## Metcal MX-UK5

**MMETCAL**™

# Metcal MX-UK5 MX Desoldering Upgrade Kit

User Manual for MX-5000 and MX-5200 Series Systems

## 1. INTRODUCTION

This user manual provides essential information for the safe and effective operation, maintenance, and troubleshooting of the Metcal MX-UK5 MX Desoldering Upgrade Kit. This kit is designed to enhance the capabilities of your existing Metcal MX-5000 and MX-5200 Series Systems by adding desoldering functionality.
The MX-UK5 kit includes the MX-DS1 Desoldering Hand-piece and the MX-W5DS TipSaver work stand, providing a complete solution for efficient and reliable desoldering applications.

Figure 1: Metcal MX-UK5 Desoldering Upgrade Kit showing the MX-DS1 Desoldering Hand-piece, MX-W5DS TipSaver work stand, and connecting cable.

## 2. COMPONENTS INCLUDED

The Metcal MX-UK5 Desoldering Upgrade Kit contains the following items:

- **MX-DS1 Desoldering Hand-piece:** The primary tool for desoldering operations, designed for precision and efficiency.
- **MX-W5DS TipSaver Work Stand:** A dedicated stand for the desoldering hand-piece, featuring a TipSaver mechanism to prolong tip life and maintain optimal performance.
- **Connecting Cable:** For connecting the desoldering hand-piece to the Metcal MX-5000 or MX-5200 Series power supply.
- **Instruction Manual:** This document, providing detailed guidance.

## 3. SETUP INSTRUCTIONS

Follow these steps to properly set up your Metcal MX-UK5 Desoldering Upgrade Kit with a compatible MX-5000 or MX-5200 Series System:

1. **Power Off System:** Ensure your Metcal MX-5000 or MX-5200 Series power supply is turned off and unplugged from the main power outlet before beginning installation.
2. **Connect Hand-piece:** Locate the appropriate port on your Metcal power supply for the desoldering hand-

piece. Carefully align the connector on the MX-DS1 hand-piece cable with the port and push firmly until it clicks into place.

3. **Position Work Stand:** Place the MX-W5DS TipSaver work stand on a stable, heat-resistant surface near your work area. Ensure it is easily accessible.

4. **Insert Hand-piece into Stand:** Gently place the MX-DS1 desoldering hand-piece into the designated holder on the MX-W5DS work stand. The TipSaver mechanism will engage, protecting the tip.

5. **Install Desoldering Tip:** Select the appropriate desoldering tip for your application. Insert the tip into the MX-DS1 hand-piece according to the instructions provided with the tip. Ensure it is securely seated.

6. **Connect to Power:** Plug the Metcal power supply back into the main power outlet.

7. **Power On System:** Turn on your Metcal MX-5000 or MX-5200 Series power supply. The system will detect the newly connected desoldering hand-piece.

*Always refer to your Metcal MX-5000 or MX-5200 Series System manual for specific power supply connection details and safety precautions.*

## 4. OPERATING INSTRUCTIONS

The Metcal MX-UK5 kit utilizes Metcal's SmartHeat® Technology, which provides precise temperature control and rapid heat recovery for efficient desoldering.

### 4.1. SmartHeat® Technology Overview

Metcal's SmartHeat® Technology is a self-regulating heating system. The desoldering tip contains a self-regulating heater that senses the thermal load and instantly delivers the precise amount of power needed for the task. This ensures consistent tip temperature and optimal performance without manual temperature adjustments.
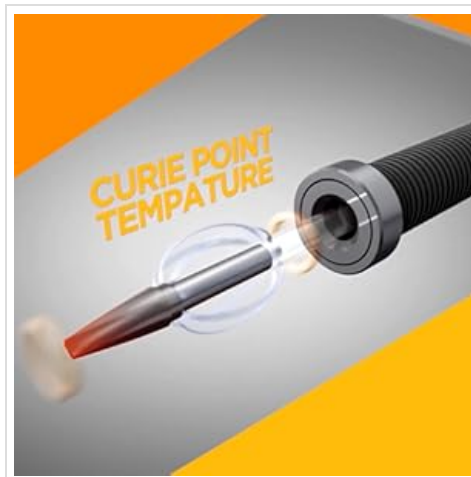


Figure 2: Diagram illustrating the Curie Point temperature regulation principle in Metcal SmartHeat® Technology.

The core of SmartHeat® Technology lies in the magnetic alloy within the tip. When a high-frequency current passes through the heater, the magnetic alloy confines the current to the skin of the tip, causing rapid heating. As the tip reaches its Curie Point temperature, the magnetic alloy loses its magnetic properties, eliminating the skin effect and causing the current to migrate to the non-heating copper core. This cools the tip slightly, restoring the magnetic properties and the skin effect, thus repeating the cycle. This continuous self-regulation ensures a constant and precise tip temperature.

### 4.2. Desoldering Process

1. **Pre-heat:** Allow the desoldering hand-piece to reach operating temperature. This usually takes a few seconds.

2. **Apply Tip:** Place the desoldering tip directly onto the solder joint you wish to remove. Ensure good contact

between the tip and all components of the joint (component lead, pad, and solder).

3. **Activate Vacuum:** Once the solder melts and flows around the tip, activate the vacuum pump (if your system has an integrated pump or external pump connected). The molten solder will be drawn into the collection chamber.

4. **Remove Hand-piece:** Once the solder is removed, lift the desoldering hand-piece from the joint.

5. **Clean Tip:** Regularly clean the desoldering tip using the sponge or brass wool provided in your work stand to remove excess solder and flux residue. This maintains optimal heat transfer and tip life.
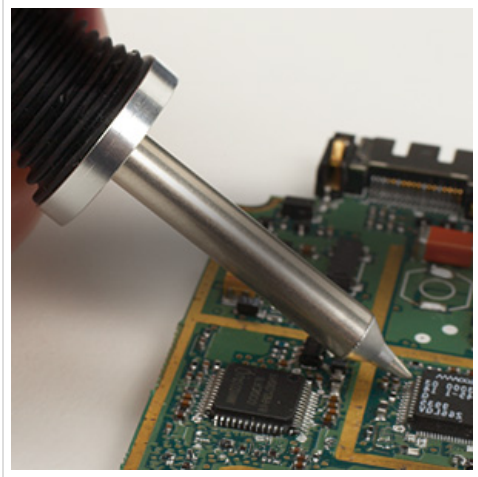


Figure 3: Close-up view of a desoldering tip in contact with a circuit board during operation.

## 5. MAINTENANCE

Proper maintenance ensures the longevity and optimal performance of your Metcal MX-UK5 Desoldering Upgrade Kit.

- **Tip Cleaning:** Always clean the desoldering tip before and after each use, and periodically during operation. Use a damp sponge or brass wool.
- **Solder Collection Chamber:** Regularly empty and clean the solder collection chamber of the desoldering hand-piece. Refer to the MX-DS1 hand-piece specific instructions for disassembly and cleaning.
- **Filter Replacement:** Check and replace the vacuum filters as needed. Clogged filters can reduce vacuum efficiency.
- **Work Stand Maintenance:** Keep the MX-W5DS work stand clean. Ensure the TipSaver mechanism is free of debris.
- **General Cleaning:** Wipe down the hand-piece and cables with a soft, dry cloth. Avoid using harsh chemicals or abrasive cleaners.

## 6. TROUBLESHOOTING

This section addresses common issues you might encounter with your desoldering kit.

| Problem | Possible Cause | Solution |
|---|---|---|
| Poor Solder Removal | Insufficient heat; Clogged tip/chamber; Worn tip; Low vacuum. | Ensure proper tip contact; Clean solder collection chamber and tip; Replace worn tip; Check vacuum pump connection and filters. |

| Problem | Possible Cause | Solution |
|---|---|---|
| Hand-piece Not Heating | Loose connection; Faulty tip; Power supply issue. | Check cable connections; Try a different, known-good tip; Verify power supply is on and functioning. |
| Vacuum Not Activating | Loose vacuum line; Clogged filter; Pump malfunction. | Check all vacuum line connections; Replace vacuum filter; Consult Metcal support if pump is suspected faulty. |

*If problems persist, contact Metcal customer support.*

## 7. SPECIFICATIONS

Key specifications for the Metcal MX-UK5 MX Desoldering Upgrade Kit:

- **Model:** MX-UK5
- **Compatibility:** Metcal MX-5000 and MX-5200 Series Systems
- **Included Components:** MX-DS1 Desoldering Hand-piece, MX-W5DS TipSaver Work Stand
- **Technology:** SmartHeat® Technology (Self-regulating temperature)
- **Package Dimensions:** 13.462 H x 24.892 L x 17.272 W (centimetres)
- **Package Weight:** 3.4 pounds (approx. 1.54 kg)
- **Country of Origin:** United States

## 8. WARRANTY AND SUPPORT

Metcal products are manufactured by OK International and are backed by a comprehensive warranty. For specific warranty terms and conditions, please refer to the warranty card included with your product or visit the official Metcal website.
For technical support, service, or to order replacement parts, please contact Metcal Customer Service:

- **Manufacturer:** OK International
- **Website:** www.metcal.com (Example link, actual link may vary)
- **Contact Information:** Refer to the Metcal website or your product packaging for the most current contact details.

*Please have your product model number (MX-UK5) and serial number ready when contacting support.*