

PARR 6200 ISOPERIBOL OXYGEN BOMB CALORIMETER



Model 6200 is a microprocessor controlled isoperibol oxygen bomb calorimeter which is widely used for both routine and occasional calorific tests. It uses the time-tested Parr 1108 style oxygen bomb and oval bucket in a compact calorimeter, producing reliable results with good repeatability, but differing from the 6400 Model in that the bomb and bucket both must be removed from the calorimeter and refilled manually for each test, thereby requiring more of the operator's time than the automatic and semi-automatic models.

All sensors, controls and jacketing in the 6200 Calorimeter are built into a single, compact cabinet to provide a self-contained operating unit consisting of:

- A temperature-controlled water jacket with a built-in circulating system and an electric heater.
- An 1108P oxygen bomb with an oval bucket which fits into the insulating water jacket.
- A built-in semi-automatic system for charging the bomb with oxygen.
- A high precision electronic thermometer.
- A bright, color, touch screen display for data entry and operation control.
- Special communication ports for printer, computer and network (LAN) connections.
- SD memory card slots for simple program updates and test report archiving.

A variety of vessels are available for testing samples releasing from 52 calories to 12,000 calories per test.

Precise Electronic Thermometry

Temperatures are measured with a high precision electronic thermometer using a specially designed thermistor sensor sealed in a stainless steel probe which is fixed in the calorimeter cover. Measurements are taken with 0.0001° resolution over a 20° to 40°C working range, with all readings shown in Celsius.

Effective Thermal Jacketing

Outstanding thermal jacketing is provided by a circulating water system driven by a built-in, high capacity pump which maintains a continuous forced flow around the sides and bottom of the bucket chamber and through the cover as well. The jacket temperature is held constant for isoperibol operation and no water additions or waiting periods are required at the end of a run. A sealed immersion heater and a built-in heat exchanger, both operated by the calorimeter controller, provide precise jacket temperature control.

A Reliable Oxygen Bomb

The Parr 1108P Oxygen Bomb furnished with the calorimeter will safely burn samples liberating up to 8000 calories per charge, using oxygen charging pressures up to 40 atm. An alternate 1108PCL bomb with superior resistance to chlorine and halogen acids is recommended for tests involving waste material and chlorinated samples.

A Built-In Oxygen Filling System

To speed and simplify the bomb filling operation, the 6200 Calorimeter has a semi-automatic system for charging the bomb with oxygen. Oxygen from a commercial cylinder is connected to a microprocessor controlled solenoid installed in the calorimeter. To fill the bomb, the operator simply slips the filling hose connector onto the bomb inlet valve and pushes the touch screen to start the filling sequence. Filling then proceeds automatically at a controlled rate to a pre-set pressure.

Automatic Standardization

The 6200 Calorimeter will automatically generate its energy equivalent (EE) value from a series of standardization tests, calculating a mean value from an operator defined number of the last standardization tests for each bomb/ bucket combination. The default number of tests is 10 as specified by ASTM and international methods. The user can enter the maximum standard deviation he will accept and the calorimeter will advise him if his tests fail to meet this criteria. Energy equivalent values for up to four bomb/bucket combinations can be stored in the computer.

Many User Options

Although specific procedures are recommended, various options are available to the user:

- Program parameters can be adjusted to accommodate unusual sample sizes and precision requirements.
- The calorimeter can be programmed to accommodate any titrant concentrations selected by the user.
- Calorific values can be reported in any of several measurement units.
- The calorimeter program can be adjusted to compensate for the subtle differences in the way acid correction values are handled in ASTM, BS, DIN and ISO methods.
- Program controls can be protected from inadvertent changes.
- A bomb usage tally can be maintained to notify the user when each bomb should be serviced.

Multiple Language Options

Parr Model 6200 can be set to provide the programming options, operating menus, reports and error messages in the following choice of languages: English, French, German, Spanish, Italian and Czech.

Automatic Data Transfer

The calorimeter is equipped with a USB port for reporting to a printer and receiving sample weights from an analytical balance. Transferring results to a laboratory computer is accomplished using an Ethernet connection using standard network protocols.

Compatible Modular Design

The 6200 Calorimeter is fully compatible with existing 1108 Parr Bombs and closed-circuit water handling systems making it easy to fit the instrument into an existing laboratory set-up. A modular design, with the controller electronics assembled in a removable chassis, simplifies maintenance.

Specifications:

- Isotherm calorimetry
- Removable 1108P Oxygen Vessel and Bucket
- 4-7 tests per hour
- Operator time per test is approximately 6 minutes
- 0.05 – 0.1% precision class instrument
- 0.0001 °C Temperature Resolution
- 52 – 12000 calorie sample range dependent on vessel selected
- 0.05% Linearity across operating range
- SD memory and TCP/IP network communications
- USB Port for balance and printer connections
- Updates via the Internet
- Dimensions (in) 23w x 16d x 17h
- Dimensions (cm) 57w x 40d x 43h