part number with a "T" for temperature sensitive or a "C" for demanding loads. Please contact your local representative for information and availability of specialty tip heaters. For example: STP-CH10 and DCP-CN3.

F = Standard FR4 Substrate

T = Temperature Sensitive

C = Ceramic or Heavy Load

Standard Soldering Tip Cartridges

The Standard Soldering Tip Cartridges are used with the MFR-HSR Soldering & Rework Hand-piece and have been designed to deliver outstanding performance for the majority of point-to-point soldering and basic rework applications. The geometries within the range have been optimized to deliver maximum accessibility combined with optimal thermal efficiency within a narrow cartridge diameter

	SFP-BVL10 Bevel Cartridge, 60° 1.0mm (.04")		SFP-CN05 Conical Cartridge, 0.5mm (.02")
	SFP-CH10 Chisel Cartridge, 30° 1.0mm (.04")		SFP-CNB04 Conical Cartridge Bent, 0.4mm (.016")
	SFP-CH15 Chisel Cartridge, 30° 1.5mm (.06")		SFP-CNB05 Conical Cartridge Bent, 0.5mm (.02")
	SFP-CH20 Chisel Cartridge, 30° 2.0mm (.08")		SFP-CNL04 Conical Cartridge Long Reach, 0.4mm (.016")
	SFP-CH25 Chisel Cartridge, 30° 2.5mm (.10")		SFP-DRH05 Drag Soldering Cartridge, Hoof 0.5mm (.02")
	SFP-CH50 Chisel Cartridge, 30° 5.0mm (.20")		SFP-DRH15 Drag Soldering Cartridge, Hoof 1.5mm (.06")
	SFP-CHB15 Chisel Cartridge, 30° Bent 1.5mm (.06")		SFP-DRH35 Drag Soldering Cartridge, Hoof 3.5mm (.14")
	SFP-CHL20 Chisel Cartridge, 60° Long Reach 2.0mm (.08")		SFP-DRK50 Drag Soldering Cartridge, Knife 5.0mm (.20")
	SFP-CN04 Conical Cartridge, 0.4mm (.016")		

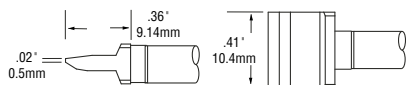
To order specialty versions of the Soldering Tip Cartridges replace the "F" in the part number with the appropriate letter designate for your application when ordering: **T** = Temperature Sensitive, **C** = Ceramic or Heavy Load

Dimensions and artwork listed are for indication/guidance only. Numbers have been rounded up.

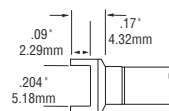
Please contact your local technical support if you require specific technical information.

Rework Cartridges

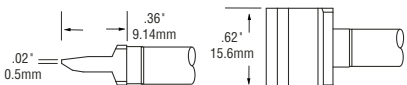
The Rework Cartridges are used with the MFR-HSR Soldering & Rework Hand-piece for conduction rework of surface mount components. The geometries are compatible with common SMT Chip and SOIC components.



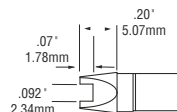
RFP-BL1
Blade Cartridge,
10mm (0.4")



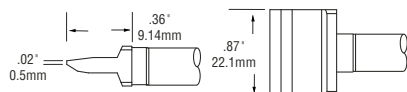
RFP-DL2
Tunnel Cartridge,
SOIC 8 Chip Package



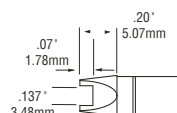
RFP-BL2
Blade Cartridge,
16mm (0.63")



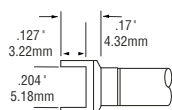
RFP-SL1
Slot Cartridge,
0805 Chip Package



RFP-BL3
Blade Cartridge,
22mm (0.87")



RFP-SL2
Slot Cartridge,
1206 Chip Package



RFP-DL1
Tunnel Cartridge,
SOIC 14-16 Chip Package

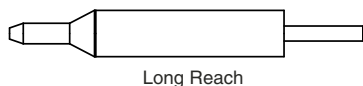
To order specialty versions of the Rework Cartridges replace the "F" in the part number with the appropriate letter designate for your application when ordering: **C** = Ceramic or Heavy Load

Desoldering Tips

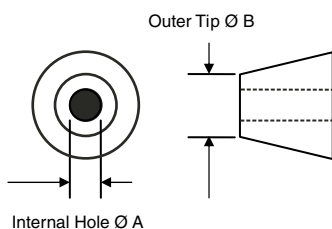
The Desoldering Tips are used with the MFR-HDS Desoldering Hand-piece, primarily for solder removal on through-hole components. The tips are supplied in a range of diameters as well as in a long reach configuration to allow improved access on tightly packed PCBs.



Regular



Long Reach



Part Number	Description	Ø A mm (in)	Ø B mm (in)
DFP-CN2	Desolder Tip	0.67mm (.026")	1.80mm (.070")
DFP-CN3	Desolder Tip	0.79mm (.031")	2.05mm (.080")
DFP-CN4	Desolder Tip	1.05mm (.041")	2.30mm (.090")
DFP-CN5	Desolder Tip	1.31mm (.052")	2.65mm (.104")
DFP-CN6	Desolder Tip	1.55mm (.061")	2.85mm (.112")
DFP-CN7	Desolder Tip	2.44mm (.096")	3.65mm (.143")
DFP-CNL3	Desolder Tip Long Reach	0.79mm (.031")	2.05mm (.080")
DFP-CNL4	Desolder Tip Long Reach	1.05mm (.041")	2.30mm (.090")
DFP-CNL5	Desolder Tip Long Reach	1.31mm (.052")	2.65mm (.104")

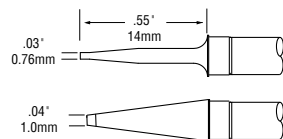
To order specialty versions of the Desoldering Tips replace the "F" in the part number with the appropriate letter designate for your application when ordering: **C** = Ceramic or Heavy Load

Dimensions and artwork listed are for indication/guidance only. Numbers have been rounded up.

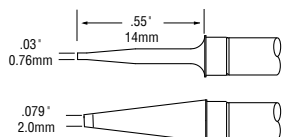
Please contact your local technical support if you require specific technical information.

Precision Tweezer Cartridges

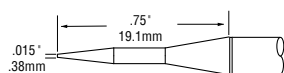
The Precision Tweezer Cartridges are supplied in pairs to be used in the MFR-HPT Precision Tweezer Hand-piece for conduction rework of very fine surface mount chip components.



TFP-BLP1
Tweezer Cartridge,
Blade 1.0mm (0.04") Pair



TFP-BLP2
Tweezer Cartridge,
Blade 2.0mm (0.08") Pair

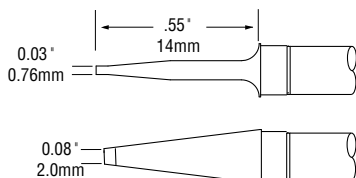


TFP-CNP1
Tweezer Cartridge,
Conical 0.4mm (.015") Pair



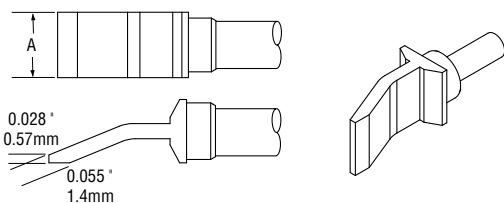
Standard Tweezer Cartridges

The Standard Tweezer Cartridges are supplied in pairs and are designed to work with the MFR-HST Standard Tweezer Hand-piece for conduction removal of two sided surface mount components. The geometries are specifically designed for larger SMT Chip and Dual in-line SOIC components. All tweezer cartridges are sold in pairs.



Fine Point Tip

TFP-BLH3 Tweezer Heavy Duty Cartridge, 2.0mm (0.08") Pair



Blade Tip

TFP-BLH4 Tweezer Heavy Duty Cartridge, A = 6.35mm (.25") Pair

TFP-BLH5 Tweezer Heavy Duty Cartridge, A = 16mm (.62") Pair

TFP-BLH6 Tweezer Heavy Duty Cartridge, A = 20.5mm (.81") Pair

TFP-BLH7 Tweezer Heavy Duty Cartridge, A = 28mm (1.1") Pair

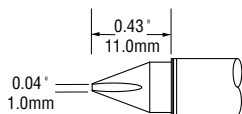
To order specialty versions of the Precision Tweezer Cartridges replace the "F" in the part number with the appropriate letter designate for your application when ordering: **T** = Temperature Sensitive **C** = Ceramic or Heavy Load

Dimensions and artwork listed are for indication/guidance only. Numbers have been rounded up.

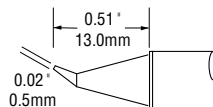
Please contact your local technical support if you require specific technical information.

Power Tips for Production Soldering

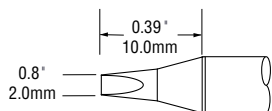
The Power Heater Tips offer a combination of performance and value. The replaceable tips are used on the MFR-HPS Production Soldering Hand piece and deliver high power, economical soldering in high volume production applications. The tips come in a thermally optimized large diameter tip that includes additional iron plating for longer life.



SFV-CH10
Chisel Solder Tip,
30° 1.0mm (.04")



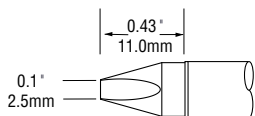
SFV-CNB05
Conical Bent Solder Tip,
0.5mm (.02")



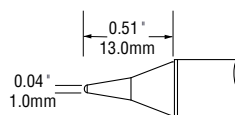
SFV-CH20
Chisel Solder Tip,
2.0mm (.08")



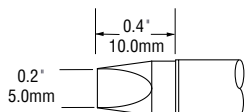
SFV-CNL04
Conical Long Solder Tip,
0.4mm (.016")



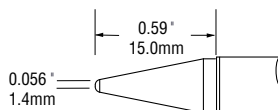
SFV-CH25
Chisel Solder Tip,
2.5mm (.10")



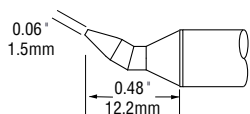
SFV-CNL10
Conical Long Solder Tip,
1.0mm (.04")



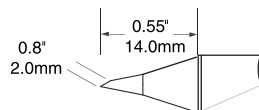
SFV-CH50
Extra Large Chisel Solder Tip,
5.0mm (.20")



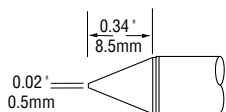
SFV-CNL14
Conical Long Tip,
1.4mm (.056")



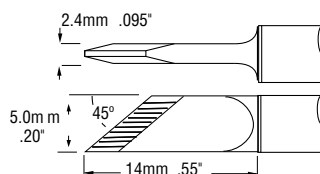
SFV-CHB15
Chisel Bent 30° Solder Tip,
1.5mm (.06")



SFV-DRH20
Conical Bevel Solder Tip,
2.0mm (.08")



SFV-CN05
Conical Solder Tip,
0.5mm (.02")



SFV-DRK50
Knife Solder Tip,
5.0mm (.20")

To order specialty versions of the Power Heater Tips replace the "F" in the part number with the appropriate letter designate for your application when ordering: **T** = Temperature Sensitive **C** = Ceramic or Heavy Load

Dimensions and artwork listed are for indication/guidance only. Numbers have been rounded up.
Please contact your local technical support if you require specific technical information.

MFR-PTZ, MFR-SRC, MFR-PST, MFR-STZ

System Specifications	
Ambient Operating Temperature	10-40°C
Maximum Enclosure Temperature	55°C
Input Line Voltage	100- 240 VAC, grounded circuit
Input Line Frequency	50/60 Hz
Power Consumption	65 Watts max.
Output Power	50 Watts max. at 22°C ambient temperature
Output Frequency	450 KHz
Power Cord (3-wire)	183cm (72")
Power Supply Dimensions w x d x h	122mm x 200mm x 152.5mm (4.8" x 8" x 6")
Agency Tested Per	IEC 61000-6-1, EC 61000-6-3 and UL499, FCC CFR Part 15
Tip-to-Ground Potential	<2mV
Tip-to-Ground Resistance	<2 ohms
Idle Tip Temperature Stability	± 1.1°C in still air
Hand-piece Cable Length	L=71cm (48"), burn proof, ESD safe
Hand-piece Connector	8-pin power connector
Workstand Dimensions w x d x h	100mm x 200mm x 100mm (4" x 8" x 4")

MFR-DSI, MFR-SDI, MFR-DSX, MFR-SDX

System Specifications	
Ambient Operating Temperature	10-40°C
Maximum Enclosure Temperature	55°C
Input Line Voltage	100- 240 VAC, grounded circuit
Input Line Frequency	50/60 Hz
Power Consumption	90 Watts max.
Output Power	50 Watts max. at 22°C ambient temperature
Output Frequency	450 KHz
Power Cord (3-wire)	183cm (72")
Dimensions w x d x h	170mm x 200mm x 152.5mm (7" x 8" x 6")
Agency Tested Per	IEC 60335-2-45 and UL499, FCC CFR Part 15
Tip-to-Ground Potential	<2mV
Tip-to-Ground Resistance	<2 ohms
Idle Tip Temperature Stability	± 1.1°C in still air
Hand-piece Cable Length	L=71cm (48"), burn proof, ESD safe
Hand-piece Connector	8-pin power connector
Workstand Dimensions w x d x h	100mm x 200mm x 100mm (4" x 8" x 4")
Recommended Air Pressure Input	450kPa (65PSI) - shop air versions only
Noise Level	Less than 70dBA
Vacuum Suction Force	22" Hg at vacuum pump (at sea level)



Hand-pieces and Cords

Part No.	Description
MFR-HPT	Precision Tweezer Hand-piece W/Cord
MFR-HSR	Cartridge Solder / Rework Hand-piece W/Cord
MFR-HPS	Heater Tip Hand-piece W/Coil Assembly & Cord
MFR-HDS	Convertible Desolder Hand-piece
MFR-HST	Standard Tweezer Hand-piece W/Cord
MFR-CA1	Coil Assembly for MFR-HPS Hand-piece

Replacement Workstands & Upgrades

In addition to the regular workstands, Auto Sleep Workstands and Cradles are now available. These new stands help extend tip life by reducing the temperature when the hand-piece is idle in the workstand.



Part No.	Description
MFR-WSPT	Tweezer Workstand
MFR-WSSR	Soldering Workstand
MFR-WSDS	Desolder Workstand
MFR-WSAS	Auto Sleeper Workstand
MFR-WSC1	Solder Rework Cradle Auto Sleep (Black)
AC-Y10	Yellow Sponge (pack of 10)
AC-BP	Brass Pad (pack of 10)



Lead-Free Process Identification

For factories that are transitioning to lead-free, it is important to identify which processes are using lead-free to avoid accidental cross-contamination of solder materials. To easily identify the lead-free processes, we have designed visual indicators that fit on the system parts where cross-contamination can occur, such as tips & workstand sponges.



Part No.	Description
MFR-WSC2	Green Solder Rework Cradle - Auto Sleep
AC-CK1	Green cartridge identification ring for MFR & PHT Consumables (Pack of 50)
AC-CK4	Green cartridge identification ring for SFV Power Tips (Pack of 50)



Miscellaneous Accessories

Part No.	Description
AC-BRUSH-P	Soft Brass Brush
AC-CP2	Cartridge Removal Pad
AC-FX1	Fume Extraction Kit
AC-IK	Inter Locking / Mounting Kit
AC-MFR-PM	Power Meter

MFR Desoldering Accessories & Maintenance Tools

Part No.	Description	Part No.	Description
AC-TC-P	Desoldering Tip Cleaner (Pack of 12)	AC-PR1	Pump Re-build Kit
DP-SL3	Front Seal	AC-PM1	Pump with Motor Replacement Kit
AC-VL	ESD Air Hose	AC-CC	Solder Collection Chamber
AC-DFP	Chamber Liner, Filter & Fume		