temperature

JOFRA™ CTC series

Compact
Temperature
Calibrators

A fast timesaving, and reliable true temperature calibrator designed for on-site use. The CTC series is the fastest dry-block series from AMETEK. Both speed and portability are superior to liquid baths. Dry-block calibrators do not require hazardous liquids and provide a wide temperature range.
Calibrate your RTD's, thermocouples, thermoswitches, thermistors, and other common temperature sensing devices.

Temperature ranges

CTC-140 A	-17 to 140°C (-1 to 284°F)
CTC-320 A	50 to 320°C (122 to 608°F)
CTC-320 B	50 to 320°C (122 to 608°F)
CTC-650 A	50 to 650°C (122 to 1202°F)
CTC-650 B	50 to 650°C (122 to 1202°F)

Fast calibration is timesaving

The special designed heating block profile heats up to 320°C (608°F) in just 4 minutes and to 650°C (1202°F) in only 10 minutes.

High flexibility

You are not limited by fixed holes. Interchangeable insertion tubes are used to match the diameter of your sensor-under-test.

Enhanced stability

MVI circuitry ensures stability despite mains supply variations in the process environment.

Timesaving features

Fast one-key-one-function access to the automatic switch test and auto stepping.

Documentation made easy

Optional RS-232 communications are available. Supplied with AMECAL-TEMPERATURE calibration software.

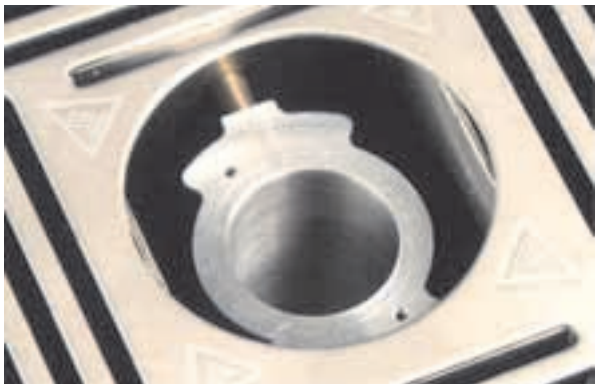
PRODUCT DESCRIPTION

The CTC series is designed for both on-site and maintenance shop use. The applications are generally critical process control but can vary based on calibration and testing requirements.
The user interface is easy and intuitive. One-key-one-function gives you quick access to timesaving features such as the switch test or the auto stepping function.
All models feature a large, backlit LCD display panel, which is easy-to-read even in well-lit areas. Units feature an informative display that provides icons and information regarding the status of the CTC and the calibration in-progress.
The JOFRA CTC series consists of five different models that differ in temperature ranges and immersion depths. All units offer similar features.
A rugged, slim-line, aluminum outer casing with die-cast top and bottom protects the CTC series of dry-block calibrators.
For easy documentation and automatic calibration, AMETEK offers an optional RS-232 serial communication package that includes the AMECAL-TEMPERATURE software.

AMETEK®
CALIBRATION INSTRUMENTS

Fast heating and cooling

The CTC-320 A and the CTC-650 A contain an innovative heating block profile. This design heats up in the CTC-320 A to maximum temperature in just 4 minutes and the CTC-650 A in only 10 minutes. The fast performance of the heating block is due to the special profile that minimizes mass and yet, still accepts an insertion tube with a 1-inch outer diameter. This design is a balanced compromise between temperature stability / homogeneity and rapid heating / cooling.

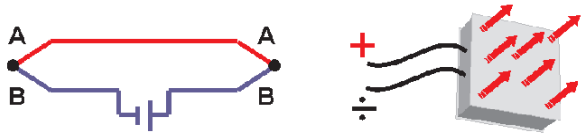


Deep immersion depth

The model CTC-320 B and CTC-650 B models offer a deeper immersion depth of 200 mm (7.9 in.). If you have liquid-filled sensors or other sensors that require a deeper immersion depth, look for the B versions. While the units do not heat and cool as quickly as their shorter counterparts, they offer the capability to accommodate longer sensors.

CTC-140 heating/cooling block

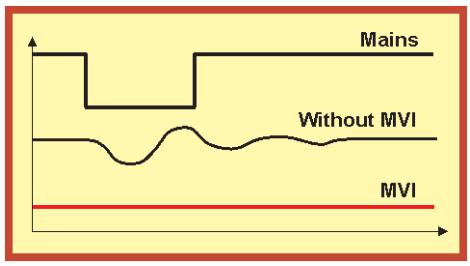
The model CTC-140 features Peltier elements. In 1834, Jean Peltier, a French physicist found that an ”opposite thermocouple effect” could be observed when an electric current was connected to a thermocouple. Heat would be absorbed at one of the junctions and discharged at the other junction. This effect is called the ”PELTIER EFFECT”.
The practical Peltier element (electronic heating pump) consists of many elements of semiconductor material that is connected electrically in series and thermally in parallel. These thermoelectric elements and their electrical interconnections are mounted between two ceramic plates. The plates serve to mechanically hold the overall structure together and to electrically insulate the individual elements from one another.



MVI - Improved temperature stability

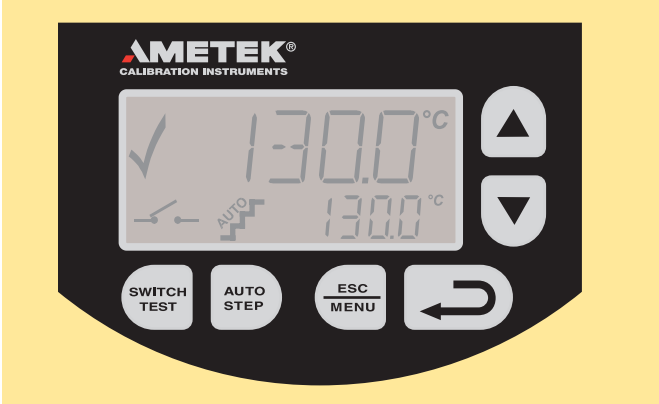
MVI stands for ”Mains power Variance Immunity”.
Unstable mains power supplies are a major contributor to on-site calibration inaccuracies. Traditional temperature calibrators often become unstable in production environments where large electrical motors, heating elements, and other devices are periodically cycled on and off. The cycling of supply power can cause the temperature regulator to perform inconsistently leading to both inaccurate readings and unstable temperatures.
The CTC series calibrators CTC-320 A/B and CTC-650 A/B employ the MVI, thus avoiding such stability problems. The MVI circuitry continuously monitors the supply voltage and ensures a constant energy flow to the heating elements.

The CTC-140 A does not require the MVI circuitry because the Peltier elements are energized with a stabilized DC voltage.



Easy-to-use, intuitive operation

All instrument controls may be performed from the front panel. The heat source is positioned away from the panel. This design helps to protect the operator.
The main functions on the CTC series are designed with one-key-one-function logic. This means that there are no sub-menus or difficult to remember multiple keystrokes necessary to access primary functions.
The easy-to-read, backlit display features dedicated icons, which help in identifying instrument conditions and operational steps.



Set temperature

The ”Up” and ”Down” arrow keys allow the user to set the exact temperature desired with a resolution of 0.1°C or °F.

Instrument setups

The CTC series stores the complete instrument setup, including: engineering units, stability criteria, resolution, display contrast, slope (ramp) rate, auto step settings, and maximum temperature.

Re-calibration/adjustments

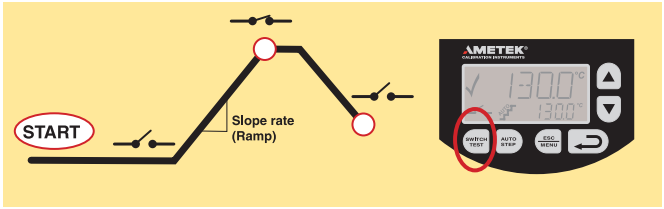
The CTC series has a very easy and straightforward procedure for re-calibration/adjustment. There is no need for a screwdriver or PC software. The only thing you need is a reliable reference thermometer.
Place the probe in the calibrator and follow the instructions on the display. Third-party labs and calibration facilities will be able to perform this function if a certificate from an independent source is necessary. Of course, AMETEK can provide you with a traceable calibration certificate from our labs when you require a higher level of confidence.

Stability indicator

The bold checkmark (√) on the display indicates that the calibrator has reached the desired set temperature and is stable. The operator may change the stability criteria and establish a greater sense of security in the calibration results. A convenient countdown timer is activated five minutes before the unit reaches stability.

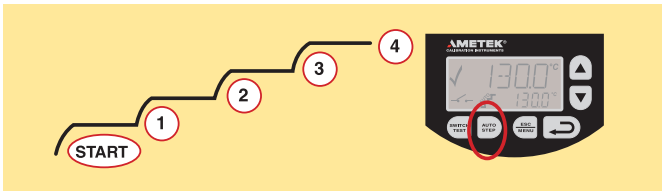
Automatic switch test

Operators can save a lot of time using the automatic thermoswitch test function to find values for the ''Open'' and ''Close'' temperatures. Additionally, this feature displays the hysteresis (deadband) between the two points. The feature ensures a very high repeatability when testing thermoswitches. Simply press the »SWITCH TEST« key to activate the function.



Auto stepping

This feature saves manpower. The operator may stay in the control room, or another remote location, monitoring the output from the sensor-under-test while the CTC series calibrator is placed in the process and automatically changes the temperature using a programmed step value and rate. Up to 9 different temperature steps may be programmed, including the hold time for each step.
This feature is also ideal for burning-in new sensors prior to installation; this minimizes initial drift and allows for initial testing. It is also useful for testing temperature data loggers.

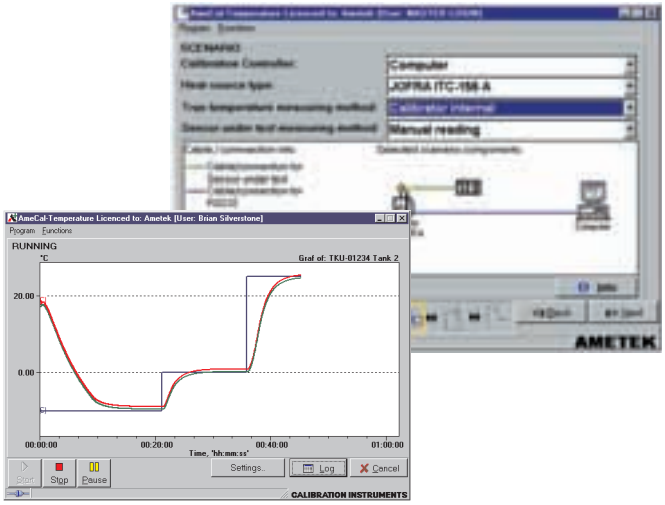


Maximum temperature

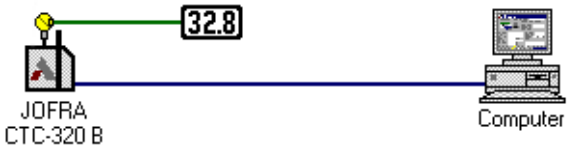
From the setup menu, the user can select the maximum temperature limit for the calibrator. This function prevents damage to the sensor-under-test caused by the application of excessive temperatures. The feature also aids in reducing drift resulting from extended periods of exposures to high temperatures. This feature can be locked with an access code.

Simplified calibration documentation

As an option, all CTC series calibrators can be delivered with an RS-232 serial interface and the AMECAL-TEMPERATURE software. This WINDOWS®-based software allows the user to customize his or her calibration routines. The software is easy-to-use so you do not have to be a programmer to configure your own calibration procedures.



The software features prompts, menus, and help functions that guide you through the configuration process.
The AMECAL-TEMPERATURE software supports automatic calibration for all JOFRA dry-block calibrators equipped with an RS-232 serial data interface including the JOFRA DTI-1000 digital thermometer. For semi-automatic calibrations, the software also supports liquid baths, ice points, or other dry-block heating and cooling sources. Using the software's ''SCENARIO'' function allows for combining instruments in virtually any configuration.
The calibration data collected may be stored on a PC for later recall or analysis.



FUNCTIONAL SPECIFICATIONS

Mains specifications

Voltage CTC-140/320/650 ..... 115V(90-127) 230V(180-254)
Voltage CTC-650 B ..... 115V(100-127) 230V(200-254)
Frequency ..... 45 - 65 Hz
Power consumption (max.) CTC-140 A..... 150 VA
Power consumption (max.) CTC-320 A .....1150 VA
Power consumption (max.) CTC-320 B ..... 600 VA
Power consumption (max.) CTC-650 A/B .....1150 VA

Temperature range

CTC-140 A
Maximum.....140°C (284°F)
Minimum @ ambient temp. 0°C (32°F).....-30°C (-22°F)
Minimum @ ambient temp. 23°C (73°F)..... -17°C (1°F)
Minimum @ ambient temp. 40°C (104°F) ..... -2°C (28°F)

CTC-320 A/B.....50 to 320°C (122 to 608°F)
CTC-650 A/B .....50 to 650°C (122 to 1202°F)

Resolution (user-selectable)

Selectable .....1° or 0.1°C/°F

Stability

CTC-140 A..... ±0.05°C (±0.09°F)
CTC-320 A/B..... ±0.1°C (±0.18°F)
CTC-650 A/B ..... ±0.1°C (±0.18°F)
Measured after the stability indicator has been on for 10 minutes. Measuring time is 30 minutes.

Time to stability (approximate)

All models ..... 10 minutes

Accuracy

CTC-140 A..... ±0.5°C (±0.9°F)
CTC-320 A/B..... ±0.5°C (±0.9°F)
CTC-650 A/B .....±0.9°C (±1.62°F)
Specification when using the internal reference. (Load 4 mm OD reference probe in the center of the insert).

Immersion depth

CTC-140 A (insulation included) ..... . 115 mm (4.5 in.)
CTC-320 A/ CTC-650 B..... 110 mm (4.3 in.)
CTC-320 B/ CTC-650 B..... 190 mm (7.5 in.)

Heating time

CTC-140
-17 to 23°C (1 to 73°F)..... 4 minutes
23 to 140°C (73 to 284°F) ..... 9 minutes

CTC-320 A
50 to 320°C (122 to 608°F) ..... 4 minutes

CTC-650 A
50 to 650°C (122 to 1202°F) ..... 10 minutes

CTC-320 B
50 to 320°C (122 to 608°F) ..... 20 minutes

CTC-650 B
50 to 650°C (122 to 1202°F) ..... 37 minutes

Cooling time

CTC-140 A
100 to 0°C (212 to 32°F) ..... 10 minutes
0 to -15°C (32 to 5°F) ..... 16 minutes
140 to 100°C (284 to 212°F) ..... 2 minutes

CTC-320 A
320 to 100°C (608 to 212°F) ..... 16 minutes

CTC-650 A
650 to 100°C (1202 to 212°F)..... 28 minutes

CTC-320 B
320 to 100°C (608 to 212°F) ..... 22 minutes

CTC-650 B
650 to 100°C (1202 to 212°F)..... 62 minutes

Switch input (dry contact)

Test voltage ..... Maximum 5 VDC
Test current .....Maximum 2.5 mA

AMECAL-TEMPERATURE software

Listed are the minimum hardware requirements needed for running the AMECAL-TEMPERATURE calibration software.

- INTEL™ 486 processor (PENTIUM™ 200 MHz recommended)
- 16 MB RAM (32 MB recommended)
- 40 MB free disk space on hard disk prior to installation
- Standard VGA (640 x 480, 16 colors) compatible screen (800 x 600, 256 colors recommended)
- CD-ROM drive for installation of the program
- 1 or 2 free RS-232 serial ports, depending on configuration

KEY FEATURE TABLE

Automatic switch test

Finds switching temp. ..... Open, close, hysteresis
Slope rate, programmable ..... 0.1 to 9.9 °C/°F

Auto stepping

Programmable.....Up to 9 steps
Dwell time on each step ..... Programmable

Enhanced stability

Unstable mains protection ..... MVI Circuitry
Stability indication .....Yes, in display

Multi-information display

Stability indicator.....Clear checkmark
Countdown timer before stable ..... 5 minutes
Temperature ..... SET and READ simultaneously
Alphanumeric messages.....Yes
Calibration status icons.....Yes

Training mode (heating/cooling block disabled)

Simulation of all functions .....Yes
Simulating heating and cooling.....Approx. 100° per minute

Service facilities

Adjustment of the unit from the keypad .....Yes
Self explaining guide in display.....Yes
Other information ..... Displays serial number, software revision level, and last calibration date

Setup facilities

Stability criteria.....Extra time before ”stable indication” is shown
Display resolution.....0.1° or 1°C/°F
Temperature units ..... °C and °F
Slope rate.....0.1 to 9.9°/minute
Maximum temperature ..... Any value within range

PHYSICAL SPECIFICATIONS

Instrument dimensions

CTC-140 A, CTC-320 A, CTC-650 A
L x W x H:.....241 x 139 x 325 mm (9.5 x 5.5 x 12.8 in.)

CTC-320 B, CTC-650 B
L x W x H:.....241 x 139 x 408 mm (9.5 x 5.5 x 16.1 in.)

Instrument weight

CTC-140 A..... 6.5 kg (14 lb)
CTC-320 A ..... 5 kg (11 lb)
CTC-650 A ..... 6.4 kg (14 lb)
CTC-320 B ..... 6.7 kg (15 lb)
CTC-650 B ..... 10.4 kg (23 lb)

Insert dimensions

CTC-140 A
Diameter x length .....19 mm (0.75 in.) x 100 mm (3.9 in.)

CTC-320 A, CTC-650 A
Diameter x length .....26 mm (1 in.) x 120 mm (4.7 in.)

CTC-320 B, CTC-650 B
Diameter x length .....26 mm (1 in.) x 200 mm (7.9 in.)

Weight of non-drilled insert (approximate)

CTC-140 A.....73 g (2.6 oz)
CTC-320 A .....164 g (5.8 oz)
CTC-650 A ..... 506 g (17.8 oz)
CTC-320 B .....277 g (9.8 oz)
CTC-650 B ..... 858 g (30.3 oz)

Shipping (+ std. accessories + carrying case)

Weight: CTC-140 A .....12.9 kg (28.4 lb)
Weight: CTC-320 A.....12.2 kg (26.8 lb)
Weight: CTC-650 A.....13.6 kg (30 lb)
Weight: CTC-320 B.....13.9 kg (30.6 lb)
Weight: CTC-650 B..... 17.6 kg (38.7 lb)

Size: LxWxH..... 507 x 232 x 415 mm (20 x 9.1 x 16.3 in.)

Shipping (+ std. accessories but no carrying case)

Weight: CTC-140 A .....9.9 kg (21.8 lb)
Weight: CTC-320 A.....9.2 kg (20.2 lb)
Weight: CTC-650 A.....10.6 kg (23.3 lb)
Size: (A) LxWxH...410 x 250 x 370 mm (16.1 x 9.8 x 14.6 in.)

Weight: CTC-320 B..... 10.9 kg (24 lb)
Weight: CTC-650 B..... 14.6 kg (32.1 lb)
Size: (B) LxWxH..480 x 235 x 440 mm (18.9 x 9.3 x 17.3 in.)

Shipping (carrying case only)

Weight: ..... 5.0 kg (11 lb)
Size: LxWxH..... 507 x 232 x 415 mm (20 x 9.1 x 16.3 in.)

Miscellaneous

Optional: Serial data interface ..... RS-232C (9-pin Male)
Operating temperature.....0 to 40°C (32 to 104°F)
Storage temperature .....-20 to 50°C (-4 to 122°F)
Humidity ..... 0 to 90% RH
Protection class IP-10
CE Conformity..... EN61326-1 : 1997/A1:1998
EN61010-1 : 1993/A2:1995

STANDARD DELIVERY

Standard delivery CTC-140/320/650

- CTC dry-block calibrator (user specified)
- Mains power cable (user specified)
- Traceable certificate - temperature performance
- Insert (user specified)
- 3 pcs. insulation plugs for:
  6, 10, 13 mm (1/4, 3/8, 1/2 in.) sensors (CTC-140 only)
- Tool for insertion tubes
- User's manual (multi-language)
- Reference manual (English)
- Test cables (1 x red, 1 x black)

- Optional RS-232 cable
- Optional calibration software, AMECAL-TEMPERATURE

ACCESSORIES

Part no.	Description
123198	CTC series, reference manual
123199	CTC series, user manual
123408	Carrying case for version A
123409	Carrying case for version B
122832	Cleaning brush, 4 mm (3/Pkg)
60F174	Cleaning brush, 6 mm (3/Pkg)
122822	Cleaning brush, 8 mm (3/Pkg)
60F135	Mains cable, 115V, USA, Type B
60F139	Mains cable, 220V, Australia, Type F
60F138	Mains cable, 220V, Italy, Type E
60F137	Mains cable, 220V, South Africa, Type D
60F141	Mains cable, 230V, Denmark, Type G
60F140	Mains cable, 230V, Europe, Type A
60F143	Mains cable, 230V, Israel, Type I
60F142	Mains cable, 230V, Switzerland, Type H
60F136	Mains cable, 240V, UK, Type C
105366	RS-232 cable
104203	Test cable set
104216	Heat shield
60F170	Tool for insertion tube
123469	Insulation plug (CTC-140 A only) 3 pcs. for 6 mm (1/4 in.), 10 mm (3/8 in.), 13 mm (1/2 in.)
65-F100	Insulation tube 100 mm (4 in.)
105173	10 insulation plates
105813	AmeCal-Temperature, PC calibration software

Insulation tube and plates

Improve your calibration uncertainty by insulating the sensor-under-test. Minimize the heat dissipation from the top of the block and through the sensor-under-test. This insulation is important for all dry-block calibrators without the dual-zone heating block.

Carrying case

The optional protective carrying case ensures safe transportation and storage of the instrument and all associated equipment.

Heat shield

An external heat shield is available and may be placed on top of the calibrator to reduce the hot air stream around the sensor-under-test. This is especially important for testing thermocouples having head-mounted transmitters with cold-junction compensation.

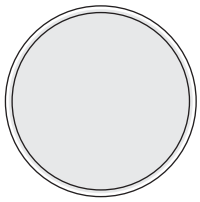
INSERTS FOR CTC SERIES

General inserts description

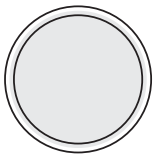
Inserts for CTC-140 A and CTC-320 A/B are made of aluminum. Inserts for CTC-650 A/B are made of brass.

All specifications about hole sizes are referring to the outer diameter of the sensor-under-test.
The correct clearance size is applied in all predrilled inserts

Special drilled inserts on request.



Undrilled inserts (CTC-320 A/B) (CTC-650 A/B)



Undrilled inserts (CTC-140 A)

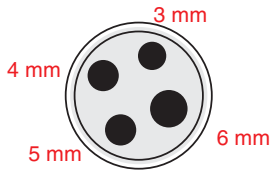
Inserts - undrilled

Inserts	140 A part no.	320 A part no.	650 A part no.	320 B part no.	650 B part no.
5-pack, undrilled insertion tubes	60F448	100175	100194	60F356	60F420

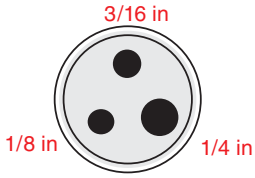
Inserts - predrilled - metric

Probe diameter	140 A part no.	320 A part no.	650 A part no.	320 B part no.	650 B part no.
3 mm	123428	123436	123444	N/A	N/A
4 mm	60F451	100177	100196	60F359	60F423
5 mm	123429	123437	123445	123452	123460
6 mm	60F453	100179	100198	60F361	60F425
7 mm	123430	123438	122516	123453	123461
8 mm	105185	100182	100201	105190	105195
9 mm	105186	100183	100202	105191	105196
10 mm	105187	100185	105188	105192	105197
11 mm	123431	100188	100204	105193	105198
12 mm	123432	100186	100206	105194	105199
13 mm	123433	60F339	105189	123454	123462
14 mm	N/A	100190	100208	123455	123463
15 mm	N/A	100191	100209	123456	123464
16 mm	N/A	123439	123446	123457	123465
18 mm	N/A	123440	122517	123458	123466
20 mm	N/A	123441	122518	123459	123467
Multi-hole type 1	123479	123475	123476	N/A	N/A

*Note: CTC-140 only: All multi-hole inserts are delivered with a matching insulation plug.



Multi-hole type 1 (CTC-140 A)

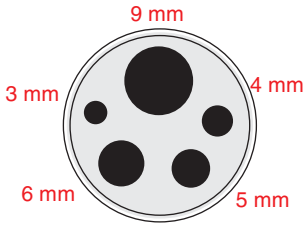


Multi-hole type 2 (CTC-140 A)

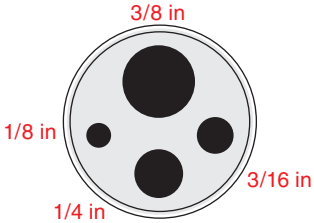
Inserts - predrilled - imperial (inch)

Probe diameter	140 A part no.	320 A part no.	650 A part no.	320 B part no.	650 B part no.
1/8 in.	60F450	100176	100195	60F358	60F422
3/16 in.	60F452	100178	100197	60F360	60F424
1/4 in.	60F454	100180	100199	60F362	60F426
5/16 in.	60F456	100181	100200	60F364	60F428
3/8 in.	60F458	100184	100203	60F366	60F430
7/16 in.	60F460	100187	100205	60F368	60F432
1/2 in.	60F462	100189	100207	60F370	60F434
9/16 in.	60F464	60F344	60F408	60F372	60F436
5/8 in.	60F466	100192	100210	60F374	60F438
11/16 in.	N/A	60F348	60F412	60F376	60F440
3/4 in.	N/A	100193	100211	60F378	60F442
13/16 in.	N/A	60F352	60F416	105184	60F444
7/8 in.	N/A	60F354	60F418	60F377	60F446
Multi-hole type 2	123480	123477	123478	N/A	N/A

*Note: CTC-140 only: All multi-hole inserts are delivered with a matching insulation plug.



Multi-hole type 1 (CTC-320 A/650 A)



Multi-hole type 2 (CTC-320 A/650 A)

ORDERING INFORMATION

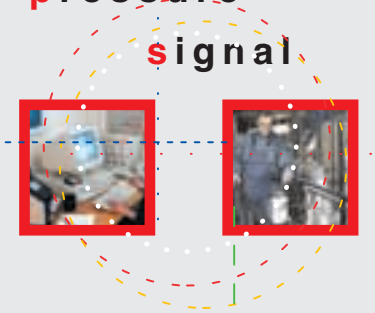
Model CTC series dry-block temperature calibrators

Order number	Description
	Base model number - 1st thru 7th characters
CTC140A	CTC-140, -17 to 140°C (-1 to 284°F)
CTC320A	CTC-320 A, 50 to 320°C (122 to 608°F)
CTC650A	CTC-650 A, 50 to 650°C (122 to 1202°F)
CTC320B	CTC-320 B, 50 to 320°C (122 to 608°F). Deep immersion depth
CTC650B	CTC-650 B, 50 to 650°C (122 to 1202°F). Deep immersion depth
	Power supply - 8th thru 10th characters
115	115VAC, 50/60Hz
230	230VAC, 50 Hz
	Mains power cable type - 11th characters
A	EUROPEAN, 230V,
B	USA/CANADA, 115V
C	UK, 240V
D	SOUTH AFRICA, 220V
E	ITALY, 220V
F	AUSTRALIA, 240V
G	DENMARK, 230V
H	SWITZERLAND, 220V
I	ISRAEL, 230V
	Insert type and size - 12th thru 14th characters
003	Metric, pre-drilled, 3 mm
004	Metric, pre-drilled, 4 mm
005	Metric, pre-drilled, 5 mm
006	Metric, pre-drilled, 6 mm
007	Metric, pre-drilled, 7 mm
008	Metric, pre-drilled, 8 mm
009	Metric, pre-drilled, 9 mm
010	Metric, pre-drilled, 10 mm
011	Metric, pre-drilled, 11 mm
012	Metric, pre-drilled, 12 mm
013	Metric, pre-drilled, 13 mm
014	Metric, pre-drilled, 14 mm (Not available for CTC-140)
015	Metric, pre-drilled, 15 mm (Not available for CTC-140)
016	Metric, pre-drilled, 16 mm (Not available for CTC-140)
018	Metric, pre-drilled, 18 mm (Not available for CTC-140)
020	Metric, pre-drilled, 20 mm (Not available for CTC-140)
125	Inch, pre-drilled, 1/8 in.
187	Inch, pre-drilled, 3/16 in.
250	Inch, pre-drilled, 1/4 in.
312	Inch, pre-drilled, 5/16 in.
375	Inch, pre-drilled, 3/8 in.
437	Inch, pre-drilled, 7/16 in.
500	Inch, pre-drilled, 1/2 in.
562	Inch, pre-drilled, 9/16 in.
625	Inch, pre-drilled, 5/8 in.
688	Inch, pre-drilled, 11/16 in. (Not available for CTC-140)
750	Inch, pre-drilled, 3/4 in. (Not available for CTC-140)
813	Inch, pre-drilled, 13/16 in. (Not available for CTC-140)
875	Inch, pre-drilled, 7/8 in. (Not available for CTC-140)
M01	Multi-hole insert type 1 (Not available for B models)
M02	Multi-hole insert type 2 (Not available for B models)
	Options - 15th thru 18th characters
B	RS-232 interface and AMECAL-TEMPERATURE PC-software
C	Carrying case
F	Traceable certificate (standard for Europe, Asia, Australia and Africa)
G	NIST traceable certificate (standard for Western Hemisphere)
H	Accredited certificate
X	Placeholder character for unused option

CTC650A 230 A M01 CFXX **Sample order number (all 18 characters)**

JOFRA CTC-650 A series dry-block, 230VAC power with European power cord and insert: Pre-drilled multi-hole type 1 (1 x 3mm, 1 x 4mm., 1 x 5mm, 1 x 6mm, 1 x 9mm) including carrying case and traceable certificate.

temperature
software
pressure
signal



AMETEK Calibration Instruments offers a complete range of calibration equipment for pressure, temperature, and signal - including software.

Temperature standards
Portable precision thermometer. Dry-block calibrators: 3 series, more than 13 models - featuring speed, portability, accuracy, and advanced documenting functions.

Primary pressure standards
Pneumatic floating-ball or hydraulic piston deadweight testers - easy to-use with accuracies up to 0.015% of reading.

Electronic pressure standards
Convenient electronic systems ranging from -1 to 700 bar (25 inHg to 10,000 psi) - multiple choices of pressure ranges, pumps, and accuracies, fully temperature-compensated for problem-free and accurate field use.

Signal calibration
Process signal measurement and simulation for easy control loop calibration and measurement tasks - from the small mA loop calibrator to the complete, software supported, modular-based ”calibration shop”.

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