



ISO TECH



The Source for Calibration Professionals



Product Overview

Solutions for Temperature Calibration
and Precision Temperature Measurement

Portable Calibrators for Industrial Sensor Calibration

Multi-Function ISOCAL-6 - use as a Dry Block, Liquid Bath, Blackbody, Surface Sensor Calibrator or ITS-90 Fixed Point System.

Buying a Dry Block or Liquid Bath? Spending too much money because you need both? Now you can have the benefits of both and more, with an Isocal-6 from Isotech! The Isocal-6 is a flexible range of calibration systems that can calibrate all types of temperature sensors. With the Isocal-6, different inserts are added to the bath to allow it to be used in 6 different modes, providing a solution for all temperature sensor calibration requirements. With optional accessories the Isocal-6 can perform as a dry block calibrator, a stirred liquid bath, a stirred ice bath 0°C reference (cooling models only), a blackbody source for IR thermometers, a calibrator for surface sensors or an ITS-90 fixed point apparatus.

The advantage of the Isocal-6 is that you need only purchase the main calibrator initially, and can add other accessories at any time to increase your accuracy, stability and overall capability. Each different calibrator type has unique advantages. For example, Stirred Liquid Baths generally provide better stability, uniformity and heat transfer than dry blocks. Liquid baths are ideal for awkwardly shaped, angled or short sensors and provide uniformity.

Different Isocal-6 models cover the temperature range from -45°C to 250°C. Above this maximum temperature it is not practical to use a Stirred Liquid Bath. For more information please refer to the table below.



Model	Europa-6	Venus	Calisto	Hyperion	Drago	Oceanus	Stabilities from	
Temperature Range*	-45 to 140°C	-35 to 140°C	30 to 250°C	-25 to 140°C	30 to 250°C	-25 to 140°C	Metal Block	±0.005°C
Calibration Volume	35 x 160mm	35 x 160mm	35 x 160mm	65 x 160mm	65 x 160mm	50 x 300mm	Liquid Bath	±0.005°C
Heat / Cool Speed	●●●●●	●●●●●	●●●●●	●●●●○	●●●●○	●●●●○	Ice/Water Bath at 0°C	±0.001°C
							Blackbody	±0.3°C
							Surface Sensor Kit	±0.5°C
							ITS-90 Fixed Point Cells	±0.0005°C

Isotech block baths and ISOCAL-6 models are available in Basic, Site and ADVANCED models. In addition to the digital temperature controller of the Basic the Site includes an independent single channel indicator. The ADVANCED model has inputs for three thermometers and includes advanced logging, high resolution and other extended features.

Portable Calibrators for High Temperature Industrial Calibration

Isotech's High Temperature Block Bath range offer industry leading performance in easy to use packages - ideal for the calibration of thermocouples and platinum resistance thermometers. They have been designed for fast heating and cooling and, for added flexibility, surface sensor and infrared thermometer accessories can be added.

All our Block Baths, from Basic to ADVANCED are exceptionally easy to use with a clear user friendly interface and include a PC Interface and Software. Different models provide a range of block sizes to suit a wide variety of sensors and together span the range from 35°C to 1200°C.



Model	Jupiter	Gemini	Medusa	Pegasus	Stabilities from	
Temperature Range	35 to 650°C	35 to 700°C	30 to 700°C	150 to 1200°C	Metal Block	±0.02°C
Calibration Range	35 x 148mm	64 x 160mm	45 x 285mm	33.5 x 130mm	Blackbody	±0.2°C
Heat / Cool Speed	●●●●●	●●●●○	●●●●○	●●●●○	Surface Sensor Kit	±0.5°C

ITS-90 Fixed Points and Apparatus



Isotech manufactures a complete range of ITS-90 fixed point cells from the Argon Triple Point to the Freezing Point of Copper. Many nations rely on Isotech for their primary temperature standards. There are a range of metal and quartz clad ITS-90 Fixed Point cells with the lowest of uncertainties.

In addition to solutions for the world's leading NMIs there are more cost effective solutions, still with uncertainties to less than 1mK to suit a wider range of laboratories.

Jarrett-Isotech Water Cells

- Available in 4 different sizes
- Reference cells with isotopic analysis
- Uncertainties as low as 0.07mK
- Slim cells for industrial applications

Other ITS-90 Fixed Points

- All ITS-90 fixed points
- Automated systems
- Available in large and slim sizes
- Available in quartz and metal crucibles



Benchtop ITS-90 Fixed Point Calibration

- Outstanding Performance, from 0.7mK
- Patented Immersion Compensator
- Robust - No Glass Parts, Easily Transported



Innovation from Isotech



Isotech is renowned for innovation, with award winning products like the ISOTower ITS-90 Fixed Points, Argon System, microK Thermometry Bridges, the milliK Precision Thermometer and ISOCAL-6; the multi function calibrator providing Dry Block, Liquid Bath, Surface Sensors, Blackbody and Fixed Point calibration.

In 2017 Isotech was awarded the Queen's Award for Enterprise recognising both the innovation and commercial success of the world leading microK Thermometry Bridge.



FOR MORE INFORMATION - WWW.ISOTECH.CO.UK



Winner of the prestigious
QUEEN'S AWARD FOR ENTERPRISE - INNOVATION 2017

Secondary Laboratory Equipment



Many accredited laboratories rely on Isotech for comparison baths, standards and instruments. We offer comparison equipment from -200°C to 1300°C as well as cryostats and liquid nitrogen apparatus. Isotech stirred liquid baths use concentric and parallel tube designs for outstanding performance. The concentric design of the Spherical Furnace provides a solution for small uncertainty calibration of thermocouples to 1300°C.

Liquid Baths

- Temperature ranges covering -80°C to 300°C
- Parallel Tube action
- Commercial grade chiller
- Stability from $\pm 0.0006^\circ\text{C}$
- Up to 530mm calibration depth
- Fast cool-down
- Circular design eliminates cold corners
- Exceptionally small gradients



Fluidised Bath and Thermocouple Calibration Furnace

- Safe, accurate comparison calibration equipment for use to 1300°C



Blackbody Calibration Sources



When leading manufacturers of infrared thermometers choose your product as the basis by which their product passes or fails, you know you have something good. Isotech is the only manufacturer of blackbody calibration sources to have developed a complete line from hand held field testers to black body fixed point cells for primary labs. Our more popular models include the Gemini R and Pegasus R.

Gemini R

- Temperature range of 50°C to 550°C
- 65mm cavity size
- Emissivity of 0.995
- Portable, yet can accept fixed points for primary reference



Pegasus R

- Temperature range of 150°C to 1200°C
- 20mm cavity size
- Emissivity of 0.995
- Portable, yet can accept fixed points for primary reference



Thermocouple Referencing Systems



Isotech's first thermocouple referencing systems were developed for our own lab use to provide a single point ice reference for our cold junctions. We then developed multi-input systems for use in power plants and aviation test stands. In addition to ice point references, Isotech manufactures a variety of elevated and ambient temperature referencing systems. Most units are custom built for the application. If you have special thermocouple referencing needs, call us and see how we can help.

Multi-Channel Systems

- Reference up to 200 thermocouples in one system
- Benchtop, Wall Mount and 19" rack mount options
- Pre-wired thermocouples or do-it-yourself systems



TRU 938

- 0°C or elevated reference temperatures
- Stability better than 0.05°C
- Multi-junction probes and various terminations available



Standard Thermometers



We manufacture a range of standard thermometers from Standard Platinum Resistance Thermometers (SPRTs) through to industrial standards. Our Standard Thermocouples can be supplied calibrated for use up to 1600°C. Resistance thermometers are available covering the range from -200°C to 1084°C. Isotech manufactures primary standards with uncertainties better than 1mK (0.001°C) to affordable rugged standards for industry and can provide UKAS calibration from our leading laboratory.



Thermometry Bridges and Precision Thermometers



Isotech offers instruments for the Primary Laboratory through to Industrial calibration applications.

The microK is the only instrument of its type in the world which will work to $<1\text{mK}$ precision and support all three commonly used sensors, platinum resistance thermometers (PRTs), thermocouples and thermistors. Long term, the stability of the microK achieves literally zero drift for resistance ratio measurements and an annual drift of $<3\text{ ppm}$ for voltage measurements.

microK

The microK Precision Thermometer:
An unequalled combination of accuracy, stability and versatility.

- Accuracy $<20\text{ ppb}$
- 3 Channels
- Stability of 0 ppm / year
- Resistance range of $0 - 500\text{ k}\Omega$
- Internal resistance standards $1, 10, 25, 100$ and 400Ω
- Supports SPRTs, PRTs Thermistors and Thermocouples



milliK

RTD, Thermocouple and Current inputs

- Accuracy to 0.003°C (3mK)
- 0.0001°C resolution (PRT Inputs)
- SPRT, PRT, Thermistor, Thermocouple and Current inputs
- Datalogging
- Controls Isotech Dry Blocks and Baths



Fast-Cal



The Product You Designed! During a seminar, twenty experienced engineers from many parts of the world were asked to produce their ideal specification for industrial calibration.

Their desired features were:

1. Rugged
2. Light weight
3. Easy to use on site
4. Low cost / high benefit ratio
5. Fast response, high stability
6. Time saving features
7. Multiple sensor testing
8. Software
9. Modern design
10. Compliant with the latest regulations

The result is our range of Fast-Cal products.



Basic or Complete explained

Fast-Cals are available in basic or complete models.

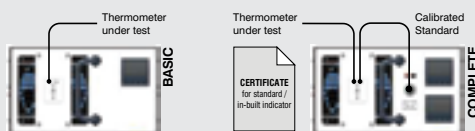
A Basic Dry Block Calibrator

The thermometer under test is compared to the dry block controller value. Useful for moderate temperature ranges and quick testing.

The Fast-Cal HTM2010 has the same range as the low temperature model and has a fixed block ideal for medical validation applications.

An ISO9000 Calibration System

A thermometer under test is compared to a calibrated standard for true traceability and clearly meets the requirements of ISO9000. Complete models include a semi-standard reference probe.



Model	LOW	MEDIUM	HIGH
Range at 20°C	-35 to 140°C	30 to 350°C	35 to 650°C
Stability	0.02°C	0.03°C	0.05°C
Accuracy - Basic	$\pm 0.2^\circ\text{C}$	$\pm 0.3^\circ\text{C}$	$\pm 1^\circ\text{C}$
Accuracy - Complete	$\pm 0.15^\circ\text{C}$	$\pm 0.2^\circ\text{C}$	$\pm 0.5^\circ\text{C}$
Heating Time	-30 to 140°C in 15 minutes	50 to 350°C in 15 minutes	50 to 650°C in 20 minutes
Cooling Time	140 to 0°C in 15 minutes	350 to 140°C in 40 minutes	650 to 300°C in 20 minutes

Calibration Capacity	148mm depth, 25mm diameter
Comms & Software	PC Communications and Software Included
Dimensions	228 x 248 x 143mm
Weight	6.6kg

Metrology Baths and Furnaces



We can confidently claim that Isotech manufactures the widest selection of Metrology Baths, Furnaces and Fixed Point Apparatus. There are simply too many to discuss here, so if you are in the market for this equipment please call us with your requirements.

Shown here is one of our more popular models - The Medusa 3. Our full range of Metrology baths have the following advantages:

- Temperature range covering -25°C to 1100°C
- Suitable for fixed points from Indium to Silver
- Equalizing blocks available for comparison calibrations
- Black body option
- Surface sensor calibration option
- Extended depth calibration volume is ideal for longer probes and minimising stem conduction



Model	Temperature Range
Oceanus-6	-25°C to 140°C
Stirred Ice Bath	0°C
Medusa 510	30°C to 550°C
Oberon	450°C to 1100°C

Software



Isotech devices with PC interfaces are supplied with software for monitoring and control as standard. I-Cal Easy has set new standards for ease of automating temperature calibration, right down to calculating coefficients for probes (ITS-90, Thermocouple Error, EN 60751), the inbuilt certificate designer allows you to produce the certificate you need. Icarus ITS-90 software is used as a post calibration tool in Primary Laboratories across the world to generate reports and data for SPRTs.



I-Cal Easy



Cal NotePad



Icarus



Calibration Services & Training



Isotech can calibrate your standards in our leading laboratory, we focus on low uncertainty calibration and take pride in the quality of our service from experienced temperature specialists.

Our laboratory was first established in 1980 and has grown to be a full scale UKAS laboratory providing calibration with uncertainties comparable, if not better, than most of the world's NMI's

■ Training

Isotech is widely recognized as a leading provider of training for temperature calibration both at the customers site and in Southport, for more details visit our website www.isotech.co.uk/training



How Isotech Can Help?

- ISO 17025 schedule includes Dry Block Calibrators, Thermometers, ITS-90 Fixed Point Cells, Standard Resistors and Temperature Simulation
- Our experienced calibration team can provide advice and support whatever your calibration needs from industrial applications through to Primary Standards
- Clear and simple certification - the uncertainty stated on the certificate is for the piece of equipment that has been calibrated

The World's Leading National Metrology Institutes choose Isotech ...shouldn't you?



✓ The Source for Calibration Professionals



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