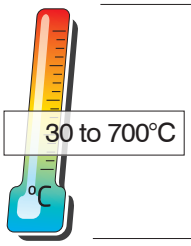


Dry Block Calibrator
510 Medusa & 511 Medusa 3

- 45 x 285mm Calibration Volume
- Use for Comparison and Fixed Point Calibration
- Use with very long thermometers

Isotech have a wide range of Dry Blocks to suit probes requiring a large immersion depth. These products feature large and deep calibration volumes. As such they are less portable than the earlier Dry Blocks, but have higher capacities and retain outstanding temperature uniformity, this uniformity is so good that these larger products are also apparatus for Secondary Laboratories to realize the Fixed Points of ITS-90.

Medusa 510 has a maximum operating temperature of 550°C. The Medusa Model 511 can be used to 700°C and features three zone control. In addition to the main heating zone there are additional top and bottom heaters which compensate for the end losses creating a constant temperature zone across the well.

For Comparison Calibration the Medusa should be used with an insert, the standard insert has six 8mm pockets 250mm deep. Also available is an insert 44mm diameter x 170mm deep which is suspended from the top of the block so that the height is user adjustable. For flexibility the Medusa can also be used with accessories for infrared thermometers and surface sensors. The Medusa is available in two models, the BASIC (B) and the SITE (S). The B model includes a sophisticated temperature controller with a dual display for Set Temperature and Dry Block Temperature.

The S model includes a built-in digital thermometer to which an external standard thermometer can be connected giving greater accuracy, eliminating temperature gradient and loading errors. Also included in the site model is a timer which can set the bath between two temperatures, and automate ITS-90 fixed point operation. For Surface Sensor and Blackbody use an external thermometer is recommended. For laboratory accuracy the Medusa can be used with a high-end temperature indicator such as an Isotech TTI model.

Includes as standard: Windows Software, Computer Interface and a Ramp to Set Point Feature. Increased resolution of ±0.01 available throughout the range via the PC interface and from 0.01 to +99.99 locally on the auto-ranging front display. The controller features multi-point block to display correction giving good absolute accuracy.

The S model has universal sensor input allowing Platinum Resistance Thermometers, Thermocouples (types K, N, R, S, L, B, PL2, T, J and E) along with Linear Process Inputs including 4-20mA current transmitters to be displayed on the in-built indicator. The indicator can be programmed with up to five calibration points to provide high accuracy digital probe matching. The indicator and controller are both addressable over the communications link.

POINTS ON THE TEMPERATURE SCALE

Fixed Point Cells Available

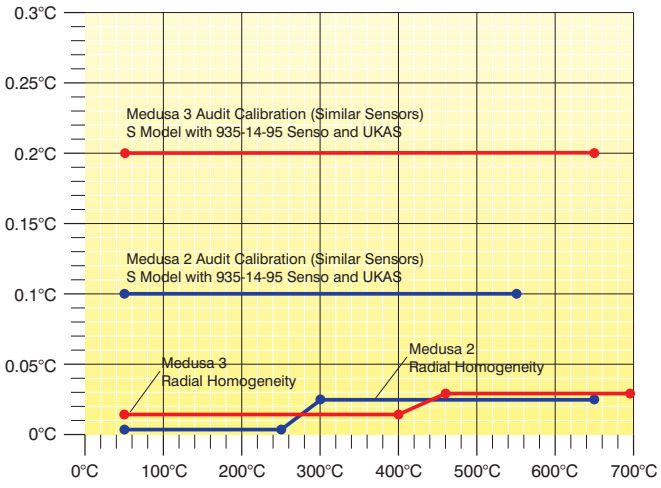
Material	Temperature
Gallium	29.7646°C
Indium	156.5985°C
Tin	231.928°C
Zinc	419.527°C
Aluminium	660.323°C

Specification

Model	510 Medusa	511 Medusa 3
Temperature Range	30°C to 550°C	50°C to 700°C
Absolute stability over 30 minutes	Metal Block Bath Blackbody Source Surface Sensor Calibrator ITS-90 Fixed Point	±0.03°C ±0.1°C ±0.5°C ±0.001°C
Computer Interface	Included with Software	
Cools from	550°C to 30°C in 5 hours	
Heats from	30°C to 550°C in 90 minutes	
Uncertainties	Refer to Uncertainties Graph	
Calibration volume	45mm diameter by 285mm deep	
Standard Insert	Six 8mm pockets all 250mm deep	
Display Resolution	(0.01) to 99.99 (0.1) 100.0 to 650.0 PC can display 0.01 across whole range with the software included	
Indicator units	°C, °F, K	
Power	108 to 130V or 208 to 240V 50 / 60Hz 1000 Watts	1800 Watts
Overall dimensions	Height 430mm Width 310mm Depth 300mm	
Weight	17kg	25kg

Performance and Use

510 Medusa



Calibration and Uncertainty

A certificate, traceable to National Standards, is included as standard. Recommended is an optional UKAS five-point calibration.

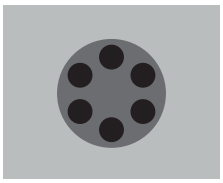
The accuracy of the Medusa will depend very much on the mode of use, see the Uncertainty Graph for typical uncertainties. NTPL calculate the uncertainties to UKAS requirements. The Medusa meets the Calibration Capacity requirements of EA-10/13, “EA Guidelines on the Calibration of Temperature Block Calibrators.”

Features (Basic & Site)	Medusa
Dry Block	✓
Surface Sensor Option	✓
Infrared Calibration Option	✓
ITS-90 Fixed Point Cells	✓
Additional 8mm Pre-heat Pocket	✓
Configurable Units: °C, °F and K	✓
Supply Voltage Power Correction	✓

Additional Features (Site)	Medusa
Independant Temperature indicator	✓
Universal Input Types PT100	✓
Thermocouples Types K,N,R,S,L,PL2,T,J,E	✓
Linear Process Inputs Including 4-20 mA	✓
Stand Alone Thermostat Testing	✓
Thermostat Testing With PC	✓
Five Point Digital Probe Matching	✓
Configurable Units: °C, °F and K	✓

510 Medusa & **511** Medusa 3

Calibrate all sensor types - Thermocouples, PRT's, Thermistors, Thermostats, Infrared, Surface Sensors...

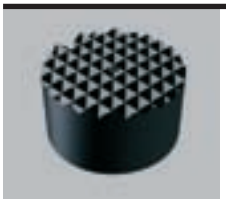


510 Metal Block Insert

510-06-01	Standard Insert included
510-06-02	Blank Insert without pockets for local machining
510-06-03	Special Insert. Contact Isotech with your requirements
510-06-04	Adjustable Equalising Block

511 Metal Block Insert

511-06-01	Standard Insert Included
511-06-02	Blank Insert without pockets for local machining
511-06-03	Special Insert. Contact Isotech with your requirements
511-06-04	Adjustable Equalising Block



Blackbody Kit

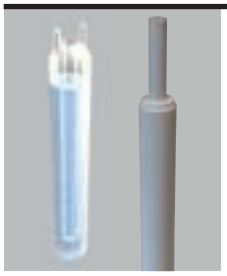
510-06-05	For 510. Includes a Blackbody target and Sensor.
511-06-05	For 511. Includes a Blackbody target and Sensor.

510 Surface Sensor Calibration with Surface Sensor Kit

510-06-06	Includes an insert and an angled thermocouple.

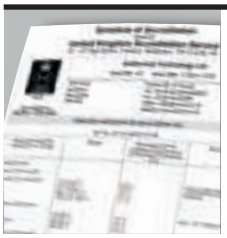
511 Surface Sensor Calibration with Surface Sensor Kit

511-06-06	Includes an insert and an angled thermocouple.



ITS-90 Fixed Point Cells

ITL17401M	Gallium Slim Cell (510)
ITL17668ML	Indium Slim Cell
ITL17669ML	Tin Slim Cell
ITL17671ML	Zinc Slim Cell
ITL17672ML	Slim Aluminium Cell (511)
510-05-00	Cell Basket for 510
510-05-01	Cell Basket for 511



UKAS Calibration

UKAS Calibration available to order, legally traceable in more than 70 countries.

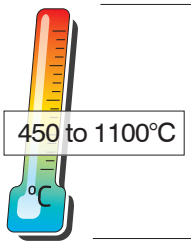
Standard Probe

935-14-95H/DB	Platinum Resistance Thermometer for use up to 650°C.

Carrying Case

931-22-58	Sturdy case accommodates the unit with room for accessories

How To Order
Specify Model, Basic or Site, Supply Voltage, Accessories and if UKAS Calibration is required.



POTTS
Oberon

- 50 x 300mm Calibration Volume
- Compact Heatpipe Furnace
- Suits Aluminium, Silver or Copper Fixed Points
- Can be used for comparison and infrared calibration

Model 426 is for Aluminium, Silver or Copper slim fixed point cells as well as for comparison calibration. Heatpipes provide the ideal conditions for the creation and maintenance of slim ITS-90 cells.

The furnace core is a specially-designed stress-free isothermal heat pipe, which provides a very low thermal gradient along the core working length.

The heatpipe is designed so that the inner wall is not subject to thermal expansion stresses from the outer wall before the heat pipe reaches conduction temperature. The working fluid is permanently and safely sealed within the plasma-arc welded enclosure.

The Oberon can be used with Blackbody Fixed Point Cells.

Oberon for Aluminium or Copper Slim Fixed Point Cells

Model	**426**
Temperature Range	450°C to 1100°C
Stability	±0.05°C
Display resolution	0.1°C
Cavity size	50mm diameter 300mm deep
Time to temperature	4 hours
Communications	Supplied as standard with serial interface, PC adaptor cable and Cal NotePad
Power	110 Vac, 1.5kW, 50/60Hz (230 Vac Transformer available)
Dimensions	Height 410mm Width 415mm Depth 280mm Weight 30.5kgs

Accessories	
Metal Block Bath	426-06-05 Adjustable Equalising Block. Six pockets 8mm x 160mm deep.
ITS-90 Fixed Point	ITL M 17672QS Aluminium Quartz Clad Slim Cell
Apparatus	ITL M 17673QS Silver Quartz Clad Slim Cell
	ITL M 17674QS Copper Quartz Clad Slim Cell
Inconel Basket including insulators	426-04-00
230/110V Transformer	935-19-43

How to order
426 Oberon High Temperature Furnace
Please specify voltage required