

COMBUSTION CALORIMETRY

Oxygen Bomb Calorimeter

Model TXL-YAN-014

Building materials

Coal & coke

Isoperibol

7-inch touchscreen

PC software included

DESCRIPTION

Measures the gross heat of combustion (PCS) of building materials to EN ISO 1716 and the gross calorific value (GCV) of coal and coke to ISO 1928, ASTM D5865 and IS 1350 (Part 2).

The sample burns in oxygen at constant volume inside a sealed bomb immersed in a stirred water bucket. Bucket and jacket temperatures are measured separately in an isoperibol arrangement, and the result is calculated from the temperature rise, the energy equivalent and the method corrections.

One platform covers fire-reaction testing of building products and fuel quality control of coal and coke; the method is selected in the software.



TXL-YAN-014

TECHNICAL SPECIFICATIONS

Test methods	EN ISO 1716:2018; ISO 1928:2025; ASTM D5865/D5865M-19; IS 1350 (Part 2):2022
Measurement system	Constant-volume oxygen combustion; isoperibol water jacket
Reported quantities	PCS / GCV in MJ/kg; NCV and moisture-basis conversions from additional analysis inputs
Temperature measurement	Separate precision measurement of bucket and jacket temperatures
Combustion vessel	Sealed oxygen bomb with crucible and electrical ignition
Calibration	Certified benzoic acid; configuration-specific energy equivalent
Method corrections	Heat exchange, ignition, combustion aids, acid / sulfur
Operator interface	7-inch touchscreen PLC/HMI
PC software (included)	Method selection, temperature curves, evaluation and reports
Specimen handling	Manual bomb loading; external oxygen filling station

INSTALLATION DATA (APPROXIMATE)

Electrical supply	Approx. 220–240 V AC, 50/60 Hz, single phase
Connected load	Approx. 200–600 W
Dimensions (W × D × H)	Approx. 700 × 600 × 650 mm
Net / gross weight	Approx. 60–90 kg / 91–138 kg
Site requirements	Oxygen to the method, pressure regulator, test water, safe filling area

Approximate values are engineering estimates for planning; final values are confirmed with the order configuration and packing list. Computer hardware is optional and quoted separately.

STANDARDS

Test methods and apparatus requirements

The apparatus requirements of each method, as summarised from the standards. The instrument is configured and calibrated for the method selected; the achieved performance is documented by calibration with certified benzoic acid.

STANDARD	APPLICATION	APPARATUS REQUIREMENTS	METHOD COVERED
EN ISO 1716:2018	Building products – reaction to fire (EN 13501-1)	Bomb volume 300 ± 50 mL; lid and seal withstand 21 MPa; initial oxygen pressure up to 3 MPa, oxygen purity ≥ 99.5 %; temperature resolution 0.005 K; firing circuit ≤ 20 V	✓
ISO 1928:2020 / 2025	Coal and coke – gross calorific value	Bomb internal volume 250–350 mL; jacket controlled to ±0.1 K or better; temperature indication resolution 0.001 K	✓
ASTM D5865 / D5865M	Coal and coke – gross calorific value	Bomb hydrostatic proof test 20 MPa; jacket temperature within ±0.1 °C (isoperibol); traceable temperature calibration	✓
IS 1350 (Part 2):2022	Coal and coke – calorific value (India)	Adopted from ISO 1928:2020; apparatus requirements as ISO 1928	✓

Always apply the current edition of the standard. Bomb volume and pressure values are those of the combustion vessel, not of the complete instrument.

TEST SEQUENCE

- **Weigh & prepare:** select the method, weigh the sample, prepare the ignition assembly
- **Charge & load:** fill the bomb at the external oxygen station, place it in the bucket
- **Ignite & record:** electrical ignition; bucket and jacket temperatures recorded
- **Evaluate & report:** check complete combustion, apply corrections, report the result

SUPPLY AND SERVICE

- One (1) year warranty
- Installation guidance and operator training
- Calibration, spare parts and technical service from Istanbul

ACCESSORIES & SERVICES

- Oxygen filling station with pressure regulator
- External thermostatic bath, circulator and cooler
- Analytical balance and certified benzoic acid
- Sample preparation kit, combustion aids and spares

WHY TLI-TEXLABINSTRUMENTS

- Built in our own Istanbul workshop
- CE marked instruments
- ISO 9001 / 14001 / 45001 certified manufacturer

Datasheet and quotation

Tell us the materials and the methods you apply. We will configure the instrument and the accessories.

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