



**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 ConnectionValidation™

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

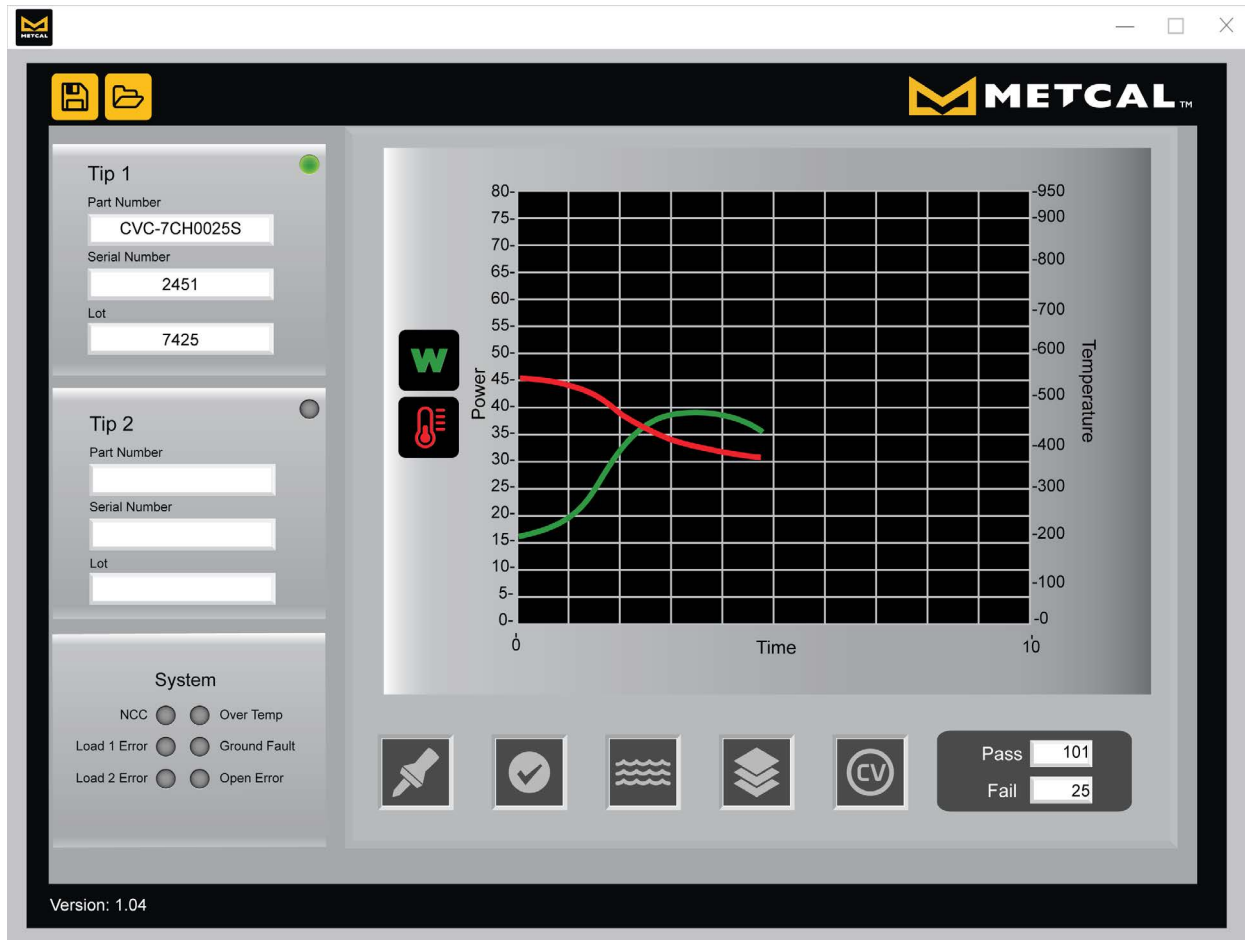
Now that you have a baseline, you can quickly analyze your soldering performance, identify changes in your solder conditions, and make changes to your process. Download the free CV-5000 Monitor software and start monitoring your process.

**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



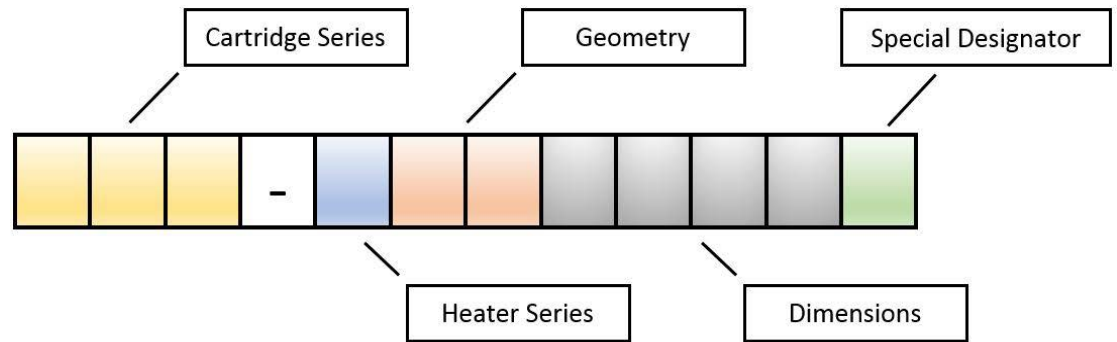
CV-5200 Series

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

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

Geometry

BL	Blade	KN	Knife
BV	Bevel	MH	Mini-Hoof
CH	Chisel	QD	Quad
CN	Conical	SC	Slotted Cylindrical
CP	Hollow Cup	SH	Shield
TN	Tunnel	SL	Slot
HF	Hoof	WV	Wave
HK	Hook	FB	Flat Blade
HP	Hot Plate	VC	V-Groove Chisel
HS	Heat Stake	PC	Pin Connector
LG	Long Groove	SK	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	CVC-xBV6005A	CARTRIDGE, BEVEL, 0.5MM X 14MM LG, 60DEG
STTC-x47P	CVC-xBV6018P	CARTRIDGE, BEVEL, 1.8MM X 6MM LG, 60DEG
STTC-x47	CVC-xBV6018R	CARTRIDGE, BEVEL, 1.8MM X 14MM LG, 70DEG
STTC-x25P	CVC-xCH0010P	CARTRIDGE, CHISEL, 1MM X 6MM LG, 35DEG
STTC-x25	CVC-xCH0010S	CARTRIDGE, CHISEL, 1MM, 30DEG
STTC-x38P	CVC-xCH0014P	CARTRIDGE, CHISEL, 1.4MM X 6MM LG, 35DEG
STTC-x99	CVC-xCH0015R	CARTRIDGE, CHISEL, REACH, 1.4MM X 12MM LG, 30DEG
STTC-x38	CVC-xCH0014S	CARTRIDGE, CHISEL, 1.4MM X 10MM LG, 30DEG
STTC-x42	CVC-xCH0018A	CARTRIDGE, CHISEL, ACCESS, 1.8MM X 15MM LG, 60DEG
STTC-x37LL	CVC-xCH0018L	CARTRIDGE, CHISEL, 1.8MM X 10MM LG, 30DEG, LL
STTC-x37P	CVC-xCH0018P	CARTRIDGE, CHISEL, 1.8MM X 6MM LG, 35DEG
STTC-x98	CVC-xCH0018R	CARTRIDGE, CHISEL, REACH, 1.8MM X 10MM LG, 30DEG
STTC-x37	CVC-xCH0018S	CARTRIDGE, CHISEL, 1.8MM X 10MM LG, 30DEG
STTC-x36P	CVC-xCH0025P	CARTRIDGE, CHISEL, 2.5MM X 6MM LG, 30DEG
STTC-x36	CVC-xCH0025S	CARTRIDGE, CHISEL, 2.5MM X 10MM LG, 30DEG
STTC-x13	CVC-xCH0030S	CARTRIDGE, CHISEL, 3MM X 5MM LG, 90DEG
STTC-x03	CVC-xCH0034S	CARTRIDGE, CHISEL 3MM X 9MM LG
STTC-x65	CVC-xCH0050A	CARTRIDGE, CHISEL, 5MM X 12MM LG, 22DEG
STTC-x17	CVC-xCH0050S	CARTRIDGE, CHISEL, LARGE, 5MM X 8MM LG, 30DEG
STTC-x20	CVC-xCH2238A	CARTRIDGE, CHISEL, 3.8MM X 22MM LG, 12DEG
STTC-x90	CVC-xCN0003A	CARTRIDGE, CONICAL, 0.25MM X 13.5MM LG
STTC-x45P	CVC-xCN0004P	CARTRIDGE, CONICAL, 0.4MM X 9MM LG
STTC-x26	CVC-xCN0004R	CARTRIDGE, CONICAL, REACH, 0.6MM X 8MM LG, 35DEG
STTC-x22	CVC-xCN1404S	CARTRIDGE, CONICAL, 0.4MM X 9MM LG
STTC-x43	CVC-xCN0005A	CARTRIDGE, CONICAL, 0.5MM X 15MM LG
STTC-x44	CVC-xCN0005R	CARTRIDGE, CONICAL, REACH, 0.5MM X 15MM LG, 30DEG
STTC-x11	CVC-xCN0005S	CARTRIDGE, CONICAL, 0.5MM X 5MM LG
STTC-x01	CVC-xCN0010A	CARTRIDGE, CONICAL, 1MM X 13MM LG
STTC-x01P	CVC-xCN0010P	CARTRIDGE, CONICAL, 1MM X 6.5MM LG
STTC-x41	CVC-xCN0013R	CARTRIDGE, CONICAL, REACH, 1.3MM X 22MM LG, 30DEG
STTC-x06	CVC-xCN1304A	CARTRIDGE, CONICAL, 1.78MM (0.07 IN)
STTC-x45	CVC-xCN1504A	CARTRIDGE, CONICAL, 0.4MM X 15MM LG
STTC-x40	CVC-xCN1604R	CARTRIDGE, CONICAL, REACH, 0.8MM X 16MM LG, 30DEG
STTC-x07	CVC-xCN1710A	CARTRIDGE, CONICAL, ACCESS, 1MM X 17MM LG
SMTC-x167	SMC-xHF6015S	CARTRIDGE, HOOF, 1.5MM X 16.5MM LG, 60 DEG
SMTC-x147	SMC-xHF6033S	CARTRIDGE, HOOF, 3.3MM X 17MM LG, 60 DEG
SMTC-x172	SMC-xHK0005S	CARTRIDGE, HOOK, LONG, 0.5MM

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

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

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

CV-H9-MFH

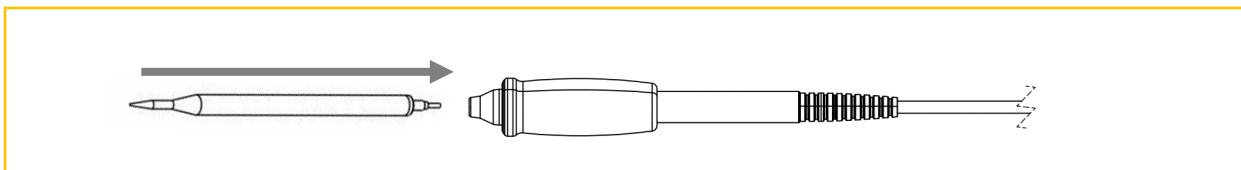
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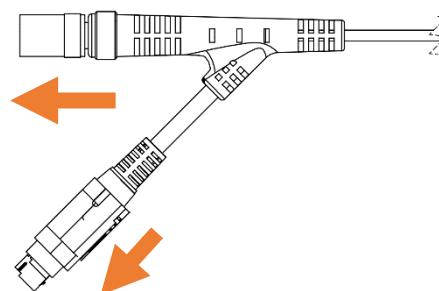


MicroFine Solder Handpiece for CV Systems
Pièce à souder MicroFine pour systèmes CV
Mikrofeines Löthandstück für CV-Systeme
Manipolo a saldatura MicroFine per sistemi CV
Pieza de mano de soldadura MicroFine para sistemas CV
适用于 CV 系统的 MicroFine 焊接手柄
CV システム用 MicroFine はんだ付けハンドピース
CV 시스템용 초미세 솔더 핸드피스

Metcal CV-H9-MFH MicroFine solder handpiece and compatible tips are designed for work under the microscope.
La pièce à souder MicroFine CV-H9-MFH de Metcal et les embouts compatibles sont conçus pour fonctionner au microscope.
Das Metcal CV-H9-MFH MicroFine Löthandstück und die kompatible Spitzen sind für Arbeit unter dem Mikroskop konzipiert.
Il manipolo per saldatura Metcal CV-H9-MFH MicroFine e le punte compatibili sono progettati per il lavoro al microscopio.
La pieza de mano de soldadura Metcal CV-H9-MFH MicroFine y las puntas compatibles están diseñadas para trabajar bajo el microscopio.
Metcal CV-H9-MFH MicroFine 焊接手柄和兼容吸头专为在显微镜下工作而设计。
Metcal CV-H9-MFH MicroFine はんだ付けハンドピースと互換性のあるチップは、顕微鏡下での作業向けに設計されています。
Metcal CV-H9-MFH MicroFine 초미세 솔더 핸드피스 및 호환 팁은 현미경으로 작업하도록 설계되었습니다.



Handpiece connects to Metcal CV Systems
La pièce à main se connecte aux systèmes Metcal CV
Das Handstück wird an Metcal CV-Systeme angeschlossen
Il manipolo si collega ai sistemi CV Metcal
La pieza de mano se conecta a los sistemas Metcal CV
手柄连接到 Metcal CV 系统
ハンドピースは金属製 CV システムに接続します
핸드피스는 Metcal CV 시스템에 연결됩니다



Part Number	Description
CV-H9-MFH	CV MicroFine Handpiece
MFH-WS9	MicroFine Handpiece Workstand
CV-UK9	CV MicroFine Handpiece and Workstand

CV-H9-MFH

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Specifications	
Weight	< 12 gm
Length	115 mm
Cable Length	1.9 m

Specifications	
Cable Thickness	3.5 mm
Max. Temp @ grip	42 °C
Grip	Replaceable

MicroFine Handpiece Cartridges

Temperature Guide

	Max. Temp.	Application
MFTC-6	675 °F / 357 °C	Temperature sensitive applications
MFTC-7	775 °F / 413 °C	Most general applications

Part Numbers, Geometries, and Dimensions

Part Number	Geometry	Description	Dimensions
MFTC-6CH5002 MFTC-7CH5002	Chisel	SOLDER TIP CART, CHISEL, 0.2 mm x 5 mm, MF	0.2 mm x 5 mm
MFTC-6CH5004 MFTC-7CH5004	Chisel	SOLDER TIP CART, CHISEL, 0.4 mm x 5 mm, MF	0.4 mm x 5 mm
MFTC-6CH5006 MFTC-7CH5006	Chisel	SOLDER TIP CART, CHISEL, 0.6 mm x 5 mm, MF	0.6 mm x 5 mm
MFTC-6CH5008 MFTC-7CH5008	Chisel	SOLDER TIP CART, CHISEL, 0.8 mm x 5 mm, MF	0.8 mm x 5 mm
MFTC-6CH5012 MFTC-7CH5012	Chisel	SOLDER TIP CART, CHISEL, 1.2 mm x 5 mm, MF	1.2 mm x 5 mm
MFTC-6CN5001 MFTC-7CN5001	Conical	SOLDER TIP CART, CONICAL, 0.1 mm x 5 mm, MF	0.1 mm x 5 mm
MFTC-6CNR5001 MFTC-7CNR5001	Conical	SOLDER TIP CART, CONICAL REACH, 0.1 mm x 5 mm, MF	0.1 mm x 5 mm
MFTC-6CN5003 MFTC-7CN5003	Conical	SOLDER TIP CART, CONICAL, 0.3 mm x 5 mm, MF	0.3 mm x 5 mm
MFTC-6CN5005 MFTC-7CN5005	Conical	SOLDER TIP CART, CONICAL, 0.5 mm x 5 mm, MF	0.5 mm x 5 mm
MFTC-6CNB4501 MFTC-7CNB4501	Conical Bent	SOLDER TIP CART, CONICAL BENT, 0.1 mm x 4.5 mm, MF	0.1 mm x 4.5 mm
MFTC-6CNBR4501 MFTC-7CNBR4501	Conical Bent	SOLDER TIP CART, CONICAL BENT REACH, 0.1 mm x 4.5 mm, MF	0.1 mm x 4.5 mm
MFTC-6CNB5602 MFTC-7CNB5602	Conical Bent	SOLDER TIP CART, CONICAL BENT, 0.2 mm x 5.6 mm, MF	0.2 mm x 5.6 mm
MFTC-6CNB4503 MFTC-7CNB4503	Conical Bent	SOLDER TIP CART, CONICAL BENT, 0.3 mm x 4.5 mm, MF	0.3 mm x 4.5 mm
MFTC-6CNB4505 MFTC-7CNB4505	Conical Bent	SOLDER TIP CART, CONICAL BENT, 0.5 mm x 4.5 mm, MF	0.5 mm x 4.5 mm
MFTC-6HF5006 MFTC-7HF5006	Hoof	SOLDER TIP CART, HOOOF, 0.6 mm x 5 mm, MF	0.6 mm x 5 mm
MFTC-6CC5007 MFTC-7CC5007	Slot	SOLDER TIP CART, CHISEL SLOT, 0.7 mm x 5 mm x 1.0 mm, MF	0.7 mm x 5 mm

For Sales & Support

Please visit Metcal's website (metcal.com) where you will find available information on systems, accessories, technical notes, and more.
Visitez le site Web de Metcal (metcal.com) où vous trouverez les informations disponibles sur les systèmes, les accessoires, les notes techniques, etc.
Auf der Website von Metcal (metcal.com) finden Sie Informationen über Systeme, Zubehör, technische Hinweise und mehr.
Visite el sitio web de Metcal (metcal.com), donde encontrará información disponible sobre sistemas, accesorios, notas técnicas y más.
请访问 Metcal 的网站 (metcal.com)，在这里您可以找到有关系统、配件、技术说明等的可用信息。
システム、アクセサリ、テクニカルノートなど利用可能な情報に関しては Metcal のウェブサイト (metcal.com) を参照してください。
시스템, 액세서리, 기술 노트 등에 대한 정보를 찾을 수 있는 Metcal 웹사이트(metcal.com)를 방문하여 확인하십시오.