Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter

test method

Heat of combustion is determined in this test method by burning a weighed sample in an oxygen bomb calorimeter under controlled conditions. The heat of combustion is computed from temperature observations before, during and after combustion with proper allowances for thermochemical and heat transfer corrections. Either isothermal or adiabatic calorimeter jackets can be used.

automatic calorimeter

- Isoperibol Calorimetry
- Removable Oxygen Pressure Vessel and Bucket
- 4-6 tests per hour (6 tests requires 2nd vessel and bucket)
- Operator time per test is approximately 6 minutes
- 0.1% RSD Precision Class Instrument
- Accuracy:6318±19 cal/g for single analysis of standard
- SD Memory and Ethernet Network Communications

The K88990 features a removable bomb and bucket design. It can achieve the highest level of precision and accuracy of any oxygen bomb calorimeter. It is a good choice for high precision quality control work and for research and development. Multiple bomb choices are also available, expanding its functionality for higher energy releases

An isoperibol calorimeter is one where the surrounding jacket is maintained at a constant temperature while the temperature of the bomb and bucket rise as heat is released by the combustion. The K88900 and K88990 Calorimeters are true isoperibol calorimeters. In these implementations, a controlled temperature jacket, completely surrounds the combustion bomb and its “bucket”. A microprocessor-based controller monitors both the temperature of the bucket and the jacket and performs the necessary heat leak corrections that result from differences in these two temperatures. These corrections are applied continuously in real-time throughout the test rather than as a final correction based on pre and post test measurements.

Removable bomb calorimeters are the more traditional design most users will recognize. In this design the oxygen bomb and bucket are removed from the calorimeter for loading the sample and filling the bucket with the carefully measured amount of water which absorbs the energy released in the combustion.

Included Accessories
Oxygen Pressure Vessel, Alloy 20
Oxygen Regulator
Calibration Standards
Maintenance Kit for Pressure Vessel Repair

K88900 Automatic Calorimeter

specifications

Conforms to the specifications of:
ASTM D240, D1989, D4809, D5468, D5865, E711;
ISO 1928; DIN 51900; AS 1038.5; BS1016; JIS M8814
Measurement Type: Isoperibolic
Precision Classification: 0.05 to 0.10%
Number of Vessels: Up to 4
Bucket Filling / Bomb Washing: Manual
Oxygen Filling: Automatic
Memory: 1000 Tests
Printer / Balance Connection: Ethernet or USB
Network Connection: Ethernet
Sample Range: 5000-8000 Cal,
5000-10000 Cal for Extended Range (K88990-BP)
Temperature Resolution: 0.0001°C

Electrical Requirements:
115V 60Hz 230V 50/60Hz

Dimensions wxdxh,in.(cm)
22.5x15.75x17 (57x40x43)

ordering information

catalog no.	description
K88900	Automatic Calorimeter, 115V 60Hz
K88990	Automatic Calorimeter, 230V 50/60Hz
K88990-BP	Automatic Calorimeter - Extended Range, 230V 50/60Hz

accessories

K88900-1	Water Handling System, 115V 60Hz *Includes: 2000mL Pipette, Closed Loop Temperature Controlled Water Supply, Integral Solid State Cooling Unit*
K88990-1	Water Handling System, 230V 50/60Hz
K88900-2	Printer w/ Cable
K88900-3	Service Kit, 1 year

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