


The logo for ISOTECH, featuring the company name in white, bold, sans-serif capital letters on a red rectangular background.

ISOTECH

A small white checkmark icon inside a square box.

The Source for Calibration Professionals

The background of the cover features a technical wireframe drawing of a complex mechanical assembly, possibly a furnace or industrial chamber, rendered in a golden-yellow color. This drawing is overlaid on a background of a halftone dot pattern that transitions from dark brown on the left to bright yellow on the right. At the bottom of the page, there is a horizontal bar with a color gradient from blue on the left to red on the right.

Product Guide

Temperature Calibration

The Isocal-6 Calibration 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. The Isocal-6 includes a removable metal insert as standard for use as a Dry Block Calibrator. 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. Angled probes will not readily fit into a metal block, but can be placed into the liquid. Liquid baths are ideal for awkwardly shaped or short sensors and provide better axial and radial 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 which details our Isocal-6 Range.



<http://www.isotech.co.uk/industrial/>

Model	Europa-6	Venus	Calisto	Hyperion	Drago	Oceanus	Stabilities <i>(Specifications are the same for all models)</i>
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 ±0.03°C
Calibration Volume	35 x 160mm	35 x 160mm	35 x 160mm	65 x 160mm	65 x 160mm	50 x 300mm	Liquid Bath ±0.025°C
Heat / Cool Speed	●●●●●	●●●●●	●●●●●	●●●●○	●●●●○	●●●●○	Ice/Water Bath at 0°C ±0.001°C
	*In ambient of 20°C						Blackbody ±0.3°C
							Surface Sensor Kit ±0.5°C
							ITS-90 Fixed Point Cells ±0.0005°C

High Temperature Block Baths

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.

Our Block Baths feature the Isotech plug-in, dual display, controllers which are exceptionally easy to use with a clear user interface and are supplied with Windows software, Computer Interface and a Ramp to Set Point Feature as standard. The controller features multi-point block to display correction giving excellent absolute accuracy.

All Isotech Block Baths are available in both Basic and Site models. Site models feature a built-in indicator to which an external standard thermometer can be connected giving greater accuracy, eliminating any temperature gradient and loading errors. For laboratory accuracy these baths can be used with a high-end temperature indicator, such as one of Isotech's True Temperature Indicators (TTI).



<http://www.isotech.co.uk/industrial/>

Model	Jupiter	Gemini	Medusa	Pegasus	Stabilities <i>(Specifications are the same for all models)</i>
Temperature Range	35 to 650°C	35 to 700°C	30 to 700°C	150 to 1200°C	Metal Block ±0.03°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

<http://www.isotech.co.uk>



Isotech manufactures a complete range of ITS-90 fixed point cells in two ranges, Optimal Cells with the smallest of uncertainties for the Primary Laboratory and slightly smaller Slim Cells for ITS-90 Fixed Point Calibration at a budget within the reach of all laboratories.

Isotech is the only supplier to offer multi-function apparatus (our Isocal-6 System) that can serve as a liquid bath or dry block when it is not being used to create your fixed points.

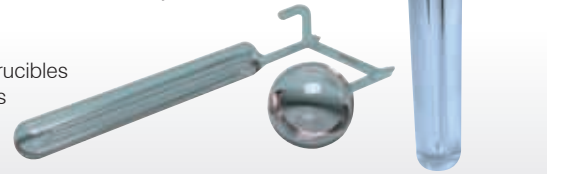
As a demonstration of our commitment to excellence, Isotech recently received a new accreditation of our own laboratory which gives us lower uncertainties at Hg, Wtp and Ga that are second world-wide only to NIST!

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

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



Innovation from Isotech

<http://www.isotech.co.uk>



Isotech has always been the innovation leader in temperature metrology, from the award winning Isocal-6, Metal Clad Optimal Cells, the microK Precision Thermometer, the worlds first -100°C Dry Block and the innovative ITS-90 Isothermal Towers.

The ISOTower is a new integrated device combining a furnace, heat siphon and ITS-90 Fixed Point cell. As well as the novel combination of cell and heat pipe a new immersion compensator is used to fully compensate for the immersion characteristics of the thermometer under test. The benefits include:

- Outstanding Performance, from 0.7mK
- Robust - No Glass Parts
- Simple to use with increased confidence in results
- Easily Transported



Both catalogues
are also available
to download at
[www.isotech.co.uk
/manual.html](http://www.isotech.co.uk/manual.html)

ISOTECH

...a world leader in temperature metrology.
With over 30 years of experience in the design, manufacture and practical use of precision temperature calibration standards, Isotech is an experienced supplier for national labs and field calibration technicians worldwide.

COMPACT
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Technology Ltd
+44 (0)1704 543830

Customers include the world's largest primary standards laboratories, accredited laboratories, defence organizations, large manufacturers and research organizations. We know you will find our products to be of superior design, conservatively specified and of great value.

Secondary Laboratory Equipment

<http://www.isotech.co.uk/secondary>



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 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 Calibration Bath

- Temperature range of 50°C to 700°C
- High Accuracy
- Large working volume
- No powder loss into the Laboratory



Blackbody Calibration Sources

<http://www.isotech.co.uk/bbody>



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



Thermocouple Referencing Systems

<http://www.isotech.co.uk/tceref>



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.

TRU 937

- Reference up to 100 thermocouples in one system
- 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



Reference Thermometers

<http://www.isotech.co.uk>



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 1000°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.



True Temperature Indicators

<http://www.isotech.co.uk>



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 <0.1ppm 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 ppm for voltage measurements.

microK

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

- Accuracy 0.1ppm
- 3 Channels
- Stability of 0ppm / year
- Resistance range of 0 - 500 kΩ
- Internal resistance standards 1, 10, 25, 100 and 400Ω
- Supports SPRTs, PRTs Thermistors and Thermocouples



TTI-7

PRT/RTD and Thermocouple Thermometer accepts scanner cards for up to 10 channels

- Accuracy to 0.01°C (10mK)
- 0.001°C resolution (Pt100 Inputs)
- PRT and thermocouple inputs
- Datalog up to 4000 measurements
- Portable - 10 hours use
- Eliminate unwanted thermal EMFs with current reversal



Fast-Cal

<http://www.isotech.co.uk/industrial/>



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.

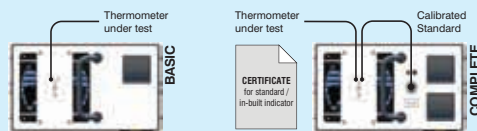
A Basic Dry Block Calibrator

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	±0.2°C	±0.3°C	±1°C
Accuracy - Complete	±0.15°C	±0.2°C	±0.5°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

<http://www.isotech.co.uk>



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-1	30°C to 550°C
Oberon	450°C to 1100°C

Software

<http://www.isotech.co.uk/software>



Isotech devices with PC interfaces are supplied with Cal NotePad 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 built-in certificate designer allows you to produce the certificate you need.

Icarus ITS-90 software is used as a post calibration tool in Primary Labs across the world to generate reports and data for SPRTs. Evaluation versions available.



I-Cal Easy



Cal NotePad

Icarus

PRT Calc

Calibration Services & Training

<http://www.isotech.co.uk/lab>



Our calibration laboratory was first accredited in 1985 and has expanded into three separate areas serving customers in Primary Labs, Secondary Labs and Industry in general.

Our team of calibration engineers are available to offer advice and guidance in all these areas. Our expertise ranges from Primary Standards, our Best Measurement Capability is 0.000,070°C, to the practical difficulties of industrial sensors. Our range of experience and expertise is available to serve you.

The calibration team is active in training customers in the use of Isotech equipment, and our introductory E-learning course is available to all.

<http://www.isotech.co.uk/elearning>



Included in this leaflet:

Isocal-6

High temperature Block Baths

Thermocouple Referencing

Fast-Cal

ITS-90 Fixed Points

Metrology Baths and Furnaces

Reference Thermometers

Software

Secondary Laboratory

Blackbody Sources

True Temperature Indicators

Calibration Services

Other Products:

Isothermal Technology Limited can supply Indicators, Thermocouples and Platinum Thermometers for your most exacting needs and we offer the widest range of calibration equipment in the world. We also offer training courses and have technical articles to help you. For further information on any of our products call us on +44 (0)1704 543830 or visit our web-site www.isotech.co.uk



The Source for Calibration Professionals

Telephone: +44 (0)1704 543830

Fax: +44 (0)1704 544799 Email: info@isotech.co.uk Web: www.isotech.co.uk

Isothermal Technology Limited

Pine Grove, Southport, Merseyside PR9 9AG England