

# Automatic Vertical Calorimeter For Precision Gross Calorific Value Determination

Item Number: KT-TE2



## Introduction

Engineered for precision laboratory analysis, this automatic vertical calorimeter provides accurate gross calorific value measurement of coal and liquid fuels. It delivers automated water dosing, exceptional 0.0001 K resolution, nonvolatile data memory, and full testing compliance across demanding industrial environments.

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| Application                               | Description                                                                                                                                 | Key Benefit                                                                                            |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| <b>Coal Quality Assessment</b>            | Quantitative calorific profiling of raw coal, pulverized coal, washed fractions, and tailings for grading and trade valuation.              | Eliminates manual dosing deviations, ensuring exact tariff classification and contract fulfillment.    |
| <b>Thermal Power Generation</b>           | Continuous calorific verification of incoming boiler fuel supplies to optimize air-fuel ratios and calculate generation thermal efficiency. | Delivers fast 15-minute cycle times to support rapid fuel blending and minimize boiler slagging.       |
| <b>Metallurgical Coke Production</b>      | Evaluating the specific energy output of coking coal, metallurgical coke, and carbonaceous additives used in blast furnace operations.      | High 0.1% measurement accuracy ensures strict thermal control during blast furnace charging.           |
| <b>Petrochemical Fuel Testing</b>         | Determining the net and gross heat values of heavy fuel oils, diesel blends, residual slurries, and petroleum coke products.                | Conforms directly with standardized hydrocarbon fuel combustion methods without recalibration.         |
| <b>Cement Raw Meal Analysis</b>           | Measuring the heat value of black raw meal and alternative waste-derived fuels introduced into precalciner kilns.                           | Prevents kiln temperature deviations by providing precise thermal input metrics for alternative fuels. |
| <b>Commercial Inspection Laboratories</b> | High-throughput batch testing for independent certification bodies, customs facilities, and environmental auditing agencies.                | Non-volatile memory protects calibration integrity across operator shifts and sudden power losses.     |
| <b>Mining Waste &amp; Gangue Recovery</b> | Evaluating the residual calorific value of coal gangue to assess viability for fluid-bed combustion or backfill processing.                 | Sensitive 0.0001 K resolution captures faint thermal rises in low-energy carbonaceous discards.        |

| Parameter Classification             | Specification Detail (KT-TE2)           |
|--------------------------------------|-----------------------------------------|
| <b>System Heat Capacity</b>          | Approximately 10500 J/K                 |
| <b>Temperature Resolution</b>        | 0.0001 K                                |
| <b>Testing Precision</b>             | 0.1% (Standard Benzoic Acid)            |
| <b>Typical Test Duration</b>         | Approximately 15 minutes per sample run |
| <b>Outer Water Bucket Capacity</b>   | 40 L                                    |
| <b>Inner Water Bucket Capacity</b>   | Approximately 2.3 L                     |
| <b>Quantitative Dosing Tolerance</b> | $\leq \pm 0.1$ g                        |
| <b>Ignition Operating Voltage</b>    | 24 V                                    |
| <b>Ignition Timing Sequence</b>      | 5-minute timed ignition cycle           |
| <b>Temperature Measurement Span</b>  | 0°C to 65°C                             |

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|-------------------------------|-------------------------------------------------------------------------------------------------------|
| Operating Ambient Temperature | 5°C to 40°C                                                                                           |
| Power Consumption             | < 300 W                                                                                               |
| Operating Electrical Supply   | AC 220 V ±10%, 50 Hz                                                                                  |
| Governing Standards           | GB/T 213-2008, GB/T 483-2007, JC/T 1005-2006, GB/T 384                                                |
| System Control & Automation   | Integrated MCU with automated water fill, temperature regulate, quantitative dose, stir, and ignition |
| Data Persistence              | Non-volatile hardware storage (calibration and test data retained without power)                      |
| PC Interface (Optional)       | USB hardware interface with Windows-compatible supervisory software control                           |