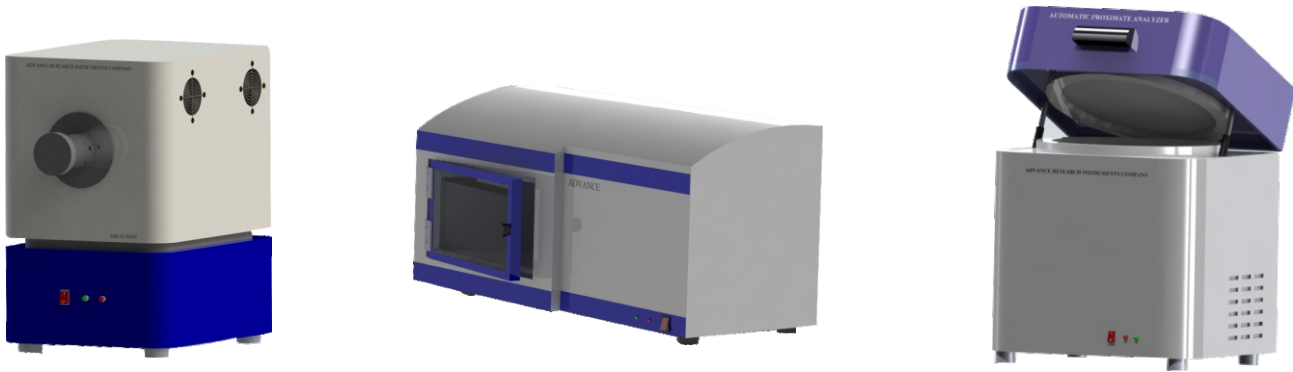


ADVANCE Isoperibol Bomb Calorimeter Technical and Ordering Information

Specifications	Model I.P - 1	Model I.P - 2	Model I.P - 3
Working Principle	Iso-Peribol	Iso-Peribol	Iso-Peribol (Semi-Automatic)
Fundamental Standard	ASTM, BIS, IP, DIN, ISO etc	ASTM, BIS, IP, DIN, ISO etc	ASTM, BIS, IP, DIN, ISO etc
Range	1,000-10,000 cal/g	1,000-10,000 cal/g	1,000-10,000 cal/g
Resolution	0.0001 cal/g	0.0001 cal/g	0.0001 cal/g
Sample Weight	0.5-1.5g	0.5-1.5g	0.5-1.5g
Precision (RSD)	0.05% / 0.1%	0.05% / 0.1%	0.1%
Oxygen Filling	Automatic Hands Free	Automatic	Automatic
Bomb Type	Removable	Removable	Removable
Water Measurement Dosing & Draining	Automatic	Automatic	Automatic
Analysis Time (Main Period)	≤ 15 min	≤ 15 min	≤ 15 min
Closed Loop Water Circulation	Available	Available	Available
Temperature Resolution	0.0001°C	0.0001°C	0.0001°C
Power Input	≤ 2.0 kW	≤ 1.5 kW	≤ 1.5 kW
Power Supply	230 V, 50 Hz	230 V, 50 Hz	230 V, 50 Hz

(Note: Due to continuous improvements specifications given above can be changed without prior notice)



Automatic Ash Fusion Analyzer      Automatic Sulphur Analyzer      Automatic Proximate Analyzer

**ADVANCE** : Your source for Fuel Analysis



Isoperibol  
Automatic  
Bomb Calorimeter



ADVANCE RESEARCH INSTRUMENTS COMPANY

Advance Research Instruments Company





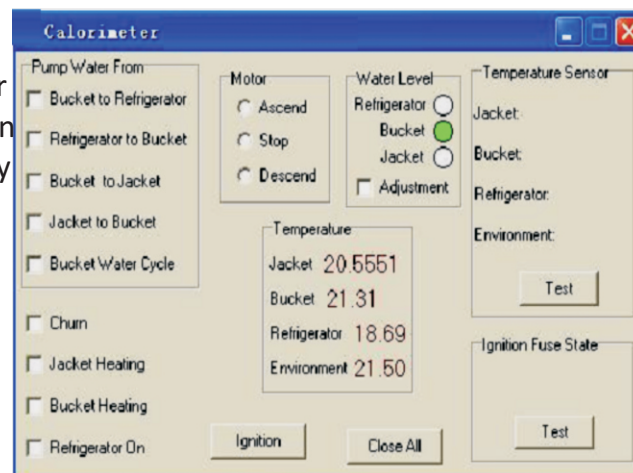
## Main Features

- » Fully Automatic Operation
- » Automatic Oxygen Filling
- » Auto Water Temperature Adjustment
- » Multiple Working Modes (Precision, Predictive etc.)
- » Resolution: 0.0001 cal/g
- » Latest Isoperibol Technology
- » Fully Automatic Calculation
- » CE Mark
- » Built-in Refrigeration System (Chiller)
- » Temperature Accuracy : 0.0001°C
- » Stabilized Steel Oxygen Bomb
- » Auto Weight Transfer facility
- » Window Compatible User Friendly Software

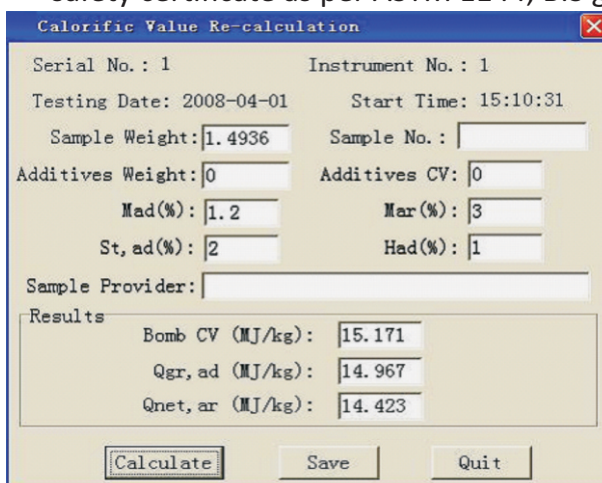
## Designed to Meet Your Requirements

- \* The Instrument is Microprocessor based and is designed to be configured as a Stand Alone unit or Computer Controlled. It also features Auto Oxygen Charging-Discharging system and choice of display (as per model selected)
- \* The Combustion Bomb is fabricated from Stabilized Steel, is thick walled and resistant to halogen, corrosion and acids.

Each Combustion Bomb is individually tested at high pressure and is supplied with test and safety certificate as per ASTM E144, BIS guidelines.



Function Report



Test Report

- \* All the processes in the experiment are Automatic. There is no need to manually fill Oxygen (Model IP-1), Measure Water, Adjust Water Temperature etc. thereby reducing operator workload and the errors associated with the same.

- \* Optional user selective operating modes allows flexibility to perform 6-8 experiment per hour. Correction for Acid (Nitrogen), Fuse-wire, Sulphur, Moisture, Spiking, Ash and Hydrogen, etc are available in the software.

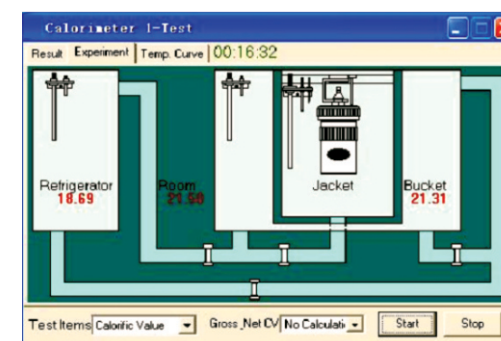
- \*The Instrument can be interfaced to a weighing balance, computer, printer and has a large data storage facility

- \* The instrument can be configured with either built in LCD Display/(Touch Screen), Computer or both. This provides the user with the display of their choice while supporting adequate number of USB and other communication and interface ports.
- \* The powerful and user friendly software provides a wide range of reporting Units like cal/gram, Kcal/Kg, Btu/lb, MJ/Kg etc.. Another added feature is Report Customization as per requirement.
- \* Various type of Combustion Bomb can be used in the instruments. For most samples, same Oxygen Bomb is used for Solid and Liquid samples

- \* A variety of crucibles viz. Ni-Cr Alloy, Quartz, Nickel, Platinum etc. along with Gelatin Capsules and Fuel Cells can be used

- \* The instruments has an integral, fully automatic, hands-free, closed loop water circulation system. The high efficiency water handling system ensures water in the system is maintained within +/- 0.1°C. Water is filled and drained automatically.

- \* Various types of Solid and Liquid samples viz. Coal, Wood, Soil, BioMass, Petrol, Diesel, LSHS, Bio-oils, Furnace Oil etc along with High CV samples (>10KCal/g) can be measured



Experiment Process

Testing Results									
Date	Selection	Caloric Value	Delete	Recover	Print	Average			
Se. No.	Sample No.	Sp. Weight	T. Rising	CV	HJ/kg	Gross CV	HJ/kg	Le	
2007120721	[C]	1.2971	3.5576	26.428	0.000				
2007120722	[A]	1.3003	3.5340	26.499	0.000				
2007120723	[C]	1.3010	3.4691	25.692	0.000				
2007120724	[A]	0.6994	1.8834	26.223	0.000				
2007120725	[C]	1.3041	3.2323	23.879	0.000				
2007120726	[A]	0.7084	1.9171	26.355	0.000				
2007120727	[C]	1.2983	3.5694	26.491	0.000				
2007120728	[A]	0.6922	1.8807	26.457	0.000				
2007120729	[C]	1.3039	3.5798	26.454	0.000				
2007120730	[A]	0.7002	1.9000	26.425	0.000				
2007120731	[C]	0.7010	1.9123	26.252	0.000				
2007120732	[A]	0.6968	1.8906	26.452	0.000				
2007120733	[C]	0.6929	1.8961	26.333	0.000				
2007121010	[C]	1.2978	3.5695	26.540	0.000				
2007121017	[C]	1.2989	3.5643	26.430	0.000				
2007121018	[C]	1.2983	3.5634	26.435	0.000				
2007121019	[C]	0.7078	1.9361	26.425	0.000				
2007121020	[C]	0.6945	1.9035	26.478	0.000				
2007121021	[C]	0.6957	1.9113	26.541	0.000				

Consolidated Report

- \* Internal Memory can store more than 1000 test results. Data saved in a variety of devices viz. Internal Memory, SD Card, Pen Drive and can be shared thru Ethernet
- \* The Instruments features Windows based easy to use software which can be linked to PC, Printer, Weighing Scale for auto weight transfer.

GCV Results in customized format are saved in HDD which can be printed as required

## Standard Accessories

* Bomb with Work Test Certificate	1 No.	* Benzoic Acid (NIST approved)	1 Bottle
* Calorimeter Unit	1 No.	* Stand for Bomb Lid	1 No.
* Choice of Built in LCD Display (touch keypad) or Computer with Monitor	1 No.	* Gasket & 'O' Ring Set	1 Set.
* OEM manufactured chiller	1 No.	* Oxygen Charging Adaptor (with IP-2 & IP-3 only)	1 No.
* Built-in Stirrer	1 No.	* Oxygen Cylinder	1 No.
* Oxygen Regulator with Gauges	1 No.	* Application Software in CD	1 No.
* Pellet Press	1 No.	* Instruction Manual with Test & Warranty Certificate	1 No.
* Ignition Wire	1 Box		
* Metallic Crucible	2 Nos.	* Troubleshooting Guide	1 No.

## Operational Requirements

- » Temperature Controlled Room
- » Weighing Balance (0.1mg accuracy) with serial port
- » 3 KVA Online UPS
- » Oxygen Cylinder (99.9% Purity)
- » Portable/R.O Water (50 ltr) approx.

## Method

The instruments measures calorific value of solid and liquid fuels in accordance with ASTM (D5865 D240, E711 etc.), BIS, DIN, IS, ISO etc Standards. All parts and Combustion Bomb are tested for accuracy and all safety parameters to ensure operator safety.