

# Optimizing Results with Proper Geometry Selection

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

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

## Cartridges for Metcal Advanced™ Hand-piece

### STTC Cartridges

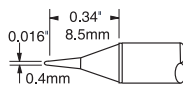
STTC Cartridges provide a wide range of soldering geometrics for through-hole and SMD rework. For use with the MX-RM3E and the Metcal Advanced™ Hand-piece (MX-H1-AV).

### STTC Power Cartridges

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

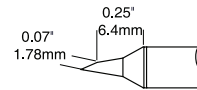
#### STTC-145P♦

Cartridge, Conical,  
0.4mm (0.016")



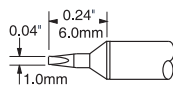
#### STTC-147P♦

Cartridge, Bevel,  
1.78mm (0.07"), 60°



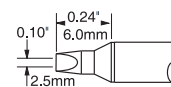
#### STTC-125P♦

Cartridge, Chisel,  
1mm (0.04"), 30°



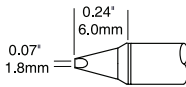
#### STTC-136P♦

Cartridge, Chisel,  
2.5mm (0.1"), 30°



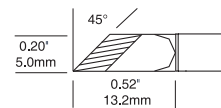
#### STTC-137P♦

Cartridge, Chisel,  
1.78mm (0.07"), 30°



#### STTC-1173P♦

Cartridge, Knife,  
5mm (0.2")



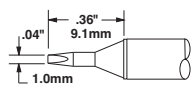
1 = 700 Series for most standard applications. 0 = 600 Series and 5 = 500 Series also available for temperature sensitive applications.  
 ♦ 8 = 800 Series for ceramic and high thermal demand applications.  
 To order these series, replace 1 with either 0, 5 or 8 (where available). Only the cartridges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

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

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

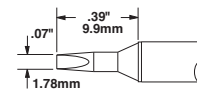
#### STTC-125\*♦

Cartridge, Chisel,  
1mm (0.04"), 30°



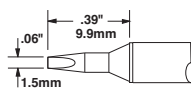
#### STTC-137\*♦

Cartridge, Chisel,  
1.78mm (0.07"), 30°



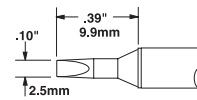
#### STTC-138\*♦

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



#### STTC-136\*♦

Cartridge, Chisel,  
2.5mm (0.1"), 30°

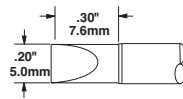


1 = 700 Series for most standard applications. 0 = 600 Series and 5 = 500 Series also available for temperature sensitive applications.  
 ♦ 8 = 800 Series for ceramic and high thermal demand applications.  
 To order these series, replace 1 with either 0, 5 or 8 (where available). Only the cartridges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

## Chisel Cartridges

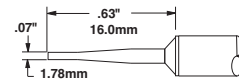
### STTC-117◆

Cartridge, Chisel,  
5mm (0.2"), 30°



### STTC-142

Cartridge, Chisel,  
Long, 1.78mm  
(0.07"), 60°



1 = 700 Series for most standard applications. 0 = 600 Series and 5 = 500 Series also available for temperature sensitive applications.

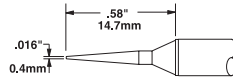
◆ = 800 Series for ceramic and high thermal demand applications.

To order these series, replace 1 with either 0, 5 or 8 (where available). Only the cartridges marked with this symbol ◆ are available in 800 Series.

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

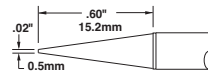
### STTC-145\*

Cartridge, Conical,  
0.4mm (0.016")



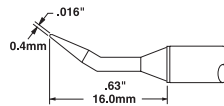
### STTC-143◆

Cartridge, Conical,  
0.5mm (0.02")



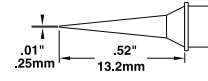
### STTC-140◆

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



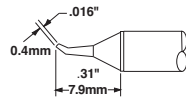
### STTC-190◆

Cartridge, Conical,  
0.25mm (0.01")



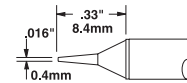
### STTC-126◆

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



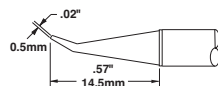
### STTC-122◆

Cartridge, Conical,  
0.4mm (0.016")



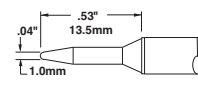
### STTC-144◆

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



### STTC-101\*

Cartridge, Conical,  
1mm (0.04")



1 = 700 Series for most standard applications. 0 = 600 Series and 5 = 500 Series also available for temperature sensitive applications.

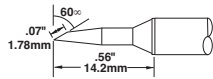
◆ = 800 Series for ceramic and high thermal demand applications.

To order these series, replace 1 with either 0, 5 or 8 (where available). Only the cartridges marked with this symbol ◆ are available in 800 Series.

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

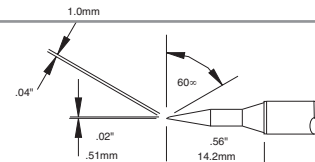
### STTC-147\*

Cartridge, Bevel,  
1.78mm (0.07"),  
60°



### STTC-146

Cartridge, Bevel,  
Long, 1mm  
(0.04"), 60°



1 = 700 Series for most standard applications. 0 = 600 Series and 5 = 500 Series also available for temperature sensitive applications.

To order these series, replace 1 with either 0 or 5.

## SMTC Cartridges

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

## Blade Cartridges

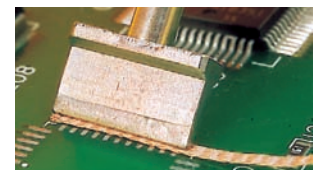
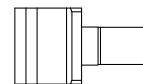
Blade cartridges are designed to allow effective and quick cleaning of PCB pads. This range of blade geometries is highly effective for utilizing the available power of the MX-5010 Systems. Metcal's SmartHeat® Technology enables a dynamic and exceptionally fast response to load demands resulting in a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

SMTC-164◆◆ Cartridge, Blade, 5mm (0.2")

SMTC-160 Cartridge, Blade, 10mm (0.4")

SMTC-161 Cartridge, Blade, 15.75mm (0.62")

SMTC-162◆◆ Cartridge, Blade, 22mm (0.86")



1 = 700 Series for most standard applications. 0 = 600 Series and 5 = 500 Series also available for temperature sensitive applications.

8 = 800 Series for ceramic and high thermal demand applications. To order these series, replace 1 with either 0, 5 or 8 (where available).

◆◆ Not available in 500 and 800 Series.