



**Innovation has a  
brand new color.**



## **Introducing the new CV-5200 Connection Validation™ Soldering Station**

**Metcal is raising the bar with a  
technology that will change hand  
soldering forever.**

Metcal soldering stations have led the way with SmartHeat® technology for 35 years. SmartHeat senses the thermal load and instantly delivers Power on Demand directly to the joint. The embedded, self-regulating heater delivers the right amount of power based on the requirements of the solder joint. This provides a fast, safe and repeatable process with no calibration required.

**Currently, the industry standard relies  
on a visual inspection of the solder  
joint. Metcal has developed a better  
way...**

**Introducing Connection Validation.**



# CV-5200 Series

## Connection Validation™ Soldering Station



The intermetallic compound thickness is critical in the formation of a solder joint. Connection Validation (CV) evaluates the quality of the solder joint by calculating the intermetallic compound formation and provides closed loop feedback to the operator.

CV provides feedback to the operator via the LED light ring integrated in the hand-piece. It takes the risk associated with the variables involved in the soldering activity and removes the success and failure determination of a good solder joint out of the hands of the operator.

CV complements the skill of the operator to judge the quality of a solder joint by introducing an objective method of evaluating solder joint quality. This systemic and objective approach provides repeatability and a measureable standard to the soldering process.

### Features and Benefits

- SmartHeat Power on Demand Technology
- Patented Connection Validation IMC Formation Technology
- 2.8" color touchscreen with bold graphics
- Communications Port for process traceability data and firmware graphics
- Integrated Net Power Meter and power graph
  - With optional precise tip temperature display
- Patented Chip-in-Cartridge technology
  - Closed loop bi-directional communication
  - Stores and records cartridge attributes
  - Provides traceability information
  - Protects power supply from non-conforming cartridges
  - Backwards compatible with MX series power supplies
- Password protection



LED equipped hand piece signals to operator when a good solder joint is formed.



Tip temperature displayed on large color screen.

### System Configuration

The CV-5210 soldering station includes:

- CV Power supply
- CV-H1-AV: Advanced hand-piece with integrated LED light\*
- MX-W1AV: TipSaver Workstand\*

Additional system configurations will be available soon.

*\*Can be ordered separately.*

### Technical Specifications

CV-5200 Connection Validation Power Supply	
<b>Ambient Operating Temp.</b>	10 to 40 °C
<b>Max. Enclosure Temp.</b>	55°C
<b>Input Line Voltage</b>	100 – 240 VAC, grounded circuit
<b>Input Line Frequency</b>	50/60 Hz
<b>Rated Power Consumption</b>	125W
<b>Output Power</b>	80W max.
<b>Output Frequency</b>	13.56 MHz
<b>Heating Method</b>	Induction
<b>Display</b>	2.8" Color TFT LCD Display
<b>Resolution</b>	320*240 RGB
<b>Size</b>	2.8" Diagonal
<b>Active Area</b>	43.20 x 57.60 mm
<b>Connections</b>	Single Port
<b>Communications</b>	USB
<b>Power Supply Dim. w x d x h (mm)</b>	121 x 130 x 235
<b>Power Supply Weight (kg)</b>	3.35
<b>Certification / Marking</b>	CE TUV
<b>Tip-to- Ground Potential</b>	<2mV
<b>Tip-to-Ground Resistance</b>	<2ohms
<b>Idle Temperature Stability</b>	1.1°C in still air
<b>Tip Temperature Accuracy</b>	Meets or exceeds IPC J-STD-001 Standard
<b>Hand-piece cable length</b>	L=183cm (72"), burn proof, ESD safe
<b>Hand-piece connectors</b>	
<b>RF Connector</b>	F type power connector
<b>LED Power Connector</b>	6 pin DIN
<b>Operation</b>	2 single port or dynamic dual simultaneous
<b>Firmware upgrade</b>	Via USB port and appropriate software with compatible computer and cables.

# New Connection Validation Monitoring Software



## Introducing the All-New CV Monitoring Software

Improve your solder process traceability and create a performance baseline using CV's intelligent cartridges plus CV-5000 Monitor software. Using our Connection Validation patented technology, CV Monitor software allows you to capture solder process information over time for each joint when attached to the communication port.

Now that you have a baseline, you can quickly analyze your soldering performance, identify changes in your solder conditions, and make changes to your process. Download the free CV-5000 Monitor software and start monitoring your process.

*\*Metcal Exclusive*

### You'll get:

- Power demand
- Tip temperature
- Solder time
- Intermetallic Compound Formation (IMC Formation)\*

**Download the free software to get started.**  
**[www.Metcal.com](http://www.Metcal.com)**



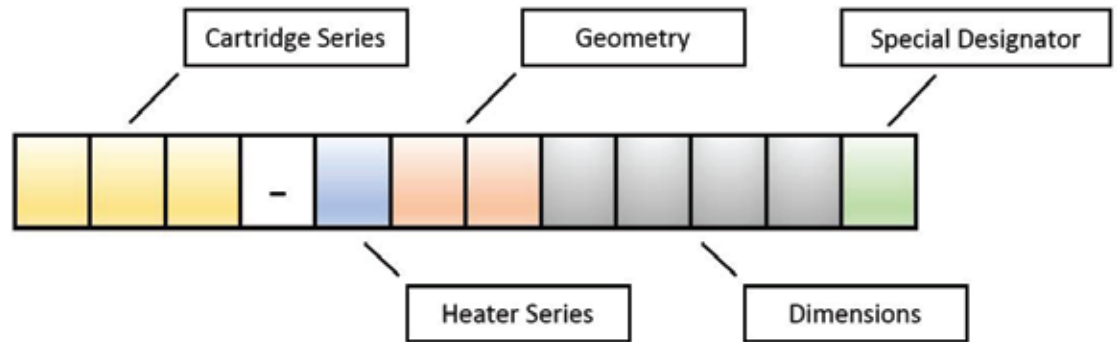
# CV-5200 Series

Connection Validation™ Soldering Station



## New Cartridge Smart Numbering Scheme

With the introduction of Connection Validation, Metcal is migrating to a new smart numbering convention that is designed to assist the operator or the process engineer in the selection of the correct cartridge for the application.



### Cartridge & Heater Series Legend

#### Cartridge Series

- CVC – Connection Validation Cartridges, Connection Validation enabled
- SMC – Surface Mount Cartridges
- New cartridge series to be added soon

Heater Series – represented by the x in the part number.

- 5-500 series heaters
- 6-600 series heaters
- 7-700 series heaters
- 8-800 series heaters
- 9-900 series heaters

#### Dimensions

Four digit numerical value, which represents the key dimension of the geometry.

#### Special Designator

Provides an additional level of identification to the cartridge to better identify any unique attributes

<b>A</b>	<b>Access</b>	additional length in one axis, >10mm
<b>D</b>	<b>Deep Taper</b>	
<b>H</b>	<b>High Mass</b>	Similar in design to another tip geometry with increased thermal mass
<b>J</b>	<b>Reach with Taper</b>	additional length >10mm with a change in axis, Taper
<b>L</b>	<b>Long Life</b>	increased tip plating
<b>N</b>	<b>Non-Wetting</b>	1 or more surfaces that are non-wetting
<b>P</b>	<b>Power</b>	reduced length in one-axis, <6.5mm
<b>Q</b>	<b>Square</b>	Square end feature for Flat Blade geometry
<b>R</b>	<b>Reach</b>	additional length >10mm with a change in axis
<b>S</b>	<b>Standard</b>	
<b>T</b>	<b>Taper</b>	Taper with Step
<b>U</b>	<b>Round</b>	Round end feature for Flat Blade geometry
<b>V</b>	<b>Concave</b>	
<b>W</b>	<b>Enlarged Wetting Area</b>	
<b>X</b>	<b>Power &amp; Long Life</b>	reduced length in one-axis, <6.5mm, increased tip plating

#### Geometry

<b>BL</b>	Blade	<b>KN</b>	Knife
<b>BV</b>	Bevel	<b>MH</b>	Mini-Hoof
<b>CH</b>	Chisel	<b>QD</b>	Quad
<b>CN</b>	Conical	<b>SC</b>	Slotted Cylindrical
<b>CP</b>	Hollow Cup	<b>SH</b>	Shield
<b>TN</b>	Tunnel	<b>SL</b>	Slot
<b>HF</b>	Hoof	<b>WV</b>	Wave
<b>HK</b>	Hook	<b>FB</b>	Flat Blade
<b>HP</b>	Hot Plate	<b>VC</b>	V-Groove Chisel
<b>HS</b>	Heat Stake	<b>PC</b>	Pin Connector
<b>LG</b>	Long Groove	<b>SK</b>	Socket

Note: STTC/SMTC cartridges will not work on CV-5200 series systems.

# CV-5200 Series

Connection Validation™ Soldering Station



## Cartridge Part Number Cross Reference Table

Current Part Number	New Part Number	Description
STTC-x46	<b>CVC-xBV6005A</b>	CARTRIDGE, BEVEL, 0.5MM X 14MM LG, 60DEG
STTC-x47P	<b>CVC-xBV6018P</b>	CARTRIDGE, BEVEL, 1.8MM X 6MM LG, 60DEG
STTC-x47	<b>CVC-xBV6018R</b>	CARTRIDGE, BEVEL, 1.8MM X 14MM LG, 70DEG
STTC-x25P	<b>CVC-xCH0010P</b>	CARTRIDGE, CHISEL, 1MM X 6MM LG, 35DEG
STTC-x25	<b>CVC-xCH0010S</b>	CARTRIDGE, CHISEL, 1MM, 30DEG
STTC-x38P	<b>CVC-xCH0014P</b>	CARTRIDGE, CHISEL, 1.4MM X 6MM LG, 35DEG
STTC-x99	<b>CVC-xCH0015R</b>	CARTRIDGE, CHISEL, REACH, 1.4MM X 12MM LG, 30DEG
STTC-x38	<b>CVC-xCH0014S</b>	CARTRIDGE, CHISEL, 1.4MM X 9.9MM LG, 30DEG
STTC-x42	<b>CVC-xCH0018A</b>	CARTRIDGE, CHISEL, ACCESS, 1.8MM X 15MM LG, 60DEG
STTC-x37LL	<b>CVC-xCH0018L</b>	CARTRIDGE, CHISEL, 1.8MM X 10MM LG, 30DEG, LL
STTC-x37P	<b>CVC-xCH0018P</b>	CARTRIDGE, CHISEL, 1.8MM X 6MM LG, 35DEG
STTC-x98	<b>CVC-xCH0018R</b>	CARTRIDGE, CHISEL, REACH, 1.8MM X 10MM LG, 30DEG
STTC-x37	<b>CVC-xCH0018S</b>	CARTRIDGE, CHISEL, 1.8MM X 10MM LG, 30DEG
STTC-x36P	<b>CVC-xCH0025P</b>	CARTRIDGE, CHISEL, 2.5MM X 6MM LG, 30DEG
STTC-x36	<b>CVC-xCH0025S</b>	CARTRIDGE, CHISEL, 2.5MM X 10MM LG, 30DEG
STTC-x13	<b>CVC-xCH0030S</b>	CARTRIDGE, CHISEL, 3MM X 5MM LG, 90DEG
STTC-x03	<b>CVC-xCH0034S</b>	CARTRIDGE, CHISEL 3MM X 9MM LG
STTC-x65	<b>CVC-xCH0050A</b>	CARTRIDGE, CHISEL, 5MM X 12MM LG, 22DEG
STTC-x17	<b>CVC-xCH0050S</b>	CARTRIDGE, CHISEL, LARGE, 5MM X 8MM LG, 30DEG
STTC-x20	<b>CVC-xCH2238A</b>	CARTRIDGE, CHISEL, 3.8MM X 22MM LG, 12DEG
STTC-x90	<b>CVC-xCN0003A</b>	CARTRIDGE, CONICAL, 0.25MM X 13.5MM LG
STTC-x45P	<b>CVC-xCN0004P</b>	CARTRIDGE, CONICAL, 0.4MM X 9MM LG
STTC-x26	<b>CVC-xCN0004R</b>	CARTRIDGE, CONICAL, REACH, 0.6MM X 8MM LG, 35DEG
STTC-x22	<b>CVC-xCN1404S</b>	CARTRIDGE, CONICAL, 0.4MM X 9MM LG
STTC-x43	<b>CVC-xCN0005A</b>	CARTRIDGE, CONICAL, 0.5MM X 15MM LG
STTC-x44	<b>CVC-xCN0005R</b>	CARTRIDGE, CONICAL, REACH, 0.5MM X 15MM LG, 30DEG
STTC-x11	<b>CVC-xCN0005S</b>	CARTRIDGE, CONICAL, 0.5MM X 5MM LG
STTC-x01	<b>CVC-xCN0010A</b>	CARTRIDGE, CONICAL, 1MM X 13MM LG
STTC-x01P	<b>CVC-xCN0010P</b>	CARTRIDGE, CONICAL, 1MM X 6.5MM LG
STTC-x41	<b>CVC-xCN0013R</b>	CARTRIDGE, CONICAL, REACH, 1.3MM X 22MM LG, 30DEG
STTC-x06	<b>CVC-xCN1304A</b>	CARTRIDGE, CONICAL, 0.4MM
STTC-x45	<b>CVC-xCN1504A</b>	CARTRIDGE, CONICAL, 0.4MM X 15MM LG
STTC-x40	<b>CVC-xCN1604R</b>	CARTRIDGE, CONICAL, REACH, 0.8MM X 16MM LG, 30DEG
STTC-x07	<b>CVC-xCN1710A</b>	CARTRIDGE, CONICAL, ACCESS, 1MM X 17MM LG
SMTC-x167	<b>SMC-xHF6015S</b>	CARTRIDGE, HOOF, 1.5MM X 16.5MM LG, 60 DEG
SMTC-x147	<b>SMC-xHF6033S</b>	CARTRIDGE, HOOF, 3.3MM X 17MM LG, 60 DEG
SMTC-x172	<b>SMC-xHK0005S</b>	CARTRIDGE, HOOK, LONG, 0.5MM

Note: STTC/SMTC cartridges will not work on CV-5200 series systems.

# CV-5200 Series

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## Cartridge Part Number Cross Reference Table

Old Part Number	New Part Number	Description
STTC-x05	<b>CVC-xBV3018S</b>	CARTRIDGE, BEVEL, 1.78MM, 30DEG
STTC-x15	<b>CVC-xBV3018P</b>	CARTRIDGE, BEVEL, 1.27MM, 30DEG
STTC-x24	<b>CVC-xBV4001S</b>	CARTRIDGE, BEVEL 1MM, 30DEG
STTC-x35	<b>CVC-xBV6018S</b>	CARTRIDGE, BEVEL, 1.78MM, 30DEG
STTC-x14	<b>CVC-xCH0020S</b>	CARTRIDGE, BEVEL, 2MM, 45DEG
STTC-x31	<b>CVC-xCN0010S</b>	CARTRIDGE, CONICAL, 1MM
STTC-x32	<b>CVC-xCN1002S</b>	CARTRIDGE, CONICAL, 1.78MM
STTC-x02	<b>CVC-xCN1208S</b>	CARTRIDGE, CONICAL, 1.78MM
STTC-x12	<b>CVC-xCN4302S</b>	CARTRIDGE, CONICAL, 2MM
STTC-x16	<b>CVC-xCN4805S</b>	CARTRIDGE, CONICAL, 0.5MM
STTC-x83	<b>CVC-xLG1802A</b>	CARTRIDGE, CONICAL, 2MM
SMTC-x60	<b>SMC-xBL0010S</b>	CARTRIDGE, BLADE, 10MM
SMTC-xBL150	<b>SMC-xBL0015H</b>	CARTRIDGE, HIGH MASS, BLADE 15MM
SMTC-x61	<b>SMC-xBL0016S</b>	CARTRIDGE, BLADE, 15.75MM
SMTC-x62	<b>SMC-xBL0022S</b>	CARTRIDGE, BLADE, 22MM
SMTC-xBL250	<b>SMC-xBL0025H</b>	CARTRIDGE, HIGH MASS, BLADE 25MM
SMTC-xBL350	<b>SMC-xBL0035H</b>	CARTRIDGE, HIGH MASS, BLADE 35MM
SMTC-x184	<b>SMC-xHF0015V</b>	CARTRIDGE, CONCAVE HOOF, 1.5MM
SMTC-x185	<b>SMC-xHF0020V</b>	CARTRIDGE, CONCAVE HOOF, 2MM
SMTC-x186	<b>SMC-xHF0030V</b>	CARTRIDGE, CONCAVE HOOF, 3MM
SMTC-x183	<b>SMC-xHF3025S</b>	CARTRIDGE, HOOF, CONCAVE, 2.5MM, BENT, 30 DEG
SMTC-x175	<b>SMC-xHF6009S</b>	CARTRIDGE, HOOF, 0.89MM, 60 DEG
SMTC-x174	<b>SMC-xHF6011S</b>	CARTRIDGE, HOOF, LONG, 1.1MM, 60 DEG
SMTC-x169	<b>SMC-xHF6020S</b>	CARTRIDGE, HOOF, LONG, 2MM, 60 DEG
SMTC-x170	<b>SMC-xHF6030S</b>	CARTRIDGE, HOOF, LONG, 3MM, 60 DEG
SMTC-x171	<b>SMC-xHK0008S</b>	CARTRIDGE, CONICAL, BENT, 0.76MM
SMTC-x165	<b>SMC-xKN0025S</b>	CARTRIDGE, KNIFE, 2.5MM
SMTC-x161	<b>SMC-xKN0048S</b>	CARTRIDGE, KNIFE, THIN TIN LENGTH, 4.8MM
SMTC-x173	<b>SMC-xKN0048W</b>	CARTRIDGE, KNIFE, WIDE TIN LENGTH, 4.8MM
STTC-x173P	<b>SMC-xKN0050P</b>	CARTRIDGE, KNIFE, POWER, 5MM
STTC-x173PLL	<b>SMC-xKN0050X</b>	CARTRIDGE, KNIFE, 5MM