

## Selection Guide Dry Blocks

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**Find Liquid Baths on pages A130- A132**

Calibration Instruments

### Dry Block Selection Guide

Manufacturer	Order #	Page	Temperature Range	Accuracy	Well Depth	Heating Time to Maximum	Cooling Time to 100°C or Minimum	Programmable	Comments
Hart Scientific	9102S	5961T	A114	-10 to 122°C	±0.5°C	4"	10 Min. to 100°C	N	
Hart Scientific	9107	24344T	A116	-45 to 140°C	±0.1°C	6"	15 Min.	Y	
Hart Scientific	9103	23635T	A115	-25 to 140°C	±0.25°C	4.875"	18 Min.	20 Min.	Y
Hart Scientific	9105	5895T	A116	-25 to 140°C	±0.1°C	6"	10 Min.	Y	
Hart Scientific	9100S	5853T	A114	35 to 300°C	±0.5°C	4"	9.5 Min.	14 Min. to 100°C	N
Hart Scientific	9009	24590T	A117	-15 to 350°C	±0.2°C	4"	10 Min.	16 Min.	Y
Hart Scientific	9140	22207T	A119	35 to 350°C	±0.5°C	4.875"	12 Min.	12 Min.	Y
Hart Scientific	9122A	5897T	A121	50 to 700°C	±0.1°C	6"	45 Min.		Y
Hart Scientific	9127	9127	A121	50 to 600°C	±0.1°C	6"	30 Min.		Y
Hart Scientific	9011	9011	A118	-30 to 650°C	±0.25°C	4.875" / 6"	30 Min.	30 Min.	Y
Hart Scientific	9141	22462T	A120	50 to 650°C	±0.5°C	4.875"	15 Min. to 100°C	25 Min. to 100°C	Y
Hart Scientific	9150	23070T	A122	150 to 1200°C	±5°C	4"	35 Min.	140 Min.	Y
Ametek/Jofra	ATC155	ATC156	A124	-24 to 155°C	±0.04°C	6.3"	23 Min.	37 Min.	Y
Ametek/Jofra	ATC320	ATC320	A124	50 to 320°C	±0.07°C	5.9"	7 Min.	42 Min.	Y
Ametek/Jofra	ATC650	ATC650	A124	50 to 650°C	±0.11°C	5.9"	27 Min.	68 Min.	Y
Ametek/Jofra	ITC155	ITC155	A125	-23 to 155°C	±0.25°C	6.3"	18 Min.	23 Min.	Y
Ametek/Jofra	ITC320	ITC320	A125	33 to 320°C	±0.3°C	5.9"	7 Min.	60 Min. to 50°C	Y
Ametek/Jofra	ITC650	ITC650	A125	33 to 650°C	±0.5°C	5.9"	25 Min.	95 Min. to 50°C	Y
Ametek/Jofra	CTC140	CTC140	A126	-17 to 140°C	±0.4°C	4.5"	10 Min.	16 Min.	Optional
Ametek/Jofra	CTC320	CTC320	A126	33 to 320°C	±0.5°C	4.3" or 7.5"	4 Min.	16 Min. to 100°C	Optional
Ametek/Jofra	CTC650	CTC650	A126	33 to 650°C	±0.5°C	4.3" or 7.5"	10 Min.	28 Min. to 100°C	Optional
Ametek/Jofra	ETC125	ETC125	A123	-10 to 125°C	±0.5°C	4.3"	21 Min.	32 Min.	Y
Ametek/Jofra	ETC400	ETC400	A123	28 to 400°C	±0.5°C	4.1"	5 Min.	21 Min.	Y
Ametek/Jofra	CTC1200A	CTC1200A	A123	300 to 1205°C	±2°C	4.3"	45 Min.	120 Min.	Y
Techne	350C	23285T	A127	45 to 125°C	±1.5°C	4.25"	5.2 Min. to 300°C	10.8 Min. to 100°C	N
Techne	140H	23469T	A128	-15 to 140°C	±0.3°C	4.5"	5 Min. to 100°C	9 Min. to 0°C	Y
Techne	UCAL400	3028960	A129	Amb to 430°C	±0.3°C	4.5"	12 Min.	21 Min.	N
Techne	425H	23475T	A128	20 to 425°C	±0.3°C	4.5"	15 Min. to 400°C	25 Min. to 100°C	Y
Techne	650H	23481T	A128	25 to 650°C	±0.2°C	6"	35 Min. to 600°C	30 Min. to 200°C	Y

## Transcat/Hart Scientific Hand-Held Dry-Block Calibrators

- Two Models
- Ranges from 14°F Up to 752°F
- Fast Warmup and Cooldown
- Calibrate and Check T/Cs, RTDs, Thermometers, Readout Devices
- Portable and Lightweight
- RS-232 Standard with Software Included

Now you can calibrate temperature instrumentation in the field with the industry's first truly portable dry-block calibrators. Eliminate the need to bring system components into the lab or drag your lab instruments around your plant! The 5853T and 5961T are lightweight, fit comfortably in your hand, and offer bench-style accuracy and resolution. Use them for quick checks of individual sensors or to determine total system error of probe and readout device.

### 5853T—Moderate Temperature

Features a range from 35 to 400°C and is available in three versions, one with six fixed-size wells, one with four, and one with two, so you can calibrate just about any sensor.

### 5961T—Low Temperature

The smallest and one of the fastest cooled-block calibrators you'll find. Ranges from -10 to +122°C and includes two 1/2" wells that accept removable inserts down to 1/16".

### 5961T-BAT

This new battery pack makes it possible to perform true field calibrations using the 5961T. It provides approximately 4 hours of operation.

**Each Unit Includes:** Manufacturer's NIST traceable certificate, software, RS-232 cable, six data points, and instruction manual.

**Each 5961T Also Includes:** 1 x 1/4" insert and 1 x 3/16" insert.



9100S-B



### Specifications

	5853T	5961T
Range:	95 to 752°F/35 to 400°C	14 to +252°F/-10 to +122°C
Accuracy:	±0.5°C	±0.5°C
Stability:	±0.2°C (0.36°F)	±0.1°C (0.18°F)
Resolution:	0.1°F or °C	
Cooling/Heating Time:	10 to 14 minutes	10 minutes
<b>Insert Holes (4" depth)</b>		
5853T ("A" Block):	Six, to fit 1/16", 1/8", 5/32", 3/16" (2), 1/4" sensors	—
5853T-1 ("B" Block):	Four, to fit 1/8", 3/16", 1/4", 3/8" sensors	—
5853T-2 ("C" Block):	Two, to fit 1/2" and 3/16" sensors	—
5961T:	—	Two, 1/2" to accept inserts (1/16", 1/8", 5/32", 3/16", 1/4", 5/16", 3/8")*
Power:	115 VAC (optional 230 VAC), 50/60 Hz switchable	94–234 VAC, 50/60 Hz (or 12 VDC external)
Size/Weight:	2.25 x 4.9 x 5.9" HWD/2.4 lbs	3.9 x 5.5 x 6.9" HWD/4 lbs

### Ordering Information

Order #	Mfg #	Description	Price
MP5853T	9100S-A	Hand-Held Dry Block Calibrator, Six Holes	
MP5853T-1	9100S-B	Hand-Held Dry Block Calibrator, Four Holes	
MP5853T-2	9100S-B	Hand-Held Dry Block Calibrator, Two Holes	
MP5961T	9102S	Hand-Held Cooled Dry Block Calibrator	
MP9320T	9320T-156	Battery Pack Kit (for 5961T) for 110V	
MP9320T-220	9320T-220	Battery Pack Kit (for 5961T) for 220V	
MP1200-C	1200-C	Carrying Case (5853T)	
MP1400-C	1400-C	Carrying Case (5961T)	

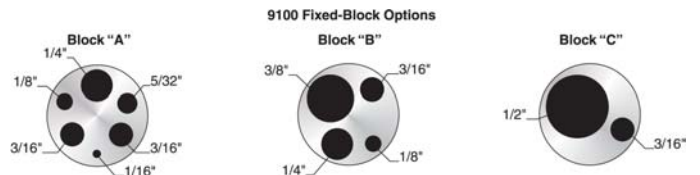
**NOTE:** For 240V operation, add -240 to the part number.  
See pages G19-G22 for Hart Precision RTD Thermometers!

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### Ordering Information

Inserts for: Diameter, Inches	Low Temperature CF5961T Order #	Price
1/16"	MP24591T-1	
1/8"	MP24591T-2	
3/16"	MP24591T-3	
1/4"	MP24591T-4	
5/16"	MP24591T-5	
3/8"	MP24591T-6	
7/16"	MP24591T-7	
1/2"	MP24591T-8	
Blank	MP24591T-10	

### 5853T BLOCK OPTIONS



## Transcat/Hart Scientific Low-Temperature Field Dry-Block Calibrator

**Best accuracy in this temperature range**

A

- Cools to -13°F (-25°C) or Lower
- ±0.25°C Accuracy, ±0.02°C Stability
- Interchangeable Multi-Hole Inserts
- Includes RS-232-C Interface and Windows™ Software

Now you don't have to choose between a precision (but bulky) lab dry-block and a compact (but lower-accuracy) field unit. You get the advantages of both, and the disadvantages of neither, with our new 23635T from Hart. Others have tried, but nobody makes a dry block like this one.

### High-end Performance

The calibrator goes down to -13°F in typical room temperatures, even lower in cooler ambients; you don't need extra cooling accessories. And, with an upper limit of 284°F, it will likely meet most of your general-purpose applications. Excellent accuracy, stability, and uniformity make for reliable results; fast heating, cooling, and stabilization times increase productivity. You can easily switch between °F or °C display, and read either to 0.1 resolution.

### Faster Switch Testing, Automated Data Handling

The included RS-232-C interface and software (Interface-it) speed up switch tests by automatically controlling heating and cooling rates. If you don't have a PC, adjust rates manually through the front panel. Interface-it also lets you record data and view or print test and calibration results.

### Calibrate Multiple Sensors

A variety block insert (included) takes up to six sensors of any type, from 1/16" to 1/2" in diameter. You don't have to pack several separate inserts when you go out to do your field calibrations. If you need comparison block inserts, we offer two—one with multiple sizes and one with same-size (1/4") holes. All inserts are interchangeable.

The 23635T is so easy to use, that—with a good reference thermometer—you can re-calibrate it yourself. (You'll still want to send it to us periodically for a new NIST-traceable certification, though.)

**Each Unit Includes:** Variety block insert—1/16, 1/8, 3/16, 1/4, 3/8, 1/2" (22208T-1), software (9930), manufacturer's seven-point NIST-traceable certificate, and operating instructions.



Compact size and lightweight make the 9103-A truly portable

Calibration Instruments

### Specifications

Range:	-13 to +284°F (-25 to +140°C), in ambient of 23°C ±3°C (or lower, depending on ambient)
Accuracy:	±0.25°C
Stability:	±0.02°C @ -25°C, ±0.04°C @ 140°C
Uniformity:	±0.3°C typical, ±0.1°C with similar-size wells
Display/Resolution:	°F or °C switchable/0.1°
Heating Time:	6 minutes, ambient to 100°C
Cooling Time:	8 minutes, ambient to 0°C
Stabilization Time:	7 minutes
Block Insert:	1/16, 1/8, 3/16, 1/4, 3/8, 1/2" dia. holes; 4.875" (124 mm) immersion depth
Computer Interface:	RS-232-C
Power Supply:	94 to 234 VAC, 50/60 Hz
Size:	10.25 x 5.63 x 9.63" HWD (26.1 x 14.3 x 24.5 cm)
Weight:	12.5 lbs (5.7 kg)

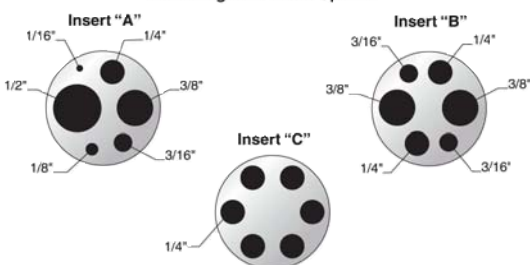
### Ordering Information

Order #	Mfg #	Description	Price
MP23635T	9103-A	Hart/Transcat Dry-Block, -25 to +140°C	
MP22208T-1	3103-2	Variety Block Insert Replacement	
MP22208T-3	3103-3	Comparison Block Insert (2 ea. of 3/8, 1/4, 3/16" dia. holes)	
MP22208T-5	3103-4	Comparison Block Insert (6 holes, 1/4" dia. ea.)	
MP22208T-7	3103-1	Blank Insert	
MP23635T-C	9316	Carrying Case	

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### 22208T Interchangeable Insert Options

Interchangeable Insert Options

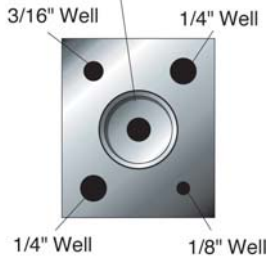


## Transcat/Hart Scientific Benchtop Dry-Block Calibrators

Ultra-low temperature—true -45°C below zero

### 5895T and 24344T Well Configuration

3/4" O.D. Aluminum Insert



**5895T and 24344T Includes:** One 1/4" insert, control software for Windows™, manufacturer's NIST traceable calibration certificate with data, and instructions.



9105 ▲



9107 ▲

### Benchtop Dry-Block Calibrators

These benchtop calibrators offer benefits and specifications superior to those of many in the same class: setpoint accuracy of 0.1°C or better, display resolution of 0.01°C or °F, and RS-232-C interface (IEEE optional). They also include a thermal switch test function for checking trigger points of switches, fuses, and cutouts. Operate them manually at the bench, or control them through your PC, using the included software.

### Low Temperature—5895T

This dry-well has a temperature range of -25°C to 140°C with a stability of ±0.01°C

### Ultra-Low Temperature—24344T

This ultra-low temperature dry-block unit reaches the coldest temperatures available in a portable block calibrator without attaching cooling tubes or putting the unit in a freezer. This high accuracy unit reaches -45°C (-49°F) sitting on your test bench.

The 24344T covers from 68°C below ambient to 115°C above, for a typical range of -45 to +140°C, and features exceptionally rapid heating/cooling rates—just 15 minutes to any setting. Reaches the higher temperatures faster than other cooled dry-block calibrators. Features a center well to accept inserts and four pre-drilled wells.

### Switch Testing Software Included

The software included with this calibrator includes a menu item to automate the certification of a temperature switch. The dry wells can be programmed to ramp up and down to verify the actuation temperature.

The user can control the ramp rate around a temperature band in which the switch is expected to trip. This allows the switch time to reach equilibrium and provides better indication of the trip and reset temperatures. The user inputs the upper and lower temperature points, the actuation band around these temperature points, the ramp speed within the band, and the number of cycles up and down.

The switch test data is stored into a text file and can easily be printed from Windows™ applications.

### Ordering Information

Order #	Mfg #	Description	Price
MP5895T	9105	Low Temperature Dry Block Calibrator	
MP24344T	9107	Ultra-Low Temperature Dry Block Calibrator	
MP5897T-2	9304	Carrying Case for 5895T and 24344T	

**NOTE:** For IEEE option, add -1 to catalog number and add

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### Specifications

	5895T	24344T
Range:	-25°C to 140°C (-13°F to 284°F) at 23°C Ambient	-45°C to 140°C (-49°F to 284°F) at 23°C Ambient
Accuracy:	±0.1°C	
Stability:	±0.01°C	±0.01°C at -40°C ±0.005°C at 0°C ±0.005°C at 100°C
Well-to-Well Uniformity:	±0.05°C	
Wells (6" Depth):	5 Wells: 2 at 1/4", 1 at 3/16", 1 at 1/8", and 1 interchangeable	
Computer Interface:	RS-232 included with Interface-It Control Software, IEEE Optional	
Heating Time to Max:	10 minutes	15 minutes
Resolution:	0.01°C or °F	
Size:	13.5 x 7.8 x 11.9" HWD	
Weight:	26 lb.	22 lb.

### Inserts Ordering Info

Inserts	For 5895T and 24344T
Diameter, inches:	
1/16"	MP5896T-1
1/8"	MP5896T-2
5/32"	MP5896T-3
3/16"	MP5896T-4
1/4"	MP5896T-5
5/16"	MP5896T-6
3/8"	MP5896T-7
1/2"	MP5896T-8
5/8"	MP5896T-9
Blank:	MP5896T-10
Price:	



See Pages G19-G22 for Precision Thermometers

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Calibration Instruments

## Hart Scientific Dual Range Dry-Block Calibrator

### Dual Range High and Low Temperature Dry Block Calibrator

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- Temperature Ranges-Low: -15 to 110°C;  
High: 50 to 350°C
- Operate Both Wells Simultaneously
- Uses One Common set of Inserts
- Quick Zero and Span Sensor Calibrations

This is a rugged industrial dry-well for calibrating industrial temperature sensors in the field. Count on Hart Scientific to design the dual industrial dry block calibrator for the toughest of applications-when you need high and low temperature capability at the same time.

The 24590T is built into a rugged Pelican™ case providing watertight and airtight protection. It has two separate wells, one for heating and one for cooling. They operate independently for a combined temperature range from -15°C to 350°C (5°F to 662°F). (NOTE: -15°C is achieved in normal ambient conditions of 25°C.) This unique dual unit allows you to calibrate your sensor in the heated well while the cooled well stabilizes. This eliminates the need to wait for multiple temperature points during calibration. In addition, for quick transmitter sensor calibrations, set the cold well to the “zero” temperature and the hot well to the “span” temperature and alternate from high to low and back. For use with automated systems, the 24590T comes standard with an RS-232 connection and our 9930 Interface-it software package.

A single AC connection powers both temperature wells for convenience at the jobsite. Both wells also accept the same removable inserts so you only have to keep one set on hand for both wells. Four inserts are stored in the wells, and an additional four can be stored in a convenient holding rack inside the case.

**Each Unit Includes:** Manufacturers Calibration Certificate, power cord, RS-232 cable, 9930 software, 2 x 1/4" and 2 x 3/16" insert sleeves, and user's manual.



9009-Y ▲

Calibration Instruments

### Specifications

Temp. Range (At Ambient):	Cold Side: -15°C to 110°C (5°F to 230°F) Hot Side: 50°C to 350°C (122°F to 662°F)
Accuracy:	±0.2°C from -10° to 200°C; ±0.6°C from 200°C to 350°C
Display Resolution:	0.1°C
Stability:	±0.05°C
Uniformity:	±0.1°C
Display Selections:	°C or °F
Power:	110/220 field switchable
Number of Wells:	Four X 0.5" O.D. wells with removable sleeves 24591T Series
Well Depth:	4"
Interface Options:	RS-232
Memory Temp. Settings:	8
Setable Slope Rate:	Yes
Heat Time to Maximum:	10 Minutes
Cooling Time to Minimum:	16 Minutes
Approval:	CE Mark

### Ordering Information

Order #	Mfg #	Description	Price
MP24590T	9009	Dual Dry-Well, -15°C to 350°C, Black	
MP24590T-Y	9009-Y	Dual Dry-Well, -15°C to 350°C, Yellow	
MP24591T-1	3102-1	1/4" Insert for 24590T	
MP24591T-2	3102-2	1/8" Insert for 24590T	
MP24591T-3	3102-3	3/16" Insert for 24590T	
MP24591T-4	3102-4	1/4" Insert for 24590T	
MP24591T-5	3102-5	5/16" Insert for 24590T	
MP24591T-6	3102-6	3/8" Insert for 24590T	
MP24591T-7	3102-7	7/16" Insert for 24590T	
MP24591T-8	3102-8	5/32" Insert for 24590T	
MP24591T-10	3102-0	Blank Insert for 24590T	

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## Hart Scientific Dual Range Dry Block Calibrator

### Dual Range Hot and Cold Temperature Dry Block Calibrator

- Temperature Ranges
  - Low: -30°C to 140°C (-22°F to 284°F)
  - High: 100°C to 650°C (212°F to 1202°F)
- Operate Both Wells Simultaneously

Hart's new dual-well dry block, Model 9011, has the widest temperature range of any block calibrator. Two independently controlled temperature wells allow two calibration runs to be performed simultaneously.

Cold side temperatures range from -30°C to 140°C; hot side temperatures range from 100°C to 650°C. Each side can hold up to six probes at one time.

If you're calibrating temperature transmitter probes, you'll love the dual-well design. Program one side for "zero" and the other for the "span" temperature and you won't have to wait between temperature points.

**Each Unit Includes:** Hot Side Variety Block Insert - 1/16, 1/8, 3/16, 1/4, 3/8, 1/2" (3109-1), Cold Side Variety Block Insert - 1/16, 1/8, 3/16, 1/4, 3/8, 1/2" (22208T-1), control software for Windows, manufacturer's NIST traceable calibration certificate with data, and instructions.



**9011** ▲

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#### Specifications

Temperature Range Cold Side:	-30°C to 140°C (-22°F to 284°F)
Temperature Range Hot Side:	100°C to 650°C (212°F to 1202°F)
Accuracy:	±0.25°C: -30°C to 450°C ±0.65°C: 450°C to 650°C
Stability:	±0.05°C – Cold Side ±0.1°C – Hot Side
Uniformity:	±0.05°C to ±0.3°C typical
Display Resolution:	0.01°C or °F
Display Selections:	°C or °F
Heat Time to Max:	30 minutes
Cooling Time to Min:	30 minutes
Number of Wells:	Interchangeable Multi-Hole Inserts
Well Depth:	4.875" – Cold Side 6" – Hot Side
Computer Interface:	RS-232
Power:	115 VAC, 50/60 Hz 230 VAC

#### Ordering Information

Order #	Mfg #	Description	Price
MP9011	9011	Dual Range Dry Block Calibrator, -30°C to 650°C	
MP3109-0	3109-0	Hot Side Blank Insert	
MP3109-1	3109-1	Hot Side Multi-Hole Insert (1/16, 1/8, 3/16, 1/4, 3/8, 1/2")	
MP3109-2	3109-2	Hot Side Multi-Hole Insert (2 of each 3/16, 1/4, and 3/8")	
MP3109-3	3109-3	Hot Side Multi-Hole Insert (8 holes, 1/4" each)	
MP22208T-7	3103-1	Cold Side Blank Insert	
MP22208T-1	3103-2	Cold Side Multi-Hole Insert (1/16, 1/8, 3/16, 1/4, 3/8, 1/2")	
MP22208T-3	3103-3	Cold Side Multi-Hole Insert (2 of each 3/16, 1/4, and 3/8")	
MP22208T-5	3103-4	Cold Side Multi-Hole Insert (6 holes, 1/4" each)	
MP9319	9319	Carrying Case for 9011	

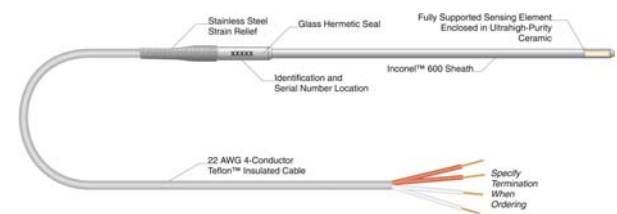
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Calibration Instruments



**See Hart Scientific PRT Thermometers on pages G19-G22**

**Find High Accuracy Precision PRT Probes on page G35-G36**



## Transcat/Hart Scientific Mid-Range Field Dry-Block Calibrator

**Handheld dry-block with built-in switch testing**

**A**

- Programmable Switch Testing and Software
- RS-232-C Standard with Software Included
- Interchangeable Inserts with 4.875" Immersion
- Heats to 350°C (662°F) in Only 12 Minutes

The 22207T is a mid-range addition to Hart's field dry-block calibrator series, and incorporates automated switch testing. This model gives you a range from 35° to 350°C (95° to 662°F) with ±0.5°C accuracy. Fast heating and cooling times and interchangeable multi-hole inserts speed your work and allow calibration of several sensors at one time.

Store eight discrete test points for immediate recall through the front panel. If you do temperature switch testing, there is nothing better! Program a ramp rate through the expected switch point and hook up switch connectors to the calibrator. The unit will store the switch trip temperature so there is no longer any need to "babysit" your switch tests. Using the software, test data can be stored and downloaded into a text file.

**Each Unit Includes:**

Variety block insert— $\frac{1}{16}$ ,  $\frac{1}{8}$ ,  $\frac{3}{16}$ ,  $\frac{1}{4}$ ,  $\frac{3}{8}$ ,  $\frac{1}{2}$ " (22207T-1), software (9930), manufacturer's six-point, NIST traceable certificate, and instructions.



22207T (shown with optional 22207T-5 comparison block installed)



3140-3

Calibration Instruments

**Specifications**

Range:	95 to 662°F (35 to 350°C)
Accuracy:	±0.5°C
Stability:	±0.03°C @ 50°C; ±0.05°C @ 350°C
Uniformity:	±0.4°C typical, ±0.1°C with similar size wells
Temperature Readout:	Switchable °C or °F
Resolution:	0.1°
Heating Time:	12 minutes from ambient to 350°C
Cooling Time:	15 minutes from 350°C to 100°C with insert removed
Stabilization Time:	7 minutes
Depth:	4.875" immersion (124 mm)
Power:	90 to 130 VAC, 50/60 Hz and 180 to 260 VAC, 50/60 Hz Switchable
Size/Weight:	6 x 3.375 x 7.75" HWD/6 lbs

**Ordering Information**

Order #	Mfg #	Description	Price
MP22207T	9140-A	Dry Block Calibrator, 92 to 662°F	
MP22207T-1	3140-2	Variety Block Insert Replacement for 22207T Only	
MP22207T-3	3140-3	Comparison Block Insert (2 each— $\frac{3}{8}$ , $\frac{1}{4}$ , $\frac{3}{16}$ " )	
MP22207T-5	3140-4	Comparison Block Insert, 6 x $\frac{1}{4}$ "	
MP22207T-7	3140-1	Blank Insert	
MP1400-C	1400-C	Carrying Case	

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**Find our RTD and Thermistor reference thermometers**

on page G19-G22

## Transcat/Hart Scientific High Temperature Field Dry Block Calibrator

**650° calibration in the palm of your hand**

- Built-In Switch Test
- RS-232-C Standard with Software
- 4.875" Immersion
- Interchangeable Inserts

Now you can have high temperature calibration in the palm of your hand, literally! Take this dry block anywhere in the field. The interchangeable inserts allow you to do field calibration of probes from 1/16" to 1/2" diameters. Store eight discrete test points for immediate recall through the front panel. If you do switch testing, there is nothing better! Program a ramp rate through the expected switch point and hook up switch connectors to the calibrator. The unit will store the switch trip temperature, so there is no need to "babysit" your switch tests.

Windows™ based software is included with the calibrator, which enables the automation of temperature switch testing. Trip and reset points are programmed along with the temperature band to be tested. Test data is automatically stored to a text file which can be viewed and printed through any Windows™ application.

### Specifications

Range:	50 to 650°C (122 to 1202°F)
Accuracy:	±0.5°C to 400°C, ±1.0°C above 400°C
Stability:	±0.05°C @ 100°C; ±0.12°C @ 650°C
Uniformity:	±0.1°C typical below 450°C, ±0.5°C max with similar diameter holes
Temperature Readout:	Switchable °C or °F
Resolution:	0.1°
Heating Time:	12 minutes from ambient to 650°C
Cooling Time:	25 minutes from 650°C to 100°C with insert removed
Depth:	4.875" (124 mm) immersion
Power:	90 to 130 VAC, 50/60 Hz and 180 to 260 VAC, 50/60 Hz switchable
Size/Weight:	4½ x 9 x 7" HWD/8 lbs (3.6 kg)

### Ordering Information

Order #	Mfg #	Description	Price
MP22462T	9141-A	High Temperature Dry Block Calibrator	
MP22462T-1	3141-2	Replacement Variety Block Insert A	
MP22462T-2	3141-3	Comparison Block Insert B (2 x 3/8", 2 x 1/4", 2 x 3/16", 1/8")	
MP22462T-3	3141-4	Comparison Block Insert C (6 x 1/4")	
MP22462T-CS	9309	Carrying Case	

Transcat Accredited Calibration with Data	CALL
Transcat Accredited Calibration without Data	CALL

**Looking for glass thermometers?**

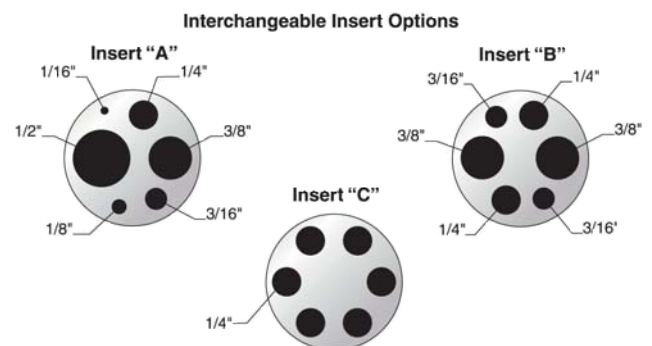
See pages G48-G50 for our complete listing.



9141-A

**Each Unit Includes:** Manufacturer's NIST traceable, certificate with six data points, Windows™ compatible software (9930), variety block interchangeable insert— 1/2, 3/8, 1/4, 3/16, 1/8, 1/16" (22462T-1), and instructions.

### 22462T Interchangeable Insert Options



## **NEW** Transcat/Hart Scientific Benchtop Dry Block Calibrators

Two models—highest accuracy

A

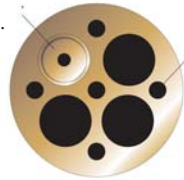


9122A

**9122A Includes:** Four inserts ( $\frac{1}{8}$ ",  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{1}{2}$ " ), control software for Windows™, manufacturer's NIST traceable calibration certificate with data, and instructions.

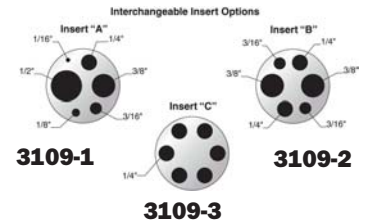
### 9122A Well Configuration

$\frac{3}{4}$ " O.D. Insert  $\frac{1}{4}$ " Well



9127

**9127 Includes:** Variety Block Insert-  $\frac{1}{8}$ ",  $\frac{1}{16}$ ",  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ " , control software for Windows™, manufacturer's NIST traceable calibration certificate with data, and instructions.



### Benchtop Dry Block Calibrators

These benchtop calibrators offer setpoint accuracy of 0.1°C or better, display resolution of 0.01°C or F, and RS-232-C interface (IEEE optional). They also include a thermal switch test function for checking trigger points of switches, fuses, and cutouts.

### Switch Testing Software Included

The software included with this calibrator includes a menu item to automate the verification of a temperature switch. The dry wells can be programmed to ramp up and down to verify the actuation temperature, also the ramp rate around a temperature band in which the switch is expected to trip.

The switch test data is stored into a text file and can easily be printed from Windows™ applications.

### Specifications

	NEW 9122A	9127
Range:	50°C to 700°C (122°F to 1292°F)	50°C to 600°C (122°F to 1112°F)
Accuracy:	±0.1°C at 100°C ±0.1°C at 300°C ±0.3°C at 660°C	±0.1°C at 100°C ±0.15°C at 300°C ±0.5°C at 600°C
Stability:	±0.01°C at 100°C ±0.02°C at 300°C ±0.04°C at 660°C	±0.01°C to 100°C ±0.02°C to 300°C ±0.05°C to 600°C
Wells (6" Depth):	9 Wells: 4 interchangeable and 4 at $\frac{1}{4}$ "	1 interchangeable well accommodates multi-hole insert
Heating Time to Max:	50 minutes	30 minutes
Computer Interface:	RS-232 included with Interface-It Control Software, IEEE Optional	
Resolution:	0.01°C or °F	
Size:	13.5 x 7.8 x 11.9" HWD	
Weight:	25 lb.	

Transcat Accredited Calibration with Data	CALL
Transcat Accredited Calibration without Data	CALL

### Ordering Information

Order#	Description	Price
MP9122A	High-Capacity Dry Block Calibrator	
MP9127	High-Speed Dry Block Calibrator	
MP5897T-2	Carrying Case for 9122A and 9127	
MP3109-0	Blank Insert (9127)	
MP3109-1	Multi-Hole Insert ( $\frac{1}{8}$ ", $\frac{1}{16}$ ", $\frac{3}{16}$ ", $\frac{1}{4}$ ", and $\frac{1}{2}$ " ) (9127)	
MP3109-2	Multi-Hole Insert ( 2 of each $\frac{3}{16}$ ", $\frac{1}{4}$ " and $\frac{3}{8}$ " ) (9127)	
MP3109-3	Multi-Hole Insert (8 holes, $\frac{1}{4}$ " each) (9127)	

NOTE: For IEEE option, add "-1" to catalog number and add \$420

### Inserts

Inserts for:	High Temperature
Diameter,	MP9122A
inches:	Order #
$\frac{1}{8}$ "	MP5898T-1
$\frac{3}{16}$ "	MP5898T-2
$\frac{1}{4}$ "	MP5898T-3
$\frac{3}{8}$ "	MP5898T-4
$\frac{1}{2}$ "	MP5898T-5
$\frac{3}{4}$ "	MP5898T-6
$\frac{1}{2}$ "	MP5898T-7
$\frac{3}{8}$ "	MP5898T-8
Blank	MP5898T-9
Price:	

Calibration Instruments

## Transcat/Hart Scientific Dry Block Calibration Furnace 1200°C

- Low-Cost Thermocouple Furnace
- Range 150 to 1200°C
- Best Stability and Accuracy

This new Thermocouple Furnace, 23070T, heats to 1200°C for calibrating industrial thermocouples. The portable furnace features stability of 0.5°C and full range accuracy of 5°C. With interchangeable multi-hole temperature blocks, any thermocouple from 1/16 mm to 1/2 mm can be inserted for quick temperature verification.

Weighing less than 30 lbs., the 23070T can be carried on-site to check thermocouples around your plant to 1200°C. Simply plug the furnace into a standard 110 or 220 VAC outlet, set the desired calibration temperature, and it is ready to certify your sensors and switches.

The 23070T is the most affordable furnace on the market. Now instead of replacing more expensive noble metal thermocouples, you can afford to check thermocouples in-house and extend their life. Fast heating and cooling also saves you time in comparison to competitive models.

The 23070T comes ready to implement into your ISO quality program. It comes fully calibrated and includes a certificate of calibration traceable to NIST with test data.

**Each Unit Includes:** Insert 23071T-1, instructions, and manufacturer's NIST calibration.



▲ 9150-A



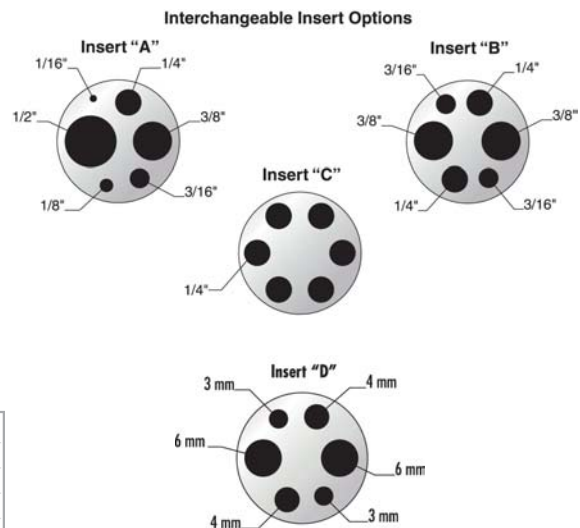
A

Calibration Instruments

### Specifications

Temperature Range:	150–1200°C (302–2192°F)
Display Resolution:	0.1°C to 999.9, 1°C above 1000°
Stability:	±0.5°C (±0.9°F)
Accuracy:	±5°C (±9.0°F)
Well Diameter:	1.25" (32 mm)
Well Depth:	4" (102 mm)
Heating Time to Max:	35 minutes with block
Cooling Time:	140 minutes with block
Uniformity:	±0.5 to ±1.0°C
Stability Time:	20 minutes
Line Voltage:	115/220 VAC ±10%, 50/60 Hz switchable
Size (HWD):	12 x 7.5 x 11"/304.8 x 190.5 x 279.4 mm
Weight:	28 lbs/12.75 kg

### 23070T Interchangeable Insert Options



### Ordering Information

Order #	Mfg #	Description	Price
MP23070T	9150-A	Dry Block Furnace	
MP23071T-1	3150-2	Multi-Hole Insert, (1/16, 1/8, 3/16, 1/4, 3/8, and 1/2")	
MP23071T-3	3150-3	Multi-Hole Insert, (2 x 3/16, 2 x 1/4, 2 x 3/8")	
MP23071T-5	3150-4	Multi-Hole Insert, (6 x 1/4")	
MP230717-7	3150-5	Multi-Hole Insert, (2 x 3 mm, 2 x 4 mm, 2 x 6 mm)	
MP23072T	9315	Carrying Case	

Transcat Accredited Calibration with Data	CALL
Transcat Accredited Calibration without Data	CALL

## **NEW** Ametek/Jofra High Temperature Dry-block Calibrator

- High Temperature 300 to 1205°C (572 to 2200°F)
- Fast Heating
- Front Panel, One-Key-One-Function Operation
- Auto-Stepping – User Programmable
- Switch Test (Switch Input – Dry Contacts)
- Large Display with Recognizable Icons
- RS232 and Software
- AMECAL LIGHT – Download Routines and Results

**Each Unit Includes:** Dry-block, power cable, insert, insert removal tool, RS232 cable, software for testing and for calibration of the CTC, carrying case, test leads, reference and user's manuals, and manufacturer's NIST traceable certification.

### Specifications

Ranges @ 23°C / 73°F:	300 to 1205°C (572 to 2200°F)
Accuracy:	±2.0 °C / 3.6°F
Stability:	±0.18°C / 0.10°F
Time to stability:	5 Minutes (approximate)
Resolution:	1° or 0.1°C or F – user selectable
Immersion depth:	110 mm / 4.3 in
Heating time to max:	45 minutes
Cooling time max to min:	120 minutes
Communications:	RS232
Voltage:	115 VAC – 230 VAC available (add -230 to catalog part number)
Size / Weight:	9.5 x 5.5 x 16.1" HWD / 25.8 lb

**CTC1200A** ▶



### Ordering Information

Order #	Description	Price
MPCTC1200A	Dry-block calibrator, 352 to 2200°, 115 VAC, 1/4" insert	
MPCTC1200A-230	Dry-block calibrator, 352 to 2200°, 230 VAC, 1/4" insert	
MP105173	Insulation plates for CTC Series – 10 plates	
MP104216	Heat shield for ITC and CTC series	
MP124404	Insert 1/4" Bore	
MP124405	Insert 1/2" Bore	
MP124406	Insert 4 mm Bore	
MP124407	Insert 6 mm Bore	
MP124403	Insert Blanks Blanks Pk/5	

## Ametek/Jofra ETC Series Dry-block Calibrators

- 2 Temperature Ranges and 5 Models
- Cooling Unit with 3 Predrilled Bores and Adapter Tube
- Adapter Tube Adds Flexibility and One Bore
- Heating Unit with 4 Predrilled Bores
- Front panel, one-key-one-function Operation
- Auto-Stepping – User programmable
- RS232 and Software
- AMECAL LIGHT – Download Routines and Results

Possibly the fastest and lightest dry-block calibrator available – with the accuracy and control of a larger unit

**Each unit includes:** Dry-block, power cable, conversion tubes (cooling units), insert removal tool (cooling units), shoulder strap, RS232 cable, software for testing and calibration, reference and user's manuals, and manufacturer's NIST and NPL traceable certification

### Specifications

	ETC125A	ETC400A
Ranges @ 23°C / 73°F:	-10 to 125°C, 14 to 257°F	28 to 400°C, 82 to 752°F
Accuracy:	±0.50°C / 0.90°F	±0.50°C / 0.90°F
Stability:	±0.05°C / 0.09°F	±0.15°C / 0.27°F
Resolution:	1° or 0.1°C or F – user selectable	
Immersion depth:	110 mm / 4.3 in	105 mm / 4.1 in
Heating time min to max:	21 minutes	5 minutes
Cooling time max to min:	32 minutes	21 minutes
Voltage:	115 VAC or 230 VAC (multiple voltage power supply)	115 VAC – 230 VAC available (add -230 to catalog part number)
Size / Weight:	6.8 x 2.8 x 7.2" HWD / 3.9 lb	6.8 x 2.8 x 7.2" HWD / 3.5 lb

### Ordering Information

Order #	Description	Price
MPETC125A-1	Dry-block calibrator 1 x 4 mm, 1 x 6 mm, 1 x 8 mm, 1 x 12.5 mm	
MPETC125A-2	Dry-block calibrator 1 x ½ in, 1 x ¼ in, 1 x ⅜ in, 1 x ½ in	
MPETC400A-11	Dry-block calibrator 1 x ¼ in, 1 x ½ in, 1 x ⅜ in, 1 x ⅜ in, 1 x ¼ in	
MPETC400A-12	Dry-block calibrator 1 x ¼ in, 1 x ½ in, 1 x ⅜ in, 1 x ¼ in, 1 x ⅜ in	
MPETC400A-21	Dry-block calibrator 1 x 2 mm, 1 x 3 mm, 2 x 4 mm, 1 x 6 mm	
MP124094	Carrying Case for ETC series	
MP124000	Calibration insert tube for ETC400A	
MP123939	5 Pack undrilled insert tubes - ETC125A	
MP124045	3/8 in conversion insert tube - ETC125A	
MP123938	8 mm conversion insert tube - ETC125A	

**HL-36** ▲



## **NEW** Ametek/Jofra ATC Series of Dry Block Calibrators

- Four Temperature Ranges
- Dual-Zone Heating Block to Ensure Temperature Homogeneity
- High Accuracy and Long-Term Stability
  - Built-in External Reference Sensor
- Input for All Common Types of Temperature Sensors
- Download of Calibration Routines and Upload of Results

The ATC Series calibrators are available in three different temperature ranges and each version in two models, A and B. The B version improves accuracy and has additional features such as: automatic switch test; download of calibration routines and upload of calibration results to PC; input for RTD, TC, V, mA, switch; transmitter supply; and reference sensor input.



**A**

### Specifications

	<b>NEW</b>	<b>NEW</b>		
Mfg #	ATC156A/B	ATC157A/B	ATC320A/B	ATC650A/B
Ranges @ 23°C / 73°F:	-24 to 155°C -11 to 311°F	-45 to 155°C -49 to 311°F	33 to 320°C 91 to 608°F	33 to 650°C 91 to 1202°F
Accuracy Model A:	±0.19°C / 0.34°F	±0.19°C / 0.34°F	±0.26°C / 0.47°F	±0.39°C / 0.70°F
Accuracy Model B with external STS probe:	±0.04°C / 0.07°F	±0.04°C / 0.07°F	±0.07°C / 0.13°F	±0.11°C / 0.20°F
Stability:	±0.02°C / 0.04°F	±0.02°C / 0.04°F	±0.02°C / 0.04°F	±0.03°C / 0.06°F
Resolution	1°, 0.1°, or 0.01°C or F – user selectable			
Immersion depth:	160 mm / 6.3 in	160 mm / 6.3 in	150 mm / 5.9 in	150 mm / 5.9 in
Heating time min (max)	23 minutes	23 minutes	7 minutes	27 minutes
Voltage:	115 VAC – 230 VAC available (add -230 to catalog part number)			
Size (HWD)	13.9 x 6.1 x 14.2"	13.9 x 6.1 x 14.2"	13.9 x 6.1 x 14.2"	13.9 x 6.1 x 14.2"
Weight (Lb)	26	28.9	22.5	26.7
RTD input:	2, 3, or 4-wire and LEMO plug Pt100 (STS), PT1000, Pt500, Pt100, Pt10, Cu100, Cu50 and Custom			
Installed TC curves:	Type E, J, K, T, R, S, B, N, XK, U and Custom Selectable Cold Junction Compensation			
Transmitter input Range:	0 to 24 mA and 0 to 12 VDC			
Accuracy:	±0.01% reading ±0.015% scale			

### ATC Series ▲

**Each Unit Includes:** Insertion tube extractor, manufacturer's calibration certificate, RS-232 cable, AMECAL-TEMPERATURE calibration software, AMETRIM-ATC Software, manuals, and carrying case.

The ATC320 and ATC650 also include a multi-hole insert (1 x 1/8", 1 x 3/16", 2 x 1/4", 1 x 3/8", 1 x 4mm)

### Ordering Information

Order #	Description	Price
MPATC156A	Dry-block calibrator, -11 to 311°F, 115 VAC, Multi-hole insert, carrying case, Model A	
MPATC156B	Dry-block calibrator, -11 to 311°F, 115 VAC, Multi-hole insert, carrying case, Model B	
MPATC157A	Dry-block calibrator, -49 to 311°F, 115 VAC, Multi-hole insert, carrying case, Model A	
MPATC157B	Dry-block calibrator, -49 to 311°F, 115 VAC, Multi-hole insert, carrying case, Model B	
MPATC320A	Dry-block calibrator, 91 to 608°F, 115 VAC, Multi-hole insert, carrying case, Model A	
MPATC320B	Dry-block calibrator, 91 to 608°F, 115 VAC, Multi-hole insert, carrying case, Model B	
MPATC650A	Dry-block calibrator, 91 to 1202°F, 115 VAC, Multi-hole insert, carrying case, Model A	
MPATC650B	Dry-block calibrator, 91 to 1202°F, 115 VAC, Multi-hole insert, carrying case, Model B	
MP75-PT100-PROBE	90° angled JOFRA STS series reference probe with accredited and traceable certificate	
MP122833	Basic Calibration Accessory Kit - ATC156	
MP122834	Basic Calibration Accessory Kit - ATC320 / ATC650	
MP123685	Basic Calibration Accessory Kit - ATC157	
MP105496	Heat shield for ATC series	

### Ordering Information — Inserts

Inserts for:	ATC156	ATC157	ATC320/ATC650
Diameter x length:	1.2" x 6.3"	1.2" x 5.9"	1.2" x 5.9"
Inches:			
1/8"	MP105677	MP123279	MP105676
3/16"	MP105679	MP123280	MP105678
1/4"	MP105681	MP123281	MP105680
5/16"	MP105683	MP123282	MP105682
3/8"	MP105685	MP123283	MP105684
7/16"	MP105687	MP123301*	MP105686
1/2"	MP105689	MP123302*	MP105688
5/8"	MP105691	—	MP105690
3/4"	MP105693	—	MP105692
Price:			

**NOTE:** All inserts are supplied with a hole for a 4 mm OD reference probe.

\* Exceptions without 4 mm hole.

### Ordering Information — Inserts

Multi Hole Inserts ATC156		
Order #	Description	Price
MP122757	Metric, Multi-Hole, (1 x 3 mm, 2 x 4 mm, 1 x 5 mm, 2 x 6 mm, 1 x 9 mm)	
MP122759	Imperial, Multi-Hole, (5 x 1/8", 1 x 4 mm)	
MP123298	Imperial, Multi-Hole, (1 x 1/8", 1 x 3/16", 2 x 1/4", 1 x 3/8", 1 x 4 mm)	
Multi Hole Inserts ATC157		
Order #	Description	Price
MP123295	Metric, Multi-Hole, (1 x 3 mm, 1 x 4 mm, 1 x 5 mm, 1 x 6 mm, 1 x 9 mm)	
MP123298	Imperial, Multi-Hole, (3 x 1/8", 1 x 4 mm)	
MP123297	Imperial, Multi-Hole, (2 x 1/8", 1 x 3/16", 1 x 1/4", 1 x 4 mm)	
Multi Hole Inserts ATC320/ATC650		
Order #	Description	Price
MP122756	Metric, Multi-Hole, (1 x 3 mm, 2 x 4 mm, 1 x 5 mm, 2 x 6 mm, 1 x 9 mm)	
MP122758	Imperial, Multi-Hole, (5 x 1/8", 1 x 4 mm)	
MP122760	Imperial, Multi-Hole, (1 x 1/8", 1 x 3/16", 2 x 1/4", 1 x 3/8", 1 x 4 mm)	

### Ordering Information — Undrilled Inserts

Inserts for:	ATC156	ATC157
Blank Pk/5	MP122720	MP123286
Blank Pk/5 w/4 mm ref. hole	MP122722	MP123285
Inserts for:	ATC320	ATC650
Blank Pk/5	MP122719	MP122719
Blank Pk/5 w/4 mm ref. hole	MP122721	MP122721

**Calibration Instruments**

## Ametek/Jofra ITC Series of Dry Block Calibrators

A

- Three Temperature Ranges
- Dual-Zone Heating Block to Ensure Temperature Homogeneity Throughout the Block
- Fast One-Key-One-Function Access to Automatic Switch Test and Auto Stepping
- High Accuracy and Long-Term Stability
- RS-232 Communications with AMECAL-TEMPERATURE Calibration Software

**Each Unit Includes:** Insertion tube extractor, manufacturer's calibration certificate, RS-232 cable, AMECAL-TEMPERATURE calibration software, manuals, test cables, and carrying case.

The ITC155A also includes a multi-hole insert (2 x 1/8", 1 x 3/16", 1 x 1/4", 1 x 4mm)  
The ITC320A and ITC650A also include a multi-hole insert (1 x 1/8", 1 x 3/16", 2 x 1/4", 1 x 3/8", 1 x 4mm)

### Specifications and Ordering Information

Model #	ITC155A	ITC320A	ITC650A
Temperature Range:	-23°C to 155°C (-9 to 311°F)	33°C to 320°C (91 to 608°F)	33°C to 650°C (91 to 1202°F)
Accuracy:	±0.25°C (±0.45°F)	±0.3°C (±0.54°F)	±0.5°C (±0.9°F)
Stability:	±0.03 (±0.05°F)		±0.04 (±0.07°F)
Display Resolution:	1° or 0.1°C/°F		
Heating Time to Maximum Temperature:	18 Minutes	7 Minutes	25 Minutes
Immersion Depth	6.3" (160 mm)	5.9" (150 mm)	
Immersion Tube Diameter:	0.8"	1.2"	
Power:	115 VAC (230 optional)		
Size:	9.5 x 5.5 x 14.8" LWH		
Weight:	16.8 lbs	14.3 lbs	18.7 lbs
Order #	MPITC155A	MPITC320A	MPITC650A
Price			

**NOTE:** For 230V operation, add -230 to order number

MP104216	Heat Shield for ITC Series	
	Transcat Accredited Calibration with Data	CALL
	Transcat Accredited Calibration without Data	CALL

### Ordering Information — Inserts

Inserts for:	ITC155A	ITC320A	ITC650A
Diameter x length:	0.8" x 6.3"	1.2" x 5.9"	1.2" x 5.9"
Inches:			
1/8"	MP123279	MP105676	MP105676
3/16"	MP123280	MP105678	MP105678
1/4"	MP123281	MP105680	MP105680
5/16"	MP123282	MP105682	MP105682
3/8"	MP123283	MP105684	MP105684
7/16"	MP123301**	MP105686	MP105686
1/2"	MP123302**	MP105688	MP105688
5/8"	N/A	MP105690	MP105690
3/4"	N/A	MP105692	MP105692
Price:			

**NOTE:** All inserts are supplied with a hole for a 4 mm OD reference probe.  
**NOTE\*\*** ITC155A only: 7/16" and 1/2" inserts are delivered without the 4 mm reference hole but supplied with a matching insulation plug.



ITC Series ▲

### Ordering Information — Multi Hole Inserts

<b>For Model ITC155A</b>	
MP123295	Metric, Multi-Hole, (1 x 3mm, 2 x 4mm, 1 x 5mm, 1 x 6mm)
MP123297	Imperial, Multi-Hole, (2 x 1/8", 1 x 3/16", 1 x 1/4", 1 x 4mm)
MP123298	Imperial, Multi-Hole, (3 x 1/8", 1 x 4mm)
<b>NOTE:</b> All multi-hole inserts for ITC155A are supplied with a matching insulation plug.	
<b>For Model ITC320A/ITC650A</b>	
MP122756	Metric, Multi-Hole, (1 x 3 mm, 2 x 4 mm, 1 x 5 mm, 2 x 6 mm, 1 x 9 mm)
MP122758	Imperial, Multi-Hole, (5 x 1/8", 1 x 4 mm)
MP122760	Imperial, Multi-Hole, (1 x 1/8", 1 x 3/16", 2 x 1/4", 1 x 3/8", 1 x 4 mm)

### Ordering Information — Undrilled Inserts

Inserts for:	ITC155A	ITC320A	ITC650A
Blank Pk/5	MP123286	MP122719	MP122719
Blank Pk/5	MP123285	MP122721	MP122721
w/4 mm ref. hole			

## **NEW** Ametek/Jofra ATC Series of Dry Block Calibrators

- Four Temperature Ranges
- Dual-Zone Heating Block to Ensure Temperature Homogeneity
- High Accuracy and Long-Term Stability
  - Built-in External Reference Sensor
- Input for All Common Types of Temperature Sensors
- Download of Calibration Routines and Upload of Results

The ATC Series calibrators are available in three different temperature ranges and each version in two models, A and B. The B version improves accuracy and has additional features such as: automatic switch test; download of calibration routines and upload of calibration results to PC; input for RTD, TC, V, mA, switch; transmitter supply; and reference sensor input.



ATC Series ▲

**Each Unit Includes:** Insertion tube extractor, manufacturer's calibration certificate, RS-232 cable, AMECAL-TEMPERATURE calibration software, AMETRIM-ATC Software, manuals, and carrying case.

The ATC320 and ATC650 also include a multi-hole insert (1 x 1/8", 1 x 3/16", 2 x 1/4", 1 x 3/8", 1 x 4mm)

### Specifications

	<b>NEW</b>	<b>NEW</b>		
<b>Mfg #</b>	<b>ATC156A/B</b>	<b>ATC157A/B</b>	<b>ATC320A/B</b>	<b>ATC650A/B</b>
<b>Ranges @ 23°C / 73°F:</b>	-24 to 155°C -11 to 311°F	-45 to 155°C -49 to 311°F	33 to 320°C 91 to 608°F	33 to 650°C 91 to 1202°F
<b>Accuracy Model A:</b>	±0.19°C / 0.34°F	±0.19°C / 0.34°F	±0.26°C / 0.47°F	±0.39°C / 0.70°F
<b>Accuracy Model B with external STS probe:</b>	±0.04°C / 0.07°F	±0.04°C / 0.07°F	±0.07°C / 0.13°F	±0.11°C / 0.20°F
<b>Stability:</b>	±0.02°C / 0.04°F	±0.02°C / 0.04°F	±0.02°C / 0.04°F	±0.03°C / 0.06°F
<b>Resolution</b>	1°, 0.1°, or 0.01°C or F – user selectable			
<b>Immersion depth:</b>	160 mm / 6.3 in	160 mm / 6.3 in	150 mm / 5.9 in	150 mm / 5.9 in
<b>Heating time min (max)</b>	23 minutes	23 minutes	7 minutes	27 minutes
<b>Voltage:</b>	115 VAC – 230 VAC available (add -230 to catalog part number)			
<b>Size (HWD)</b>	13.9 x 6.1 x 14.2"	13.9 x 6.1 x 14.2"	13.9 x 6.1 x 14.2"	13.9 x 6.1 x 14.2"
<b>Weight (Lb)</b>	26	28.9	22.5	26.7
<b>RTD input:</b>	2, 3, or 4-wire and LEMO plug Pt100 (STS), PT1000, Pt500, Pt100, Pt10, Cu100, Cu50 and Custom			
<b>Installed TC curves:</b>	Type E, J, K, T, R, S, B, N, XK, U and Custom Selectable Cold Junction Compensation			
<b>Transmitter input Range:</b>	0 to 24 mA and 0 to 12 VDC			
<b>Accuracy:</b>	±0.01% reading ±0.015% scale			

### Ordering Information

Order #	Description	Price
MPATC156A	Dry-block calibrator, -11 to 311°F, 115 VAC, Multi-hole insert, carrying case, Model A	
MPATC156B	Dry-block calibrator, -11 to 311°F, 115 VAC, Multi-hole insert, carrying case, Model B	
MPATC157A	Dry-block calibrator, -49 to 311°F, 115 VAC, Multi-hole insert, carrying case, Model A	
MPATC157B	Dry-block calibrator, -49 to 311°F, 115 VAC, Multi-hole insert, carrying case, Model B	
MPATC320A	Dry-block calibrator, 91 to 608°F, 115 VAC, Multi-hole insert, carrying case, Model A	
MPATC320B	Dry-block calibrator, 91 to 608°F, 115 VAC, Multi-hole insert, carrying case, Model B	
MPATC650A	Dry-block calibrator, 91 to 1202°F, 115 VAC, Multi-hole insert, carrying case, Model A	
MPATC650B	Dry-block calibrator, 91 to 1202°F, 115 VAC, Multi-hole insert, carrying case, Model B	
MP75-PT100-PROBE	90° angled JOFRA STS series reference probe with accredited and traceable certificate	
MP122833	Basic Calibration Accessory Kit - ATC156	
MP122834	Basic Calibration Accessory Kit - ATC320 / ATC650	
MP123685	Basic Calibration Accessory Kit - ATC157	
MP105496	Heat shield for ATC series	

### Ordering Information — Inserts

Inserts for:	ATC156	ATC157	ATC320/ATC650
<b>Diameter x length:</b>	1.2" x 6.3"	1.2" x 5.9"	1.2" x 5.9"
<b>Inches:</b>			
1/8"	MP105677	MP123279	MP105676
3/16"	MP105679	MP123280	MP105678
1/4"	MP105681	MP123281	MP105680
5/16"	MP105683	MP123282	MP105682
3/8"	MP105685	MP123283	MP105684
7/16"	MP105687	MP123301*	MP105686
1/2"	MP105689	MP123302*	MP105688
5/8"	MP105691	—	MP105690
3/4"	MP105693	—	MP105692
<b>Price:</b>			

**NOTE:** All inserts are supplied with a hole for a 4 mm OD reference probe.

\* Exceptions without 4 mm hole.

### Ordering Information — Inserts

Multi Hole Inserts ATC156		
Order #	Description	Price
MP122757	Metric, Multi-Hole, (1 x 3 mm, 2 x 4 mm, 1 x 5 mm, 2 x 6 mm, 1 x 9 mm)	
MP122759	Imperial, Multi-Hole, (5 x 1/8", 1 x 4 mm)	
MP123298	Imperial, Multi-Hole, (1 x 1/8", 1 x 3/16", 2 x 1/4", 1 x 3/8", 1 x 4 mm)	
Multi Hole Inserts ATC157		
Order #	Description	Price
MP123295	Metric, Multi-Hole, (1 x 3 mm, 1 x 4 mm, 1 x 5 mm, 1 x 6 mm, 1 x 9 mm)	
MP123298	Imperial, Multi-Hole, (3 x 1/8", 1 x 4 mm)	
MP123297	Imperial, Multi-Hole, (2 x 1/8", 1 x 3/16", 1 x 1/4", 1 x 4 mm)	
Multi Hole Inserts ATC320/ATC650		
Order #	Description	Price
MP122756	Metric, Multi-Hole, (1 x 3 mm, 2 x 4 mm, 1 x 5 mm, 2 x 6 mm, 1 x 9 mm)	
MP122758	Imperial, Multi-Hole, (5 x 1/8", 1 x 4 mm)	
MP122760	Imperial, Multi-Hole, (1 x 1/8", 1 x 3/16", 2 x 1/4", 1 x 3/8", 1 x 4 mm)	

### Ordering Information — Undrilled Inserts

Inserts for:	ATC156	ATC157
Blank Pk/5	MP122720	MP123286
Blank Pk/5 w/4 mm ref. hole	MP122722	MP123285
Inserts for:	ATC320	ATC650
Blank Pk/5	MP122719	MP122719
Blank Pk/5 w/4 mm ref. hole	MP122721	MP122721

A

Calibration Instruments

## Techne Hand Held Dry Block Calibrator

A

- Switchable °C to °F
- ISO 9002 and CE Approved
- Maximum Temperature 350°C
- Large Fixed Block in 3 Formats (Metric Versions Available)
- Temperature Sensor Burnout Protection
- An Independent Over Temperature Cut-Out
- Indicators for Over Temperature Cut-Out and Heater Power
- Separate Heater On/Off Switch for Fast Cool Down Without Changing Set Temperature

A fast and economical hand-held or benchtop calibrator, weighing only 1.5 kg (3.3 lbs).

**Each Unit Includes:** Manual, calibration certificate, and carrying case.

### Specifications

Temperature Range:	20° above ambient to 350°C (662°F)
Working Ambient:	10°C to 30°C
Heating Time 20°C to 300°C:	5.2 minutes
Cooling Time 300° to 100°C:	10.8 minutes
Stability (10 mins):	±0.09°C
Uniformity @ 100°:	±1.5°C
Accuracy 100°C to 300°C:	±1.5°C
Display Resolution:	0.1°C
Immersion Depth:	4½", (114.3 mm)
Fan Cooling:	Automatic
Weight:	3.3lbs/1.5kg
Dimensions:	2.9 x 5.1 x 7.1" HWD (72 x 128 x 178 mm)
Power Supply:	115v 50/60 Hz 4A, 500W or 230v 50/60 Hz 2A Single Fused Inlet IEC Socket



CE350-5 HOLE

CE  
REGISTERED  
ISO 9000  
MANUFACTURER

### Ordering Information

Order #	Mfg #	Description	Price
MP23285T-1	CE350-4X1/4	Dry Block Calibrator 350°C, 4 x ¼"	
MP23285T-3	CE350-5 HOLE	Dry Block Calibrator 350°C, ¾", ⅝", ¼", ⅜", ⅙"	
MP23285T-5	CE350-2X2	Dry Block Calibrator 350°C, 2 x ¼" and 2 x ⅜"	

Transcat Accredited Calibration with Data	CALL
Transcat Accredited Calibration without Data	CALL

Calibration Instruments

## Techne Fluidized Bath

**The ideal choice for multiple or odd-shaped sensors**

- 50–350°C (122 to 662°F) and 50–600°C (122 to 1112°F) Models
- Uniform to 0.5°C

Fluidized baths are excellent for calibrating all types of temperature sensors, and are the first choice for large, odd-shaped, or multiple sensors. They heat up quickly, but cool very slowly, so they work best if left at a constant temperature. Most labs use two or more units for multi-point calibrations. They are by far the fastest to stabilize when calibrating filled bulb-type sensors. These units should be used with an air filter, a pressure regulator, and a temperature controller. The 7043T temperature controllers replace the standard control and provide precise increments of 32°F–1112°F or 1°C–600°C, depending on model. Stability is 0.5°F at 50°C with the temperature controller.

**7030T and 7032T Include:** Overspill flange (7024T), aluminum oxide media (7054T), and instructions.

**NOTE:** For best accuracy, we recommend use of a precision reference thermometer.

### Specifications

	7030T	7032T
Range:	122 – 662 °F/50 – 350 °C	122 – 1112 °F/50 – 600 °C
Heating Source:	750W	750W (two)
Outside/Inside Diameter:	9.5"/6.5"	13"/6.5"
Outside/Inside Height:	12"/4.5"	18"/7.0"

3010500



Order #	Mfg #	Description	Price
MP7030T-117	3010100	Fluidized Bath, 122–662 °F, 117 VAC	
MP7030T-240	3010200	Fluidized Bath, 122–662 °F, 240 VAC	
MP7032T-117	3010500	Fluidized Bath, 122–1112 °F, 117 VAC	
MP7032T-240	3010600	Fluidized Bath, 122–1112 °F, 240 VAC	
MP7040T	7030784	Air Filter, for use with Regulator	
MP7041T	7030783	0–30 PSI Pressure Regulator	
MP7043T	3011900	Temperature Controller, °F	
MP7043T-1	3012000	Temperature Controller, °C	

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Transcat Accredited Calibration without Data	CALL

## Techne Dry Block Calibrators

**New design delivers improved performance**

- Three Temperature Ranges
- Single and Multi-Hole Inserts
- Standard and Programmable Models

### Standard Model

Choose this model for convenient basic calibration of high-temperature sensors. Operation is simple: set and adjust temperature via three pushbuttons, and read the values on a large, angled LED. The block accepts interchangeable single- or multi-hole inserts.

### Programmable with Software

The three programmable models add a built-in four line LCD display. Via the eight-button keypad you can create, store, and run test programs and save results. Included is Calsoft, a Windows™-based package that lets you create, save, send, and retrieve test profiles to and from the calibrator, and upload test results. You can view and print logged data as a line graph or as text, and create calibration certificates. You can also run a test program in real-time mode, fully controlling the calibrator from your PC.

**Each Unit Includes:** One multi-hole insert ( $\frac{2}{8}$ ,  $\frac{5}{16}$ ,  $\frac{1}{4}$ ,  $\frac{3}{16}$ , and  $\frac{1}{8}$ " ), insert extractor tool, soft carrying case with carrying strap, removable AC line cord, and user's manual.

### Each Programmable Unit Also Includes:

PC software and RS-232 cable.



425H ▲

### Specifications and Ordering Information

Model #	140S	40H	425S	425H	650S	650H
Range:	45°C below ambient to 140°C		20°C above ambient to 425°C		25°C (above ambient) to 650°C	
Accuracy:	±0.3°C in measuring zone (measuring zone is 0 to 50 mm from base of well)				±0.2°C in measuring zone (measuring zone is 0 to 50 mm from base of well)	
Stability:	±0.05°C in 10 minutes				±0.09°C in 10 minutes	
Heating Rate:	5 min 20 to 100°C		15 min 20 to 400°C		35 min 20 to 600°C	
Cooling Rate:	9 min 100 to 0°C		25 min 400 to 100°C		30 min 600 to 200°C	
Immersion Depth:	4.5" (114.3 mm)				6.0" (152.4 mm)	
Auto Ramping:	0.1 to 25°C per minute (programmable units only)					
Power:	110 to 126V AC, 50/60 Hz					
Size:	11.2 x 7.5 x 16.8" (285 x 190 x 426 mm)					
Weight:	40 lb (18 kg)		32 lb (14.5 kg)		41 lb (18.5 kg)	
Order #	MP23466T	MP23469T	MP23472T	MP23475T	MP23478T	MP23481T
Price						

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Transcat Accredited Calibration without Data	CALL

### Inserts for Model 140 and 425

Order #	Inserts (Aluminum)	Price
MP23467T-1	5 x $\frac{1}{4}$ " Holes	
MP23467T-3	$\frac{1}{8}$ , $\frac{3}{16}$ , $\frac{1}{4}$ , $\frac{5}{16}$ , and $\frac{3}{8}$ "	
MP23467T-5	2 x $\frac{1}{4}$ ", 2 x $\frac{3}{8}$ "	
MP23467T-7	2 x $\frac{1}{4}$ ", 2 x $\frac{1}{2}$ "	
MP23467T-9	$\frac{1}{4}$ " Hole	
MP23467T-11	Insert Blank	
MP23467T-13	$\frac{1}{16}$ " and $\frac{1}{8}$ " Hole	
MP23467T-15	$\frac{3}{8}$ " and $\frac{1}{4}$ " Hole	
MP23467T-17	$\frac{1}{16}$ " and $\frac{1}{4}$ " Hole	
MP23467T-19	$\frac{3}{4}$ " and $\frac{1}{4}$ " Hole	

### Inserts for Model 650

Order #	Inserts (Aluminum)	Price
MP23479T-2	5 x $\frac{1}{4}$ " Holes	
MP23479T-4	$\frac{1}{8}$ , $\frac{3}{16}$ , $\frac{1}{4}$ , $\frac{5}{16}$ , and $\frac{3}{8}$ "	
MP23479T-6	2 x $\frac{1}{4}$ ", 2 x $\frac{3}{8}$ "	
MP23479T-8	2 x $\frac{1}{4}$ ", 2 x $\frac{1}{2}$ "	
MP23479T-10	$\frac{1}{4}$ " Hole	
MP23479T-12	Insert Blank	
MP23479T-14	$\frac{1}{16}$ " and $\frac{1}{8}$ " Hole	
MP23479T-16	$\frac{3}{8}$ " and $\frac{1}{4}$ " Hole	
MP23479T-18	$\frac{1}{16}$ " and $\frac{1}{4}$ " Hole	
MP23479T-20	$\frac{3}{4}$ " and $\frac{1}{4}$ " Hole	

**Find Precision Thermometer on pages G17-G22**

## **NEW** Techne Portable Dry Block Calibrator

- Temperature Range 25 to 430°C (806°F)
- Accuracy ±0.03°C at 200°C; ±0.05°C at 400°C
- Over-Temperature Cutout 450°C
- Fast Heat Up (12 Min.); Cool Down (21 Min.)
- 10 Insert Formats Available
- Temperature Sensor Burnout Protection
- Display resolution 0.1°



**UCAL400**

**Each Unit Includes:** One multi-well insert (1/8", 3/16", 1/4", 5/16" & 3/8" insert sizes), mains cable, insert extractor, NIST traceable calibration certificate and instruction manual.

### Specifications

Temperature Range	Ambient + 5°C (9°F) to 430°C (806°F)	
	At 200°C	At 400°C
Display Accuracy	±0.3°C	±0.5°C
Stability (15 Min.)	±0.03°C	±0.05°C
Well to Well Uniformity	±0.015°C	±0.025°C
Cooling Rate (400 to 100°C)	21 Minutes	
Heating Rate (20 to 400°C)	12 Minutes	
Insertion Depth	4.5 Inches	
Over-temp Cutout	450°C	
Size	(HWD) 8.75 x 8 x 8 inches (222.25 x 203.2 x 203.2 mm)	
Weight	9 Lbs. (4 kg)	

### Ordering Information

Order #	Mfg #	Description	Price
MP3028900	UCAL400	UCAL400+ 117 VAC	
MP3028950	UCAL400	UCAL400+ 240 VAC	
MP23467T-1	UCAL400 Inserts	Insert 5 x 1/8" holes	
MP23467T-2	UCAL400 Inserts	Insert 2 x 3/8" + 2 x 1/4" holes	
MP23467T-3	UCAL400 Inserts	Insert 3/8, 3/16, 1/4, 5/16, 3/8" (Included with UCAL400)	
MP23467T-4	UCAL400 Inserts	Insert 2 x 1/2" + 2 x 1/4" holes	
MP7032718	UCAL400 Case	Optional Soft Sided Carrying Case	
MP7032537	7032537	Insert for 1/4" probes	
MP7032538	7032538	Insert Blank	
MP7032574	7032574	Insert 3/16" probe	
MP7032575	7032575	Insert 1/8" probe	
MP7032576	7032576	Insert 1/16" probe	
MP7032577	7032577	Insert 3/8" probe	

## Hart Scientific Ice Point Reference Cell

- Outstanding Stability
- Three Test Wells
- High Accuracy in a Zero Point

Use the 22455T as your zero point for sensor calibrations or to provide a stable ice point for T/C cold junctions. The 22455T uses solid-state cooling technology, eliminating the possibility of the sealed water freezing while being transported. The cooler is regulated by a precision electronic controller that can be recalibrated by using a certified standards thermometer. User settings aren't required and the whole unit is self-contained. The unit has two wells, 0.25 x 6", and one well, 0.28 x 6". One set of sizing tube inserts is provided to accommodate smaller diameter probes. Additional sizing tube sets are available(see the ordering information).



**9101**

### Specifications

Range:	0°C, 32°F
Stability:	±0.005°C
Power:	115 VAC (±10%), 50/60 Hz
Well Dimensions:	2 well 0.25" dia. x 6" D, 1 well 0.28" dia. x 6" D; includes one set of telescoping inserts to provide various smaller diameters
Total Instrument Error:	±0.02°C, typical; ±0.05°C max.
Stabilization Time:	Approx. 30 minutes
Size/Weight:	12.25 x 8.5 x 5.75" HWD/12 lbs (5.4 kg)

### Ordering Information

Order #	Mfg #	Description	Price
MP22455T	9101	Zero Point Dry Well, 115 VAC	
MP22455T-220	9101-E	Zero Point Dry Well, 220 VAC	
MP22456T	2130	Extra Set of Well Sizing Tubes	
MP1500-C	1500-C	Carrying Case	

NOTE: 230 VAC optional add -E to the model number.

Transcat Accredited Calibration with Data	CALL
Transcat Accredited Calibration without Data	CALL