Oxygen Bomb Calorimeter

(ISO 1716)

firetesting technology

Fire Testing Technology Limited
Charlwoods Road, East Grinstead, West Sussex RH19 2HL, UK
+44 (0)1342 323600 | sales@fire-testing.com | www.fire-testing.com
A Judges Scientific plc company

EN ISO 1716:
Reaction to fire tests for building products – Determination of the heat of combustion

ISO 1928:
Determination of gross calorific value by the bomb calorimetric method and calculation of net calorific value

ASTM D240:
Standard test method for heat of combustion of liquid hydrocarbon fuels by bomb calorimeter

ASTM D4809:
Standard test method for heat of combustion of liquid hydrocarbon fuels by bomb calorimeter

ASTM D5468:
Standard test method for gross calorific and ash value of waste materials

ASTM D5865:
Standard test method for gross calorific value of coal and coke

ASTM E711:
Standard test method for gross calorific value of refuse-derived

The bomb calorimeter is a widely used device for measuring the heat of combustion or calorific value of a material. With this apparatus a test specimen of specified mass is burned under standardised conditions. The heat of combustion determined under these conditions is calculated on the basis of the measured temperature rise while taking account of heat loss.

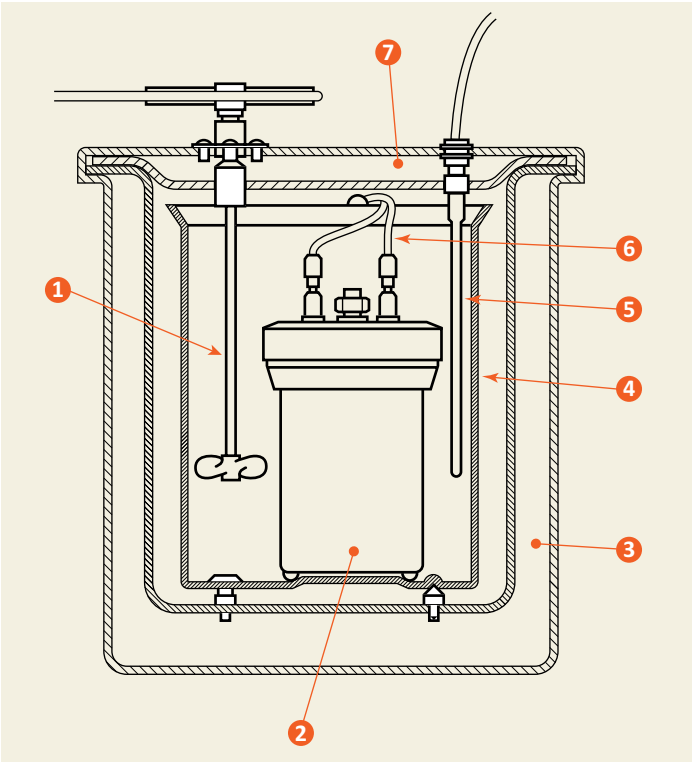
The combustion process is initiated inside an atmosphere of oxygen in a constant volume container, the bomb, which is a vessel built to withstand high pressures. It is immersed in a stirred water bath, and the whole device is the calorimeter vessel. The calorimeter vessel is also immersed in an outer water bath. The water temperature in the calorimeter vessel and that of the outer bath are both monitored.

The Oxygen Bomb Calorimeter is a versatile instrument and can be used to measure the heat generated from several applications and has been designed to conform to current ASTM, ISO, EN, BS and DIN standards.

- Building materials (EN ISO 1716)
- Coal, coke (ASTM D5865)
- Fuel (ASTM D240: gasoline, kerosene, fuel oil, Nos. 1-D and 2-D diesel fuel and Nos. 0-GT, 1-GT, and 2-GT gas turbines fuels and ISO 1928)
- Fuel derived from waste material (ASTM E711)
- Hydrocarbon fuels (ASTM D4809)
- Food, supplements, crops
- Waste and refuse

The Oxygen Bomb Calorimeter consists of:

- Measuring cell
- Decomposition vessel
- Oxygen filling station
- Consumables for calibrations and installation



1 Stirrer
2 Calorimeter bomb
3 Jacket
4 Calorimeter vessel
5 Platinum resistance thermometer, PRT
6 Ignition lead
7 Jacket lid

TECHNICAL SPECIFICATIONS	
Calorimeter type	Isoperibolic
Range of measurement	40,000 J
Reproducibility (1g benzoic acid)	≤0.1%
Temperature measurement resolution	0.0001°C
Working temperature max.	25°C
Oxygen operating pressure	30 bar
Measuring time approx.	17 min
Ambient temperature	20-25°C
Ambient humidity	80%
Interfaces	1 × serial (RS 232); 1 × parallel (Centronics)
Dimensions (W × D × H)	400 × 400 × 400 mm
Weight	21 kg
Voltage	100-240 VAC, 50/60 Hz
Power input	120 W

Due to the continuous development policy of **FTT** technical changes could be made without prior notice.

Unrivalled Experience in Design and Manufacturing

FTT's site in East Grinstead, is home to the largest group of fire scientists and instrumentation design engineers working on fire testing instrumentation, and is at the heart of our design and manufacturing. For almost 30 years **FTT** has provided the highest quality instruments and service for fire testing and research professionals worldwide, directly and through its extensive global sales and support network.

Quality

- World-class manufacturing in accordance with multiple international and national standards, including: EN, ISO & ASTM
- ISO 14001, ISO 9001 certified

Integrity

- A dedicated team passionate about fire testing instrumentation and continuous product improvement
- Delivering reliable, robust and easy-to-use instruments for the past 30 years

Excellence

- A world-class team made up of qualified fire scientists, mechanical, electrical and electronic fire instrument design engineers and production, installation and maintenance engineers

Global

- World-wide distribution network for global sales, installations, training, maintenance and technical support
- Leading global supplier of the Cone Calorimeter, Large Scale Calorimeter, NBS Smoke Chamber and Oxygen Index