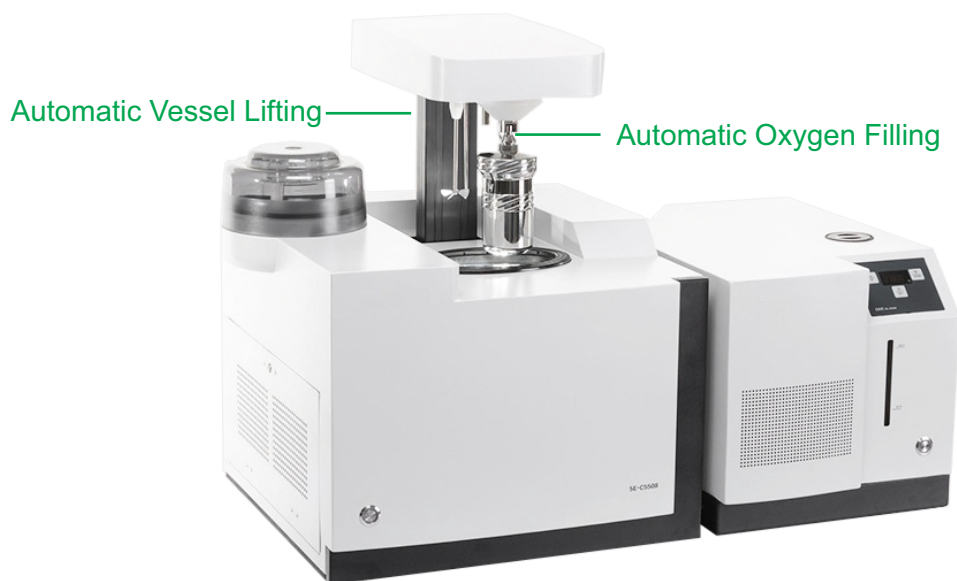




Automatic Bomb Calorimeter



Complies with
AS 1038.5
ASTM D5865
ASTM D4809
ASTM E711
BIS 1350
BS EN 15400
GB/T 213
GB/T 30727
ISO 1928
ISO 9831
ISO 18125
ASTM D240

**Isoperibol
Principle**

**Analysis Time
6 - 10 Minutes**

**Precision
≤0.05% RSD**

The Automatic Isoperibol Calorimeter is used to determine the calorific Value of solid and liquid combustibles including oil, coal, coke, foodstuffs, SRF and biomass products. The Calorific value is a crucial characteristic for each substance, also the key point to calculate the price of fuel, so it will directly affect the economic benefits of the customers.

This technique is widely applied in power plants, coal mines, metallurgy, chemical industry, commercial inspection, scientific research, etc.

Features:

True Isoperibol Calorimeter

The jacket surrounding the vessel is kept at constant temperature with an accuracy to 0.1°C during analysis. Mechanical supports for the vessel are made of a very low thermal conductivity plastic. To minimize convection, water is added on the sides, top and bottom of the bucket.

High Automation and Efficiency

1. Dynamic method available, without compromising accuracy or precision.
2. Second oxygen vessel and sample can be prepared while the current sample is being analyzed.
3. Integrated oxygen charging system, straight connection to oxygen cylinder via regulator, controlled by solenoid valve, for oxygen charging automatically.
4. Two calorimeters can be controlled by one computer. Sample mass can be transferred to PC directly.
5. Convenient operation compared with manual lifting, Water filling and draining during lifting, minimize the time for analysis and preparation.

Optimized Design for Reliable Test Result

1. A reliable quantitative measuring cup ensures stable water volume of the bucket.
2. Closed-loop water circulation assures the purity of water system without any additional solution.
3. Filter in the bucket purify the water in circulation system.
4. Visible water level indicates the water volume, making it easy to feed sufficient water anytime to minimize the influence of water loss.



**Acid Resistant SS Oxygen Vessel
with RFID Tag.**

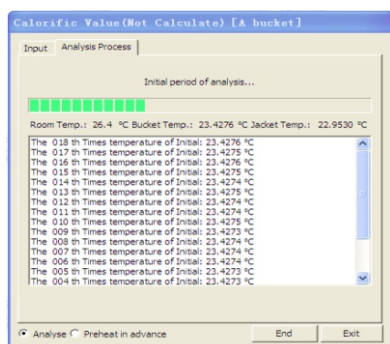
**Halogen Resistant SS Oxygen
Vessel with RFID Tag also
available**



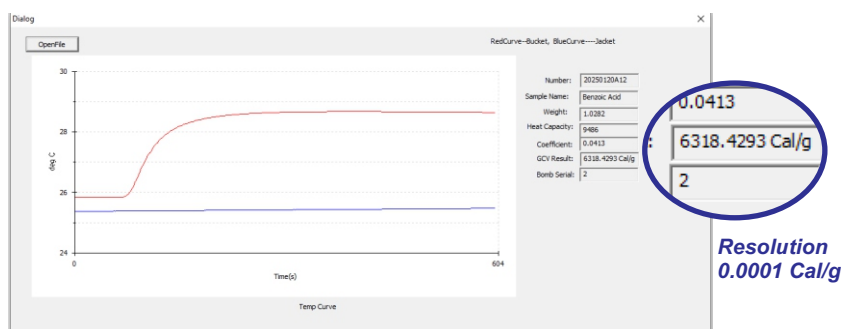
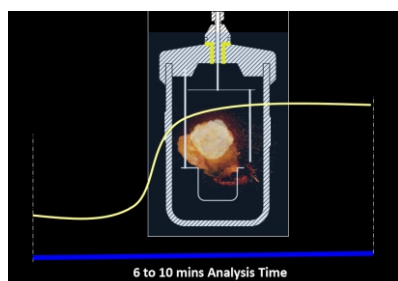
**Quantitative
Measuring Cup (2L)**



Automatic Bomb Calorimeter



Temperature Stability
0.0001°C before firing



Graphical view of real time analysis and data of GCV results

Design & Performance

- The Instrument and software are designed for increasing productivity and reducing manual operation.
- The Automatic Oxygen Filling, Oxygen Vessel lifting, water filling and draining system simplifies the operation and facilitates rapid analysis.
- The instrument ensures the temperature stability of bucket and jacket is within 0.0001°C/Sec, before firing.
- The Automatic Bomb Calorimeter is designed to complete the analysis within 6 to 10 mins without compromising the precision and ASTM D5865, BIS1350 standards.

Calibration Data

S.No	Sample Weight (g)	Temperature Rise (K)	Heat Capacity (J/K)
1	1.0318	2.7404	9892
2	1.0113	2.6744	9898
3	1.0184	2.6947	9888
4	1.0098	2.6747	9889
5	1.0023	2.6507	9895
6	1.0225	2.6616	9883
7	1.0022	2.7167	9891
8	1.0231	2.7573	9886
9	1.0391	2.671	9890
10	1.0075	2.6677	9887
RSD: 0.044%		Average Heat Capacity: 9889	

Remarks: As per ASTM-D5865, the precision of ten acceptable calibration test runs shall have a relative standard deviation (RSD) no greater than 0.17%. Model 5E-C5508 specification is $\leq 0.05\%$ RSD.

Conclusion: 5E-C5508 Automatic Calorimeter exceeds the ASTM Precision Requirement.



Automatic Bomb Calorimeter

Specification

Model	5E-C5508
Conforms to Method	AS 1038.5, ASTM D5865, ASTM D4809, ASTM E711, BIS 1350, BS EN 15400, GB/T 213, GB/T 30727, ISO 1928, ISO 9831, ISO 18125, ASTM D240
Precision (1g Benzoic Acid)	≤0.05% RSD
Measuring Range*	upto 12000 Cal/g (Other Thermal Units: MJ/Kg & Btu/lb available)
Sample Mass	0.5 to 1.5g
Temp. Resolution	0.0001°C
Control Ability	2 Units/PC available
Analysis Time per Sample	6 to 10 mins
Jacket Type	Isoperibol
Bucket Type	Fixed
Oxygen Vessel	Removable Type, SS, with Hydrostatic Test Certificate as per ASTM E144
Heat Capacity Stability	≤0.2% within one year
Ignition Method	Ignition Wire
Vessel Identification	Yes
Balance Connection	Available
Network Connection	Available
Bucket Filling & Draining	Automatic
Oxygen Filling	Automatic (Built-in), typically 3MPa, as per ASTM D5865
Bomb Vessel Lifiting	Automatic
Power Supply	Single Phase, AC220V±10%, 50/60Hz, ≤500W
Net Weight	75Kg
Dimensions(LxWxH)	Analysis Unit: 480x500x420mm Temp. Control Unit: 370x500x420mm

*By selecting the right sample size (between 0.5g and 1.5g) the measuring range can be extended suitably.

Additional Accessories

Automatic Filling & Venting Station



This Automatic filling & venting station comes with auto shut-off helps to fill the oxygen exactly to 3Mpa and exhausting the oxygen vessel quickly, after analysis. This unit also acts as a working station to hold the oxygen vessel for sample preparation

Note: continous product improvement may necessitate changes in specifications