



# Productinformation CV Solder-Systems

CV vs. MX-Series

January 2019



- Background
- System-Comparison
- Tools and Tips
- Backwards Compatibility
- Tip-Cartridge Coding
- Metcal... at a glance....
- Certificates and Standards

## Introduction of the soldering system series CV-500 / CV 5200

- MX-500 / MX-5200 in the market for more than 6 years
- Integration of new functions
- Increasing demand for traceability

# System Comparison MX vs. CV



# System Comparison MX-5200 vs. CV-5200

## By Item



	MX-5200	CV-5200	CV-PS5200	Upgrade-Kit
System with Advanced Hand-piece	MX-5210	CV-5210		
System with 2 x Advanced Hand-piece	MX-5211	CV-5210		CV-UK1
System with UltraFine Hand-piece	MX-5220		CV-PS5200	CV-UK2
System with Advanced & Precision Tweezer Hand-piece	MX-5241	CV-5210		CV-UK4
System with Desolder Hand-piece	MX-5250		CV-PS5200	CV-UK5
System with Advanced & Desolder Hand-piece	MX-5251	CV-5210		CV-UK5
Advanced-Upgrade-Kit (Advanced Hand-piece & Work-stand)	MX-UK1			CV-UK1
UltraFine-Upgrade-Kit (UltraFine-Hand-piece & Work-stand)	MX-UK2			CV-UK2
UltraFine-Tweezer-Upgrade-Kit (UltraFine-Tweezer & Work-stand)	-			CV-UK4-UFT
Precision Tweezer-Upgrade-Kit (Precision Tweezer Hand-piece & Work-stand)	MX-UK4			CV-UK4
Desolder-Upgrade-Kit (Desolder Hand-piece & Work-stand)	MX-UK5			CV-UK5
High Thermal Demand-Upgrade-Kit (High Thermal Demand Hand-piece & Work-stand)	MX-UK6			CV-UK6
Solder Wire Feeder-Upgrade-Kit (Hand-piece & Work-stand)	MX-UK7			CV-UK7
High Thermal Demand Solder Wire Feeder-Upgrade-Kit (High Thermal Demand Hand-piece & Work-stand)	-			CV-UK7-HTD

# System Comparison MX-500 vs. CV-500

By Item



	MX-500	CV-500	CV-PS500	Upgrade-Kit
System mit Standard Hand-piece	MX-500S	-		
System with Advanced Hand-piece	MX-500AV	CV-510		
System with UltraFine Hand-piece	MX-500UF		CV-PS500	CV-UK2
System with Standard & Precision Tweezer Hand-piece	MX-500SPT	CV-510		CV-UK4
System mit Standard & Desolder Hand-piece	MX-500DS	CV-510		CV-UK5
Advanced-Upgrade-Kit (Advanced Hand-piece & Work-stand)	MX-UK1			CV-UK1
UltraFine-Upgrade-Kit (UltraFine Hand-piece & Work-stand)	MX-UK2			CV-UK2
UltraFine-Tweezer-Upgrade-Kit (UltraFine-Pinzette & Work-stand)	-			CV-UK4-UFT
Precision Tweezer Upgrade-Kit (Tweezer & Work-stand)	MX-UK4			CV-UK4
Desolder-Upgrade-Kit (Desolder Hand-piece & Work-stand)	MX-UK5			CV-UK5
High Thermal Demand-Upgrade-Kit (High Thermal Demand Hand-piece & Work-stand)	MX-UK6 / CV-UK6 not applicable !!			
Solder Wire Feeder-Upgrade-Kit (Hand-piece & Work-stand)	MX-UK7			CV-UK7
High Thermal Demand Solder Wire Feeder-Upgrade-Kit (High Thermal Demand Hand-piece & Work-stand)	CV-UK7-HTD not applicable !!			

# Rework-System CV-5xxx



## Color-Touch-Screen Display

Menu operation, status display, as well as display of the heating phase and the heat input

## Power Supply

- Universal Power Supply  
100 - 240 Volt
- Output Power  
5 – 80 Watt (CV-5200)  
5 – 40 Watt (CV-500)
- 2,8" Color TFT LCD Display
- Robust Aluminium housing  
Auto-Shut-off  
10 – 120 Min. adjustable
- USB port for FW Upgrade

## Work-stand

Sleeper Stand, Brasspad, Sponge and place for 11 Cartridges

## Hand-piece

LED-Ring, light, ergonomic, short tip to grip

## Solder Cartridge

Small diameter, wide range of available cartridges



- Universal Power Supply  
100 - 240 Volt
- Variable output power  
5 – 80 Watt (CV-5200)  
5 – 40 Watt (CV-500)
- Touch-Screen Display
- Robust Aluminium housing
- Work-stand with sleeper  
function
- Auto-shut-off after 10-120  
Minutes in idle
- USB port for FW upgrade





# System Comparison CV-Serie

## Technical Data



	CV-500	CV-5200
Input Line Voltage	100 - 240 VAC /50/60 Hz	100 - 240 VAC /50/60 Hz
Rated Power Consumption	125 Watt max.	85 Watt max.
Output Power	5 – 40 Watt max.	5 – 80 Watt max.
Frequenz	13,56 MHz	13,56 MHz
Ambient Operating Temperature	10 – 40 °C	10 – 40 °C
Tip-to-Ground Potential	< 2 mV	< 2 mV
Tip-to-Ground Resistance	< 2 Ohm	< 2 Ohm
Surface Resistivity	10 <sup>5</sup> – 10 <sup>9</sup> Ohm, ESD-safe	10 <sup>5</sup> – 10 <sup>9</sup> Ohm, ESD-safe
Idle Temperature Repeatability	± 1,1 °C	± 1,1 °C
Temperaturabsenkung durch Ablageständer	Yes	Yes
Auto Shut-off	Yes, 10 – 120 Min. adjustable	Yes, 10 – 120 Min. adjustable
Integrated Powermeter	Yes	Yes
Warranty Power Supply	4 Years	5 Years

## CV-UK1 Advanced Hand-piece-Kit

- Advanced-Hand-piece
- Work-stand with sleeper function



## CV-UK2 Ultra-Fine Hand-piece-Kit

- New UltraFine Hand-piece
- New UFC Cartridges from 0,13 up to 1,2 mm
- Work-stand with sleeper function



## CV-UK4 Precision Tweezer-Kit

- Precision Tweezer
- PTC-Cartridges from 0,4 up to 28 mm, for removal of Chip-Components up to SOIC's
- Work-stand with sleeper function



## CV-UK4-UFT UltraFine-Tweezer-Kit

- UltraFine-Tweezer
- New UFT Cartridges from 0,2 up to 0,8 mm
- Work-stand with sleeper function



## CV-UK5 Desolder-Gun-Kit

- Desolder Gun
- Compressed air operation
- Low-maintenance
- Service-friendly through maintenance kit
- Work-stand with sleeper function



## CV-UK6 High Thermal Demand Hand-piece-Kit

- High Thermal Demand Hand-piece
- New HCV-Cartridges from 1,5 up to 5,3 mm
- Work-stand with sleeper function



## CV-UK7-HTD High Thermal Demand Hand-piece Kit with Solder Wire Feeder

- High Thermal Demand Hand-piece with Solder Wire Feeder
- Stores internally 30 programs
- New HCV-Cartridges from 1,5 up to 5,3 mm
- Work-stand with sleeper function





## CV-UK7 Advanced Hand-piece Kit with Solder Wire Feeder

- Advanced Hand-piece with Solder Wire Feeder
- Stores internally 30 programs
- Work-stand with sleeper function



# CV - Cartridges

## Hand-piece overview



- For the Metcal solder system series CV-5200/500 large number (8) of handpieces are offered. For each tool also, a wide range of tip-geometries and temperature ranges are available.

### Hand-pieces



CV-H2-UF  
UltraFine-Hand-piece



CV-H1-AV  
Advance-Hand-piece



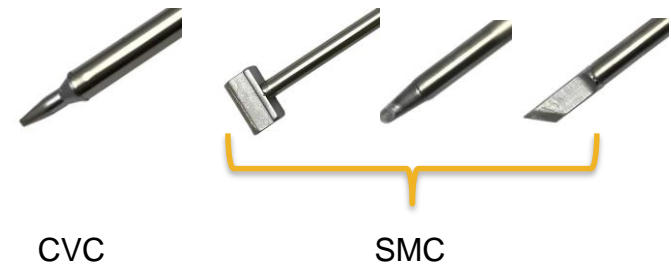
CV-H7-AV  
Advance-Hand-piece  
with Solder Wire Feeder

### Cartridges



UFC

CVC



CVC

SMC



CVC

# CV - Cartridges

## Hand-piece overview



- For the Metcal solder system series CV-5200/500 large number (8) of handpieces are offered. For each tool also, a wide range of tip-geometries and temperature ranges are available.

### Hand-pieces

### Cartridges



CV-H6-HTD  
High Thermal  
Demand Hand-  
piece

CV-H7-HTD  
High Thermal  
Demand Hand-  
piece with Wire  
feed



HCV

# CV - Cartridges

## Hand-piece overview



- For the Metcal solder system series CV-5200/500 large number (8) of handpieces are offered. For each tool also, a wide range of tip-geometries and temperature ranges are available.

### Hand-pieces



CV-H4-UFT  
UltraFine-Tweezer



CV-H4-PTZ  
Precision-Tweezer



CV-H5-DS  
Desolder Gun

### Cartridges



UFT



PTC



DSC



# Cartridge Temperature Coding

Available Temperature ranges



Serie CV	Serie MX	CV Coding					MX Coding				Max. Heater Temperature
		CVC, SMC,	HCV	DSC	UFC, UFT	PTC	STTC, SMTC, STDC	UFTC	PTTC	TATC	
500	500	5	-	-	-	-	5	-	-	5	302 °C
600	600	6	-	6	6	6	0	6	6	6	357 °C
700	700	7	7	7	7	7	1	7	7	-	413 °C
800	-	8	8	8	-	8	-	-	-	-	468 °C
900	800	9	9	9	-	9	8	-	8	-	510 °C

# CV – Cartridge Compatibility

To the MX Series



## CV – Hand-pieces



CV-H2-UF



CV-H1-AV



CV-H7-AV

### Cartridges

UFC, CVC  
Not Compatible



CVC, SMC  
Backwards Compatible



CVC  
Backwards Compatible



## MX – Hand-pieces



MX-H2-UF



MX-H1-AV



MX-H7-AV

# CV – Cartridge Compatibility

To the MX Series



## CV – Hand-pieces

## MX – Hand-pieces



CV-H6-HTD



CV-H7-HTD

## Cartridges

HCV  
Backwards-Compatible



MX-H6-HTD

Nat Available

# CV – Cartridge Compatibility

To the MX Series



## CV – Hand-pieces

## MX – Hand-pieces

CV-H4-UFT



CV-H4-PTZ



CV-H5-DS



## Cartridges

UFT

PTC  
Backwards Compatible



DSC  
Backwards Compatible



Not Available

CV-H4-PTZ

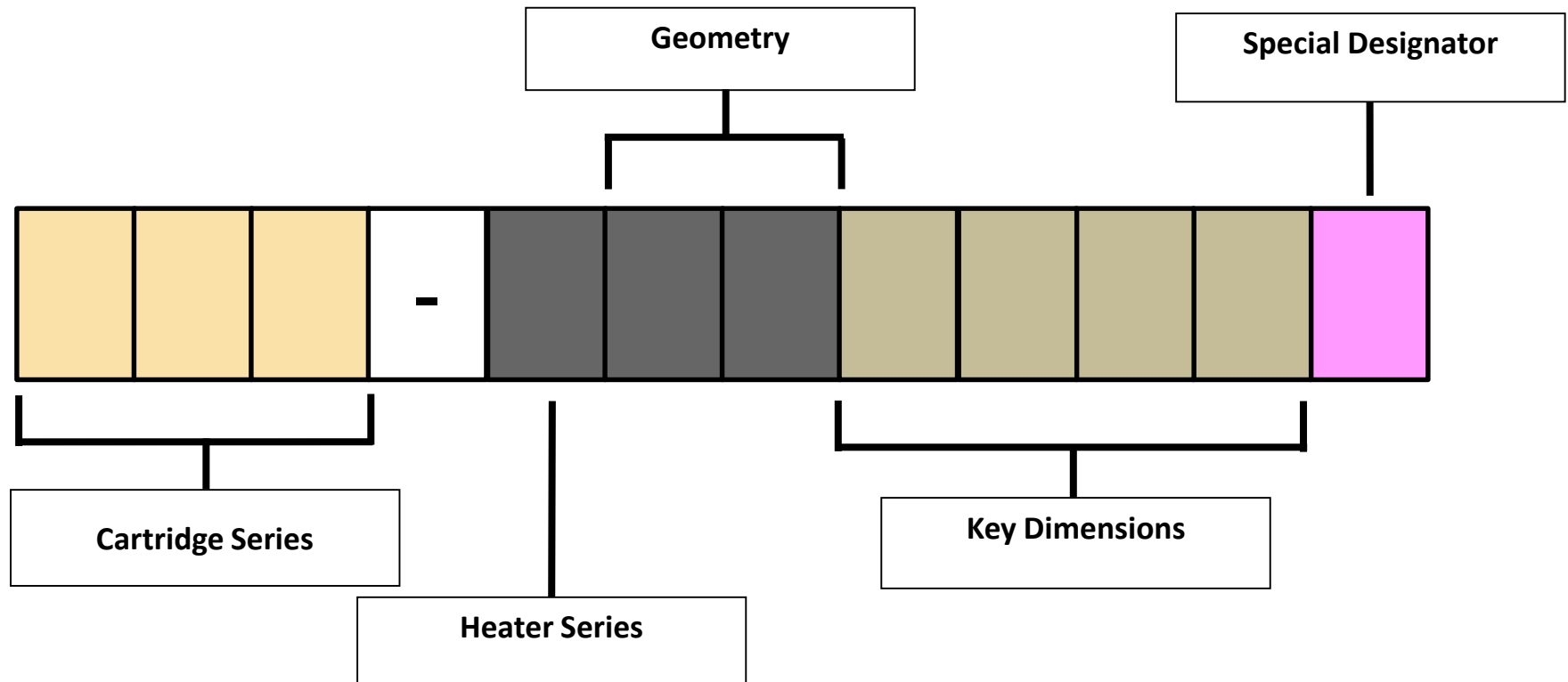


CV-H5-DS



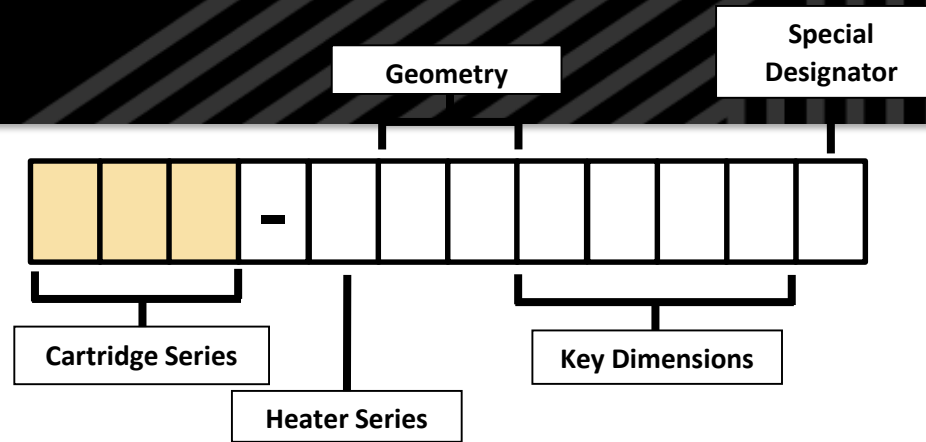


# New Part Numbering Scheme



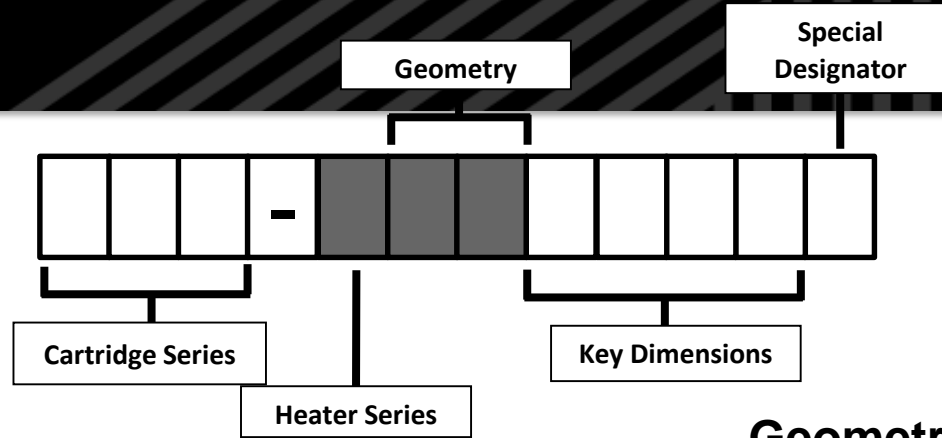
- The part number transition will happen over time.
- During the transition, the cartridges will be marked with the old and new part numbers.

# Cartridge Series



- CVC - Connection Validation enabled Cartridges w/ Chip in Cartridge Tech (formerly STTC)
- SMC - Surface Mount Cartridges with Chip in Cartridge Tech (formerly SMTC)
- DSC - Desolder Cartridges with Chip in Cartridge Tech (formerly SDTC)
- PTC - Precision Tweezers Cartridges (formerly PTTC)
- TAC - Talon Tweezers Cartridges (formerly TATC)
- HDC - Heavy Duty Cartridges with Chip in Cartridge Tech (formerly HDTC)
- UFC - Ultra-fine Cartridges (formerly UFTC)

# Heater Series & Key Dimensions

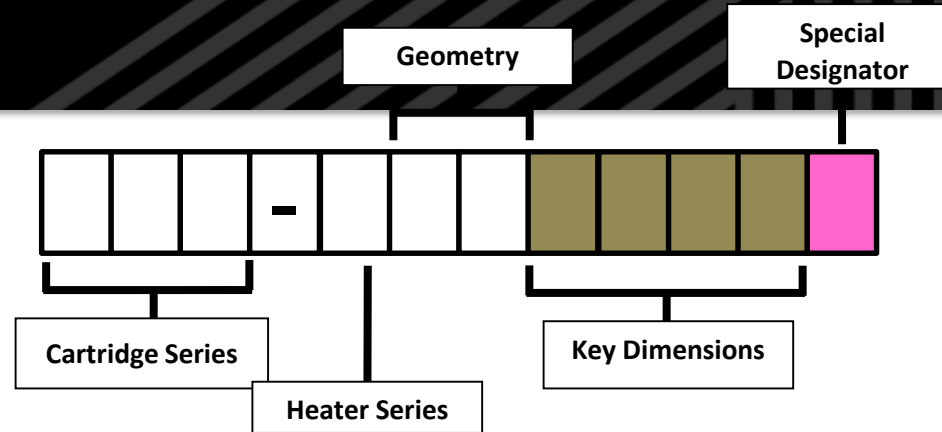


## Heater Series

- 5 - 500 series heaters
- 6 - 600 series heaters
- 7 - 700 series heaters
- 8 - 800 series heaters (formerly V1 heaters)
- 9 - 900 series heaters (formerly 800 series heaters)

## Geometry

- BL - Blade
- BV - Bevel
- CH - Chisel
- CN - Conical
- HF - Hoof
- HK - Hook
- KN - Knife
- WV - Wave
- FB – Flat Blade
- VG – V-Groove Chisel
- LG – V-Groove Long



## Key Dimensions

1 or 2 key dimensions on the tip. Four digit numerical value which represents the key dimension of the geometry.

## Special Designator

Allows an additional level of identification to the cartridge to better identify any unique attributes. Other special designators may be added as needed by product management

A – Access – additional length in one axis, >10mm

L – Long-Life – increased tip plating

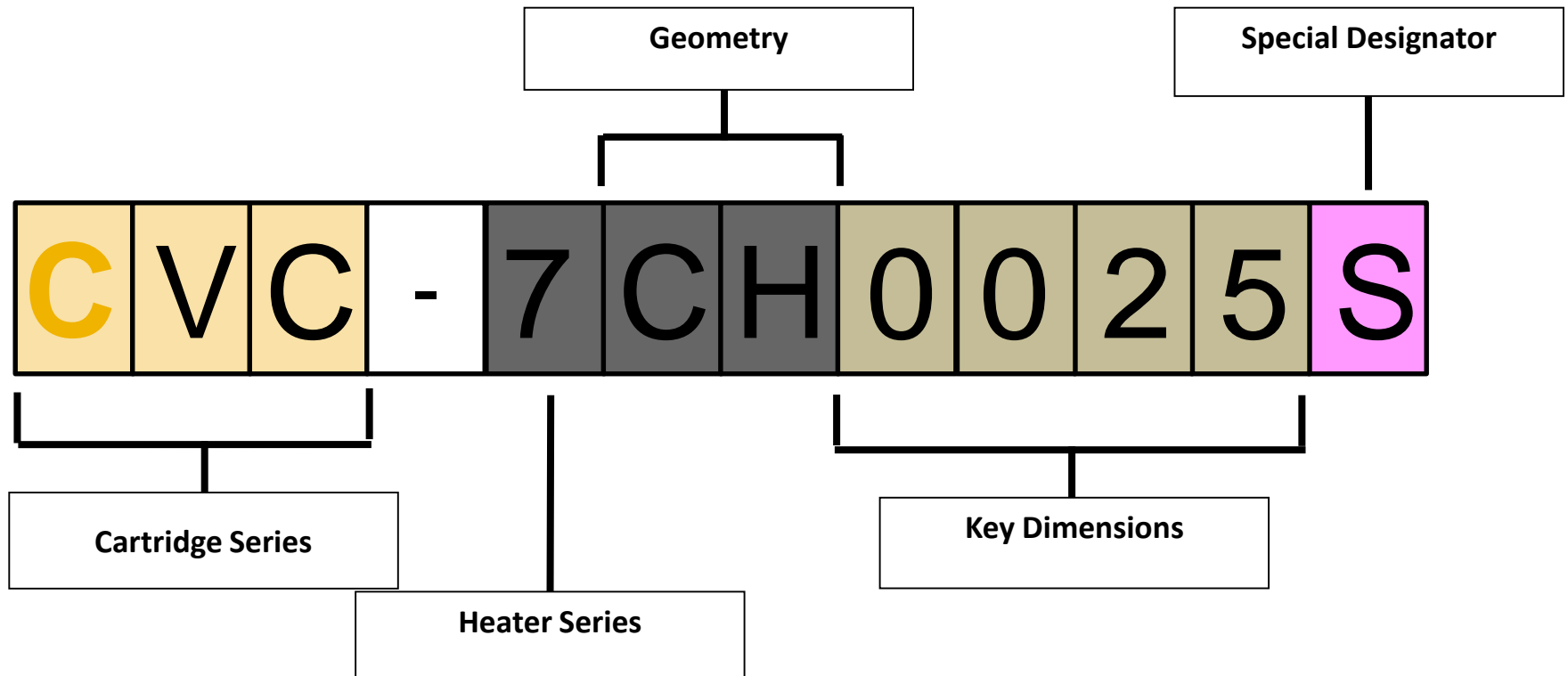
P – Power – reduced length in one-axis, <6.5mm

R – Reach – additional length >10mm with a change in axis

S – Standard

X – Power, Long Life – reduced length in one-axis, increased tip plating

# Part Number Example: STTC-136



- Fast heat up time – about 6 sec.
- Low weight of tool and cartridge, good handling
- Fast energy supply – for very demanding application /high mass application
- High productivity due short solder time
- No need to set up a temperature (system controls the solder process)
- Soldering with a fixed temperature (better process control)
- Soldering with lower temperature due variable power on demand
- Minimize the risk of burned solder joints
- Quick change of solder cartridges, no tools needed
- Cartridges last longer due to lower solder temperature, low stand-by temperature and auto shut off functionality
- High -good solder joint yield due ConnectionValidation and power on demand (no manual settings)
- Low cost of ownership - no need for spare parts therefore low storage cost, warranty 4 resp. 5 years for power supply (longest in the market) lifetime warranty for heating elements from cartridges
- Further cost reduction since system requires no calibration, no ESD-check

Metcal SmartHeat®-Technology with variable power on demand

- **Principle of operation can be demonstrated**

No Calibration required

- **A Technical explanation to prove this can be provided**

Simple, user friendly operation

- **Minimised training requirements. For operation simply switch on the system**
- **Heat input into the solder joint is visible on the system-display**
- **No temperature manipulation possible**
- **Operators supported by ConnectionValidation (when turned on)**

## Certificate of No-Calibration Required

Metcal Soldering/De-soldering Systems powered by Metcal® SmartHeat®-Technology, DO NOT require system calibration for temperature

A Metcal Soldering System is comprised of a power supply with handle/cord assembly and a tip cartridge.

Each cartridge is equipped with a self-regulating heater, which senses its own temperature and tightly maintains its pre-set idle temperature for the life of the cartridge. The heater temperature is set by the atomic structure of the heater material. It cannot be adjusted, and does not require any adjustment.

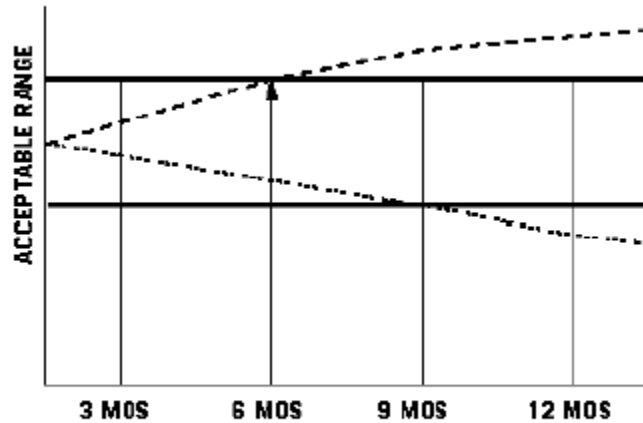


FIGURE 1: CALIBRATION SCHEDULE OF A CONVENTIONAL IRON

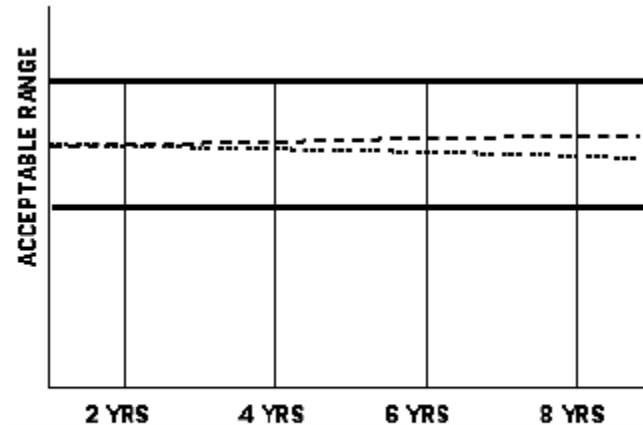


FIGURE 2: METCAL'S "CALIBRATION SCHEDULE" IS LONGER THAN THE USEFUL LIFE OF THE SYSTEM



- All OKi and Metcal systems meet the requirements of the current standards and guidelines, such as:
  - DIN EN 61340-5-1, 5-2, ESDS compliance with standards
  - IPC J-STD-001F, Appendix A, “Guidelines for Soldering Tools and Equipment”.



# Questions ?





# Thanks

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