



KINTEK SOLUTION

Coal & Coke Testing Equipment Catalog

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KINTEK SOLUTION

COMPANY PROFILE

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KinTek Group Limited is one technology orientated organization, team members are devoted to probing the most efficient and reliable technology and innovations in the scientific researching equipment, fields like biochemical reacting, new materials researching, heat treatment, vacuum creating, refrigerating, as well as pharmaceutical and petroleum extracting equipment.



Coke Coal Lump And Industrial Briquette Drop Shatter Strength Tester

Item Number: KT-TE43



Introduction

Evaluate metallurgical coke coal lumps and industrial briquettes with this automated drop shatter strength tester featuring precision height positioning heavy duty steel impact plates and reliable motorized release for standardized shatter resistance quality control testing.

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Application	Description	Key Benefit
Metallurgical Coke Quality Assurance	Determination of shatter indices for blast furnace coking charges dropped four consecutive times onto the impact plate to assess yield over 50 mm and 25 mm screen thresholds.	Prevents blast furnace permeability loss and uneven gas distribution by identifying mechanically weak coke batches before charging.
Foundry Coke Toughness Verification	Evaluation of large-size foundry coke structural resilience under high-velocity collision modeling the harsh handling cycles of cupola charging.	Assures thermal bed stability, consistent combustion rates, and minimal fines generation in heavy casting melt campaigns.
Industrial Briquette Mechanical Screening	Progressive single-briquette shatter assessment dropping formed solid fuels from 2000 mm over three cycles to quantify remaining fractions above 13 mm.	Eliminates premature crumbling, optimizes binder formulations, and reduces fuel losses during long-haul transport and bin storage.
Coal Preparation & Washing Plant Control	Assessment of coarse coal lump degradation susceptibility through chutes, transfer hoppers, and screening circuits during beneficiation operations.	Minimizes unintentional generation of ultra-fine coal fractions, lowering downstream slurry dewatering and clarification operating costs.
Third-Party Inspection & Research Testing	Standardized compliance verification for commercial certification of metallurgical solid fuels, synthetic briquettes, and industrial furnace charges.	Delivers auditable, non-biased shatter indices meeting regulatory protocols with exceptional inter-laboratory correlation reproducibility.
Alternative Binder & Biomass Briquette R&D	Comparative shatter testing of novel bio-coal composites, torrefied pellets, and cold-bonded agglomerates subjected to repeated mechanical drops.	Provides quantifiable screening benchmarks to rapidly validate curing times, binder chemistries, and compaction press pressures.

Specification Parameter	Standard Configuration (KT-TE43)	Briquette Testing Variant (KT-TE43-B)
Applicable Standards	GB/T 4511.2-1999 (Coke shatter test)	MT/T 925-2004 (Industrial briquette shatter test)
Target Test Materials	Metallurgical coke, foundry coke, raw lump coal	Industrial formed briquettes, biomass solid fuels
Standard Drop Height	1830 mm (fixed reference setting)	2000 mm (adjustable drop positioning)
Vertical Height Adjustment	Continuously variable with position stops	Continuously variable with position stops
Sample Box Dimensions (L x W x H)	710 mm x 455 mm x 380 mm	710 mm x 455 mm x 380 mm (optional briquette trays)
Sample Box Plate Thickness	3 mm structural carbon steel	3 mm structural carbon steel
Sample Box Discharge Action	Automated split bottom-door trip release	Automated split bottom-door trip release
Impact Base Plate Dimensions	1220 mm x 965 mm	1220 mm x 965 mm
Impact Base Plate Thickness	12 mm solid high-tensile steel	12 mm solid high-tensile steel
Base Enclosure Retaining Wall	200 mm high integrated steel perimeter rim	200 mm high integrated steel perimeter rim

Specification Parameter	Standard Configuration (KT-TE43)	Briquette Testing Variant (KT-TE43-B)
Elevation Drive Motor Power	1.5 kW	1.5 kW
Operating Voltage & Phase	380 V AC $\pm$ 10%, 50 Hz, 3-Phase 4-Wire	380 V AC $\pm$ 10%, 50 Hz, 3-Phase 4-Wire
Gear Speed Reducer	WPA-80 worm gear reducer	WPA-80 worm gear reducer
Reduction Ratio	1:50-E	1:50-E
Vertical Elevation Guide Type	Rigid structural upright twin guide columns	Rigid structural upright twin guide columns
Travel Limit Protection	Dual upper and lower electro-mechanical limits	Dual upper and lower electro-mechanical limits
Operating Control Scheme	Independent NEMA-style push-button control station	Independent NEMA-style push-button control station
Equipment Weight	Approximately 400 kg	Approximately 410 kg
Floor Footprint Footing	Anchored structural baseplate configuration	Anchored structural baseplate configuration

Coal Abrasion Index Tester Coal Abrasiveness Index Determinator

Item Number: KT-TE44



Introduction

Accurately determine the abrasiveness index of lignite, bituminous, and anthracite coals. Engineered for standardized testing, this rugged unit provides reliable wear data to optimize industrial pulverizers, power plant boilers, and grinding alloy selection.

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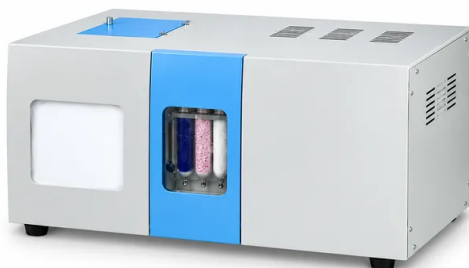
Application	Description	Key Benefit
Thermal Power Plant Fuel Assessment	Evaluates the abrasiveness of incoming fuel stocks, including sub-bituminous coals and anthracite blends, prior to entering high-throughput bowl or ball mills.	Prevents unscheduled boiler outages and predicts the service life of pulverizer grinding elements.
Pulverized Coal Gasification	Determines the wear potential of dry coal feeds used in entrained-flow gasifiers and pneumatic transfer pipelines.	Informs material selection for burner nozzles, rotary valves, and pneumatic elbows subjected to high-velocity impact.
Grinding Component Metallurgy Selection	Assesses relative metal loss rates to benchmark candidate alloys (e.g., high-chromium white irons, Ni-Hard alloys) against standardized coal batches.	Optimizes alloy selection and heat-treatment specifications for industrial crushing and milling components.
Coal Exploration and Basin Characterization	Measures the abrasion index (AI) across core samples and geological coal seams during resource evaluation and mine planning.	Enables mine operators to classify deposits by milling wear characteristics and market coal with accurate technical profiles.
Commercial Fuel Testing Laboratories	Provides standardized abrasion index certification for commercial coal contracts, fuel import/export verification, and third-party quality audits.	Delivers indisputable, standard-compliant test certificates recognized across energy and metallurgical industries.
Pulverizer and Mill Engineering	Utilized by equipment OEMs to simulate pulverizer dynamics and model wear rates when designing vertical spindle mills, tube mills, and crushers.	Validates engineering calculations for wear liner thickness, rotor design, and overall mechanical safety margins.

Parameter	Specification Details
Product Model	KT-TE44
Standard Compliance	GB/T 15458 (Method for Determination of Abrasiveness Index of Coal)
Target Fuel Types	Lignite (Brown Coal), Bituminous Coal, Anthracite
Test Parameter Output	Coal Abrasion Index (AI Value, represented in mg wear / 4 kg coal)
Agitator Spindle Speed	1450 ± 30 r/min
Preset Revolution Limit	12000 ± 20 revolutions
Wear Blade Dimensions	38 mm × 38 mm × 11 mm (4 blades per complete set)
Blade Material Standard	Specially calibrated structural carbon/alloy steel per standard requirement
Electric Drive Motor	2.2 kW, industrial three-phase induction motor
Electrical Power Supply	380 V AC, 3-Phase, 50 Hz
Chamber Sealing System	Multi-stage dust-proof containment with particulate seals
Instrument Weight	120 kg

Parameter	Specification Details
Overall Physical Dimensions	410 mm (W) × 400 mm (D) × 820 mm (H)
Operating Mode	Automated cycle execution with automatic spindle stop
Housing Construction	Heavy-duty structural steel with corrosion-resistant industrial finish

Integrated Rapid Automatic Hydrogen Analyzer For Coal And Solid Fuels

Item Number: KT-TE35



Introduction

Engineered for industrial coal laboratories, this integrated rapid automatic hydrogen analyzer delivers precise coulometric hydrogen and gravimetric carbon measurements. Featuring dual zone heating, rapid test cycles, and automated sample delivery, it guarantees superior analytical accuracy and reliable quality control.

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Application	Description	Key Benefit
Thermal Power Generation Fuel Testing	Determining precise hydrogen concentrations in pulverized coal feeds to accurately calculate net calorific value (lower heating value) and boiler combustion efficiency.	Prevents boiler heat loss miscalculations, optimizes fuel-to-air ratios, and reduces unplanned combustion anomalies in continuous power generation.
Commercial Coal Grading & Mining QA/QC	Performing rapid elemental hydrogen and carbon profiling on run-of-mine lignite, bituminous coal, and anthracite across processing plants and shipment hubs.	Delivers fast 10-minute turnaround per sample, facilitating rapid commercial valuation, trade contract verification, and compliance with GB/T476-2008 standards.
Metallurgical Coke Production	Monitoring residual volatile matter and hydrogen content in metallurgical coking blends, pitch binders, and blast furnace pulverized coal injection (PCI) fuels.	Ensures structural coke strength, minimizes blast furnace permeability issues, and maintains stringent carbon mass balances across ironmaking operations.
Coal Water Slurry (CWS) Formulation	Analyzing organic hydrogen fractions in homogenized coal-water suspensions and additive blends used in gasification and industrial boiler applications.	Enables precise energy content verification in slurry mixtures despite variable water content, supporting stable burner operation and flame retention.
Biomass & Solid Alternative Fuel Analysis	Evaluating organic elemental composition in agricultural biomass, densified wood pellets, and refuse-derived fuels (RDF) intended for co-combustion facilities.	Supplies crucial stoichiometry data for combustion air staging and carbon dioxide emission reporting without equipment modification.
Independent Commercial Inspection Laboratories	Running high-volume, automated carbon and hydrogen certifications for third-party inspection agencies and custody-transfer compliance auditing.	Maximizes sample throughput via simultaneous carbon absorption and integrated reporting, eliminating manual titration drift and operator-induced errors.

Specification Parameter	Value / Operational Characteristic (KT-TE35)	Engineering Details & Standards
Model Item Identifier	KT-TE35	Unified product code for high-throughput carbon and hydrogen analysis
Governing Standard	GB/T476-2008	Standard test method for determination of carbon and hydrogen in coal
Applicable Specimen Types	Lignite, bituminous coal, anthracite, coal water slurry, solid organics	Broad material compatibility across commercial solid fossil fuels
Hydrogen Measurement Principle	Combustion conversion followed by P2O5 coulometric electrolysis	Water vapor reacts to form metaphosphoric acid; quantified by Faraday charge
Carbon Measurement Principle	High-temperature oxidation followed by gravimetric CO2 absorption	Selective chemical absorption reagent gain determines total carbon mass
Hydrogen Measurement Range	0.00% to 20.00%	High sensitivity across low-rank and enriched hydrocarbon solids
Carbon Measurement Range	0.00% to 100.00%	Wide dynamic range suitable for high-purity carbon materials

Specification Parameter	Value / Operational Characteristic (KT-TE35)	Engineering Details & Standards
Measurement Precision & Accuracy	Fully compliant with GB/T476-2008 tolerances	Demonstrates excellent intra-batch repeatability and inter-batch reproducibility
Analysis Duration (Hydrogen)	10 minutes	Rapid cycle time optimized for high-volume quality control laboratories
Analysis Duration (Carbon)	15 minutes	Efficient gravimetric measurement integrated into total testing cycle
Combustion Furnace Temperature	850°C ± 3°C	Ensures complete oxidation of volatile matter and fixed carbon fractions
Conversion Furnace Temperature	350°C ± 3°C	Catalytic decomposition and moisture conditioning zone
Temperature Control Precision	±1°C	Microprocessor-controlled closed-loop PID regulation
Heating Ramp Rate	25°C to 30°C/min	Rapid initial warm-up minimizing system pre-test downtime
Combustion Tube Specifications	Length: approx. 90 cm; High-purity sealed quartz	Excellent thermal shock resistance and airtight gas containment
Sample Delivery System	Internal motorized propulsion mechanism	Moves sample within sealed quartz tube to prevent atmospheric gas infiltration
Electrolytic Cell Dimensions	Length: ~10 cm; Inner Diameter: ~5 mm; Outer Diameter: ~8 mm	Precision-machined borosilicate glass with active external heat dissipation
Electrode Film Coating	Phosphorus pentoxide (P2O5) active reagent layer	Uniform inner wall coating for quantitative water vapor capture
Electrolytic Cell Cooling	Forced-convection heat dissipation assembly	Prevents thermal overload during high-current peak electrolysis periods
Specimen Particle Size	80 mesh (0.2 mm)	Standard fine milling requirement for complete combustion kinetics
Specimen Capacity	Single sample per analytical run (1 sample/cycle)	Streamlined sequential sample workflow with dedicated carbon absorber unit
Film Coating Electrolysis Voltage	10 V DC	Dedicated pre-conditioning voltage for stable reagent film preparation
Operational Electrolysis Voltage	24 V DC	Standard working voltage ensuring constant electrochemical conversion
Maximum Electrolysis Current	≤ 600 mA	Peak electrochemical current capacity handling high-moisture combustions
End-Point Electrolysis Current	≤ 65 mA	Automatic cutoff threshold confirming complete quantitative titration
System Architecture & Modules	Main console, O2 purification, combustion, cell, integrator, absorber	Fully integrated modular platform eliminating external interconnect piping
Data Display & Reporting	Automated digital LED display and built-in micro-printer	Displays real-time operational status and prints finalized certified test logs

Microcomputer Integrated Sulfur Analyzer For Coal Coke And Combustible Materials

Item Number: KT-TE14



Introduction

Designed for coal, coke, and combustible analysis, this integrated microcomputer sulfur analyzer provides automated coulometric determination compliant with GB/T214-2007 standards. The system features 0.00001 resolution, rapid multi-level calibration, intelligent endpoint judgment, platinum electrodes, and reliable continuous industrial laboratory operation.

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Application	Description	Key Benefit
Thermal Power Generation	Quantitative screening of pulverised boiler coal and blended fuel stocks prior to boiler feed.	Guarantees compliance with environmental sulfur dioxide emissions and guides flue gas desulfurization systems.
Metallurgical & Coking Operations	Rigorous monitoring of coking coal, metallurgical coke, and blast furnace reductants.	Prevents excessive sulfur uptake in molten pig iron, protecting steel ductility and processing efficiency.
Coal Mining & Beneficiation	Online and laboratory quality grading of raw coal, washed clean coal, middlings, and mine tailings.	Delivers rapid calorific-to-sulfur ratio data to optimize coal blending, washing yields, and commercial pricing.
Gangue & Mineral Waste Valorization	Profiling sulfur concentrations in coal gangue, oil shale, and solid carbonaceous mineral residues.	Classifies mineral by-products for refractory brick manufacture or safe backfill disposal without acid run-off.
Commercial Inspection Laboratories	High-throughput contractual quality verification and compliance testing under GB/T 214-2007.	Delivers indisputable, highly repeatable analytical reports with rapid turnaround times of 3 to 9 minutes per test.
Petrochemical & Synthetic Fuels	Testing of heavy petroleum coke, synthetic coal-to-liquid solids, and secondary industrial fuels.	Identifies corrosive sulfur precursors that degrade cracking catalysts and downstream refining reactors.
Environmental Waste Combustion	Determination of sulfur thresholds in municipal solid waste RDF, biomass briquettes, and industrial sludge.	Provides essential stoichiometric data to size acid gas scrubbers and assess environmental permitting standards.

Specification Parameter	Value / Operational Characteristic
Product Model Reference	KT-TE14
Testing Methodology	Microcomputer-controlled coulometric titration (combustion method)
Governing Analytical Standard	GB/T 214-2007 (Determination of Total Sulfur in Coal)
Sulfur Measurement Range	0.00% to 99.99% Total Sulfur
Minimum Analytical Resolution	0.00001 (1×10^{-5} / 0.001%)
Single Sample Analytical Duration	3 to 9 minutes (automated sample feed, combustion, and return)
Temperature Control Accuracy	1150 °C $\pm$ 5 °C (programmable operating temperature setpoint)
Pyrometric Measurement Precision	Class 0.5 industrial temperature measurement standard
Heating Core Element	High-purity silicon carbide (SiC) resistance heating tube

Specification Parameter	Value / Operational Characteristic
Thermal Ramp Capability	25 °C/min to 30 °C/min (attains 1200 °C in approximately 35 minutes)
Ready-to-Test Stabilization Time	≤ 1 minute from cold power-on to stabilized electrical baseline
Electrolytic Cell Specification	450 mL transparent reservoir with integrated magnetic stirring
Electrode Material & Configuration	Metallic platinum (Pt) analytical indicator and counter electrodes
Carrier Gas Working Flow Rate	1000 mL/min purified air / oxygen stream
Titration Endpoint Detection	Automated intelligent microcomputer derivative calculation
Calibration Architecture	Multi-level linear and non-linear mathematical calibration matrix
Data Archiving Capability	Internal non-volatile memory with automated historical query and logging
Operational Power Supply	220 V ± 20% AC, single-phase, 50 Hz
Maximum Power Draw	≤ 2.2 kW at full thermal ramp

Automatic Calorimeter Oxygen Bomb Calorific Value Tester

Item Number: KT-TE4



Introduction

Engineered for coal, coke, and solid fuels, this automatic calorimeter delivers 0.0001K temperature resolution, automated water conditioning, and full GB/T213-2008 compliance to optimize thermal analysis precision and industrial testing throughput across high-demand laboratory environments.

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Application	Description	Key Benefit
Power Plant Coal Grading	Routine calorific value testing of pulverized bituminous coal, sub-bituminous coal, and lignite prior to boiler combustion.	Optimizes air-to-fuel ratios, enhances combustion efficiency, and verifies supplier billing energy content.
Commercial Coal Quality Inspection	Third-party inspection and trade verification of raw, washed, and blended coals at transportation hubs and ports.	Delivers certified, legally defensible calorific determinations compliant with GB/T 213-2008 benchmark standards.
Metallurgical Coke Evaluation	High-precision thermal characterization of metallurgical coke, semi-coke, and carbon anodes used in blast furnaces and smelters.	Guarantees stringent energy density specifications required for stable blast furnace thermal profiles.
Gangue and Tailings Assessment	Calorific quantification of coal gangue, washing rejects, and mineral tailings for fluidized bed combustion or utilization.	Identifies viable low-grade fuel streams while supporting mine waste valorization and environmental compliance.
Petrochemical Fuel Sludge & Petcoke Analysis	Determination of higher heating values in petroleum coke, heavy fuel oil residues, and refinery carbonaceous byproducts.	Enables precise blending calculations for industrial boilers and secondary petrochemical heat recovery systems.
Biomass & Refuse-Derived Fuel (RDF) Testing	Analytical screening of pelletized agricultural biomass, municipal solid waste fractions, and industrial refuse fuels.	Provides standardized energy yield metrics (0.1% accuracy on benzoic acid standards) for renewable energy conversion.

Parameter	Specification Value (Model: KT-TE4)
Item Number	KT-TE4
Heat Capacity	Approximately 10,500 J/K
Temperature Resolution	0.0001 K (0.1 mK)
Test Duration	Approximately 15 min per sample
Outer Water Jacket Capacity	30 L
Inner Cylinder Water Capacity	Approximately 2.3 L
Water Quantitative Error	≤ ±0.1 g
Ignition Voltage	24 V
Ignition Timing Sequence	6 min ignition interval
Calorific Accuracy / Repeatability	≤ 0.1% (Benzoic Acid benchmark)
Temperature Measurement Range	0°C to 65°C
Ambient Operating Temperature Range	5°C to 40°C
Power Supply Requirements	AC 220 V ± 10%, 50 Hz
Power Consumption	< 300 W

Parameter	Specification Value (Model: KT-TE4)
Analytical Standard Compliance	GB/T 213-2008 (Determination of Calorific Value of Coal)
User Interface & Display	Large-screen LCD with step-by-step menu prompts
Communication & Control Expansion	Optional USB port, Windows XP / PC system integration

Rapid Continuous Ash Analyzer Fast Coal Ash Content Determination Furnace

Item Number: KT-TE32



Introduction

Optimize combustible sample testing with this rapid continuous ash analyzer featuring precision motorized chain conveyance, dynamic thermal profiling to 1000°C, rapid forty-five minute preheating, and unmatched energy-efficient operation engineered for demanding high-throughput industrial and geological testing laboratories worldwide.

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Application	Description	Key Benefit
Coal Preparation & Mining	Continuous measurement of run-of-mine raw coal, clean coal, and flotation tailings to monitor washing efficiency and yield optimization.	Rapid 15–50 minute analytical turnaround enables real-time plant operational adjustments to maximize combustible recovery.
Thermal Power Generation	Daily proximate analysis of pulverized coal feedstocks and boiler blending inventory to calculate heating value and predict slagging indices.	Continuous feeding throughput prevents sample backlogs and verifies contractual fuel specifications before boiler firing.
Metallurgical Coke Quality Control	Evaluation of ash fractions in coking coals, metallurgical coke breeze, and blast furnace injection fuels to minimize slag burden.	Strict $\pm 10^{\circ}\text{C}$ thermal stability ensures repeatable results that protect steelmaking blast furnace chemistry and efficiency.
Geological Exploration	Quantitative mineralogical testing of core drillings, sedimentary formations, and carbonaceous rock samples during regional surveying.	High test repeatability and precise sample handling enable accurate characterization of low-grade and high-grade strata.
Chemical & Synthetic Fuel Plants	Proximate ash monitoring of coal gasification feedstocks, activated carbons, and solid carbonaceous waste streams.	Continuous combustion profiles capture exact residue levels without cross-contamination or incomplete hydrocarbon cracking.
Commercial Inspection & Foreign Trade	Third-party verification of export/import coal cargos, solid biomass shipments, and industrial fuels against international sales contracts.	High analytical accuracy down to 0.0002 g gravimetric standards guarantees unbiased, defensible trade inspection reporting.
Environmental Solid Waste Testing	Ash residue characterization for industrial sludge, refused-derived fuels (RDF), and incinerator residue streams.	Safe, steady thermal degradation handles high-volatile solid wastes cleanly through controlled sequential furnace progression.

Specification Parameter	Value / Operational Characteristic (Model: KT-TE32)
Product Identifier	KT-TE32
Furnace Chamber Total Length	730 mm
Constant Temperature Zone Length	≥ 150 mm (certified at standard 815°C)
Temperature Uniformity Tolerance	$\leq \pm 10^{\circ}\text{C}$ within the certified isothermal zone
Maximum Operating Temperature	1000°C
Thermal Ramp Time (Ambient to 815°C)	≤ 45 minutes
Conveyor Chain Linear Speed	15 mm/min to 70 mm/min (continuously variable)
Ashing Residence Time Range	15 minutes to 50 minutes (speed-dependent)
Sample Crucible Mass Range	0.5 ± 0.01 g
Analytical Measurement Accuracy	Accurate to 0.0002 g

Specification Parameter	Value / Operational Characteristic (Model: KT-TE32)
Rated Operating Power	4.0 kW
Rated Operating Voltage	AC 220V $\pm$ 10%, 50 Hz
Sample Conveyance Mechanism	Motor-driven heat-resistant continuous metallic link chain
Operational Heating Mode	Progressive continuous-feed thermal zone combustion

Microcomputer Automatic Moisture Analyzer For Total And Analytical Moisture Testing

Item Number: KT-TE27



Introduction

Discover high precision microcomputer automatic moisture analyzer systems featuring dual microwave and infrared drying modes for rapid, automated total and analytical moisture testing in industrial solid fuels, chemical feedstocks, and quality control laboratories.

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Application	Description	Key Benefit
Coal Mining & Beneficiation	Quantitative analysis of total and air-dried inherent moisture in raw coal, washed coal, and tailings during processing and blending operations.	Ensures rapid feedback for washing plant optimization and verifies precise calorific value calculations for contract compliance.
Thermal Power Generation	Monitoring moisture content in incoming pulverized coal feedstocks and boiler combustion blends to optimize boiler thermal efficiency.	Prevents mill fouling, optimizes combustion air ratios, and reduces fuel waste through rapid 20-minute batch screening.
Metallurgical & Coking Plants	Determining moisture levels in coking coals, metallurgical coke blends, and pulverized coal injection (PCI) fuels before blast furnace charging.	Prevents thermal shock in refractories, optimizes coke oven battery heating cycles, and stabilizes carbon balance.
Petrochemical & Heavy Oil Refining	Moisture determination in petroleum coke, heavy refinery residues, organic slurries, and chemical synthesis raw materials.	Guarantees compliance with downstream refining specifications and prevents corrosion or catalyst deactivation in processing units.
Biomass & Renewable Energy Fuels	Rapid moisture verification of wood pellets, agricultural residues, and densified biofuel briquettes prior to transport and co-firing.	Eliminates mold degradation risks during storage and guarantees accurate energy billing based on net calorific value.
Commercial Inspection & Testing Labs	High-volume certification testing of bulk mineral commodities, solid fuels, and combustible imports/exports under official trade standards.	Boosts daily sample throughput by analyzing 8 samples simultaneously with automated reweighing and auditable reporting.
Chemical Manufacturing & Mineral Salts	Dehydration kinetics and free moisture verification for granulated chemical compounds, synthetic fertilizers, and industrial minerals.	Enhances batch-to-batch consistency and prevents caking during packaging, storage, and pneumatic bulk transfer.

Specification Parameter	KT-TE27 (Total Moisture Configuration)	KT-TE27F (Dual Analytical & Total Moisture Configuration)
Functional Scope	Measurement of total moisture in coal, coke, and combustible materials	Measurement of both analytical moisture (inherent/air-dried) and total moisture
Simultaneous Sample Capacity	8 samples per test run	8 samples per test run
Analysis Time	Approximately 20 min per batch	Approximately 20 min per batch
Determination Precision	Total Moisture: $\leq 0.4\%$	Total Moisture: $\leq 0.4\%$; Analytical Moisture: $\leq 0.2\%$
Sample Mass Requirement	10 g to 12 g (Total Moisture)	10 g to 12 g (Total Moisture); 0.9 g to 1.1 g (Analytical Moisture)
Sample Particle Size	≤ 6 mm (Total Moisture)	≤ 6 mm (Total Moisture); ≤ 80 mesh (Analytical Moisture)
Drying Technologies Available	Microwave drying, Infrared drying, Combined hybrid drying	Microwave drying, Infrared drying, Combined hybrid drying
Microwave Input Power	≤ 1400 W	≤ 1400 W
Microwave Output Power	≤ 900 W	≤ 900 W
Microwave Frequency	2450 MHz	2450 MHz
Infrared Heating Power	≤ 1100 W	≤ 1100 W

Specification Parameter	KT-TE27 (Total Moisture Configuration)	KT-TE27F (Dual Analytical & Total Moisture Configuration)
Weighing System	Imported high-precision automatic electronic balance	Imported high-precision automatic electronic balance
Testing Programs	Rapid determination program, Classical determination program	Rapid determination program, Classical determination program
Intelligent Diagnostics	Sample presence auto-detection, Weighing error re-measurement	Sample presence auto-detection, Weighing error re-measurement
Data Output & Reporting	Automated result printing, Repeat printing capability	Automated result printing, Repeat printing capability
Control Workstation	Microcomputer control with dedicated analytical software	Microcomputer control with dedicated analytical software
Electrical Power Requirements	AC 220 V $\pm$ 10%, 50 Hz	AC 220 V $\pm$ 10%, 50 Hz
Total System Power Consumption	1 kW	1 kW

Coal Abrasion Index Tester Coal Abrasiveness Determination Apparatus

Item Number: KR-TE30



Introduction

Accurately measure coal abrasiveness and wear characteristics with this standardized abrasion index tester engineered for high-precision spindle speed automatic revolution control and rugged metallurgical durability across power generation and coal quality testing laboratories worldwide.

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Application	Description	Key Benefit
Thermal Power Generation	Evaluating the abrasive severity of thermal coal blends on boiler pulverizers, roller mills, and exhausters fans.	Minimizes boiler auxiliary outages, predicts mill life, and lowers lifecycle replacement costs for grinding elements.
Coal Mining & Preparation	Classifying mined seams (lignite, bituminous, anthracite) according to empirical abrasion index ratings during reserve characterization.	Facilitates commercial coal grading, validates contract wear penalties, and guides coal blending optimization.
Boiler & Pulverizer Engineering	Benchmarking wear-resistant metallurgy, high-chromium alloy steels, and composite weld overlays against standard abrasive feeds.	Accelerates alloy selection and structural design validation for heavy industrial pulverizing machinery.
Metallurgy & Coking Plants	Determining abrasiveness of metallurgical coking blends before high-speed pneumatic injection and crushing phases.	Prevents premature erosion of pneumatic conveying pipelines, distributor valves, and blast furnace injection lances.
Third-Party Testing Laboratories	Performing certified analytical testing and commercial verification of solid mineral fuels according to national standards.	Delivers audit-ready, repeatable, and legally defensible abrasion index certificates for commercial transactions.
Combustion & Mineral Research	Investigating relationships between mineral matter distribution (quartz, pyrite, siderite) and micro-scale metallic abrasion.	Supports academic and industrial research into fuel tribology, comminution energy, and mineral hardness kinetics.

Specification Parameter	KR-TE30 Operational Specification
Model Identifier	KR-TE30
Standard Compliance	GB/T 15458-2006 (Determination of Abrasiveness Index of Coal)
Applicable Sample Types	Lignite, Bituminous Coal, Anthracite
Test Blade Dimensions	38 mm × 38 mm × 11 mm
Main Spindle Speed	1450 ± 30 r/min
Automated Working Cycle	12000 ± 20 revolutions
Drive Motor Power	2.2 kW
Operating Electrical Supply	3-Phase, 380 V, 50 Hz
Spindle Drive Transmission	Heavy-duty direct coupled / industrial dynamic belt assembly
Revolution Control System	High-precision digital cycle counter with automatic shutoff
Chamber Access	Quick-access top-loading mechanical enclosure

Coal Ignition Point Tester For Spontaneous Combustion Tendency Determination

Item Number: KT-TE51



Introduction

Optimize coal safety and spontaneous combustion risk assessment with this high-precision coal ignition point tester featuring automated thermal analysis, real-time curve plotting, and strict compliance with GB/T 18511 standards for mining and power generation operations.

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Application	Description	Key Benefit
Coal Mine Safety & Storage Management	Screening raw run-of-mine coals and stored stockpiles to classify coal seams by spontaneous combustion propensity and open-air fire risk.	Prevents disastrous underground gob fires and stockpile losses through predictive hazard grading.
Thermal Power Generation Facilities	Evaluating raw pulverized coal feeds, blended fuel mixtures, and long-term bunker storage for utility boilers prior to pulverization.	Mitigates spontaneous ignition in coal mills, feed bunkers, and conveying systems while optimizing fuel blending strategies.
Bulk Marine & Rail Logistics Terminals	Testing high-volume export and import coal cargoes at port loading docks and rail distribution yards before long-distance transit.	Assures international shipping compliance and prevents self-heating events during lengthy maritime voyages.
Coking & Metallurgical Processing	Assessing specialized coking coal blends and carbonaceous additives for high-temperature stability and pre-combustion reactivity.	Protects coking battery intake silos from premature combustion while maintaining consistent blend chemistry.
Combustion Research & Academic Institutions	Investigating the fundamental oxidation kinetics, structural reactivity, and chemical inhibitor treatments of various coal ranks.	Yields high-precision thermal curves (0.1°C resolution) that support peer-reviewed combustion science and inhibitor formulation.
Environmental & Loss Prevention Auditing	Performing regulatory compliance assessments to verify that storage techniques satisfy national industrial fire prevention mandates.	Generates defensible, automated documentation aligned with standard testing protocols to satisfy insurance underwriters.

Parameter Category	Specification Attribute	Value / Tolerance (KT-TE51)
Core Identification	Product Model Designation	KT-TE51
Standard Compliance	Reference National Testing Standard	GB/T 18511-2001
Temperature Performance	Temperature Control Operating Range	0°C to 500°C
	Thermal Resolution	0.1°C
	Linear Heating Rate	5 ± 1°C/min
	Test Repeatability Error	≤ 6°C
	Temperature Measurement Element	High-Precision Thermal Resistance (RTD)
Chronological Tracking	Timing Range	0 to 999 min
	Timing Measurement Resolution	0.1 min
Electrical Specifications	Power Supply Rating	AC 220V ± 10%, 50 Hz
	Maximum Power Consumption	≤ 1.2 kW
Automation & Interface	System Control Architecture	Integrated Microcomputer / PC System
	Data Output Functions	Automatic Curve Plotting, Ignition Judgment, Report Printing

Parameter Category	Specification Attribute	Value / Tolerance (KT-TE51)
Operating Environment	Ambient Operating Temperature	0°C to 40°C
	Relative Humidity Range	≤ 85% RH (non-condensing)
	Electromagnetic Interference Requirement	Install away from strong electrical or magnetic interference sources

Coal Fluorine Analyzer High Temperature Combustion Hydrolysis System

Item Number: KT-TE54



Introduction

This coal fluorine analyzer provides rapid pyrohydrolysis separation within 15 minutes, featuring PID furnace regulation up to 1200°C, digital ion measurement, and automated reporting software for compliant industrial analytical laboratory testing.

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Application	Description	Key Benefit
Coal & Fuel Characterization	Quantifying trace and major fluorine content in raw, washed, and blended coals prior to combustion.	Prevents boiler tube corrosion and verifies compliance with environmental atmospheric emission thresholds.
Cement Clinker & Raw Meal Testing	Monitoring fluorine additions and naturally occurring fluoride in raw meal, kiln dust, and finished clinkers.	Optimizes mineralizer dosage, prevents kiln coating instability, and controls cement hydration kinetics.
Rapid-Setting Cement Additives	Assessing fluorine concentrations in ultra-early strength cements, dual-fast formulations, and accelerators.	Ensures exact chemical additive proportions to guarantee targeted rapid-setting performance without strength regression.
Phosphogypsum & Phosphate Rock Processing	Determining residual and total fluorides in raw phosphate ore and byproduct phosphogypsum cakes.	Facilitates chemical quality grading and supports safe environmental utilization of industrial gypsum byproducts.
Fluorite & Metallurgical Flux Analysis	Extracting high-percentage fluorides from natural fluorite ores and metallurgical smelting slags.	Provides rapid assays for metallurgical grade classification and precise fluxing performance monitoring.
Rare Earth Tailings & Mineral Slurries	Evaluating halogen concentrations in complex mineral processing residues and rare earth beneficiation tailings.	Delivers reliable extraction from refractory mineral structures to track recovery yields and environmental tailings compliance.
Bleaching Clay & Industrial Adsorbents	Measuring fluorine adsorption capacity and residual halide content in acid-activated bentonites and clay media.	Confirms product purity specifications for petroleum refining, edible oil decoloring, and industrial filtration.

Specification Parameter	Value / Technical Metric
Product Item Number	KT-TE54
Test Method	High-Temperature Combustion Hydrolysis (Pyrohydrolysis)
Temperature Setting Range	900°C to 1200°C
Temperature Control Accuracy	1100 ± 2°C
Heating Rate Performance	Ambient to 1100 ± 2°C in approximately 25 minutes
Fluorine Separation Capacity	Up to 40 mg total fluorine per analytical sample charge
Separation / Distillation Duration	Approximately 15 minutes
Heating Element Type	High-durability Silicon Carbide (SiC) Tube
Evaporation Control Component	Precision Taiwan TOCOS Linear Potentiometer
Analytical Standards Compliance	Fluorine: GB/T 4633—2014; Chlorine: GB/T 3558—2014
Analytical Measurement System	Integrated High-Precision Digital Ion Meter

Specification Parameter	Value / Technical Metric
Software Integration	Supervisory PC Automated Calculation & Reporting Software
Display & Interface	High-Resolution Graphical LCD Screen
Process Monitoring Alerts	Timed Sample Feeding Alarm, Fault Self-Diagnosis, Over-Temperature Protection
Power Supply Requirements	AC 220V $\pm$ 10%, 50 Hz
Maximum Power Consumption	$\leq$ 3.5 kW
Equipment Dimensions	600 mm $\times$ 400 mm
Total System Weight	30 kg

Bituminous Coal Crucible Swelling Number Tester For Free Swelling Index And Caking Property Analysis

Item Number: KT-TE52



Introduction

Evaluate coal coking properties with precision using this bituminous coal crucible swelling number tester engineered with Fe-Cr-Al heating, aluminum silicate thermal insulation, and strict heating rate compliance to deliver accurate crucible swelling index results across demanding metallurgical laboratories.

[Learn More](#)

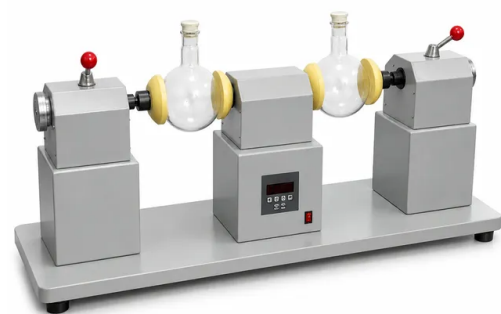
Application	Description	Key Benefit
Coking Coal Classification	Quantitative classification of metallurgical bituminous coals according to thermoplastic swelling properties and international coal grade standards.	Ensures precise categorization of incoming coal shipments and verifies commercial specification compliance before processing.
Blast Furnace Coke Optimization	Determination of coal caking properties to evaluate raw coal suitability for blending blends used in slot-oven carbonization.	Prevents excessive carbonization wall pressures while maximizing the structural integrity and cold/hot strength of the resulting coke.
Thermal Power Plant Fuel Assessment	Evaluation of coal swelling tendencies and agglomeration behavior prior to combustion in pulverized coal or fluidized-bed boilers.	Minimizes boiler wall slagging, avoids burner clogging, and optimizes burner firing settings by identifying highly swelling coal stocks.
Commercial Coal Inspection & Trade	Verification of Free Swelling Index (FSI) and Crucible Swelling Number (CSN) for import/export commercial transaction settlement.	Provides transparent, standard-compliant validation of fuel specifications, eliminating disputes between coal traders and industrial buyers.
Metallurgical Research & Development	Academic and institutional investigation into coal pyrolysis, devolatilization kinetics, and the thermoplastic phase of synthetic carbon matrices.	Delivers repeatable thermal conditions required to isolate chemical mechanisms governing fluidity and swelling characteristics in carbonaceous materials.
Carbon Electrode Manufacturing	Testing of pitch, anthracite blends, and binder-caking behavior for formulating anodes and specialty graphite electrodes.	Prevents structural cracking during industrial baking by matching swelling index compatibility between filler cokes and binder matrices.

Parameter	Specification Details
Product Item Number	KT-TE52
Core Measurement Standard	Compliant with GB/T 5448 (Coal Crucible Swelling Number Determination)
Swelling Index Scale	Crucible Swelling Number (CSN) / Free Swelling Index (FSI) Range 0 to 9, >9
Furnace Architecture	Vertical single-hole cylindrical electric furnace, bottom-heating configuration
Heating Element Material	High-grade Iron-Chromium-Aluminum (Fe-Cr-Al) resistance alloy wire
Furnace Lining & Body	Sintered refractory clay cylinder surrounded by multi-layer aluminum silicate insulation
Maximum Operating Temperature	1000°C
Heating Rate Control	Standardized time-temperature curve controlled via SCR voltage regulator
Temperature Control System	Millivoltmeter silicon-controlled rectifier (SCR) step-less voltage adjustment system
Observation System	Dedicated optical coke profile observation viewer with standardized CSN silhouettes
Operating Voltage	220V ± 22V AC, 50 Hz
Rated Power Consumption	800 W - 1000 W

Parameter	Specification Details
System Components	Crucible electric furnace, electronic temperature/voltage controller, coke profile viewer
Crucible Compatibility	Standard fused-silica (quartz) crucible with specialized lid per test standard

Coal Gangue Slaking Inversion Testing Machine

Item Number: KT-TE53



Introduction

Evaluate gangue degradation accurately with this coal gangue slaking inversion testing machine. Engineered for standard compliance, it features precision 40 rpm rotation, automated cycle tracking, and stable PT100 temperature monitoring for reliable laboratory sediment and slurry slaking analysis.

[Learn More](#)

Application	Description	Key Benefit
Coal Washing & Preparation	Quantifying the slaking index and degradation rate of run-of-mine gangue rocks entering wet processing circuits	Prevents unexpected accumulation of ultra-fine slime, allowing operators to optimize thickener capacity, flocculant dosing, and water recovery systems.
Tailings Dam & Geotechnical Safety	Determining the breakdown propensity and weathering behavior of coal gangue piles exposed to rainfall and hydraulic saturation	Delivers critical degradation data required to model long-term embankment stability, dam liquefaction risks, and physical settling properties.
Environmental Reclamation Research	Assessing fine silt release (particles smaller than 10 µm) from waste rock during backfilling, road base stabilization, and surface storage	Identifies high-risk leaching and suspension-prone gangue formations, assisting environmental engineers in designing effective runoff containment and soil stabilization strategies.
Metallurgical Coking Evaluation	Testing carbonaceous shale and mineral impurities within coal feeds before coke oven charging	Identifies excessive clay slaking and mineral dispersal that can interfere with flotation recovery and degrade clean coal concentrate purity.
Academic & Geological Research	Conducting fundamental mineralogical studies on clay swellability, mudstone dispersion, and sedimentary rock degradation under standard Andreasen pipette protocols	Ensures strictly standardized test conditions that yield reproducible baseline values for academic papers, geological classification, and standard test development.
Mine Backfill & Construction Material Formulation	Testing the mechanical degradation of coarse gangue aggregates subjected to dynamic slurry movement in backfill pipelines	Evaluates pipe wear potential, slurry rheological changes, and cementitious bonding durability by identifying aggregate breakdown during transit.

Specification Parameter	Value / Characteristic
Model Item Number	KT-TE53
Standard Compliance	MT/T 109-1996 (<i>Test Method for Slaking of Coal and Gangue</i>)
Spindle Rotation Speed	40 r/min (horizontal axis inversion)
Rotational Speed Stability	Constant drive under standard load
Sample Capacity	100 g dry sample (5.6 mm to 2.8 mm initial grain fraction)
Liquid Carrier Volume	500 mL distilled or test water
Testing Vessel Compatibility	Specialized ground-glass stoppered washing bottle
Standard Inversion Duration	Typically 30 minutes (programmable/timed)
Downstream Particle Separation	500 µm (0.5 mm) wire mesh sieve & Andreasen sedimentation (<10 µm)
Temperature Measurement Range	0.0 °C to 90.9 °C
Temperature Sensor Type	High-precision PT100 platinum resistance thermocouple
Temperature Measurement Accuracy	±0.1 °C

Specification Parameter	Value / Characteristic
Temperature Control Precision	±0.2 °C
Auxiliary Temperature Control Power	1 kW
Drive Motor Power	10 W
Total Instrument Power	< 10 W (drive operation)
Display Type	Industrial LED digital display
Reset Mechanism	Manual reset or automatic startup reset
Main Power Supply	AC 220 V ± 10%, 50 Hz ± 1 Hz
Operating Ambient Temperature	0 °C to 40 °C
Operating Ambient Relative Humidity	≤ 80% RH (non-condensing)
Overall Instrument Dimensions (L × W × H)	400 mm × 400 mm × 860 mm
Total Equipment Weight	Approximately 20 kg

Split Intelligent Rapid Sulfur Analyzer For Coal Petroleum And Coke Testing

Item Number: KT-CD4



Introduction

Discover high precision split intelligent rapid sulfur analyzer technology for coal, petroleum, and coke testing. Featuring modular coulometric titration, automated dual-stage combustion, and stable platinum electrodes, this system ensures rapid, compliant, and accurate analytical results every cycle.

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Application	Description	Key Benefit
Coal-Fired Power Generation	High-throughput analysis of total sulfur in raw feed coal, pulverized coal, and post-combustion slag to evaluate boiler slagging and calculate flue gas desulfurization (FGD) loads.	Delivers rapid turnaround times of 3 to 5 minutes per sample, enabling real-time boiler fuel blending and regulatory emission compliance.
Metallurgical Coke & Smelting	Determination of total sulfur in foundry coke, metallurgical coking coal, and iron-bearing sinter mixes to protect blast furnace linings and control pig iron quality.	Eliminates manual titration variance with direct digital sulfur percentage readouts, maintaining steel melt purity within tight process bounds.
Petroleum & Petrochemical Refining	Quantification of bound sulfur in residual fuel oils, heavy crudes, bitumen, petroleum coke, and refining catalysts to monitor catalyst poisoning and emissions.	Provides a wide measurement dynamic range up to 99%, handling dense hydrocarbons without incomplete combustion fouling.
Geological Exploration & Mineral Ore Mining	Rapid screening of mineral core samples, strata rock specimens, and sulfide ore concentrates to delineate commercial deposit viability and ore grade.	Superior $\pm 0.01\%$ linearity and standard-sample calibration capabilities allow precise low-sulfur and high-sulfur assaying within the same analytical run.
Environmental & Third-Party Commercial Labs	Contract testing and verification of solid fossil fuels, bio-pellets, and municipal solid waste-derived fuels following domestic and international coulometric norms.	Built-in 1,000-entry memory and automatic sample numbering ensure full chain-of-custody data integrity and seamless reporting for external audit audits.
Chemical & Synthetic Fuel Manufacturing	In-process monitoring of sulfur contaminants in synthetic carbon feedstocks, carbon black, and carbonaceous chemical additives.	Independent furnace heating control (700°C–1300°C) allows custom pyrolysis profiling to decompose thermally stubborn sulfur compounds.

Parameter Category	Specification Details (KT-CD4)
Model Designation	KT-CD4
Measurement Principle	Coulometric Titration Method (GB/T 214-2003 Compliant)
Measuring Range	0% – 99% Total Sulfur Content
Analysis Cycle Duration	3 – 5 minutes total per sample
Combustion Staging Program	Stage 1: ~500°C dwell for 45 seconds Stage 2: 1150°C dwell for 4 minutes 30 seconds
Furnace Temperature Range	700°C – 1300°C (Continuously adjustable; factory preset at 1150 $\pm$ 5°C)
High-Temperature Zone Length	~90 mm isothermal center
Furnace Heating Element	High-density Silicon Carbide (SiC) heating tube (Dimensions: 40/30 $\times$ 200/160 mm)
Heating Current Control	0 – 12 A (Continuously adjustable via keypad)

Parameter Category	Specification Details (KT-CD4)
Sample Introduction Mechanism	High-reliability automated electronic switch feed mechanism
Indication Electrode System	Dual platinum (Pt) indicator electrodes
Electrode Dynamic Response Time	≤ 3 seconds (Iodine-iodide ion equilibrium response)
Electrode Surface Area	Electrolytic platinum electrode plate: 10 mm × 15 mm (1.5 cm²)
Electrolytic Cell Volume	400 mL capacity reaction vessel
Integrator Zero-Point Drift	≤ ±0.2 ppm Sulfur over a 10-minute continuous baseline window
Analytical Linearity	±0.01%
System Error Correction	Calibration via certified standard reference materials (SRMs)
Data Logging & Storage	1,000 historical test records with on-board query and printout functions
Auto-Indexing & Counting Range	Automatic sequential incrementing from 1 to 65535 (Power outage persistent)
User Interface & Control	Tactile membrane keypad with digital display of sulfur percentage and milligrams
Controller Dimensions (W × D × H)	360 mm × 300 mm × 140 mm
Tube Furnace Dimensions (W × D × H)	600 mm × 290 mm × 300 mm
Power Supply Requirements	AC 220 V ± 10%, 50 Hz, Single Phase
Maximum Power Consumption	3.0 kW

Coal Caking Index Tester Roga Index Determination Apparatus For Metallurgical And Coke Quality Analysis

Item Number: KT-TE26



Introduction

Engineered for industrial fuel laboratories this precision caking index determination apparatus delivers accurate drum abrasion analysis digital revolution control and reliable bituminous coal coking evaluations to optimize metallurgical coke blending quality verification and rigorous academic research workflows worldwide today.

[Learn More](#)

Application	Description	Key Benefit
Metallurgical Coke Blending	Evaluation of bituminous coal bonding capacity to formulate optimal coking blends combining high-, medium-, and low-volatile feedstocks.	Reduces dependency on expensive prime coking coals while securing target cold strength and thermal stability.
Commercial Coal Trade Valuation	Standardized laboratory qualification of imported and domestic coking coal shipments during commercial acceptance testing.	Provides dispute-proof empirical data for pricing, penalty enforcement, and contract compliance verification.
Blast Furnace Feedstock Optimization	Determination of coke lump abrasion resistance derived from specific coal seam samples prior to large-scale carbonization.	Prevents blast furnace permeability loss by screening out feedstocks prone to excessive mechanical degradation.
Research & Petrology Institutions	Scientific investigation into coal thermoplasticity, maceral reactivity, and thermal rheological transformation during pyrolysis.	Delivers repeatable baseline kinetic and mechanical data for comparative clean-coal technology studies.
Coking Byproduct & Tar Prediction	Preliminary screening of coal plastic layer characteristics correlated with volatile matter release and liquid byproduct yield.	Aids in balancing chemical byproduct recovery efficiency against mechanical coke yield in commercial batteries.
Third-Party Analytical Laboratories	High-volume contract testing and certification for mining concessions, geological exploration teams, and commodity inspection firms.	Enhances lab productivity through automated digital counting, rapid reset sequences, and low-maintenance construction.

Parameter Category	Specification Attribute	Value / Technical Requirement
Equipment Model	Item Number Identifier	KT-TE26
Standard Compliance	Industrial Testing Standard	GB/T 5447-2014 Standard Test Method for Caking Index
Drum Kinetics	Rotational Speed	50 ± 0.5 r/min
Test Parameters	Default Operational Revolutions	250 revolutions
Preset Capabilities	User-Programmable Range	1 to 999 revolutions
Counting Architecture	Sensor Technology	Automatic electronic pulse identification and counter
Operator Interface	Display Technology	High-legibility Liquid Crystal Display (LCD)
Operational Modes	Reset Mechanism	Selectable manual and automatic cycle reset
Drive System	Motor Power Rating	90 W continuous duty
Electrical Requirements	Power Supply Voltage & Frequency	220 V ± 10%, 50 Hz single-phase
Target Material	Specimen Compatibility	Bituminous coal paired with standard anthracite reference
Analytical Output	Primary Calculated Parameters	Caking Index (G-index), Roga Index (RI)

Coal Slagging Characteristic Tester Clinkering Property Determination Apparatus

Item Number: KE-TE31



Introduction

Optimize fuel evaluations with our precision coal slagging characteristic tester. Engineered to standard testing protocols, this heavy-duty system delivers accurate clinkering propensity analysis, high-output airflow control, and dependable thermal performance for industrial gasification, combustion, and metallurgical fuel testing laboratories worldwide.

[Learn More](#)

Application	Description	Key Benefit
Coal-Fired Power Generation	Evaluation of thermal coal feedstock clinkering characteristics prior to pulverization and utility boiler firing.	Prevents water-wall slagging, maintains boiler thermal efficiency, and reduces emergency outage frequency.
Industrial Coal Gasification	Determination of ash agglomeration tendencies in fixed-bed and moving-bed coal gasifiers.	Eliminates bed defluidization and clinker bridging, securing continuous syngas production.
Metallurgical Coking & Sintering	Screening of blend coals for blast furnace injection (PCI) and cupola thermal generation.	Maximizes injection rates while preventing tuyere blockage and excessive slag volume inside blast furnaces.
Commercial Fuel Testing Laboratories	Third-party verification and standard validation of commercial coal shipments for compliance with quality agreements.	Delivers defensible, repeatable test reports adhering to standard clinkering index protocols.
Combustion Research & Development	Academic and industrial study of mineral matter transformation, fluxing agents, and synthetic ash behavior.	Provides standardized experimental conditions to formulate novel anti-slagging chemical additives.
Synthetic Fuel & Chemical Synthesis	Assessment of feedstock suitabilities for coal-to-liquids (CTL) and coal-to-chemicals conversion reactors.	Identifies optimal operational thermal windows to avert ash fusion within high-temperature reaction zones.

Specification Parameter	Standard Requirement	Unit / Tolerance (KE-TE31)
Product Identification	Clinkering Determination Apparatus	KE-TE31
Governing Test Standard	GB/T 1572 (Coal Clinkering Determination)	Standard Compliance Verified
Sample Granularity Requirement	Crushed and classified coal particles	3.0 mm to 6.0 mm
Ignition Charcoal Granularity	Standardized hardwood charcoal	3.0 mm to 6.0 mm
Retort Loading Capacity	Calibrated combustion volume	400 cm³
Minimum Blast Air Delivery	Forced-draft centrifugal blower system	≥ 12 m³/h
Blast Static Pressure Rating	Aerodynamic delivery pressure	≥ 49 hPa (≥ 500 mmH2O)
Maximum Blast Blower Pressure Capacity	High-pressure blower configuration	≥ 1000 mmHg
Clinker Threshold Sieve Dimension	Post-combustion separation boundary	6.0 mm square aperture
Gasification Crucible Alloy	High-temperature oxidation-resistant alloy	Sustained exposure > 1200°C
Thermal Insulation Matrix	High-purity composite refractory	Minimal exterior cabinet skin dissipation
Primary Power Supply	Industrial laboratory single-phase / multi-phase	220V AC, 50/60 Hz (as configured)

Coal Briquette Compressive Strength Tester Electronic Mechanical Crushing Strength Testing Machine

Item Number: KT-TE31



Introduction

Evaluate fuel pellet durability with this coal briquette compressive strength tester, featuring a 5000 N capacity, precision lead screw drive, automatic peak fracture detection, programmable speed control, and dual limit protection for rigorous industrial laboratory quality assurance operations.

[Learn More](#)

Application	Description	Key Benefit
Industrial Coal Briquette Quality Control	Crushing strength verification of raw, dried, and carbonized coal briquettes produced for industrial gasifiers and industrial boilers.	Identifies fragile batches prior to transport, preventing excessive fines generation and downstream fuel feed line clogs.
Metallurgical Pellet & Sinter Evaluation	Compressive mechanical resistance testing of iron ore pellets, direct-reduced iron (DRI) agglomerates, and composite blast furnace burdens.	Ensures pellets withstand immense static burden pressure inside high-temperature blast furnaces without premature degradation.
Biofuel & Biomass Pellet Durability	Determination of rupture limits and handling toughness for densified wood pellets, agricultural biomass briquettes, and torrefied fuels.	Verifies binder effectiveness and moisture resistance, minimizing mechanical degradation during bulk pneumatic handling and silo storage.
Mining & Mineral Agglomerate Research	Laboratory assessment of binder chemistry, moisture levels, and curing kinetics on the green and cured compressive strength of mineral pellets.	Accelerates the development of cost-effective, environmentally friendly binder systems through precise, repeatable mechanical testing.
Carbon Anode & Electrode Core Testing	Compression and shear failure evaluation of small-diameter carbon cores, graphite electrode segments, and carbonaceous block materials.	Delivers quantitative crushing data to evaluate structural homogeneity and crack resistance under heavy thermal-mechanical stress.
Fertilizer Granule Mechanical Characterization	Uniaxial compression testing of slow-release chemical fertilizers, urea prills, and composite agricultural pellets.	Prevents granule caking and structural breakdown during mechanical bagging, bulk transport, and commercial spreading operations.

Parameter Category	Specification Attribute	Value / Characteristic
Model Identification	Item Number	KT-TE31
Load Capacity	Nominal Maximum Test Force	5000 N (5 kN)
	Force Measuring Range	0 N to 5000 N
	Test Force Indication Accuracy	±1% of displayed value
Displacement & Stroke	Displacement Resolution	0.01 mm
	Displacement Measurement Accuracy	±1% of reading
	Standard Compression Stroke	800 mm (Customizable based on user requirements)
	Standard Tensile Stroke	800 mm (Customizable based on user requirements)
	Total Usable Test Stroke	800 mm (Customizable based on user requirements)
Velocity Control	Standard Displacement Speed Range	1 mm/min to 500 mm/min

Parameter Category	Specification Attribute	Value / Characteristic
Mechanical & Drive	Extended Mechanical Drive Range	0.2 mm/min to 500 mm/min
	Speed Control Accuracy	±1% of set speed
	Drive Motor Architecture	High-torque stepper motor with integrated reduction gearbox
	Kinematic Transmission	High-efficiency circular-arc synchronous toothed belt with dual lead-screw assembly
	Alignment Fixture Mounting	Cross-pin universal joint with integrated angular swing limit mechanism
User Interface & Controls	Display Screen	High-visibility industrial liquid crystal display (LCD)
	Control Panel	Sealed tactile touch-key keypad
	Real-Time Displayed Metrics	Active test force, peak fracture load, displacement, crosshead speed, running status
	Automation Functions	Automatic calibration routine, parameter-driven auto-testing, automated fracture stop
Safety & Compliance	System Safety Protection	Dual mechanical limit switches, programmable firmware limit stops, load overload trip, overcurrent and overvoltage safeguards
	Design & Build Standard	Fully compliant with GB/T2611 General Requirements for Testing Machines
	Completeness of Delivery	Fully integrated unit compliant with national laboratory testing apparatus standards
Electrical Specifications	Power Supply Requirements	220 V AC ±10%, 50 Hz, Single Phase

Coal Reactivity Determination Apparatus And Carbon Dioxide Activity Analyzer For Coal And Coke Testing

Item Number: KT-TE28

Introduction

Discover high precision coal reactivity determination apparatus engineered for accurate CO₂ chemical reactivity testing of coal and coke featuring rapid heating to 1500C exceptional thermal stability and full compliance with strict industrial coal gasification standards.

[Learn More](#)



Application	Description	Key Benefit
Metallurgical Coke Reactivity Indexing	Evaluating the chemical reactivity of blast furnace coke and foundry coke towards CO ₂ under simulated reduction shaft temperatures	Accurately predicts post-reaction coke strength, minimizes coke degradation in blast furnaces, and optimizes hot metal production efficiency
Modern Coal Gasification Engineering	Screening feedstock candidates for fluidized bed, entrained flow, and fixed-bed coal gasifiers by quantifying specific reaction rates	Optimizes gasifier oxygen-coal and steam-coal ratios, maximizes syngas (CO + H ₂) output, and prevents unreacted carbon carryover
Pulverized Coal Combustion Optimization	Assessing ignition, flame stabilization, and reduction capabilities of pulverized coal injected into utility boilers and cement kilns	Enhances burn-out efficiency, reduces unburned carbon in fly ash, and provides data for low-NO _x combustion tuning
Chemical Synthesis & Coal-to-Chemicals	Benchmarking carbon feedstock reactivity for coal-to-methanol, synthetic ammonia, and coal-to-olefins chemical conversion complexes	Determines process operating conditions, reduces total coal feed consumption per ton of chemical product, and improves yield consistency
Geological Exploration & Core Profiling	Categorizing newly prospected coal seam samples based on chemical stability, reactivity rank, and prospective commercial utility	Delivers reliable standardized classification data for resource asset valuation and long-term mining utilization roadmaps
Thermal Power Plant Fuel Blending	Testing various low-rank and high-rank coal blends to anticipate combustion kinetics and reactivity differentials inside steam generators	Prevents boiler slagging, optimizes flame temperature profiles, and reduces overall auxiliary fuel requirements
Carbon Materials & Electrode Synthesis	Measuring the CO ₂ gasification reactivity of artificial graphite, petroleum coke, and carbon electrode composites at elevated temperatures	Ensures high structural density and thermal corrosion resistance for electrodes used in electric arc furnaces and electrolysis cells

Parameter	Specification (Model: KT-TE28)
Product Identifier	KT-TE28
Maximum Furnace Operating Temperature	1500°C
Sustained Operational Temperature Range	1200°C to 1300°C
Heating Rate	20°C to 25°C/min
Constant Temperature Zone Length	100 mm
Constant Temperature Zone Uniformity	Δt < ±10°C
Heating Element Configuration	Silicon carbide tube (SiC)
Silicon Carbide Tube Dimensions	Outer Diameter: 45 mm, Inner Diameter: 35 mm, Total Length: 500 mm, Central Heated Length: 100 mm, Terminal Length: 40 mm (φ45/35×500/100, 40 mm)
Temperature Sensing Element	Platinum Rhodium-Platinum Thermocouple (Pt-Rh/Pt, Type S)

Parameter	Specification (Model: KT-TE28)
Thermocouple Temperature Measurement Range	0°C to 1600°C
Compliance Standards	GB/T 220-2001 (Determination of chemical reactivity of coal to carbon dioxide)
Power Supply Voltage	AC 220V ± 10%, 50/60 Hz
Operational Power Consumption	4 kW to 5 kW
Reaction Gas Compatibility	Carbon Dioxide (CO ₂), Inert Purge Gas (N ₂ /Ar)
Test Media Application	Bituminous coal, anthracite, lignite, semi-coke, blast furnace coke

Carbon Hydrogen Elemental Analyzer For Coal And Organic Materials Determination

Item Number: KT-TE33



Introduction

Engineered for accurate carbon and hydrogen elemental analysis in coal and organic materials, this dual tube combustion system features three independent heating zones operating up to 1100°C, delivering reliable gravimetric precision, exceptional thermal uniformity, and compliant testing for industrial laboratories.

[Learn More](#)

Application	Description	Key Benefit
Coal & Solid Fuel Characterization	Quantitative determination of carbon and hydrogen in raw coal, washed coal, anthracite, lignite, and metallurgical coke to determine calorific value and fuel grade.	Delivers standard-compliant elemental verification adhering directly to GB/T 476 testing protocols for commercial fuel contracts.
Petrochemical & Heavy Residue Analysis	Combustion analysis of petroleum coke, pitch, asphalt binders, and heavy fuel residues with high organic carbon fractions.	Ensures complete conversion of complex aromatic structures through sustained 850°C and 800°C dual catalytic oxidation stages.
Synthetic Polymer & Rubber Quality Control	Determination of stoichiometric carbon-to-hydrogen ratios in raw synthetic elastomers, thermoplastic polymers, and organic additives.	Parallel dual-tube architecture provides rapid batch validation and immediate verification of chemical formulations.
Environmental Biomass & Refuse-Derived Fuel	Evaluating renewable biomass pellets, agricultural waste fuels, and refuse-derived fuel (RDF) for combustion emission modeling and carbon credit verification.	Highly sensitive gravimetric absorption train reliably quantifies trace and elevated hydrogen contents across heterogeneous feedstocks.
Academic & Organic Chemical Synthesis Research	Verifying empirical molecular formulas and chemical purity of newly synthesized organic reagents, pharmaceuticals, and carbon precursors.	Wide dynamic measurement range (1-99% C, 0.5-50% H) accommodates standard chemical research without calibration drift.
Metallurgical Sintering & Carbon Additive Testing	Assessing graphite powders, carburizers, and carbonaceous fluxes utilized in electric arc furnace steelmaking and cast-iron foundries.	Robust stainless steel combustion tubes and reliable thermal control withstand continuous, high-throughput industrial assay cycles.

Parameter	Value / Specification
Product Identification	KT-TE33
Carbon Measurement Range	1.00% to 99.00%
Hydrogen Measurement Range	0.50% to 50.00%
Reaction Tube Dimensions	Outer Diameter: Ø25 mm, Wall Thickness: 2.5 mm, Length: 1100 mm
Reaction Tube Material	Industrial-Grade High-Temperature Stainless Steel
Combustion Tube Capacity	Dual Parallel Hearths (Simultaneous 2-Sample Determination)
Furnace Heating Elements	Premium Nickel-Chromium (Ni-Cr) Resistance Wire
Temperature Measurement Sensor	Nickel-Chromium - Nickel-Silicon (NiCr-NiSi / Type K) Thermocouples
Temperature Control Range	Ambient to 1100°C

Parameter	Value / Specification
Temperature Display & Control Precision	Grade 0.5 Digital Controller Accuracy
Operating Voltage	AC 220V ± 10%, 50/60 Hz
Standard Compliance	GB/T 476-2001 (Elemental Analysis of Coal)

Furnace Zone	Section Length	Operating Temperature	Constant Temperature Zone Length
Section 1 (Combustion / Vaporization Zone)	240 mm	850 ± 10°C	60 mm
Section 2 (Oxidation / Catalytic Zone)	320 mm	800 ± 10°C	80 mm
Section 3 (Post-Catalytic / Sulfur Scrubbing Zone)	150 mm	600 ± 10°C	Continuous Uniform Gradient

Subsystem	Component	Engineering Specification
Gas Purification System	Gas Drying Tower	500 mL Capacity Desiccant Reservoir
Gas Purification System	Gas Flow Meter	Integrated Precision Rotameter (0 to 150 mL/min Range)
Combustion Mechanical Frame	Furnace Mounting & Mobility	Split-hinge radial opening up to 45°; guided horizontal track sliding mechanism
Absorption Gravimetric Train	Moisture Absorption Assembly	Calibrated U-tube filled with high-capacity desiccant agent
Absorption Gravimetric Train	Nitrogen Oxide Scrubbing	Dedicated chemical removal U-tube for nitrogen interference elimination
Absorption Gravimetric Train	Carbon Dioxide Absorption	Dual-stage sequential absorption U-tubes for complete CO2 capture
Absorption Gravimetric Train	Gas Indicating Bubble Counter	~10 mL Capacity Borosilicate Unit loaded with concentrated sulfuric acid

Integrated Touchscreen Sulfur Analyzer Lcd Total Sulfur Determinator

Item Number: KT-DL1



Introduction

Engineered for highly precise total sulfur determination, this integrated touchscreen sulfur analyzer combines coulometric titration with automated dual-stage combustion. Rapid five-minute analysis cycles deliver exceptional measurement accuracy and operational repeatability across coal, coke, mineral, cement, and chemical testing laboratories worldwide.

[Learn More](#)

Application	Description	Key Benefit
Coal Quality Grading & Commercial Inspection	Quantitative analysis of total sulfur in raw coal, cleaned coal, and middlings according to standard coal testing protocols.	Ensures accurate caloric evaluation and pricing while meeting regional trade specifications.
Thermal Power Generation	Continuous monitoring of pulverized coal feedstocks to forecast sulfur dioxide emissions and optimize desulfurization systems.	Prevents boiler tube corrosion and maintains stringent compliance with air emission permits.
Coke and Metallurgical Manufacturing	Rigorous verification of sulfur content in metallurgical coke, pulverized injection coal, and foundry-grade fuels.	Minimizes sulfur migration into molten iron, safeguarding steel ductility and tensile strength.
Cement Clinker & Building Materials	Assessment of raw meal, gypsum, rotary kiln fuels, and finished hydraulic cements for total sulfate and sulfide content.	Controls setting times, suppresses efflorescence, and prevents structural degradation in concrete.
Mineral Extraction & Geological Ore Profiling	Rapid assaying of base metal ores, polymetallic concentrates, and tailings for total sulfide and sulfate minerals.	Guides flotation processing adjustments and aids in predicting acid mine drainage risks.
Chemical & Petrochemical Processing	Quality control screening of industrial chemical precursors, carbonaceous additives, and petroleum refining byproducts.	Prevents catalyst poisoning in downstream synthesis and guarantees uniform purity standards.
Environmental Solid Waste Auditing	High-throughput combustion analysis of industrial slags, ash residues, and solid waste materials before disposal.	Delivers auditable data for environmental reporting and landfill disposal classification.

Specification Parameter	Primary Controller Unit	High-Temperature Tube Furnace
Model Identifier	KT-DL1 (Control & Titration Module)	KT-DL1 (Combustion Tube Module)
Analytical Measurement Principle	Dynamic Coulometric Titration (Compliant with GB/T 214)	High-Temperature Controlled Atmosphere Combustion
Total Sulfur Measurement Range	0.00% to 99.00%	0.00% to 99.00%
Analysis Time per Sample	~5 minutes total (45 s at ~700°C; 4 min 15 s at 1150°C)	Continuously synchronized with automated sample pusher
Furnace Temperature Range	Digital PID regulation, 0°C to 1250°C adjustable	Factory preset at 1150°C ± 5°C; 90 mm uniform hot zone
Furnace Heating Element	Controlled via solid-state relay (SSR) digital trigger	Silicon carbide (SiC) tube element (Model 40/30 × 200/160 mm)
Electrode & Titration Cell	Dual platinum indicator pair; 400 mL cell volume	1.0 × 1.5 cm ² active platinum electrolytic working electrodes
Electrochemical Response Time	≤ 1.0 second (Iodine / Iodide equilibrium shift)	Not applicable
Measurement Linearity	±0.01% across analytical range	Not applicable

Specification Parameter	Primary Controller Unit	High-Temperature Tube Furnace
Integrator Baseline Drift	≤ ±0.2 ppm Sulfur within 10 minutes	Not applicable
Heating Current Control	0 to 15 A adjustable across 10 discrete steps	Integrated ultra-fast electronic current overload protection
Recommended Sample Mass	~50 mg per analytical determination	Loaded in reusable combustion boats
Sample Grain Size Requirement	Granulated to approximately 0.1 mm	Facilitates complete thermal oxidation
Carrier Gas Specifications	Purified dry air free of acidic oxides; flow rate > 1500 mL/min	Metered sample combustion gas flow rate: 1000 mL/min
Switching & Triggering Tech	Contactless Hall-effect sensors and Solid-State Relays	Eliminates mechanical contact oxidation and arcing
Data Logging & Reporting	Microprocessor memory with automatic index incrementing (+1)	Onboard print generation and digital query interface
Ambient Operating Limits	Temperature: 5°C to 40°C; Relative Humidity: ≤ 85% RH	Temperature: 5°C to 40°C; Relative Humidity: ≤ 85% RH
Physical Dimensions (L × W × H)	360 × 280 × 140 mm (36 × 28 × 14 cm)	600 × 290 × 250 mm (60 × 29 × 25 cm)
Power Supply Requirements	AC 220V ± 10%, 50 Hz	System peak power rating: 3.0 kW

Industrial Coal Briquette Drop Shatter Strength Tester

Item Number: KT-TE19



Introduction

Engineered to evaluate briquette mechanical integrity, this industrial coal briquette drop shatter strength tester features automated 2000 mm elevation and controlled release onto a heavy steel plate, ensuring strict compliance with industry testing standards and reliable shatter resistance analysis.

[Learn More](#)

Application	Description	Key Benefit
Industrial Briquette Quality Control	Routine batch screening of gasification, boiler, and metallurgy briquettes during factory production.	Catches defective binding batches early, preventing catastrophic breakdown during kiln charging and transport.
Binder Formulation Research	Evaluating mechanical strength variations achieved with inorganic, organic, or composite briquette binders.	Quantifies exact shatter resistance improvements to optimize binder ratios and reduce chemical additive costs.
Bulk Shipping and Transit Simulation	Simulating vertical impact shocks encountered at conveyor transfer points, railhead drops, and barge loading bins.	Identifies fragile agglomerates prone to attrition, minimizing dust degradation and spontaneous combustion hazards.
Commercial Fuel Trade Inspection	Providing third-party certified verification of mechanical coal properties for commodity import/export contracts.	Delivers fully standardized, dispute-free mechanical strength metrics adhering strictly to MT/T 925 benchmarks.
Gasification Fuel Preparation Testing	Verifying that lump and briquetted coal charges preserve bed porosity without forming excessive fine powders under impact.	Protects fixed-bed and fluid-bed gasifiers from pressure fluctuations caused by disintegrating fuel beds.
Coking and Smelting Feedstock R&D	Testing the physical degradation thresholds of pre-formed carbon and coal-ore composite pellets prior to blast furnace use.	Ensures high compressive and shatter resistance to maintain gas permeability inside high-temperature blast zones.

Specification Parameter	Technical Detail
Product Item Number	KT-TE19
Applicable Test Standards	MT/T 925-2004, GB/T 15459-1995
Standard Test Height	2000 mm (Selectable / Adjustable Stop)
Receiving Tray Dimensions (L × W × H)	1200 × 900 × 200 mm
Sample Loading Tray Dimensions (L × W × H)	260 × 180 × 130 mm
Drive Motor Rated Power	370 W
Operating Electrical Supply	220 V ± 10%, 50 Hz, Single Phase
Elevation Mechanism	Motorized chain/cable hoist with guide tracking wheels
Sample Release Method	Automatic mechanical tip at designated elevation limit
Impact Surface Material	High-rigidity carbon steel plate
Containment Enclosure	Integrated 200 mm vertical steel containment sidewalls
Required Balance Resolution	Accurate to 1.0 g (for initial and residual mass determination)
Standard Sieve Mesh Cut-off	13 mm square aperture sieve (per standard specification)
Testing Cycle Specification	Three consecutive drops of 10-piece specimen sets with intermediate sieving

Rapid Automatic Hydrogen Analyzer And Carbon Elemental Determination System

Item Number: KT-TE46



Introduction

Optimize coal and solid fuel testing with this rapid automatic hydrogen analyzer featuring automated microcontroller calculation dual-zone precision heating and rapid ten to fifteen minute cycle times for exceptionally repeatable laboratory elemental analysis test results.

[Learn More](#)

Application	Description	Key Benefit
Coal Quality & Grading	Quantitative assessment of hydrogen and carbon fractions in anthracite, bituminous coal, and lignite across mining hubs and washing plants.	Delivers fast calorific value estimations and reliable fuel rank classification within 15 minutes.
Thermal Power Plant Fuel Monitoring	Daily combustion fuel screening and boiler feed analysis to calculate stoichiometric air-to-fuel ratios and moisture-corrected heating values.	Optimizes combustion efficiency, minimizes unburned carbon loss, and lowers hazardous greenhouse gas emissions.
Metallurgical Coke Evaluation	Elemental purity profiling of foundry and blast-furnace coking coal blends to maintain structural integrity and chemical consistency.	Guarantees compliance with blast-furnace thermal and chemical reduction standards while preventing furnace instability.
Petroleum Coke & Solid Hydrocarbons	Quantification of residual volatile hydrogen in calcined petroleum coke, pitch, and heavy refinery residues.	Establishes uniform calcination parameters and prevents cracking anomalies in downstream anode manufacturing.
Biomass & Biofuel Characterization	Rapid elemental determination of pelletized wood, agricultural waste fuels, and torrefied biomass feeds.	Provides precise carbon-to-hydrogen ratios necessary for evaluating alternative biofuel energy densities.
Environmental & Sludge Ash Profiling	Testing of dried industrial sewage sludge, synthetic solid refuse fuels, and hazardous waste combustion feedstocks.	Ensures regulatory adherence for total organic carbon and emission tracking under strict environmental guidelines.
Academic & Geochemical Research	High-accuracy elemental investigation of shale rocks, kerogen concentrates, and synthetic carbon polymers in geochemical laboratories.	Offers publication-grade repeatability ($\leq 0.15\%$ H) with micro-scale sample sizes of approximately 65 mg.

Parameter	Specification (KT-TE46)
Model Identifier	KT-TE46
Measurement Principle	Combustion conversion with gravimetric absorption / coulometric titration detection
Elemental Analytical Scope	Hydrogen (H) primary quantification; Carbon (C) secondary absorption determination
Hydrogen Measurement Range	0.00% to 20.00%
Analytical Cycle Time	Approximately 10 to 15 minutes per test specimen
High-Temperature Zone Control	800°C $\pm$ 10°C
Low-Temperature Zone Control	300°C $\pm$ 10°C
Heating Ramp Rate	25°C/min (reaching 800°C within 30 min; or 25 K/min to 600°C)
Temperature Heating Linearity	$\pm 0.1\%$
Permissible Analytical Repeatability (H)	$\leq 0.15\%$ (same laboratory threshold)
Permissible Analytical Repeatability (C)	$\leq 0.50\%$ (absorption weighing method)

Parameter	Specification (KT-TE46)
Standard Method Compliance	Fully compliant with GB/T 476-2001 solid mineral fuel elemental testing
Sample Granularity Requirement	Particle size < 0.2 mm (fine laboratory powder mesh)
Typical Sample Mass	Approximately 65 mg per analytical crucible charge
Automation & Computation	Integrated single-chip microcontroller with real-time automatic calibration and correction
Data Display	Multi-field digital display showing absolute weight (mg) and concentration percentage (%)
Output & Documentation	High-speed integrated micro-printer for automated analytical batch record printouts
Operating Power Supply	AC 220V $\pm$ 10%, 50 Hz

Microcomputer Hydrogen Analyzer Automated Coal Hydrogen And Carbon Analytical System

Item Number: KT-TE36



Introduction

Engineered for precise ultimate analysis, this microcomputer hydrogen analyzer delivers rapid coulometric hydrogen and gravimetric carbon determination in coal, coke, and solid fuels. Fully compliant with standard methods, the automated system ensures superior reproducibility, advanced temperature regulation, and high throughput.

[Learn More](#)

Application	Description	Key Benefit
Thermal Power Coal Quality Grading	Quantitative analysis of hydrogen and carbon fractions in incoming pulverized bituminous coal, anthracite, and blended boiler fuels.	Accelerates gross calorific value (GCV) calculations and assists in compliance tracking of commercial fuel batches.
Coal-Water Slurry Fuel Assessment	Analysis of slurry suspensions and synthetic coal mixtures requiring tight combustion monitoring and water-balance modeling.	Mitigates baseline measurement variances caused by volatile hydrocarbons and moisture vaporization.
Metallurgical Coke Characterization	Verification of residual volatile matter and elemental carbon ratios in blast-furnace coke and specialized metallurgical reductants.	Delivers reliable data essential for optimizing coke-to-ore ratios and evaluating structural stability in smelters.
Petrochemical Carbonaceous Solids	Testing of solid cracking residues, petroleum cokes, and refined pitch materials containing bound organic hydrogen.	High-temperature oxidation ensures complete digestion of recalcitrant aromatic matrices without soot formation.
Geological and Coal Exploration	High-throughput core sample characterization during geological prospecting, coal seam mapping, and resource classification.	Rapid 10-minute cycle times enable commercial laboratories to clear backlogs of stratigraphic exploratory samples.
Biomass and Solid Refuse Blends	Ultimate analysis of pelletized biomass, torrefied wood chips, and refused-derived fuel (RDF) matrices for renewable energy plants.	Accommodates variable moisture and elemental contents through wide dynamic measuring ranges from 0% to 100%.
Regulatory and Standard Testing Laboratories	Third-party inspection and certification of export/import solid fuels according to standard GB/T 476-2008 requirements.	Ensures full analytical traceability, defensible test results, and robust audit trails through automated data capture.

Parameter Group	Technical Specification	Value / Configuration (KT-TE36)
Model Identification	Standard Base Model Identifier	KT-TE36
Analytical Targets	Measurable Elements	Hydrogen (H), Carbon (C)
	Applicable Sample Types	Lignite, Bituminous Coal, Anthracite, Coal-Water Slurry, Organic Solids
Measurement Ranges	Hydrogen (H) Measurement Range	0.00% – 100.00%
	Carbon (C) Measurement Range	0.00% – 100.00%
Analysis Time	Hydrogen Determination Period	Approx. 10 minutes per sample
	Carbon Determination Period	Approx. 15 minutes per sample
Thermal Management	Combustion Furnace Operating Temperature	850°C (Control Stability: $\pm 3^{\circ}\text{C}$)
	Conversion Furnace Operating Temperature	350°C (Control Stability: $\pm 3^{\circ}\text{C}$)
	Temperature Control Accuracy	$\pm 1^{\circ}\text{C}$

Parameter Group	Technical Specification	Value / Configuration (KT-TE36)
	Heating Rate	25°C – 30°C/min
Combustion Assembly	Tube Material & Construction	High-purity quartz, fully sealed design
	Combustion Furnace Length	Approx. 90 cm
	Sample Introduction Method	Internal automatic mechanical pusher operating inside sealed quartz tube
Electrolysis System	Cell Dimensions	Length: approx. 10 cm; ID: approx. 5 mm; OD: approx. 8 mm
	Inner Wall Coating	Phosphorus Pentoxide (P ₂ O ₅) absorbant matrix
	Thermal Dissipation	External forced/convective cooling heat sink apparatus
	Film Preparation Voltage	10 V
	Operating Electrolysis Voltage	24 V
	Maximum Electrolysis Current	≤ 600 mA
	Analytical Termination Current	≤ 65 mA (automatic detection)
Sample Requirements	Sample Capacity	1 sample per single run cycle
	Required Sample Particle Granularity	80 mesh (0.2 mm sieve opening)
Gas & Chemical Flow	Carrier / Combustion Gas	Oxygen (O ₂) stream via integrated purification system
	Carbon Quantification Module	Integrated chemical absorption mechanism with gravimetric mass differential readout
Compliance & Automation	Standard Compliance	GB/T 476-2008 (<i>Method for the Determination of Carbon and Hydrogen in Coal</i>)
	Control Architecture	Microcomputer host system with dedicated graphical operating software
	Data Presentation & Output	Real-time digital display, automated calculation, and direct printout support

Microcomputer Multi Sample Sulfur Analyzer For Coal Coke And Petroleum

Item Number: KT-CD2



Introduction

Designed for coal coke and petroleum laboratories this microcomputer multi sample sulfur analyzer delivers automated coulometric titration with twenty sample capacity dual stage combustion advanced silicon carbide tube heating and self correcting precision to maximize throughput and operational testing efficiency

[Learn More](#)

Application	Description	Key Benefit
Power Plant Coal Quality Screening	Rapid determination of total sulfur in raw and pulverized coal feeds to monitor boiler emissions and ensure compliance with environmental desulfurization thresholds.	Enables rapid combustion optimization and avoids compliance penalties through 5-to-7-minute turnaround per sample.
Metallurgical Coke and Carbon Analysis	Quantitative testing of sulfur content in metallurgical coke, foundry coke, and petroleum needle coke used in blast furnace operations and steelmaking.	Prevents sulfur transfer to molten iron, safeguarding structural steel properties and improving furnace efficiency.
Petrochemical and Heavy Oil Monitoring	Evaluation of sulfur concentrations in crude oil residues, fuel oils, lubricants, and solid petroleum pitch distillates.	Facilitates strict compliance with fuel sulfur specifications while safeguarding downstream cracking catalysts.
Commercial Mineral Testing and Assaying	High-throughput batch testing of commercial coal shipments, mineral ores, and solid combustibles in third-party inspection laboratories.	Continuous carousel replenishment allows round-the-clock testing with complete traceability and automated reporting.
Biomass and Refuse-Derived Fuel Testing	Characterization of total sulfur in biomass pellets, agricultural residues, refuse-derived fuel (RDF), and synthetic solid recovered fuels.	Accurately predicts sulfur-induced corrosion risks in industrial biomass boilers and waste-to-energy power plants.
Academic and Environmental Fuel Research	Academic research into combustion kinetics, synthetic fuel development, desulfurization catalyst efficiency, and sulfur transformation pathways.	Delivers consistent baseline precision across 0% to 10% sulfur ranges with automated algorithmic compensation.

Technical Parameter	Specification Value (KT-CD2)
Product Item Number	KT-CD2
Primary Applications	Coal, Coke, Petroleum, and Combustible Materials
Sulfur Measurement Range	0% to 10%
Sample Batch Capacity	1 to 20 samples per sequence (Supports continuous addition)
Analysis Time per Sample	Approximately 5 to 7 minutes total
Combustion Dwell Profile	45 seconds at 500°C; 4 minutes 45 seconds at 1050°C
Furnace Operating Temperature	1050°C ± 5°C (User adjustable)
Temperature Control Accuracy	±5°C
Temperature Measurement Grade	Grade 0.5
Temperature Measurement Resolution	0.0001°C
Heating Element Type	Silicon carbide (SiC) heating tube

Technical Parameter	Specification Value (KT-CD2)
High-Temperature Zone Length	≥ 90 mm
Heating Ramp Rate	20°C to 25°C/min (Reaches 1050°C in ~30 minutes)
Electrolytic Cell Volume	450 mL
Platinum Electrode Surface Area	150 mm ²
Repeatability (St < 1.00%)	St,ad ≤ 0.05%
Reproducibility (St < 1.00%)	St,d ≤ 0.10%
Repeatability (St 1.00% - 4.00%)	St,ad ≤ 0.10%
Reproducibility (St 1.00% - 4.00%)	St,d ≤ 0.20%
Repeatability (St > 4.00%)	St,ad ≤ 0.20%
Reproducibility (St > 4.00%)	St,d ≤ 0.30%
Testing Standard Conformity	Precision exceeds requirements of GB/T 213-2008
Error Correction Mechanism	Automated experimental calibration correction
Temperature Compensation	Automatic compensation (measurement error: 5%)
Hardware Safety Protections	Silicon carbide tube startup protection and overcurrent interlock
Power Supply Requirements	AC 220 V ± 22 V (220 V ± 10% / ±15%), 50 Hz
Maximum Rated Power Consumption	≤ 4.3 kW
Operating Environmental Temperature	5°C to 40°C (Ambient shift ≤ 1°C per measurement run)
Operating Relative Humidity	≤ 80% RH
System External Dimensions	770 mm (L) × 460 mm (W) × 410 mm (H)
Data Archiving and Interfacing	Automatic historical storage, query capability, and report printout

Fully Automatic Caking Index Tester For Coal Metallurgical Quality Analysis

Item Number: KT-TE25



Introduction

Engineered for industrial coal quality control this fully automatic caking index tester integrates precision motorized sample stirring calibrated static pressing and automated drum abrasion testing to deliver reliable coal caking evaluations with exceptional accuracy across metallurgical laboratory workflows today.

[Learn More](#)

Application	Description	Key Benefit
Metallurgical Coking Coal Assessment	Routine determination of the caking index for prime coking coal, fat coal, and gas-fat coal feeds prior to coking oven battery charging.	Ensures reliable plastic layer formation during carbonization, guaranteeing structural coke cold strength and optimizing ironmaking blast furnace performance.
Coal Preparation Plant Clean Coal Auditing	Continuous quality screening of washed clean coal streams and dense-medium cyclone overflow products across varying washability fractions.	Provides real-time analytical feedback to plant operators, enabling immediate adjustment of separation cut-points to prevent off-spec caking coal shipments.
Industrial Coal Blending Optimization	Evaluating thermoplastic compatibility and additive bonding behavior when blending lower-cost, weakly caking coals with premium metallurgical coal components.	Maximizes low-rank coal inclusion rates while safeguarding against coke cake degradation, delivering substantial procurement cost reductions.
Steel Mill Consignment Quality Control	High-throughput incoming quality verification of domestic and imported coking coal cargoes delivered via railcar, barge, or maritime vessel.	Protects steel mill operations against commercial contract non-compliance, degraded coal shipments, and unexpected oven pressure excursions.
Coal Chemical and Pyrolysis Research	Quantitative laboratory investigation into coal colloidal mass formation, plastic layer expansion kinetics, and pyrolytic carbonization behavior under controlled test environments.	Delivers consistent, highly repeatable experimental baseline data essential for academic research and advanced coal conversion process modeling.
Geological Exploration and Mine Reserve Evaluation	Comprehensive laboratory analysis of exploratory borehole drill cores and newly discovered coal seam strata during geological resource surveying.	Establishes accurate metallurgical classification and economic utilization potential to derisk mining capital investments and reserve classifications.
Commercial Testing and Third-Party Certification	Independent testing and certification of commercial coal samples for international trade settlement and regulatory quality reporting.	Eliminates manual operational bias and ensures strict adherence to recognized national standardized methodologies.

Specification Category	Parameter	Value / Operational Characteristic
Model Identifier	Product Item Number	KT-TE25
Standard Compliance	Operating Methodology Standard	GB/T 5447-2014
Functional Architecture	Integrated Testing Subsystems	Crucible Stirring, Static Pressing, Drum Abrasion Testing
Control System	Operational Subsystem Mode	Independent or Simultaneous Dual-Channel Operation
Stirring Mechanism	Crucible Tilting Angle	45°
Stirring Mechanism	Crucible Rotational Speed	15 r/min
Stirring Mechanism	Stirring Rod Rotational Speed	150 r/min
Stirring Mechanism	45° Active Stirring Duration	1 min 45 s (105 s)

Specification Category	Parameter	Value / Operational Characteristic
Stirring Mechanism	45° to Vertical Transition Duration	15 s
Stirring Mechanism	Process Parameter Display	High-Visibility Digital Display
Static Pressing Module	Nominal Compaction Load	6.5 kg
Static Pressing Module	Operational Objective	Prevention of volatile convective loss during furnace roasting
Abrasion Drum Module	Drum Rotational Speed	50 ± 2 r/min
Abrasion Drum Module	Preset Revolution Total	250 revolutions
Abrasion Drum Module	Revolution Counter Display	Digital Tube Display
Notification System	Cycle Completion Alert	Audible Acoustic Buzzer
Electrical Requirements	Power Supply Voltage	AC 220V ± 10%
Electrical Requirements	Line Frequency	50 Hz
Electrical Requirements	Rated Power Consumption	Approximately 40 W

Automatic Moisture Analyzer High Precision Microwave Infrared Moisture Determination Equipment

Item Number: KT-TE29



Introduction

Accelerate your quality control with this high performance automatic moisture analyzer. Featuring microwave, infrared, and hybrid drying modes alongside an integrated analytical balance, this system delivers rapid moisture determination, dynamic thermal compensation, and seamless data traceability for industrial testing laboratories.

[Learn More](#)

Application	Description	Key Benefit
Coal Mining and Power Generation	Rapid assessment of total moisture and analytical air-dry moisture in pulverized coal, coke, and solid fuel feedstocks.	Prevents boiler thermal inefficiency, ensures fair commercial fuel valuation, and conforms directly to solid mineral fuel standard procedures.
Petroleum and Petrochemical Processing	Quantification of trace and bulk moisture content in petroleum coke, hydrocarbon slurries, catalyst carriers, and polymer resins.	Mitigates catalyst poisoning in refining units, prevents polymer extrusion defects, and optimizes commercial bulk transport payloads.
Bulk Chemical Manufacturing	In-process and final product moisture control across inorganic salts, fine chemical powders, detergents, and industrial pigments.	Ensures consistent bulk powder flowability, eliminates product caking during storage, and maintains strict specification limits.
Food Processing and Grain Handling	Fast moisture quantification in raw grains, milled flours, animal feed concentrates, and dehydrated food products.	Prevents microbial spoilage, guarantees uniform shelf life, and ensures exact compliance with statutory food moisture thresholds.
Mining and Mineral Processing	Dewatering efficiency monitoring and moisture verification in iron ore, bauxite slurries, mineral concentrates, and flotation products.	Optimizes drying kiln fuel consumption, prevents transport vessel liquefaction risks, and ensures precise dry-weight settlement.
Environmental and Wastewater Management	Solid fraction and dry residue determination in municipal sludge, industrial filter cakes, and dewatered sedimentation waste.	Accurately calculates thermal disposal costs, verifies dewatering centrifuge performance, and streamlines environmental regulatory reporting.
Building Materials and Ceramics	Routine moisture analysis of gypsum, raw cement powder, clay slips, and ceramic powder formulations prior to kiln firing.	Minimizes structural cracking during high-temperature sintering, improves green-body density, and optimizes binder formulation efficiency.

Specification Parameter	Value / Operational Characteristic
Base Equipment Model	KT-TE29 Series
Standard Automation Model	KT-TE29
Enhanced Analytical Model	KT-TE29F
Microwave Input Power	≤ 1400 W
Microwave Output Power	≤ 900 W
Microwave Operating Frequency	2450 MHz
Infrared Heating Power	≤ 1200 W
Analytical Balance Capacity	≤ 310 g
Analytical Balance Readability	0.0001 g (0.1 mg) / 0.001 s response time

Specification Parameter	Value / Operational Characteristic
Moisture Determination Accuracy	≤ 0.4%
Sample Batch Capacity	9 samples per automated run
Heating Methods	Microwave / Optical Wave, Infrared, Synchronized Hybrid Drying
Determination Programs	Rapid Drying Mode, Constant Weight Mode (freely programmable)
Sample Detection Mechanism	Automatic presence/absence verification
Thermal Buoyancy Correction	Automatic software-driven thermal equilibrium compensation
Power Failure Protection	Non-volatile parameter storage with internal calendar clock
Sample Identification	Automatic daily non-repeating tracking code assignment
Display System	Large-format LCD screen with full process status prompting
Data Output Capabilities	Onboard thermal micro-printer; optional RS232 with dynamic PC software
Operating Power Requirements	AC 220 V ± 20 V, 50 Hz

Coal Tumbler Test Machine For Coal Friability And Dust Index Testing

Item Number: KT-TE34



Introduction

Determine coal friability and dust index with this industrial coal tumbler test machine. Engineered with a 40 rpm drum speed, preset 2400 revolution counter, and dependable motor, it provides accurate particle breakdown data.

[Learn More](#)

Application	Description	Key Benefit
Commercial Coal Friability Grading	Evaluates the physical degradation rate of commercial coal lots by measuring post-tumble particle size breakdown after standard 2400-revolution agitation cycles.	Provides verifiable physical quality metrics for commercial coal trade contracts and pricing negotiations.
Coal Dust Index Determination	Measures fine particulate formation and dust-generating propensities of mined coals subjected to controlled mechanical attrition.	Informs environmental mitigation protocols, dust suppression system design, and storage stockpile safety management.
Power Plant Pulverizer Optimization	Assesses incoming fuel friability to predict grindability, wear patterns, and energy requirements across boiler feed coal preparation systems.	Maximizes thermal power milling efficiency, lowers operational power consumption, and minimizes unplanned mill maintenance.
Metallurgical Coking Coal Assessment	Determines the mechanical durability and degradation tendencies of coking coal blends prior to high-temperature carbonization and battery charging.	Ensures stable blend formulations that maintain aggregate structure and prevent excessive breeze generation during coke production.
Bulk Handling and Logistics Simulation	Simulates dynamic impact, drop degradation, and inter-particle friction experienced throughout conveyor transfer points, rail transshipment, and ship loading.	Accurately predicts downstream fine generation, aiding in logistics planning and minimizing physical product losses during transit.

Mining Exploration and Seam Evaluation	Analyzes core sample strength and structural coherence across varying coal seams during exploratory geological surveys.	Assures precise classification of extractable reserves to guide extraction methodology and wash plant equipment selection.
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Parameter	Value	Specification Notes
Equipment Model Identifier	KT-TE34	Standardized mechanical friability testing unit
Drum Revolutions per Cycle	2400 r	Fixed automatic shut-off via integrated cycle monitor
Drum Rotational Speed	40 r/min	Precision-gearred continuous operating velocity
Motor Power Rating	0.37 kW	High-torque industrial induction drive motor
Electrical Power Requirements	380V / 220V AC, 50 Hz	Factory-configurable dual-voltage electrical design
Applicable Sampling Standard	GB/T 475 Standard Method	Sampling of commercial coal and aggregate preparation
Measurement Principle	Fractional Sieving & Degradation	Mean particle size reduction calculation method
Primary Test Outputs	Friability Index (%), Dust Index (%)	Derived from fractional mass differential analysis
Agitation Chamber Material	High-Tensile Structural Steel	Abrasion-resistant construction for extended service life
Drum Sealing Mechanism	Continuous Elastomeric Dust Gasket	Zero-particulate escape during continuous high-speed rotation
Operational Duty Profile	Continuous Laboratory Duty	Engineered for multi-batch consecutive evaluation cycles

Microcomputer Dual Control Oxygen Bomb Calorimeter For Solid Combustibles Calorific Value Determination

Item Number: KT-TE7



Introduction

Engineered for high-precision calorific determinations, this microcomputer dual-control oxygen bomb calorimeter features independent twin-vessel asynchronous testing, automated water handling, ultra-sensitive thermal resolution, and strict regulatory compliance to streamline solid fuel quality control across power generation, metallurgy, and petrochemical laboratories.

[Learn More](#)

Application	Description	Key Benefit
Coal-Fired Power Generation	High-frequency calorific profiling of incoming pulverized coal, blended boiler fuels, and bottom ash	Optimizes combustion stoichiometry, ensures regulatory thermal compliance, and prevents boiler fouling
Coal Mining and Mineral Processing	Evaluation of raw run-of-mine coal, washed clean coal fractions, tailings, and washery gangue	Accurately dictates commercial product grading, optimizes washing plant yield, and validates contract specifications
Metallurgical Coke Manufacturing	Enthalpy testing of coking coals, semi-coke blends, and metallurgical-grade foundry coke products	Secures consistent blast furnace thermal profiles and verifies carbonaceous raw material reactivity
Petrochemical Residue Analysis	Determining gross heat values of petroleum coke, refinery pitch, heavy distillation residues, and carbon black	Delivers accurate thermal balance data required for industrial waste heat recovery and commercial fuel sales
Commercial Quality Inspection	Independent third-party validation, custody transfer settlement, and export certification of solid fuels	Ensures reproducible, audit-proof analytical documentation complying with statutory energy standards
Environmental Waste-to-Energy	Calorific screening of municipal solid waste (MSW) pellets, refuse-derived fuel (RDF), and biomass briquettes	Establishes furnace feed rates, predicts energy recovery efficiency, and prevents sub-temperature incinerator emissions
Cement Clinker Manufacturing	Continuous energy characterization of alternative fuels, waste tires, and carbonaceous kiln fuels	Maintains stable sintering zone temperatures while reducing procurement expenditure on primary fossil fuels

Specification Parameter	Technical Metric (KT-TE7)
Product Item Number	KT-TE7
Dual-Control Operating Mode	Asynchronous dual-vessel microcomputer control (independent barrel operation)
Heat Capacity (Calorimeter Equivalent)	Approximately 10500 J/K
Temperature Resolution	0.0001 K
Single Test Duration	Approximately 15 minutes
Outer Jacket Reservoir Capacity	30 L
Inner Vessel Capacity	Approximately 2.3 L
Quantitative Dosing Error	$\leq \pm 0.1$ g
Ignition Voltage	24 V

Specification Parameter	Technical Metric (KT-TE7)
Ignition Timing Program	6-minute timed ignition cycle
Temperature Measurement Range	0°C to 65°C
Ambient Operating Temperature Range	5°C to 40°C
Calorific Value Measurement Accuracy	0.1% (Standard Benzoic Acid evaluation)
Standard Compliance	Conforms fully to GB/T213-2008 Requirements
Input Power Supply	AC 220V ± 10%, 50 Hz
Power Consumption	< 300 W
Analytical Corrections	Integrated real-time cooling correction system
Data Management System	Automated heat capacity calibration, conversion, spreadsheet storage, and print output

Automated Microcomputer Coal Ash Fusibility Determinator

Ash Fusion Tester

Item Number: KT-TE47



Introduction

Optimize coal combustion and gasification safety with this automated microcomputer ash fusion tester featuring real time CCD imaging robust molybdenum disilicide heating up to 1520C and intelligent four point characteristic temperature identification for high throughput industrial coal testing laboratories

[Learn More](#)

Application	Description	Key Benefit
Coal-Fired Power Plant Combustion	Monitoring pulverized coal ash fusion behavior to assess slagging potential on furnace walls, superheaters, and boiler heat transfer tubes during continuous steam generation.	Prevents catastrophic boiler slag build-up, optimizes soot-blowing schedules, and minimizes unscheduled shutdowns caused by severe wall fouling.
Coal Gasification and Syngas Production	Determining the flow temperature (FT) and softening characteristics of coal feedstock destined for entrained-flow and fixed-bed gasifiers operating under reducing atmospheres.	Ensures smooth, uninterrupted molten slag tapping while preventing refractory erosion or downstream syngas channel blockages.
Metallurgical Coke & Blast Furnace Operations	Characterizing the melting and fusing properties of coal blends utilized in pulverized coal injection (PCI) systems and coking coal evaluation.	Guarantees consistent furnace permeability, reduces unburned char formation, and enhances ironmaking productivity by preventing premature ash agglomeration.
Commercial Inspection & Testing Laboratories	Providing accredited testing and certification services for coal import/export shipments, contractual quality verification, and coal blending facilities according to GB/T 219 standard methodologies.	High-throughput five-sample capacity and automated image archiving deliver indisputable certification reports and auditable digital evidence.
Biomass & Co-Firing Fuel Characterization	Investigating the fusion dynamics, eutectic melting, and lower-temperature sintering behavior of agricultural residues, wood pellets, and biomass-coal blends.	Mitigates high-alkali deposition risks and enables plant operators to formulate safe fuel-blending ratios without risking severe boiler fouling.
Boiler Design & Combustion Engineering	Supplying empirical thermal-deformation data to boilermakers and computational fluid dynamics (CFD) modeling teams for designing furnace firebox geometry and burner configurations.	Supports accurate design of combustion chambers and heat exchanger spacing matched directly to target coal grades and expected slagging behavior.
Coal Washing & Preparation Plant Quality Control	Analyzing clean coal, middlings, and raw coal fractions during mining and beneficiation processes to determine the effect of mineral separation on ash fusibility.	Facilitates strategic coal blending to adjust ash fusion characteristics, maximizing commercial value and fuel marketability.

Parameter Category	Specification Details
Product Item Number	KT-TE47
Operating Temperature Range	Room Temperature to 1520°C
Temperature Control Precision	< ±5°C
Heating Rate Profile	Strictly compliant with GB/T 219-1996 standard ramp rate requirements
Test Atmosphere Capability	Weak reducing atmosphere or oxidizing atmosphere
Batch Specimen Capacity	5 single samples per analytical cycle (simultaneous multi-sample carriage)
Characteristic Deformation Points	Deformation Temperature (DT), Softening Temperature (ST), Hemispherical Temperature (HT), Flow Temperature (FT)
Heating Core Configuration	Horizontal molybdenum disilicide (MoSi ₂) heating elements with advanced refractory insulation

Parameter Category	Specification Details
Optical Imaging Technology	High-resolution CCD digital camera with integrated automatic illumination compensation
Optical Inspection Access	Dual-mode inspection: Automated digital CCD capture (right side) and direct manual optical port (left side)
Automated Data Logging Trigger	Automatic image acquisition and temperature-time curve recording starting at $\geq 900^{\circ}\text{C}$
Historical Data Storage Capacity	Stores a minimum of 200 complete test datasets, heating curves, and associated photographic sequences
Data Calibration Features	Computer-assisted automated identification with manual image playback and temperature-point fine adjustment
System Hardware Components	Main furnace unit with integrated camera, power supply module, PC workstation, printer, control software
Operating Power Requirements	(220 ± 22) V AC, (50 ± 2.5) Hz single-phase
Maximum Power Consumption	5.0 kW
Governing Test Standards	GB/T 219-1996 (Determination of Coal Ash Fusibility)

X Ray Fluorescence Sulfur Calcium Iron Analyzer Cement Raw Meal Elemental Analysis Equipment

Item Number: KT-TE48



Introduction

Discover advanced XRF sulfur calcium iron analyzer systems engineered for cement, shale, and mineral operations. Rapidly quantify SO₃, CaO, and Fe₂O₃ in thirty seconds to optimize raw material blending, forecast cement strength, and streamline quality control across demanding production environments.

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Application	Description	Key Benefit
Cement Raw Meal Proportioning	Used on continuous plant sampling loops to analyze calcium oxide and ferric oxide concentrations in raw meal prior to preheater and rotary kiln firing. Rapid testing allows plant operators to adjust raw limestone, clay, and iron sand feed rates instantly whenever raw feed variance is detected.	Stabilizes burnability in the rotary kiln, prevents ring formation, reduces fuel consumption per ton of clinker, and ensures optimal saturation factor consistency.
Finished Cement Clinker & Admixture Control	Measures calcium oxide percentages in finished cement directly at the milling circuit outlet. Because CaO concentration correlates strongly with cementitious mineral formation, the system enables operators to project 28-day compressive strength and accurately calculate the precise inclusion ratio of supplementary cementitious materials.	Maximizes mineral admixture incorporation (such as blast furnace slag or fly ash) while eliminating clinker over-consumption, ensuring target cement grades are achieved at the lowest production cost.
Gypsum Addition in Finish Grinding	Tracks sulfur trioxide percentage in real time during final ball mill grinding to govern the exact proportion of natural or desulfurization gypsum interground with cement clinker.	Ensures finished cement stays strictly within regulatory SO ₃ limits, preventing destructive delayed ettringite formation while optimizing initial setting times and early strength development.
Sintered Shale and Coal Gangue Brick Production	Analyzes calcium and iron content in raw shale, crushed coal gangue, and clay mixtures prior to extrusion, drying, and kiln sintering. It detects local lime nodules and iron sulfide pockets before raw materials enter the pug mill.	Prevents post-firing lime popping, structural cracking, and surface discoloration, drastically lowering scrap rates and enhancing the load-bearing rating of finished masonry bricks.
Steel Plant Pyrite & Flux Feedstock Verification	Analyzes incoming sulfur-bearing pyrite, limestone fluxes, and iron ore feedstocks at bulk receiving docks and mixing yards to determine accurate sulfur, calcium, and iron contents before furnace charging.	Protects blast furnace and converter slag basicity balances, prevents unexpected sulfur contamination in molten iron, and optimizes metallurgical flux consumption.
Flue Gas Desulfurization (FGD) Gypsum Testing	Analyzes synthetic gypsum produced by wet limestone flue gas desulfurization systems in coal-fired power plants, verifying sulfur trioxide and residual calcium carbonate levels.	Confirms byproduct purity for commercial sale to gypsum wallboard manufacturers, validates limestone reagent utilization efficiency, and prevents unreacted carbonate waste.
Quicklime & Hydrated Lime Manufacturing	Monitors limestone calcination efficiency in shaft and rotary kilns by evaluating residual calcium oxide and carbonate ratios across finished quicklime and hydrated lime batches.	Assures high active lime availability for downstream industrial users, minimizes fuel consumption during over-burning, and prevents under-calcined stone discharge.

Specification Category	Parameter	Technical Detail
Model Identification	Product Item Number	KT-TE48
Analytical Principle	Measurement Technology	Energy-Dispersive X-Ray Fluorescence (ED-XRF) Physical Spectrometry
Target Analytes	Quantified Oxides / Elements	Sulfur Trioxide (SO ₃), Calcium Oxide (CaO), Ferric Oxide (Fe ₂ O ₃)
Analytical Range	Total Quantitative Span	0.01% to 99.9% (Configurable via calibrated working curves)

Specification Category	Parameter	Technical Detail
Measurement Width	Specific Oxide Dynamic Span	CaO: min to max $\leq 15\%$ (e.g., standard cement span 40% to 55% CaO)
Analytical Precision	Standard Deviation (SO ₃)	SSO ₃ $\leq 0.04\%$
	Standard Deviation (CaO)	SCaO $\leq 0.05\%$
	Standard Deviation (Fe ₂ O ₃)	SFe ₂ O ₃ $\leq 0.04\%$
Analysis Cycle Time	Programmable Measurement Duration	n × 30 seconds (User-configurable multiplier n = 1, 2, 3, 4, 5)
Standard Compliance	Industry Benchmark	GB/T 19140 (General Rules for X-ray Fluorescence Analysis of Cement)
Sample Handling	Sample Physical Integrity	Non-destructive; samples remain intact and reusable without chemical alteration
Environmental Safety	Chemical & Radiation Safety	100% reagent-free; zero waste gas, liquid, or solid discharge; non-radioactive source design
Data Architecture	Memory Storage Capacity	High-capacity onboard non-volatile memory for assay history and self-diagnostic logs
User Interface	Screen & Controls	Large-screen LCD with integrated menu-prompted operation
Electrical Parameters	Operating Voltage	AC 200V to 240V, 50/60 Hz
	Power Consumption	< 30 W
Environmental Limits	Operating Temperature Range	0 °C to 40 °C
	Relative Humidity	< 85% RH (non-condensing)
Physical Dimensions	External Dimensions (W × D × H)	468 mm × 368 mm × 136 mm
	Instrument Net Weight	13.8 kg

Rapid Ash Determination Apparatus Continuous Ash Content Analyzer For Coal Coke And Biomass

Item Number: KT-TE38



Introduction

Engineered for rapid laboratory analysis, this continuous ash determination apparatus delivers automated ashing for coal, coke, and biomass fuels according to standard industrial testing methods. Featuring precise temperature zoning and adjustable conveyance, it prevents deflagration while ensuring superior analytical repeatability.

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Application	Description	Key Benefit
Coal Mining & Preparation	Continuous monitoring of raw coal and washed clean coal fractions to regulate flotation circuits and heavy-medium separation density.	Delivers rapid ash content feedback to optimize coal washing yields and ensure contracted grade classification.
Thermal Power Generation	On-site proximate analysis of pulverized coal deliveries, boiler feed blends, and residual fly ash or bottom ash streams.	Prevents boiler fouling, optimizes air-to-fuel combustion ratios, and ensures accurate fuel billing compliance.
Metallurgical Coke Production	Evaluation of coking coal blends and final blast-furnace coke samples during continuous high-temperature carbonization processes.	Maintains strict control over coke ash levels to protect blast furnace slag chemistry and maximize hot metal production efficiency.
Biomass Fuel Manufacturing	Ash yield assessment of wood pellets, agricultural residues, forestry briquettes, and refuse-derived fuel (RDF) stocks.	Identifies high-alkali inorganic content to avert boiler tube corrosion, clinkering, and excessive particulate emissions.
Commercial Fuel Inspection	Third-party quality verification and commercial certification testing of solid mineral fuels at export terminals and transshipment hubs.	Shortens sample turnaround intervals significantly compared to static muffle furnaces while meeting mandatory standard tolerances.
Waste-to-Energy Incineration	Characterization of processed combustible municipal solid waste and industrial sludge blends prior to energy recovery.	Provides accurate inorganic non-combustible baseline data necessary to calculate thermal recovery efficiency and manage fly ash disposal.
Cement Clinker Manufacturing	Rapid verification of alternative fuel sources and petcoke ash contributions that directly enter the calciner and rotary kiln raw mix.	Ensures stable clinker chemical composition and avoids uncontrolled fluctuations in silica and alumina moduli.

Specification Parameter	Value / Operational Characteristic
Product Item Number	KT-TE38
Furnace Chamber Type	Inclined Horseshoe-Shaped Tube Chamber
Internal Chamber Dimensions	700 mm (L) × 75 mm (W) × 45 mm (H)
Overall Instrument Dimensions	1000 mm (L) × 290 mm (W) × 420 mm (H)
Equipment Net Weight	40 kg
Operating Temperature Range	100 °C – 1000 °C (Fully Adjustable)
Constant High-Temperature Zone	815 ± 3 °C (Zone Length > 200 mm)
Heating Ramp Performance	Ambient to 815 °C in approximately 60 min
Sample Conveyance Speed Range	5 mm/min – 50 mm/min (Continuously Adjustable)
Conveyance Drive Mechanism	Precision Low-Vibration Motorized Chain Conveyor

Specification Parameter	Value / Operational Characteristic
Flue Gas Exhaust Flow	Natural Convective Updraft along Inclined Muffle Ceiling
Applicable Sample Mass	0.5 ± 0.01 g per crucible
Maximum Sample Particle Size	< 0.2 mm (Standard Sieve Fraction)
Analytical Standard Compliance	Fully Compliant with GB/T 212 Industrial Analysis of Coal
Testing Accuracy and Precision	Within Repeatability and Reproducibility Limits of GB/T 212
Electrical Power Requirements	AC 220 V ± 22 V, 50 Hz
Rated Power Consumption	1500 W

Cement Free Calcium Oxide Rapid Tester Clinker Quality Control Analyzer

Item Number: KT-TE49



Introduction

Accelerate cement quality control with this rapid free calcium oxide tester featuring precision ethylene glycol extraction direct titration three minute test cycles rapid heating and stepless stirring speed for accurate clinker thermal management and comprehensive industrial laboratory compliance testing

[Learn More](#)

Application	Description	Key Benefit
Rotary Cement Kiln Thermal Control	Rapid quantification of free lime in freshly sampled clinker discharge to adjust fuel feed rates, burner parameters, and kiln temperatures in real time.	Prevents kiln over-burning, reduces specific fuel consumption, and optimizes clinker mineral composition.
Cement Grinding Quality Assurance	Verification of free calcium oxide levels in pulverized clinker before and after blending with gypsum, blast furnace slag, or fly ash.	Guarantees compliance with national and international soundness standards, preventing catastrophic expansion in cured concrete.
Clinker Soundness and Durability Testing	Routine screening of clinker batches to identify delayed hydration risks caused by residual crystalline free lime expansion.	Eliminates volumetric instability, cracking, and structural failures in downstream commercial concrete applications.
Alternative Fuel and Raw Material (AFR) Trials	Monitoring combustion and calcination behavior during experimental fuel switching (e.g., biomass, refuse-derived fuels) in cement production lines.	Rapidly assesses the thermal impact of non-traditional fuels on clinker formation without risking substandard output.
Third-Party Building Material Certification	Standardized laboratory evaluation of commercial cement shipments conducted by accredited testing centers and inspection agencies.	Delivers audit-ready, highly reproducible analytical results with an ultra-low standard deviation of 0.064%.
Academic and Industrial Research	Investigation of mineral phase transformations, burnability kinetics, and novel low-carbon cement formulations in university laboratories.	Provides high-throughput sample screening, allowing researchers to evaluate dozens of synthesis iterations per day.

Parameter	Specification Details
Product Item Number	KT-TE49
Analytical Target	Uncombined Free Calcium Oxide (f-CaO)
Analytical Principle	Ethylene glycol extraction – benzoic acid direct titration / electrical conductivity determination
Extraction & Testing Time	3 minutes (3 min)
Analytical Accuracy (Standard Deviation)	0.064%
Average Heating Rate	60 °C/min
Motor Agitation Mechanism	Continuous stepless speed regulation
Maximum Power Consumption	300 W
Operating Voltage / Frequency	220 V ± 10% AC, 50 Hz
Sample Compatibility	Portland cement clinker, blended cements, hydraulic binders, raw meal blends
Reaction Medium	Anhydrous ethylene glycol (reagent grade)
Primary Reagent	Standardized benzoic acid solution / indicator system
Housing Construction	Heavy-gauge steel with chemically resistant electrostatic powder coating

Parameter	Specification Details
Operational Environment	10 °C to 40 °C ambient temperature, relative humidity < 85% non-condensing

Fully Automatic Dual Furnace Industrial Proximate Analyzer For Coal And Biofuel Thermogravimetric Analysis

Item Number: KT-TE37



Introduction

Accelerate proximate analysis with this fully automated dual furnace thermogravimetric analyzer engineered for rapid determination of moisture ash and volatile matter across nineteen samples delivering certified arbitration accuracy and regulatory compliance in under ninety minutes for industrial quality testing

[Learn More](#)

Application	Description	Key Benefit
Coal-Fired Power Generation	High-frequency proximate screening of incoming coal deliveries, pulverized fuel blends, and boiler combustion feedstocks to verify calorific baseline values and combustion behavior.	Eliminates combustion inefficiencies, safeguards boiler refractory linings, and provides rapid fuel quality feedback for immediate boiler tuning.
Commercial Coal Trade & Quality Arbitration	Independent testing of thermal and coking coal shipments during port loading, rail transfer, and contract settlement disputes where certified precision is legally required.	Delivers fully standardized, dispute-free proximate data that meets regulatory arbitration criteria without human procedural bias.
Solid Biomass & Biofuel Processing	Determination of moisture, volatile matter, and residual ash in agricultural residues, wood pellets, sawdust briquettes, and energy crops per standard bioenergy specifications.	Accelerates batch release cycles, ensures compliance with pellet burner standards, and optimizes moisture control during pelletization.
Metallurgical Coke & Sintering Plants	Rigorous monitoring of metallurgical coke, coal charges, semi-coke, and carbon additives used in blast furnace ironmaking and ferroalloy smelting operations.	Guarantees consistent carbon content, controls ash accumulation in the blast furnace, and reduces coke rate consumption.
Waste-to-Energy & Refuse Derived Fuels	Proximate characterization of municipal solid waste, shredded industrial waste, and refuse-derived fuel pellets prior to thermal processing and gasification.	Enables real-time feedstock categorization, optimizes secondary air distribution, and prevents slagging caused by unexpected ash spikes.
Third-Party Analytical Laboratories	High-volume contract laboratory testing requiring continuous batch throughput, automated audit trails, and strict data traceability for external commercial clients.	Maximizes sample turnaround capacity per operator hour while providing reproducible, tamper-proof electronic analytical certificates.
Cement & Lime Kiln Manufacturing	Evaluation of alternative fuels, petcoke, and low-grade coal utilized as primary and secondary firing fuels in rotary calcining kilns and precalciner towers.	Maintains consistent kiln temperature profiles, reduces specific thermal energy consumption, and controls residual clinker mineralogy.

Parameter	Specification Details (KT-TE37)
Product Item Number	KT-TE37
Operating Principle	Thermogravimetric Analysis (TGA) with synchronized internal balance weighing
Furnace Architecture	Dual-furnace configuration with dual integrated electronic weighing structures
Test Parameters	Moisture (M), Ash (A), Volatile Matter (V), Fixed Carbon (FC, calculated)
Batch Sample Capacity	Up to 19 samples per single analysis run (plus automated reference balance checks)
Full Cycle Duration	≤ 90 minutes for comprehensive tri-parameter determination (Moisture + Ash + Volatiles)
Operation Mode	Fully automatic: automated tare, dosing confirmation, dynamic heating, re-weighing, calculation, upload
Industry Standard Compliance	Compliant with GB/T 212 (Proximate Analysis of Coal) and GB/T 28731 (Solid Biofuels)

Parameter	Specification Details (KT-TE37)
Legal & Commercial Validity	Certified for official commercial trade settlement, legal disputes, and quality arbitration
Analytical Weighing Mechanism	Built-in high-precision microbalance assembly with dynamic thermal isolation
Atmospheric Control	Programmed automated switching between inert (carrier gas) and oxidizing environments
Temperature Control Method	Microprocessor-controlled PID heating curves optimized for rapid stabilization and zero overshoot
Data Management System	Dedicated PC workstation software with live mass-loss curve display, database archiving, and LIMS export
Operator Intervention Level	Zero intervention required following crucible loading and test initiation

Electric Heating Blast Drying Oven Forced Air Convection Laboratory Thermal Chamber

Item Number: KT-GZ



Introduction

Engineered for dependable thermal processing, this electric heating blast drying oven delivers uniform forced air circulation, intelligent digital PID regulation, and dual door insulation across versatile chamber volumes to ensure exceptional testing accuracy and industrial drying consistency in every cycle.

[Learn More](#)

Application	Description	Key Benefit
Coal & Mineral Moisture Analysis	Quantitative moisture testing in coal, ores, and coke samples in accordance with standard analytical protocols.	Prevents localized sample overheating while delivering uniform, rapid moisture extraction for accurate gravimetric calculations.
Chemical Precipitate & Filter Paper Drying	Dehydration of analytical filtration media, filter paper, and chemical sedimentation residues following wet separation.	Gentle, balanced convective flow prevents sample spattering and media tearing while achieving absolute dryness.
Laboratory Glassware & Vessel Processing	Rapid baking, dehydration, and constant-temperature holding of volumetric flasks, beakers, pipettes, and metal tools.	High air throughput rapidly removes moisture droplets, accelerating apparatus turnaround without leaving watermarks.
Electronic Component Conditioning & Baking	Pre-assembly moisture desorption and thermal baking of circuit boards, semiconductors, and passive electronic parts.	Mitigates micro-cracking and internal steam expansion during subsequent soldering or encapsulation processes.
Industrial Polymer & Resin Curing	Controlled thermal treatment and moisture evacuation for thermoset polymers, advanced resin matrices, and plastic granules.	Uniform temperature envelope ensures consistent cross-linking density and eliminates volatile-induced air voids.
Metallurgical Powder & Specimen Preparation	Dehydration and pre-heating of metal powders, metallurgical mountings, and core specimens prior to compaction or analysis.	Guarantees complete extraction of interstitial moisture without oxidizing or prematurely altering fine metallic particles.

Model Variant	Temperature Range (°C)	Temperature Fluctuation (°C)	Power Supply	Rated Power (kW)	Working Chamber Dimensions (D × W × H mm)
KT-GZ-1A	50 - 250	±1.0	220V, 50Hz	3.0	350 × 450 × 450
KT-GZ-2A	50 - 250	±1.0	220V, 50Hz	3.5	450 × 550 × 550
KT-GZ-3A	50 - 250	±1.0	220V, 50Hz	6.6	500 × 600 × 750
KT-GZ-4A	50 - 250	±1.0	220V, 50Hz	8.0	800 × 800 × 1000

Parameter Category	Specification Profile
Base Equipment Series	KT-GZ
Operating Temperature Range	Ambient +10°C to 300°C (Standard regulation range 50°C to 250°C / 300°C)
Temperature Constancy / Fluctuation	±1.0°C
Convection Mechanism	Forced-Air Mechanical Blast Circulation
Internal Temperature Variance	≤ 0.5°C across active convective pathways
Blower Motor Operating Speed	2,800 r/min
Heating Element Configuration	Two (2) Independent Resistance Element Groups located in bottom plenum

Parameter Category	Specification Profile
Heat Radiator Interface	Perforated heavy-gauge thermal radiating distributor plate
Temperature Sensor Type	Industrial Platinum Resistance (Pt100) Sensor Element
Controller Architecture	Digital PID microprocessor regulator (XMT series or compatible intelligent digital display)
Power Switching Device	Solid-State Relay (SSR) / Silicon-Controlled Rectifier (SCR) switching circuit
Observation System	Independent inner tempered glass access door with peripheral thermal gasket
Cabinetry Insulation	Multi-layer ceramic/fiber insulation barrier within outer casing
Working Chamber Dimensions (KT-GZ Standard)	350 mm (Depth) × 450 mm (Width) × 450 mm (Height)
External Dimensions (KT-GZ Standard)	500 mm (Depth) × 810 mm (Width) × 813 mm (Height)
Rated Operating Voltage	(220 ± 22) VAC, Single Phase, 50 Hz
Total System Weight (KT-GZ Standard)	110 kg

Microcomputer Fully Automatic Multi Sample Sulfur Analyzer

Item Number: KT-TE12



Introduction

Engineered for high throughput testing labs, this microcomputer fully automatic multi sample sulfur analyzer provides accurate coulometric titration from zero to ninety nine percent. It features a twenty four position autosampler, dynamic priority queueing, and rapid thermal cracking control.

[Learn More](#)

Application	Description	Key Benefit
Coal Mining & Washing	Routine quantitative determination of total sulfur in raw run-of-mine coal, washed clean coal, and coal gangue byproducts.	Ensures accurate sulfur grading, prevents environmental penalty fees, and optimizes coal blending ratios with rapid 4 to 7 minute test cycles.
Thermal Power Generation	Monitoring sulfur concentrations in incoming pulverized fuel feeds, furnace slag, and flue gas desulfurization input materials.	Optimizes combustion efficiency, minimizes boiler tube corrosion, and ensures strict adherence to regional sulfur dioxide emission quotas.
Coke & Byproduct Manufacturing	Elemental sulfur monitoring in metallurgical coke, foundry coke, semi-coke, and coking coal feedstocks.	Delivers precise tracking of sulfur carryover into blast furnaces, preserving molten iron purity and optimizing flux consumption.
Petrochemical & Heavy Fuel Oil Testing	Analysis of total sulfur content in heavy residual fuel oils, petroleum coke, crude residues, and lubricating greases at 920°C.	Meets regulatory maritime and industrial sulfur limits while preventing downstream catalytic poisoning in refining operations.
Metallurgy & Blast Furnace Operations	Determination of sulfur in iron ores, sintering mixes, metallurgical fluxes, and combustion ash residues.	Prevents hot-shortness in steel manufacturing by enforcing rigorous incoming raw material screening with GB/T 214-2007 compliance.
Commercial Inspection & Testing Labs	High-volume contract analytical screening of diverse solid mineral fuels and combustible industrial wastes.	Maximizes billable daily sample throughput through the 24-position autosampler and priority sample queue-jumping functionality.
Environmental Waste Characterization	Measurement of combustible sulfur fractions in solid municipal waste, refuse-derived fuel (RDF), and biomass pellets.	Provides verified emission modeling data for waste-to-energy incineration facilities to ensure environmental compliance.
Geological & Mining Exploration	Geochemical assaying of core samples, sedimentary strata, and exploratory mineral deposits for total sulfur mineralization.	High resolution down to 0.00001% permits dependable trace sulfur tracking in geological formations with minimal sample mass requirements.

Parameter	Specification (KT-TE12)
Model Identifier	KT-TE12
Operating Principle	High-temperature catalytic combustion with coulometric titration (microcoulometry)
Standard Compliance	GB/T 214-2007 (Determination of Total Sulfur in Coal)
Total Sulfur Measuring Range	0.00% - 99.99%
Analytical Resolution	0.00001% (0.001% display resolution)
Autosampler Capacity	24 sample positions per carousel load
Sample Introduction Method	Automatic continuous push-rod feeder with dynamic priority insertion and queue reordering
Analysis Time Per Sample	4 - 7 minutes (matrix and sample mass dependent)
Operating Combustion Temperature	1150 °C for coal, coke, and minerals; 920 °C for oil and petroleum products
Temperature Control Accuracy	±1 °C across the entire heating envelope
Sample Weight Range	10 mg - 100 mg

Parameter	Specification (KT-TE12)
Analytical Repeatability & Accuracy	Within the permissible tolerance limits of certified reference materials per GB/T 214-2007
Furnace Design	Horizontal pyrolysis tube furnace with low-thermal-mass insulation
Control System Core	32-bit ARM industrial microcontroller with embedded real-time multitasking OS
Host Communication Interface	Hot-swappable USB interface (supports one-PC-to-multiple-analyzers networking)
Balance Interface	Direct bi-directional serial/USB link for automatic one-touch weight acquisition
Carrier Gas Source	Internal air purification, desiccation, and steady-flow diaphragm delivery system
Power Supply Requirements	220 V $\pm$ 10% AC, 50 Hz
Maximum Power Consumption	$\leq$ 3.0 kW

Intelligent Integrated Coulometric Sulfur Analyzer For Coal Coke And Mineral Testing

Item Number: KT-CD1



Introduction

Optimize laboratory testing throughput with this intelligent integrated sulfur analyzer featuring advanced coulometric titration automated furnace current control precision thermal management and full compliance for rapid total sulfur determination in coal coke petroleum and geological mineral testing laboratories

[Learn More](#)

Application	Description	Key Benefit
Coal Quality & Thermal Power	Quantifying total sulfur concentration in raw coal, pulverized boiler feed, washed coal, and residual fly ash for power plant fuel characterization.	Prevents boiler tube corrosion and verifies strict sulfur emission compliance with automated dry-basis reporting.
Coking & Metallurgical Refining	Monitoring total sulfur in metallurgical coke, coking coal blends, iron ore sinter, and steelmaking additives during primary smelting operations.	Safeguards blast furnace refractory integrity and ensures final alloy grades meet tight metallurgical sulfur limits.
Geological Assay & Mineral Exploration	Evaluating sulfur distribution in mineral ores, rock cores, carbonaceous shales, and geological drill samples across assay exploration projects.	High-throughput 3-to-6-minute cycle times enable rapid assay screening across broad concentration ranges up to 40%.
Cement & Building Material Production	Measuring sulfur content in gypsum, limestone, raw kiln feeds, clinker, and alternative secondary fuels utilized in cement manufacturing.	Facilitates precise kiln chemistry optimization and guards against premature structural degradation of finished binders.
Petroleum & Heavy Fuel Characterization	Analyzing sulfur fractions in heavy fuel oils, refinery residual crudes, petroleum coke, and bituminous hydrocarbon feedstocks.	Controlled 920°C liquid combustion settings ensure clean, complete oxidation without carbon fouling or incomplete combustion.
Commercial Commodity Inspection	Third-party verification of bulk coal shipments, export coke shipments, and mineral trades against contractual sulfur specifications.	Strict adherence to GB/T 214-2007 guarantees legally defensible, standardized testing results across inspection bodies.

Specification Parameter	Technical Detail (KT-CD1)
Base System Model	KT-CD1
Measurement Principle	Constant-current coulometric titration with software-governed endpoint detection
Sulfur Determination Range	0.01% to 40.00% total sulfur
Analytical Resolution	0.001%
Operating Temperature (Coal/Minerals)	1150°C
Operating Temperature (Oils/Petroleum)	920°C
Temperature Control Accuracy	±5°C
Thermal Ramping Duration	≤ 30 minutes from ambient to setpoint
Analysis Cycle Time	3 to 6 minutes per sample (automatic return upon endpoint determination)
Sample Weight Capacity	≤ 100 mg (sample-type dependent)

Specification Parameter	Technical Detail (KT-CD1)
Analytical Precision / Standards Compliance	Fully compliant with GB/T 214-2007 national standard requirements
Internal Data Storage	100 test runs with non-volatile memory and perpetual calendar timestamping
Display & Interface	Large illuminated LCD character screen with dedicated operational keypad
Gas Flow Circulation Drive	Original German low-noise, high-flow stability air motor
Sample Introduction Mechanism	Automated contactless solid-state switching transport
Heating Element Specification	High-temperature Silicon Carbide (SiC) resistance tube
Electrochemical Detection Cell	Monolithic glass cell with platinum electrode array and magnetic stirring
Power Supply Compatibility	AC 220V $\pm$ 15%, 50 Hz
Maximum Power Consumption	$\leq$ 3.5 kW
Standard Included Accessory Package	2x Quartz combustion boats, 2x Reducing gas tubes, 1x Silicon carbide heating element, 10x Porcelain sample boats, 1x Monolithic electrolytic cell, 1x Bottle color-indicating silica gel, 2x Thermal printer paper rolls, 260 mL Formulated electrolyte solution, 1x Complete gas purification module
Available Line Configurations	KT-CD1 (Standard LCD Integrated), KT-CD1-Touch (Integrated Touchscreen), KT-CD1-Auto (Fully Automated Microcomputer Control System)

Microwave Moisture Analyzer Rapid Coal Moisture Loss On Drying Determination System

Item Number: KT-TE39



Introduction

Engineered for rapid coal quality testing, this microwave moisture analyzer delivers automated loss on drying measurements. Process nine samples within twenty minutes with integrated analytical precision weighing, dynamic digital control, and compliance with testing standards.

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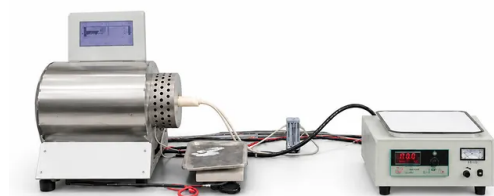
Application	Description	Key Benefit
Thermal Power Generation	Rapid testing of pulverized coal and raw boiler feedstocks to calculate net calorific values and adjust air-fuel ratios in real time.	Mitigates boiler heat losses and prevents billing discrepancies on high-volume fuel deliveries.
Commercial Coal Inspection	Third-party inspection and certification of coal shipments during rail, barge, and vessel transfer operations.	Delivers certified total moisture and analytical moisture data in under 20 minutes for trade settlements.
Coal Beneficiation and Washing	Monitoring moisture content in washed coal slurries, filter cakes, and dewatered fines across preparation plants.	Enables closed-loop optimization of dewatering centrifuges and screen presses to maximize product yield.
Coking and Metallurgical Plants	Evaluation of coking coal blends and pulverized coal injection (PCI) fuels prior to charging blast furnaces and coke ovens.	Ensures precise carbon input calculations, avoids thermal shock in refractory walls, and stabilizes coke quality.
Mining Quality Laboratories	Pit-side and processing facility screening of run-of-mine bulk coal samples across exploration and active extraction veins.	Provides rapid operational feedback to mining engineers for grading coal seams and managing blending stockyards.
Solid Fuel and Biomass Testing	Moisture screening of blended solid recovered fuels, coal-biomass co-firing mixtures, and industrial solid fuels.	Accommodates variable moisture content profiles with high repeatability and minimal preparation overhead.

Parameter	Specification (Model: KT-TE39)
Rated Operating Voltage	(220 ± 22) V AC, (50 ± 1) Hz
Microwave Drying Oven Input Power	≤ 1400 W
Microwave Drying Oven Output Power	≤ 900 W
Microwave Operating Frequency	2450 MHz
Infrared Dryer Power	≤ 1200 W
Integrated Electronic Balance Capacity	≤ 240 g
Balance Readability / Sensitivity	0.001 g (0.001% precision)
Total Moisture Sample Mass (\$M_t\$)	(10 ± 1) g (Particle size: < 6 mm)
Analytical Moisture Sample Mass (\$M_{ad}\$)	(1 ± 0.1) g (Particle size: ≤ 0.2 mm)
Testing Capacity per Cycle	9 single specimens / batch
Complete Analysis Time	Typically ≤ 20 min per batch
Measurement Precision Standards	Conforms to GB/T 15334 and GB/T 211
Operating Temperature Range	0 °C to 40 °C

Parameter	Specification (Model: KT-TE39)
Operating Relative Humidity	≤ 85% RH (non-condensing)
System Dimensions (W × D × H)	510 mm × 380 mm × 540 mm
Integral Subsystems	Microwave drying cavity, balance, mechanical drive, microcomputer board, LCD, micro-printer

Microcomputer Split Type Sulfur Analyzer For Coal Coke And Solid Fuel Determination

Item Number: KT-TE10



Introduction

Engineered for precise coulometric sulfur determination in coal coke and solid fuels this automated microcomputer split sulfur analyzer features intelligent endpoint detection rapid heating to 1150°C and ultra precision resolution for certified laboratory quality control operations.

[Learn More](#)

Application	Description	Key Benefit
Coal Mining & Beneficiation	Routine screening of total sulfur in raw coal, clean coal, middlings, and coal gangue during wash plant operations.	Rapid 3-to-9 minute test cycles enable immediate feedback for dense-medium separation process tuning.
Thermal Power Generation	Monitoring sulfur content in incoming pulverized coal blends and assessing combustion emissions compliance.	Precise 0.00001 resolution ensures exact sulfur balance modeling and optimized flue-gas desulfurization reagent consumption.
Metallurgical Coke Production	Quality assurance of coking coal blends and final blast-furnace metallurgical coke products.	Meets rigorous GB/T 214-2007 requirements, preventing excessive sulfur contamination in hot-metal smelting.
Petroleum Coke & Petrochemicals	Quantitative analysis of sulfur impurities in calcined petroleum coke, pitch, and heavy hydrocarbon residues.	Accommodates sulfur concentrations up to 99.99%, providing broad testing versatility without sample over-dilution.
Environmental & Mineral Testing	Quantification of total sulfur in mining tailings, mineral ores, and biomass fuel briquettes.	Automated titration endpoint tracking eliminates subjective human titration errors and enhances inter-laboratory reproducibility.
Commercial Testing Laboratories	High-throughput commercial inspection and contract testing of diverse commercial solid fuels.	Comprehensive data storage and multi-stage calibration preserve full sample traceability for audit integrity.

Specification Parameter	System Value (Item: KT-TE10)
Standard Compliance	GB/T 214-2007 (Total Sulfur in Coal)
Sulfur Measurement Range	0.00% - 99.99%
Measurement Resolution	0.00001 (0.001% display limit)
Sample Analysis Time	3 - 9 minutes per sample (sample-mass and content dependent)
Titration Principle	Microcomputer-controlled coulometric titration
Endpoint Detection Method	Automatic intelligent judgment with automatic boat drive return
Calibration System	Multi-stage standard curve calibration and historical data retention
Temperature Control Accuracy	1150°C ± 5°C (user-adjustable up to 1200°C)
Temperature Measurement Accuracy	Grade 0.5 precision sensor circuit
Heating Element	Silicon Carbide (SiC) tubular heating element
High-Temperature Zone Length	≥ 90 mm (uniform thermal profile)
Furnace Heating Rate	25°C - 30°C / minute (ambient to 1200°C in ~35 minutes)
Stabilization Time	< 1 minute from system power-up to steady analysis state

Specification Parameter	System Value (Item: KT-TE10)
Electrolytic Cell Volume	450 mL integrated cell body
Electrolytic Cell Design	Anti-backflow liquid lock mechanism with quick-change glass melt plate
Working & Indicator Electrodes	High-purity metallic platinum (Pt)
Carrier Gas Flow Rate	1000 mL / min
Data Processing & Storage	Integrated microcomputer terminal with complete historical test archive
Power Supply Requirements	220V $\pm$ 20% AC, 50 Hz single phase
Maximum Power Consumption	$\leq$ 2.2 kW

Touchscreen Hardgrove Grindability Index Tester Automated Coal Grindability Analyzer

Item Number: KT-TE41



Introduction

Engineered for precision coal quality testing, this touchscreen Hardgrove grindability index tester delivers automated 60-revolution cycles, calibrated linear regression calculation, and reliable digital data storage to optimize milling energy consumption across mining, metallurgical, and power generation laboratory facilities.

[Learn More](#)

Application	Description	Key Benefit
Thermal Power Plant Fuel Assessment	Evaluates incoming steam coal grindability to forecast pulverizer mill throughput, power draw, and auxiliary boiler energy consumption.	Prevents mill overload, reduces auxiliary power usage, and optimizes boiler burner feed consistency.
Commercial Coal Inspection & Trade	Verifies contractually specified HGI values for coal shipments, transshipment terminals, and export loading ports.	Delivers third-party verification, preventing contractual disputes through auditable linear regression metrics.
Metallurgical Coke & Steel Manufacturing	Tests coking coals and pulverized coal injection (PCI) grades for blast furnace feed preparation.	Optimizes blast furnace injection rates and ensures uniform fine particle generation in heavy pulverizers.
Coal Mining & Wash Plant Quality Control	Analyzes raw run-of-mine (ROM) coal and washed clean coal fractions across geological seams during exploration and processing.	Provides rapid seam classification data to guide washing plant yield and sorting parameters.
Solid Fuel Blending Facilities	Assesses grindability variability when blending high-HGI soft coals with low-HGI hard coals to create uniform burner feeds.	Minimizes differential grindability problems in downstream roller and bowl mills.
Academic & Geological Research	Investigates mechanical comminution characteristics, petrographic constituents, and fracture mechanics of solid fuels.	Yields repeatable, standardized research data compatible with international coal petrology benchmarks.

Parameter Category	Specification Attribute	Value / Standard (KT-TE41)
Core Identification	Model Item Number	KT-TE41
Mechanical Kinematics	Working Revolutions	60 ± 0.25 revolutions (automatic stop)
	Spindle Rotational Speed	20 ± 1 r/min
	Applied Grinding Vertical Force	284 ± 2 N (pre-calibrated deadweight mechanism)
	Steel Ball Quantity / Diameter	8 precision ground bearing balls / standard calibrated diameter
Sample Requirements	Feed Particle Size	0.63 mm to 1.25 mm (prepared via standard sieving)
	Initial Sample Mass Requirement	50.00 ± 0.01 g
	Sieve Sizing for Sub-Sieve Mass	0.071 mm (200 mesh) standard test sieve
Analytical Intelligence	Calibration Standards Supported	GBW12005b, GBW12006b, GBW12007b, GBW12008b
	Calculation Engine	Onboard unitary linear regression algorithm ($HGI = a + b \times m$)
	Interface Type	Industrial full-color touchscreen with interactive graphical menus
	Data Management	Local non-volatile memory storage with historical record recall

Parameter Category	Specification Attribute	Value / Standard (KT-TE41)
Operational Parameters	Power Supply	220 V AC ± 10%, 50/60 Hz single-phase
	Structural Materials	Heavy-cast structural housing, hardened alloy tool steel grinding components
	Safety Systems	Interlocked drive enclosure, overload protection, emergency stop switch

Rapid Intelligent Integrated Sulfur Analyzer

Item Number: KT-CD3



Introduction

Optimize coal and mineral testing with this rapid intelligent integrated sulfur analyzer featuring automated coulometric titration high temperature combustion silicon carbide heating and fast sub-five-minute cycle times for precise total sulfur determination across demanding industrial laboratory environments.

[Learn More](#)

Application	Description	Key Benefit
Coal & Coke Quality Analysis	High-throughput total sulfur determination in thermal coal, coking coal, and refined metallurgical coke for energy pricing.	Prevents boiler corrosion and confirms metallurgical sulfur compliance within strict cycle times.
Petroleum & Petrochemical Refining	Quantification of bound sulfur in heavy residual oils, crude fractions, and hydrocarbon feedstocks.	Minimizes downstream catalyst poisoning and ensures adherence to regional emissions thresholds.
Mining & Mineral Ore Processing	Screening of total sulfur content in iron ores, non-ferrous concentrates, tailing residues, and rock core samples.	Accelerates process control decisions during smelting, roasting, and mineral beneficiation.
Cement & Building Materials	Measurement of sulfur trioxide precursors in raw limestone slurries, clinker, gypsum, and finished building cements.	Controls setting times and structural integrity while meeting structural chemistry specifications.
Chemical & Polymer Manufacturing	Routine batch quality assurance of raw synthetic feedstocks, agricultural fertilizers, and organic specialty compounds.	Guarantees batch-to-batch chemical uniformity and protects process piping from sulfurous acid corrosion.
Environmental & Slag Monitoring	Analytical evaluation of sulfur compounds in industrial solid waste, combustion ashes, and metallurgical slag.	Supports emissions reporting and environmental safety audits with defensible, repeatable analytical records.

Parameter	KT-CD3 Specification
Measurement Range	0% to approximately 99% Total Sulfur
Analysis Time	5 minutes total (45 s dwell at ~700°C; 4 min 15 s at 1150°C)
High-Temperature Furnace Zone Length	Approximately 90 mm
Preset Operating Temperature	1150 ± 5°C (Adjustable up to 1250°C)
Heating Element Type	Silicon Carbide Tube (Model 40/30 × 200/160)
Heating Current Range	0 to 15 A, adjustable across 10 discrete steps
Electrode Equilibrium Response Time	≤ 1.0 second (Dual Platinum Indicator Electrodes)
Electrolytic Cell Volume	400 mL
Electrolytic Platinum Electrode Surface Area	1 cm × 1.5 cm
Integrator Baseline Stability	Zero-point drift ≤ ±0.2 ppm sulfur per 10 minutes
Linearity Error	±0.01%
Sample Granularity	Approximately 0.1 mm mesh pass
Typical Sample Mass	Approximately 50 mg
Carrier Gas Requirement	Dry, acid-free purified ambient air

Parameter	KT-CD3 Specification
Carrier Gas Flow Rate	Input flow > 1500 mL/min; Analyzed gas stream 1000 mL/min
Ambient Operating Temperature	5°C to 40°C
Relative Humidity Limits	≤ 85% RH (non-condensing)
Power Supply Requirements	AC 220V ± 10%, 50 Hz, 3 kW maximum power consumption
Controller Dimensions (W × D × H)	360 mm × 280 mm × 140 mm
High-Temperature Tube Furnace Dimensions	60 mm × 29 mm × 25 mm

Microcomputer Sulfur Analyzer Carousel Sulfur Meter

Item Number: KT-CD5

Introduction

Maximize laboratory testing efficiency with this microcomputer sulfur analyzer carousel sulfur meter. Built for precise coulometric titration of coal, metallurgy, and mineral samples, this system offers rapid cycle times and automated temperature compensation.

[Learn More](#)



Application	Description	Key Benefit
Coal Mining & Beneficiation	Routine quantification of total sulfur in raw, washed, and blended coal to determine fuel grade and environmental compliance.	Rapid 3 to 6 minute testing cycles expedite grading decisions and bulk shipment certification.
Thermal Power Generation	Monitoring sulfur content in incoming feed coals and flue gas desulfurization input materials to optimize boiler efficiency.	High throughput carousel automation frees technicians while generating precise emissions-compliance documentation.
Metallurgical & Steel Works	Analyzing trace to moderate sulfur levels in coke, sintering ores, iron ore concentrates, and finished steel alloys.	Exceptional low-end resolution down to 0.0001% ensures strict adherence to metallurgical purity standards.
Petrochemical & Refining	Evaluating total sulfur concentrations in crude distillates, residual heavy oils, and refined petroleum derivatives at 920°C.	Dedicated oil temperature mode prevents incomplete combustion and carbon fouling in the titration cell.
Cement & Building Materials	Screening limestone, gypsum, kiln feeds, and alternative fuels for sulfur concentrations that influence clinker kinetics.	Broad 0.01% to 40% measurement span easily accommodates both low-sulfur additives and high-sulfur fuel sources.
Commercial Inspection & Metrology	Independent third-party verification of sulfur content for import/export commodities, minerals, and solid fuels.	Rigorous adherence to GB/T 214-2007 protocols ensures indisputable analytical validity across cross-border audits.
Geological & Mineral Exploration	Characterizing sulfur distribution across drill cores, rock strata, and multi-element mineral assays.	Flexible sample mass handling from 10 mg to 100 mg facilitates precise testing of diverse rock and ore specimens.

Parameter	Specification (KT-CD5)
Analytical Principle	Microcomputer-controlled coulometric titration
Sulfur Determination Range	0.01% – 40%
Resolution	0.001% (achievable up to 0.0001%)
Single Analysis Duration	3 – 6 minutes (matrix and sample mass dependent)
Furnace Operating Temperatures	1150°C (coal mode) / 920°C (oil mode)
Temperature Control Accuracy	±3°C (refined stability up to ±1°C)
Sample Mass Capability	10 mg – 100 mg
Carousel Sample Capacity	1 – 24 samples per automated loading sequence
Analytical Precision	Compliant with GB/T 214-1996 and GB/T 214-2007
Accuracy	Within allowable tolerance ranges of standard reference materials
Heating Tube Safety Features	Automatic silicon carbide tube startup protection and overcurrent protection
Operating Interface & Functions	Concurrent testing, data querying, parameter editing, and automated printing
Environmental Drift Correction	Automated temperature compensation

Parameter	Specification (KT-CD5)
Power Supply Requirements	220V $\pm$ 10%, 50 Hz
Maximum Power Consumption	$\leq$ 3.5 kW
External Dimensions (W x D x H)	500 mm x 500 mm x 750 mm
Structural Weight	35 kg

Thermostatic Drying Oven 202 Series For Laboratory Baking And Moisture Determination

Item Number: KT-TE15



Introduction

Engineered for precise laboratory drying, baking, and coal moisture testing, this thermostatic drying oven features PID digital control, dual-layer observation windows, and durable chambers operating up to 250°C with exceptional thermal stability and uniform air distribution across all samples.

[Learn More](#)

Application	Description	Key Benefit
Coal Moisture Determination	Desiccating pulverized coal samples under stable heating to quantify inherent and total moisture percentages according to standard ASTM/ISO testing methods.	Consistent ±2.5% temperature uniformity eliminates regional hot zones, preventing volatile loss and sample carbonization during gravimetric assays.
Mining & Mineral Ore Drying	Removing moisture from geological core samples, mineral slimes, and crushed rock specimens prior to chemical digestion, sieving, or XRF/XRD analysis.	Heavy-duty internal shelving holds up to 15 kg per layer, easily bearing high-density mineral specimens without shelf deflection.
Glassware & Tool Decontamination	Sterilizing, evaporating wash liquids, and thoroughly baking laboratory glassware, volumetric pipettes, metal dies, and surgical apparatus.	Top exhaust damper efficiently vents high volumes of vaporized rinse water, accelerating cycle turnaround times.
Industrial Component Baking	Curing, conditioning, and pre-heating mechanical fasteners, electrical assemblies, and polymer coatings within manufacturing QA/QC processes.	Dual-layer tempered glass window allows visual inspection of adhesive setting and thermal deformation without opening the chamber door.
Pharmaceutical & Chemical R&D	Moisture testing of dry chemical powders, excipients, and raw compounds requiring non-destructive heat processing up to 250°C.	Type B stainless steel interior resists chemical degradation from mildly corrosive volatile emissions during long-term desiccation.
Academic & Environmental Testing	Thermal preparation of environmental soil samples, wastewater sludge cakes, and educational laboratory specimens.	Streamlined digital PID control interface allows rapid parameter setup by multiple rotating operators with minimal training requirements.

Technical Parameter	KT-TE15-00	KT-TE15-0	KT-TE15-1	KT-TE15-2	KT-TE15-3
Model Variant Identification	KT-TE15-00A / KT-TE15-00B	KT-TE15-0A / KT-TE15-0B	KT-TE15-1A / KT-TE15-1B	KT-TE15-2A / KT-TE15-2B	KT-TE15-3A / KT-TE15-3B
Operating Voltage	220V, 50Hz	220V, 50Hz	220V, 50Hz	220V, 50Hz	220V, 50Hz
Temperature Control Range	Ambient +20°C to 250°C	Ambient +20°C to 250°C	Ambient +20°C to 250°C	Ambient +20°C to 250°C	Ambient +20°C to 250°C
Temperature Fluctuation	±1°C	±1°C	±1°C	±1°C	±1°C
Temperature Uniformity	±2.5%	±2.5%	±2.5%	±2.5%	±2.5%
Rated Heating Power	0.6 kW	1.2 kW	1.6 kW	2.0 kW	4.0 kW
Internal Chamber Dimensions (W × D × H)	280 × 280 × 280 mm	350 × 350 × 350 mm	450 × 450 × 350 mm	550 × 550 × 450 mm	750 × 600 × 500 mm
Chamber Construction (Type A)	Anti-corrosion cold-rolled steel	Anti-corrosion cold-rolled steel	Anti-corrosion cold-rolled steel	Anti-corrosion cold-rolled steel	Anti-corrosion cold-rolled steel

Technical Parameter	KT-TE15-00	KT-TE15-0	KT-TE15-1	KT-TE15-2	KT-TE15-3
Chamber Construction (Type B)	High-grade stainless steel	High-grade stainless steel	High-grade stainless steel	High-grade stainless steel	High-grade stainless steel
Exterior Cabinet Material	Cold-rolled steel with electrostatic coating	Cold-rolled steel with electrostatic coating	Cold-rolled steel with electrostatic coating	Cold-rolled steel with electrostatic coating	Cold-rolled steel with electrostatic coating
Observation Window	Dual-layer tempered glass pane	Dual-layer tempered glass pane	Dual-layer tempered glass pane	Dual-layer tempered glass pane	Dual-layer tempered glass pane
Door Perimeter Sealing	High-temperature synthetic rubber strip	High-temperature synthetic rubber strip	High-temperature synthetic rubber strip	High-temperature synthetic rubber strip	High-temperature synthetic rubber strip
Control Architecture	PID digital controller with time-proportional regulation	PID digital controller with time-proportional regulation	PID digital controller with time-proportional regulation	PID digital controller with time-proportional regulation	PID digital controller with time-proportional regulation
Temperature Sensor Type	Platinum resistance sensor	Platinum resistance sensor	Platinum resistance sensor	Platinum resistance sensor	Platinum resistance sensor
Moisture Exhaust System	Top-mounted adjustable manual damper	Top-mounted adjustable manual damper	Top-mounted adjustable manual damper	Top-mounted adjustable manual damper	Top-mounted adjustable manual damper
Shelf Load Bearing Capacity	15 kg / shelf	15 kg / shelf	15 kg / shelf	15 kg / shelf	15 kg / shelf

Forced Air Drying Oven 101 Series Electric Laboratory Heating Chamber

Item Number: KT-TE16



Introduction

Engineered for precise laboratory and industrial thermal processing, this forced air drying oven 101 series delivers stable 50 to 300 degree thermal uniformity, rapid moisture removal, durable construction, and dependable forced convection performance across five flexible chamber configurations.

[Learn More](#)

Application	Description	Key Benefit
Analytical Sample Desiccation	Removal of residual moisture from chemical reagents, soil samples, and biological powders prior to gravimetric analysis or spectroscopy.	Rapid, uniform moisture evaporation without thermal degradation, safeguarding sample purity and quantitative measurement accuracy.
Laboratory Glassware Decontamination & Drying	Thorough drying and thermal sanitization of volumetric flasks, beakers, pipettes, and metal tools post-wash.	Eliminates residual water droplet contamination and expedites turnaround times for continuous laboratory testing cycles.
Industrial Core & Mold Baking	Curing and pre-drying of foundry sand cores, ceramic green bodies, and refractory samples prior to high-temperature firing.	Minimizes structural stress cracking and eliminates internal voids by providing balanced, uniform hot-air circulation throughout the matrix.
Histology & Paraffin Wax Melting	Controlled melting and preparation of paraffin waxes, embedding compounds, and biological preservation mediums.	Prevents overheating or thermal degradation of delicate waxes through stable, tight temperature fluctuation control at set points.
Electronic Component Thermal Conditioning	Burn-in testing, potting resin curing, and thermal stress conditioning of printed circuit boards and semiconductor assemblies.	Validates component solder joint reliability and polymer curing kinetics without damaging sensitive electronic substrates.
Polymer & Resin Moisture Extraction	Pre-treatment drying of hygroscopic engineering plastic pellets (such as nylon, polycarbonate, and PEEK) prior to injection molding.	Prevents hydrolytic degradation, bubble formation, and structural weakness during thermoplastic extrusion and molding operations.
Mining & Geological Slurry Dehydration	High-throughput batch drying of crushed mineral ores, pulverized drill cores, and metallurgical slurries for assay determination.	High thermal efficiency and durable chamber volume accommodate heavy material masses without significant thermal recovery delays.

Technical Parameter	KT-TE16-0	KT-TE16-1	KT-TE16-2	KT-TE16-3	KT-TE16-4
Operating Temperature Range	50°C – 300°C	50°C – 300°C	50°C – 300°C	50°C – 300°C	50°C – 300°C
Temperature Fluctuation	±1°C	±1°C	±1°C	±1°C	±1°C
Temperature Uniformity	±2.5%	±2.5%	±2.5%	±2.5%	±2.5%
Heating Power Rating	0.5 kW	2.0 kW	2.4 kW	4.0 kW	6.0 kW
Electrical Voltage / Frequency	220V, 50Hz	220V, 50Hz	220V, 50Hz	380V, 50Hz	380V, 50Hz
Internal Chamber Width	350 mm	450 mm	550 mm	600 mm	800 mm
Internal Chamber Depth	350 mm	350 mm	450 mm	500 mm	800 mm

Technical Parameter	KT-TE16-0	KT-TE16-1	KT-TE16-2	KT-TE16-3	KT-TE16-4
Internal Chamber Height	350 mm	450 mm	550 mm	750 mm	1000 mm
Approximate Chamber Volume	43 Liters	71 Liters	136 Liters	225 Liters	640 Liters
Circulation Mechanism	Forced Convection Motorized Blower	Forced Convection Motorized Blower	Forced Convection Motorized Blower	Forced Convection Motorized Blower	Forced Convection Motorized Blower
Thermal Exchange Principle	Electric Heating with Forced Air Uniform Exchange	Electric Heating with Forced Air Uniform Exchange	Electric Heating with Forced Air Uniform Exchange	Electric Heating with Forced Air Uniform Exchange	Electric Heating with Forced Air Uniform Exchange

Hardgrove Grindability Index Tester Coal Grindability
Determination Apparatus

Item Number: KT-TE17



Introduction

Determine the pulverizing characteristics of bituminous and anthracite coal with this advanced Hardgrove grindability index tester. Featuring an ergonomic bowl jack, exact calibrated loading, and digital microcomputer shutoff, this unit delivers unmatched reproducibility and precision for coal testing laboratories.

[Learn More](#)

Application	Description	Key Benefit
Thermal Power Generation	Evaluating incoming bituminous coal supplies to predict ball mill wear rates, calculate mill energy consumption, and optimize fuel pulverizer output.	Maximizes pulverizer throughput, prevents boiler flame instability, and reduces specific grinding power consumption across utility-scale generating units.
Metallurgical Coke & PCI Operations	Assessing pulverized coal injection (PCI) suitability and raw coking coal blends used in blast furnace ironmaking processes.	Ensures uniform coal fineness for rapid combustion in the raceway zone, reducing blast furnace coke rates and preventing tuyere blockage.
Commercial Inspection & Testing Labs	Conducting independent third-party fuel certification, custody transfer assessments, and trade dispute arbitrations for coal shipments.	Delivers fully auditable, standard-compliant test data with minimal operator dependency and maximum inter-laboratory reproducibility.
Coal Mining & Preparation Plants	Classifying mined coal seams and monitoring beneficiated washed coal products across different processing circuits.	Enables accurate grade classification, informs dynamic coal blending strategies, and commands premium market pricing through certified fuel grading.
Cement & Lime Kiln Firing	Characterizing solid fuels destined for rotary kiln calcination systems to determine pulverizer capacity requirements.	Assures uniform flame shape and stable calcining temperatures while lowering electrical energy expenditure in clinker production.

Academic Combustion Research	Investigating coal petrology, comminution kinetics, grindability variances, and mechanical energy-to-surface-area conversion ratios.	Yields high-precision empirical data under strictly regulated kinetic and pressure parameters for reproducible scholarly studies.
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Parameter	Specification (KT-TE17)
Equipment Model Number	KT-TE17
Spindle Operating Speed	20 rpm
Standard Test Cycle Limit	60 revolutions (automatic microcomputer shutoff)
Calibrated Grinding Load Force	284 N ± 2 N
Total Gear Reduction Ratio	1:72
Speed Reducer Specification	WTC40-40VI Industrial Worm Reducer
Motor Power Rating	90 W
Electrical Power Requirements	3-Phase, 380 V AC, 50 Hz
Grinding Bowl Elevating Mechanism	Built-in push-up mechanical jack structure
Controller Type	Digital LED revolution display with microcomputer counting
Safety & Interruption Controls	Emergency stop with cumulative cycle recovery on restart

Parameter	Specification (KT-TE17)
Applicable Standard	GB2565-2014 (Hardgrove Method)
Applicable Sample Types	Bituminous coal, anthracite, and related solid carbonaceous fuels

Automatic Hardgrove Grindability Index Tester For Coal Grindability Analysis

Item Number: KT-TE18



Introduction

Streamline coal grindability assessment with an automated Hardgrove grindability index tester featuring microcomputer revolution control automatic weight loading precision ground components and standardized load execution for power metallurgical and commercial testing laboratories.

[Learn More](#)

Application	Description	Key Benefit
Coal-Fired Thermal Power Plants	Routine analysis of incoming raw coal and blended fuel stocks to evaluate pulverizer throughput and mill power consumption.	Optimizes burner feed consistency, prevents mill overloading, and reduces auxiliary energy consumption across generating units.
Metallurgical Coke and PCI Operations	Evaluation of coking coals and pulverized coal injection (PCI) grades utilized in blast furnace ironmaking processes.	Ensures optimal injection combustibility and mill wear predictability while maximizing operational safety in high-pressure pneumatic transport.
Cement Clinker and Lime Production	Grindability characterization of solid fuels used in rotary kiln calcination and precalciner burner firing systems.	Enhances kiln firing efficiency by matching coal fineness targets directly with mill grinding kinetics and specific power consumption.
Commercial Fuel Testing Laboratories	High-throughput commercial sample verification and certification according to standardized Hardgrove grindability testing protocols.	Maximizes laboratory sample throughput while eliminating operator bias through automated mechanical execution and digital revolution counts.
Mining and Coal Preparation Plants	Geological survey core analysis, clean coal washability testing, and beneficiation process characterization across mining sites.	Delivers reliable geomechanical baseline data for plant sizing, crushing circuit engineering, and long-term contract fuel specification compliance.
Chemical and Synthetic Fuel Research	Benchmarking coal feedstocks for gasification, liquefaction, and activated carbon precursor grinding trials.	Provides dependable particle degradation metrics required for fluidization modeling, gasifier feed sizing, and pneumatic conveyance planning.

Parameter Specification	Value / Description (Model: KT-TE18)
Model Identifier	KT-TE18
Working Revolutions	60 ± 1/4 r (60 ± 0.25 revolutions)
Spindle Rotational Speed	20 ± 1 r/min
Grinding Load Force	284 ± 2 N
Main Drive Motor Power	200 W
Auxiliary Actuator Motor Power	25 W
Total System Power	225 W
Power Supply Compatibility	220 V AC ± 10%, 50 Hz
Operational Control Mode	Microcomputer-controlled automatic cycle (one-key start)
Loading and Lifting Mechanism	Fully motorized automatic mortar positioning and vertical top-pressure loading
Count Termination	Automatic stop at target revolution count with non-volatile cumulative resumption
Safety and Interlock Features	Dedicated emergency stop switch, drive overload protection, fault diagnostics
Construction and Finish	Heavy-duty industrial structural steel housing with protective chemical-resistant coating

Industrial Proximate Analyzer For Automated Moisture Ash And Volatile Matter Determination

Item Number: KT-TE20



Introduction

Streamline solid fuel characterization with our automated industrial proximate analyzer delivering rapid moisture ash and volatile matter testing for nineteen samples with imported microbalances and precision high temperature furnace control under rigorous coal testing standards.

[Learn More](#)

Application	Description	Key Benefit
Coal-Fired Power Utilities	Routine proximate analysis of pulverized boiler feed coal, blending stocks, and coal seams	Ensures combustion efficiency, monitors slagging risk, and controls fuel blending economics
Metallurgical & Coking Plants	Evaluation of metallurgical coking coals, semi-coke, and pulverized coal injection (PCI) fuels	Delivers rapid quality metrics to maintain blast furnace thermal stability and coking quality
Commercial Fuel Testing Labs	High-throughput third-party verification of custody-transfer coal, coke, and carbonaceous consignments	Fulfills ASTM and GB/T compliance standards with complete, automated, audit-proof analytical reporting
Biomass & Biofuel Processing	Proximate characterization of agricultural residues, wood pellets, and torrefied biomass fuels	Rapidly tracks volatile content and inherent moisture levels for consistent burner and gasifier performance
Cement & Lime Kiln Operation	Calorific quality monitoring and ash content profiling of alternative fuel inputs and petroleum coke	Optimizes rotary kiln thermal management and maintains precise clinker chemistry targets
Carbon & Graphite Materials	Measurement of fixed carbon yield, residual moisture, and ash impurities in calcined coke and synthetic graphite	Guarantees stringent purity specifications and uniform carbon yield for downstream electrode production
Solid Waste & Sludge Incineration	Screening industrial sludges, refuse-derived fuels (RDF), and municipal solid waste prior to thermal disposal	Verifies moisture and combustible content to balance auxiliary fuel consumption and flue gas emissions
Mining & Geological Exploration	Rapid screening of core samples, run-of-mine bulk coals, and beneficiation plant washed fractions	Provides rapid turnaround to steer extraction planning, coal washing efficiency, and sorting logistics

Technical Parameter	KT-TE22-610	KT-TE22-611	KT-TE22-612
Architectural Configuration	Single Integrated High-Temperature System	Single Compact High-Efficiency System	Dual-Chamber Structure (Dedicated Volatile & Combined Moisture/Ash Modules)
Crucible Capacity	20 positions total	20 positions total	20 positions per active module
Simultaneous Sample Throughput	19 test specimens + 1 reference	19 test specimens + 1 reference	19 test specimens + 1 reference
Furnace Operating Temperature	Ambient to 1000°C	Ambient to 1000°C	Ambient to 1000°C
Sample Initial Mass	Moisture/Ash: 0.6 g to 1.1 g (adjustable); Volatiles: 0.9 g to 1.1 g	Moisture/Ash: 0.6 g to 1.1 g (adjustable); Volatiles: 0.9 g to 1.1 g	Moisture/Ash: 0.6 g to 1.1 g (adjustable); Volatiles: 0.9 g to 1.1 g
Analytical Standard Compliance	GB/T 212-2008 (Standard Test Method for Proximate Analysis of Coal)	GB/T 212-2008 (Standard Test Method for Proximate Analysis of Coal)	GB/T 212-2008 (Standard Test Method for Proximate Analysis of Coal)
Rapid Method Cycle Time (19 Samples)	≤ 180 min (Moisture + Ash + Volatiles)	Process dependent	≤ 120 min (Moisture + Ash + Volatiles)

Technical Parameter	KT-TE22-610	KT-TE22-611	KT-TE22-612
Classic Method Cycle Time (19 Samples)	Full standard cycle (Moisture drying verification, slow ash, and volatiles)	Full standard cycle	Moisture + Ash verification: 260 min; Volatiles: 120 min
Rated Operating Power	≤ 5.0 kW	≤ 2.0 kW	≤ 6.5 kW
Balance Mechanism	Integrated high-precision internal electronic balance	Integrated high-precision internal electronic balance	Dual independent internal electronic balances
Mechanical Drive System	Industrial imported precision stepper motor drive	Industrial imported precision stepper motor drive	Dual independent imported precision stepper drives
Required Process Gas: Oxygen	Purity ≥ 99.5%, Regulated Pressure: 0.1 MPa	Purity ≥ 99.5%, Regulated Pressure: 0.1 MPa (Optional external connection)	Purity ≥ 99.5%, Regulated Pressure: 0.1 MPa (Optional external connection)
Required Process Gas: Nitrogen	Purity ≥ 99.5%, Regulated Pressure: 0.1 MPa	Purity ≥ 99.5%, Regulated Pressure: 0.1 MPa (Optional external connection)	Purity ≥ 99.5%, Regulated Pressure: 0.1 MPa (Optional external connection)
Gas Pressure Regulator Range	High pressure: 0 to 25 MPa; Low pressure: 0 to 0.4 MPa	High pressure: 0 to 25 MPa; Low pressure: 0 to 0.4 MPa	High pressure: 0 to 25 MPa; Low pressure: 0 to 0.4 MPa
Testing Flexibility	Combined batch sequence or independent parameter runs	Combined batch sequence or independent parameter runs	Simultaneous parallel testing of volatiles and moisture/ash

Microcomputer Automatic Ash Fusion Tester Coal Ash Melting Point Determination Apparatus

Item Number: KT-TE21



Introduction

Evaluate ash fusibility with this microcomputer automatic ash fusion tester. Built with a 1600°C horizontal furnace, automated ramp control, CCD optical imaging, and software logging for consistent laboratory thermal analysis.

[Learn More](#)

Application	Description	Key Benefit
Thermal Power Generation	Routine monitoring of coal ash melting points to predict slagging, clinker formation, and boiler tube fouling during pulverized coal combustion.	Prevents boiler shutdowns, optimizes soot-blowing cycles, and enhances overall thermal boiler efficiency.
Coal Mining & Quality Inspection	Commercial laboratory grading and certification of raw and washed coal shipments to verify compliance with contractual thermal quality specifications.	Guarantees transparent quality documentation, minimizes delivery disputes, and verifies commercial product grades.
Coal Gasification Operations	Assessment of coal mineral fusibility to evaluate slag tapping behavior and liquid ash viscosity in high-pressure entrained-flow and fixed-bed gasifiers.	Ensures uninterrupted liquid slag discharge, prevents tap-hole blockage, and reduces refractory lining corrosion.
Metallurgical & Coking Industry	Evaluation of ash fusibility in blast furnace injection coals and metallurgical coke blends affecting permeability and molten iron drainage.	Maintains smooth burden descent, stabilizes furnace hearth operation, and improves hot metal productivity.
Biomass & Co-Firing Plants	Determination of complex ash melting patterns and eutectic interactions in agricultural residues, wood pellets, and biomass-coal fuel mixtures.	Identifies low-melting alkaline silicate phases early to prevent catastrophic superheater corrosion and fouling.
Combustion Research & Academics	In-depth scientific investigation of synthetic mineral mixtures, additive-assisted ash modification, and high-temperature phase transition kinetics.	Delivers verifiable digital photographic evidence and precise temperature logs for high-level academic research.

Parameter Category	Specification Details (KT-TE21)
Product Identifier	KT-TE21
Furnace Orientation	Horizontal Tube Furnace Structure
Heating Element	Premium Silicon Carbide (SiC) Tube
Maximum Heating Temperature	1600°C
Temperature Sensor	Platinum Rhodium - Platinum Thermocouple (Type S)
Heating Control Architecture	Microcomputer-driven automatic adjustment and PID regulation
Temperature Ramp Rate Phase 1 (< 880°C)	15°C/min to 20°C/min
Temperature Ramp Rate Phase 2 (880°C to 900°C)	Decelerating transition ramp: 15°C/min down to 1°C/min
Temperature Ramp Rate Phase 3 (900°C to 1600°C)	Strict standard rate: 5 ± 1°C/min
Standard Compliance	Conforms strictly to GB/T 219-2004 thermal profile requirements
Optical Imaging System	Integrated industrial CCD camera assembly
Image Processing & Identification	Automated cone edge tracking and software-based phase evaluation
Operating Environment & Platform	Windows-based analytical software package

Parameter Category	Specification Details (KT-TE21)
Data Archival & Retrieval	Automatic hard drive storage of specimen photos, temperatures, and heating curves
Heating Power Supply	220V $\pm$ 10%, 50 Hz
Operating Heating Current	30 A

Automatic Ash Fusion Tester For Coal And Coke Ash Fusibility Determination

Item Number: KT-TE22



Introduction

Engineered for rigorous coal and coke analysis, this advanced ash fusion tester provides automated heating profiles up to 1600°C, exceptional $\pm 3^{\circ}\text{C}$ measurement precision, customizable isothermal dwell cycles, and integrated fault diagnostics to ensure dependable fusibility characterization across demanding laboratory operations.

[Learn More](#)

Application	Description	Key Benefit
Coal-Fired Power Utilities	Monitoring pulverised fuel ash melting behavior to anticipate clinker formation, slagging on boiler walls, and fouling of convective tube bundles.	Reduces forced boiler outages, optimizes soot-blowing schedules, and improves overall boiler thermal efficiency.
Metallurgical Coke & Ironmaking	Assessing coke mineral matter behavior under blast furnace conditions and analyzing the ash fusibility of metallurgical blends.	Protects blast furnace permeability, improves hot metal quality, and stabilizes tuyere race combustion dynamics.
Coal Gasification & Syngas Production	Evaluating feedstock behavior in slagging entrained-flow gasifiers and moving-bed reactors to determine suitable slag flow tapping temperatures.	Prevents nozzle plugging, maintains uniform liquid slag tap discharge, and extends refractory lining service life.
Commercial Fuel Testing Laboratories	Conducting third-party commercial arbitration, contract compliance screening, and certified analytical reporting of solid mineral fuels.	Delivers defensible, high-precision test results conforming to domestic and international trade criteria with high throughput.
Biomass & Waste Co-Firing Facilities	Evaluating the interaction between coal ash and low-melting alkaline ash components derived from agricultural biomass or municipal refuse.	Uncovers corrosive eutectics and complex agglomeration mechanisms early, mitigating severe superheater corrosion.
Refractory & Ceramic Engineering	Testing the pyro-plastic deformation and thermal softening of high-temperature ceramic cones, glazes, and industrial refractory raw materials.	Guarantees exact thermal boundary identification for high-temperature composite formulations and kiln furniture.

Parameter Category	Specification Attribute	Value / Operational Characteristic
Equipment Model	Item Code	KT-TE22
Methodological Standards	Test Compliance	GB/T219-2008 / GB/T219-2004 (Standard Test Method for Fusibility of Coal and Coke Ash)
Thermal Performance	Temperature Measurement Range	0°C to 1600°C
Thermal Performance	Temperature Measurement Accuracy	$\pm 3^{\circ}\text{C}$
Heating Dynamics	Pre-900°C Heating Ramp Rate	15°C/min to 20°C/min (User Selectable)
Heating Dynamics	Post-900°C Heating Ramp Rate	5°C/min $\pm$ 1°C/min (Automated Linear Control)
Heating Dynamics	Heating Mode Options	Automated standard ramping or customizable programmed thermal profiles
Temporal Precision	Chronometric Clock Timing Error	Less than 1 s/h (< 1 second per hour)
Temporal Precision	Isothermal Program Capability	User-definable timed constant-temperature soak routines
Diagnostic Architecture	System Protection & Self-Test	Automated fault identification with real-time multi-error alarms and operator prompts
Electrical Requirements	Rated Operating Current	30A
Electrical Requirements	Power Supply Specification	220V AC $\pm$ 10%, 50 Hz

Parameter Category	Specification Attribute	Value / Operational Characteristic
Target Samples	Specimen Compatibility	Coal ash, metallurgical coke ash, synthetic solid fuels, and mineral residue cones

Automatic Microcomputer Plastometer Bituminous Coal
Plastometric Indices Determination System

Item Number: KT-TE23



Introduction

Engineered for industrial coal testing, this automatic system accurately determines plastic layer thickness and contraction values. It features dual furnace control, automated temperature curves, quartz drum recording, and complete test reporting for quality verification.

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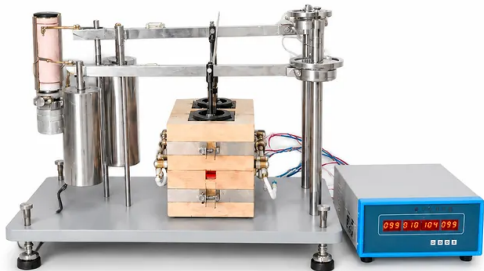
Application	Description	Key Benefit
Metallurgical Coking Coal Classification	Quantitative determination of plastic layer thickness (Y) and contraction (X) to classify coking coal ranks according to national and international standards.	Guarantees accurate feedstock classification, preventing improper grade usage in industrial coke ovens.
Blast Furnace Coke Blending Optimization	Evaluation of thermoplastic behavior across single coals and coal blends to balance plastic zone overlap and optimize blend formulations.	Lowers overall coal procurement costs while preserving the structural integrity and cold/hot strength of produced coke.
Coal Washing and Preparation Quality Control	Routine monitoring of washed and raw bituminous coal fractions to verify the consistency of thermal softening and contraction parameters.	Identifies process variations early, ensuring shipped coal consignments meet commercial contract specifications.
Carbonization and Coking Mechanism Research	Academic and industrial investigation into coal thermal decomposition kinetics, gas evolution dynamics, and semi-coke transition phases.	Delivers high-resolution volumetric shrinkage profiles and temperature curves for advanced fuel science research.
Commercial Coal Inspection and Trade Audits	Independent laboratory certification of coking properties for bulk export, import, and domestic distribution contracts.	Provides indisputable, automated documentation with color-printed graphical records and auditable test logs.
Blast Furnace Operation Risk Mitigation	Screening coking coals for excessive expansion pressure and irregular contraction curves that can damage refractory oven walls.	Extends coke oven refractory service life by preemptively eliminating hazardous high-swelling coal blends.

Parameter Specification	Value / Technical Rating
Product Identification Code	KT-TE23
Temperature Measurement Range	0 °C to 999 °C
Temperature Resolution	1 °C
Temperature Measurement Error	±2 °C
Sensor Configuration	K-type Thermocouple Assembly
Maximum Control Current	12 A
Operating Mode	Continuous Industrial Operation
Controller Accuracy Class	Class 0.5
Recording Drum Mechanism	Quartz Recording Drum Assembly
Drum Linear Velocity	1 mm/min
Drum Linear Displacement Precision	160 ± 2 mm over 160 min
Heating Program Parameters	0 °C to 250 °C within 30 min; 3 °C/min linear ramp above 250 °C
Heating Control Power	4 kW × 2 (Dual Furnace Capability)

Parameter Specification	Value / Technical Rating
Power Supply Requirements	AC 220 V $\pm$ 5%, 50 Hz
Supported Operating Systems	Windows 98 and later releases
Measurable Analytical Indices	Maximum Plastic Layer Thickness (Y), Contraction Value (X), Volumetric Curve Type, Coke Technical Properties
Temperature Logging Interval	Automatic recording of front and rear furnace temperatures every 10 min
Graphical Output	Color printout of test records, volumetric contraction curves, and temperature curves

Bituminous Coal Plastometer Plastometric Indices
Determination Apparatus

Item Number: KT-TE24



Introduction

Engineered for precise bituminous coal evaluation, this automated plastometer accurately measures plastic layer thickness, contraction, and volume curves in full compliance with standard coking test procedures, providing dependable industrial analysis and quality verification for advanced metallurgical laboratories worldwide.

[Learn More](#)

Application	Description	Key Benefit
Coking Coal Quality Assessment	Determination of plastic layer thickness (Y) and contraction (X) to classify coal rank and evaluate caking capacity in coking facilities.	Prevents poor coke quality and minimizes oven wall expansion damage by accurately forecasting coking pressure.
Metallurgical Coal Blending Optimization	Testing experimental coal blends to establish optimal proportions of prime coking coal, fat coal, lean coal, and gas coal.	Lowers raw material procurement costs while preserving optimal mechanical coke strength and reactivity index.
Commercial Coal Inspection and Trade	Third-party verification of plastic properties during bulk cargo receipt and coal terminal transfers under international standards.	Provides indisputable, certified analytical documentation to settle commercial transactions and grade disputes.
Coal Gasification and Carbon Conversion	Characterization of coal softening, swelling, and agglomeration dynamics under controlled heating rates for gasifier feedstock selection.	Prevents operational blockages and optimizes reactor flow regimes by screening unsuitable caking coals.
Geological Exploration and Core Analysis	Evaluating drilling core samples to map coal seam metamorphic grade, carbonization potential, and commercial value across new mining zones.	Delivers dependable geological data that accelerates mine development planning and coal reserve valuation.
Academic and Industrial Energy Research	Fundamental investigation of coal pyrolysis kinetics, thermomechanical softening mechanisms, and coke matrix formation.	Yields high-resolution volume displacement and temperature curve profiles for advanced kinetic modeling.

Specification Parameter	Technical Detail (KT-TE24)
Equipment Model Number	KT-TE24
Testing Standard Compliance	GB/T 479, ISO/ASTM equivalent methods for coal plastometric index
Measured Parameters	Plastic layer thickness (Y), Contraction value (X), Volume curve type
Temperature Measurement Range	0°C to 999°C
Temperature Resolution	1°C
Temperature Measurement Accuracy	±2°C
Sensor Configuration	High-precision K-type Thermocouples
Controller Accuracy Rating	Grade 0.5
Standard Heating Program Stage 1	Ambient to 250°C in 30 minutes
Standard Heating Program Stage 2	250°C to terminal temperature at constant 3°C/min
Operational Configuration	Single-furnace or Dual-furnace simultaneous operation
Operating Mode	Continuous industrial operation

Specification Parameter	Technical Detail (KT-TE24)
Recording Drum System	Quartz-type continuous displacement recording assembly
Recording Linear Speed	1 mm/min
Drum Displacement Accuracy	160 ± 2 mm per 160 minutes
Chronometric Timing Accuracy	±30 seconds per 24 hours
Maximum Heating Control Current	12 A per heating circuit
Heating Control Power	4 kW × 2 channels (8 kW total installed capacity)
Automated Logging Intervals	Front and rear furnace temperatures logged every 10 minutes
Power Supply Requirements	AC 220V ±5%, 50 Hz

Microcomputer Automatic Vertical Calorimeter Solid Combustible Calorific Value Analyzer

Item Number: KT-TE1



Introduction

Engineered for high-precision analytical laboratories, this microcomputer automatic vertical calorimeter delivers accurate solid combustible gross calorific value determination, featuring automated oxygen bomb sequencing, 0.0001K temperature resolution, integrated cooling correction, and complete compliance with GB/T213 standards for industrial testing facilities.

[Learn More](#)

Application	Description	Key Benefit
Power Plant Fuel Analysis	Determining gross and net calorific values of pulverized boiler feed coal, raw coal stockpiles, and co-fired fuel blends.	Guarantees heat-rate efficiency monitoring, optimizes combustion air ratios, and supports fuel inventory cost accounting.
Coal Mining and Beneficiation	Quality grading of raw coal, middlings, washed clean coal, and high-ash refuse gangue at preparation plants.	Facilitates accurate contractual grading, enhances sorting efficiency, and verifies compliance with commercial delivery standards.
Metallurgical Coke Evaluation	Thermal energy assessment of foundry coke, metallurgical blast-furnace coke, and carbonaceous reducing agents.	Provides precise energy-input data critical for thermal mass balances in ironmaking and smelting operations.
Petrochemical Byproduct Testing	Characterization of solid petroleum cokes, distillation residues, and pitch byproducts utilized for industrial energy recovery.	Delivers reproducible heat value metrics for high-sulfur and high-density carbon fractions under regulated conditions.
Commercial Quality Inspection	Independent third-party validation, arbitrated trade dispute testing, and compliance certification for export or domestic transit.	Delivers legally defensible data adhering strictly to GB/T 213-2008 standards with 0.1% repeatability against benzoic acid.
Environmental Waste-to-Energy	Calorific profiling of refuse-derived fuels, processed solid waste pellets, and agricultural biomass waste.	Identifies combustible energy yields and slagging propensity to evaluate economic feasibility in thermal power boilers.

Parameter Category	Specification Attribute	Value / Characteristic (KT-TE1)
Model Designation	Equipment Item Number	KT-TE1
Thermodynamic Performance	Effective Heat Capacity	Approximately 10,500 J/K
	Temperature Resolution	0.0001 K
	Test Repeatability (Calorific Value)	≤ 0.1% (Certified Benzoic Acid)
	Testing Standard Conformity	Fully compliant with GB/T 213-2008
	Analytical Cycle Duration	Approximately 15 minutes per test run
Measurement & Environmental	Temperature Measuring Range	0°C to 65°C
	Operating Ambient Temperature	5°C to 40°C
	Dosing / Quantification Error	≤ ±0.1 g
Volumetric Capacities	Outer Water Jacket Volume	50 L
	Inner Water Cylinder Volume	Approximately 2.3 L

Parameter Category	Specification Attribute	Value / Characteristic (KT-TE1)
Ignition Parameters	Ignition Circuit Voltage	24 V
	Ignition Timing Parameter	6 minutes programmed ignition cycle
Control & Interface	Operating System Platform	Windows OS with interactive guided user interface
	Heat Capacity Calibration	Automated microcomputer-controlled calibration
	Data Handling Capabilities	Database storage, tabulation, result editing, auto-printing
	Cooling Compensation	Integrated thermodynamic cooling correction system
Electrical Specifications	Operating Voltage	AC 220 V $\pm$ 10%, 50 Hz
	Total Power Consumption	< 300 W

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.

[Learn More](#)

Application	Description	Key Benefit
Coal Quality Assessment	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.
Thermal Power Generation	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.
Metallurgical Coke Production	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.
Petrochemical Fuel Testing	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.
Cement Raw Meal Analysis	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.
Commercial Inspection Laboratories	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.
Mining Waste & Gangue Recovery	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)
System Heat Capacity	Approximately 10500 J/K
Temperature Resolution	0.0001 K
Testing Precision	0.1% (Standard Benzoic Acid)
Typical Test Duration	Approximately 15 minutes per sample run
Outer Water Bucket Capacity	40 L
Inner Water Bucket Capacity	Approximately 2.3 L
Quantitative Dosing Tolerance	≤ ±0.1 g
Ignition Operating Voltage	24 V
Ignition Timing Sequence	5-minute timed ignition cycle
Temperature Measurement Span	0°C to 65°C

Parameter Classification	Specification Detail (KT-TE2)
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

Automatic Refrigeration Calorimeter For Solid Fuel Gross Calorific Value Analysis

Item Number: KT-TE3



Introduction

Engineered for rigorous fuel characterization, this automatic refrigeration calorimeter delivers precise gross calorific value determination for coal, coke, and solid combustibles. Dual refrigeration and automated water dosing guarantee exceptional repeatability and peak testing accuracy.

[Learn More](#)

Application	Description	Key Benefit
Power Generation Fuel Auditing	High-frequency caloric valuation of incoming pulverized coal, lignite, and fuel blends prior to furnace injection.	Optimizes burner stoichiometric efficiency and protects boilers against slagging by verifying exact energy density per delivery.
Commercial Coal Mining & Washing	Quantitative determination of gross energy yield and heating consistency in raw run-of-mine coal, washed products, and washery tailings.	Establishes precise pricing benchmarks for trade contracts and validates washing plant separation performance.
Metallurgical Coke Evaluation	Thermal energy profiling of metallurgical coke, semi-coke, and carbonaceous additives employed in blast furnace smelting operations.	Guarantees consistent reducing gas generation and thermal stability in ironmaking and pyrometallurgical reduction processes.
Gangue & Solid Byproduct Utilization	Calorific evaluation of coal gangue, mining spoil, and industrial residues utilized in fluidized bed boilers and eco-brick manufacturing.	Ensures reliable combustible threshold identification, supporting resource recovery and environmental compliance monitoring.
Petrochemical Sludge & Waste Fuel Testing	Energy recovery profiling of viscous petrochemical residues, heavy fuel oils, and co-processing feedstocks.	Facilitates accurate thermal balance calculations for hazardous waste incinerators and industrial cogeneration boilers.
Independent Third-Party Inspection	High-precision contractual settlement testing and referee verification conducted by accredited commercial inspection laboratories.	Provides audit-proof repeatability compliant with national testing standards, eliminating disputes in commercial disputes.

Specification Parameter	KT-TE3 Specification Value
Model Identifier	KT-TE3
Heat Capacity Range	Approximately 10,500 J/K
Temperature Resolution	0.0001 K
Measurement Precision	Conforms to GB/T 213-2008 Standard
Calorific Value Precision	0.1% (Standard Benzoic Acid Baseline)
Quantitative Dosing Error	≤ ±0.1 g
Test Duration (Standard Cycle)	Approximately 15 min
Test Duration (Rapid Mode)	≤ 8 min
Outer Water Jacket Capacity	30 L
Inner Water Bucket Capacity	Approximately 2.3 L
Temperature Sensing Range	0°C to 65°C
Operating Ambient Temperature	5°C to 40°C
Ignition Voltage	24 V

Specification Parameter	KT-TE3 Specification Value
Ignition Timing Cycle	6 min Ignition synchronization
Inner Cylinder Architecture	Vacuum-insulated stainless steel construction
Agitation Drive System	Imported low-noise precision stirring motor
Operating Interface	Large-format graphical LCD with intuitive prompts
Peripheral Connectivity	Standard USB interface; external PC control compatible (Windows)
Power Supply Requirements	AC 220V ± 10%, 50 Hz
Total System Power Consumption	< 300 W

Microcomputer Automatic Refrigeration Calorimeter Solid Fuel Bomb Calorimetry System

Item Number: KT-TE5

Introduction

Discover high precision microcomputer automatic refrigeration calorimeter systems designed for rapid solid fuel testing featuring automated water dosing intelligent temperature stabilization and certified compliance for coal metallurgy and power sector labs.

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Application	Description	Key Benefit
Thermal Power Plant Fuel Quality	Continuous calorific value determination of pulverized thermal coal, raw coal feeds, and blended boiler fuels prior to combustion.	Guarantees precise heat-rate calculations, prevents boiler slagging, and optimizes commercial combustion efficiency.
Commercial Coal Preparation & Mining	Standardized evaluation of washed coal, run-of-mine coal, flotation tailings, and coal gangue at mining wash plants.	Provides legally defensible gross calorific valuation for fair commercial trade pricing and grading.
Metallurgical Coke & Carbon Analysis	High-precision thermal assessment of metallurgical coke, needle coke, petroleum coke, and carbonaceous anode reductants.	Ensures tight thermal accounting in blast furnace ironmaking and aluminum smelting reduction processes.
Solid Waste & Biomass Fuel Characterization	Higher heating value (HHV) quantification of densified biomass pellets, agricultural residues, and refuse-derived fuels (RDF).	Delivers verified energy density data required for environmental regulatory reporting and waste-to-energy plant design.
Petrochemical Heavy Fractions Testing	Combustion calorimetry of heavy residual fuel oils, petroleum pitches, bitumen fractions, and industrial carbon sludges.	Delivers robust energy output profiles for downstream refining thermal accounting and quality assurance.
Third-Party Testing & Inspection Services	Accredited contract laboratory testing of diverse solid fuels adhering strictly to certified national combustion methodologies.	Maximizes sample throughput per shift while maintaining zero-defect parallel sample repeatability.

Specification Parameter	Technical Detail (KT-TE5 Base Series)
Product Identification Code	KT-TE5
Standard Compliance	Fully compliant with GB/T 213-2008 standard test methods
Heat Capacity Range	Approximately 10,500 J/K
Temperature Resolution	0.0001 K
Calorific Value Precision	≤ 0.1% RSD (verified using certified Benzoic Acid reference standards)
Quantitative Dosing Mass Error	≤ ±0.1 g
Analytical Cycle Duration	Rapid Method: ≤ 8 minutes; Standard Precision Method: ≤ 15 minutes
Temperature Detection Range	0°C to 65°C
Operating Ambient Temperature Range	5°C to 40°C
Outer Water Jacket Capacity	30 Liters
Inner Vessel Measuring Capacity	Approximately 2.3 Liters
Ignition Voltage	DC 24 V
Ignition Timing Mechanism	Automated sequencing (approx. 6-minute thermal baseline ignition window)

Specification Parameter	Technical Detail (KT-TE5 Base Series)
Jacket Thermal Control Method	Active closed-loop electronic refrigeration and compressor cooling
Stirring Mechanism	Imported industrial magnetic/mechanical agitation motor
Operating Voltage / Frequency	AC 220 V $\pm$ 10%, 50 Hz
Maximum Power Consumption	< 300 W
Automation Capabilities	Automatic water injection, volumetric measuring, differential jacket balancing, data calculation, and draining
Expansion Capability	Multi-controller software architecture allowing multi-unit parallel operation

Microcomputer Automatic Calorimeter For Solid Fuel Combustion Heat Analysis

Item Number: KT-TE6

Introduction

Optimize solid fuel calorific value testing with this microcomputer automatic calorimeter. Delivering automated water handling, a 0.0001 K temperature resolution, and rapid 15-minute cycles, it ensures reliable, standard-compliant combustion analysis across power generation, metallurgy, coal, and petrochemical quality control.

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Application	Description	Key Benefit
Thermal Power Generation	Routine heating value determination of pulverized thermal coal, raw coal deliveries, and combustion ash residues.	Accurately calculates boiler thermal efficiency, verifies contract energy compliance, and optimizes fuel blending to reduce operational costs.
Coal Mining & Processing	High-throughput quality control of washed coal, run-of-mine coal, middlings, and coal gangue at preparation plants.	Enables real-time classification of fuel grades, guarantees export compliance, and prevents financial penalties from calorific variance.
Metallurgical Coke Evaluation	Accurate combustion profiling of metallurgical coke, semi-coke, and carbonaceous reducing agents in blast furnace feedstocks.	Ensures strict thermal balance in smelting operations by verifying the precise carbon energy output of incoming coking charges.
Petrochemical Refining	Heating value characterization of petroleum coke, refinery heavy residues, solid pitch, and carbonaceous byproduct streams.	Provides essential thermodynamic parameters for secondary co-generation boilers and hazardous byproduct disposal compliance.
Third-Party Inspection & Metrology	Independent verification and dispute arbitration of commercial solid fuel shipments according to GB/T 213-2008 protocols.	Produces audit-traceable, tamper-resistant digital records and standardized printouts for legal metrology and contract clearance.
Environmental & Biomass Recovery	Evaluation of solid recovered fuels (SRF), refuse-derived fuels (RDF), and agricultural pelletized biomass wastes.	Assesses renewable energy potential and validates combustion characteristics for municipal waste-to-energy facilities.

Parameter	Specification (KT-TE6)
Product Identification	KT-TE6 Microcomputer Automatic Calorimeter
Standard Compliance	GB/T 213-2008 Standard Test Method for Calorific Value of Coal
System Heat Capacity	Approximately 10,500 J/K
Temperature Resolution	0.0001 K
Calorific Value Precision	0.1% (Benzoic Acid Reference)
Typical Test Duration	Approximately 15 minutes
Quantitative Dosing Error	$\leq \pm 0.1$ g
Outer Water Jacket Capacity	30 L
Inner Water Bucket Capacity	Approximately 2.3 L
Temperature Measurement Range	0°C to 65°C
Operating Ambient Temperature Range	5°C to 40°C
Ignition Voltage	24 V

Parameter	Specification (KT-TE6)
Ignition Timing Sequence	6 minutes
Operating System	Windows PC-Controlled Architecture
Power Supply Requirements	AC 220V $\pm 10\%$, 50 Hz
Power Consumption	< 300 W

Microcomputer Dual Control Fully Automatic Refrigeration Oxygen Bomb Calorimeter

Item Number: KT-TE8



Introduction

Engineered for high-throughput fuel analysis, this microcomputer dual-control fully automatic refrigeration calorimeter delivers 0.0001 K resolution, automated volumetric water dosing, active compressor chilling, and dual independent testing lines complying with standard GB/T 213 solid combustible calorific determination laboratory protocols.

[Learn More](#)

Application	Description	Key Benefit
Thermal Power Utilities	Daily determination of calorific value in incoming pulverized and lump coal feeds to optimize boiler combustion air ratios and heat-rate calculations.	Prevents boiler fouling, maximizes thermal efficiency, and verifies that delivered fuel matches commercial contractual heat specifications.
Coal Mining & Processing	High-volume grading of raw coal, washed middlings, filter cake, and carbonaceous gangue directly at extraction and beneficiation facilities.	Accelerates sorting operations and ensures immediate dispatch compliance with precise calorific classification.
Metallurgical Coke Production	Evaluation of coking coal blends and metallurgical coke calorific yield to monitor thermal energy inputs in blast furnace and foundry operations.	Guarantees consistent high-temperature reduction performance while lowering fuel consumption in smelting processes.
Petrochemical Refining	Precise caloric profiling of residual petroleum coke, heavy refinery pitch, and synthetic carbon fuel by-products generated in refining streams.	Transforms chemical waste streams into monetizable energy assets through verified calorific documentation.
Third-Party Inspection & Calibration	Independent verification and commercial arbitration testing of commercial solid fuel shipments according to GB/T 213-2008 standards.	Delivers audit-proof analytical precision with benzoic acid calibration repeatability exceeding 0.2%.
Waste-to-Energy & Biomass Operations	Thermal density determination of processed refuse-derived fuels (RDF), solid recovered fuels (SRF), and compressed biomass pellets.	Provides dependable baseline energy metrics required for flue-gas monitoring, feed dosing rates, and regulatory reporting.

Specification Parameter	Value / Operational Characteristic
Product Item Number	KT-TE8
System Architecture	Microcomputer-managed dual-vessel independent control
Standard Compliance	Exceeds GB/T 213-2008 (<i>Method for Determination of Calorific Value of Coal</i>)
Heat Capacity (Energy Equivalent)	Approximately 10,500 J/K
Temperature Resolution	0.0001 K
Test Duration	Approximately 15 minutes per single analytical cycle
Calorific Testing Precision	Superior to 0.2% (validated via certified benzoic acid)
Temperature Measurement Range	0°C to 65°C
Operating Ambient Temperature Range	5°C to 40°C
Outer Water Jacket Volume	40 L
Inner Vessel Measuring Volume	Approximately 2.3 L
Volumetric Water Dosing Accuracy	≤ ±0.1 g

Specification Parameter	Value / Operational Characteristic
Ignition Voltage	24 V
Ignition Timing Cycle	6 minutes timed cycle
Ignition Mechanism	Fuse-type cotton thread ignition
Stirring Mechanism	Internal sheet-blade impeller; External submersible agitator
Cooling Technology	Active vapor-compression mechanical refrigeration
Insulation Technology	Thermal barrier polyurethane structural foaming
Data Interface	Serial communication protocol (RS-232)
Power Supply Requirements	AC 220 V $\pm$ 10%, 50 Hz
Total System Power Consumption	< 300 W

Rapid Intelligent Sulfur Analyzer Automatic Coulometric Sulfur Determinator For Coal And Coke Analysis

Item Number: KT-TE9



Introduction

Optimize laboratory throughput with this rapid intelligent sulfur analyzer featuring automatic coulometric titration high precision silicon carbide heating modular self diagnostics and compliant coal testing to GB T 214 standards across demanding analytical operations worldwide.

[Learn More](#)

Application	Description	Key Benefit
Coal Mining & Washing Quality Control	Quantifying total sulfur content across run-of-mine raw coal, washed fractions, tailings, and processing rejects.	Ensures immediate compliance with contract calorific and sulfur specifications while guiding coal blending ratios to optimize commercial yield.
Thermal Power Plant Combustion Monitoring	Screening pulverised coal feeds to predict sulfur dioxide emissions and optimize flue-gas desulfurization (FGD) systems.	Mitigates environmental penalty risks, minimizes excessive reagent dosing in wet scrubbers, and protects boiler tubes from acidic corrosion.
Metallurgical Coke & By-Product Verification	Routine quality assurance of metallurgical coke, foundry coke, and semi-coke used in blast furnaces and cupolas.	Prevents hot metal sulfur contamination, reduces iron desulfurization costs, and ensures structural integrity in downstream steelmaking.
Coal Gangue & Solid Waste Utilization	Measuring residual sulfur content in coal gangue, fly ash, and carbonaceous shale repurposed for building materials or backfilling.	Complies with environmental disposal criteria and prevents acid mine drainage (AMD) or harmful sulfate leaching in geotechnical works.
Cement Clinker & Kiln Fuel Evaluation	Testing low-grade alternate fuels, petcoke, and secondary solid fuels introduced into rotary cement kilns.	Balances sulfur-to-alkali ratios inside precalciners, preventing ring formation, preheater blockages, and inconsistent clinker setting times.
Independent Inspection & Commercial Certification	Third-party commercial arbitration, export cargo certification, and laboratory benchmarking compliant with GB/T 214-2007.	Delivers indisputable, highly repeatable analytical data supported by automatic baseline correction and hardcopy documentation.

Parameter	Specification (KT-TE9)
Product Item Number	KT-TE9
Applicable Standard	GB/T 214-2007 (Determination of Total Sulfur in Coal)
Sulfur Measurement Range	0% – 99.99%
Measurement Resolution	0.00001 (0.001% / 10 ⁻⁵)
Combustion & Analysis Duration	3 – 9 minutes per sample (automatic endpoint return)
Operating Furnace Temperature	1150°C ± 5°C (user-adjustable based on protocol)
Temperature Measurement Accuracy	Grade 0.5
Temperature Control Precision	± 5°C at 1150°C
Heating Element Type	Silicon Carbide (SiC) Tube
Furnace Heating Rate	25°C – 30°C/min (ambient to 1200°C in ~35 min)
Electrolytic Cell Capacity	450 mL
Sensing Electrodes	Metallic Platinum (Pt)

Parameter	Specification (KT-TE9)
Electrolyte System Features	Anti-backflow design, quick-change sintered glass filter plate
Baseline Stabilization Time	≤ 1 minute from cold power-on
Carrier Gas Flow Rate	1000 mL/min
Analytical Data Processing	Automatic baseline drift correction, dynamic curve correction, SCM automated processing
Data Output	Integrated micro-printer and digital display
Operating Power Supply	220V ± 20%, 50 Hz
Total Power Consumption	≤ 2.2 kW

Dual Tube Sulfur Determinator High Temperature Combustion Sulfur Analyzer

Item Number: KT-TE11



Introduction

Optimize laboratory throughput with this dual tube sulfur determinator engineered for precision high temperature combustion analysis of coal metallurgy and mineral samples adhering strictly to standardized analytical protocols with dual sample testing capability and reliable thermal performance across demanding industrial testing environments.

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Application	Description	Key Benefit
Coal & Coke Quality Assurance	Quantification of total sulfur content in thermal coal, metallurgical coking coal, and petroleum coke per standard combustion protocols.	Prevents boiler corrosion, ensures regulatory environmental compliance, and optimizes combustion efficiency.
Blast Furnace & Steelmaking Metallurgy	Measurement of sulfur impurities in raw iron, scrap steel, ferroalloys, and metallurgical fluxes.	Controls sulfur-induced embrittlement in structural alloys and verifies melt chemistry prior to casting.
Geological & Mining Ore Assay	Rapid evaluation of sulfide minerals, pyrites, and sulfate fractions within mineral exploration cores and mine tailings.	Accelerates mineral grading, informs flotation recovery workflows, and aids environmental acid-rock drainage forecasting.
Cement & Building Materials Testing	Analysis of total sulfur in clinker, raw gypsum, limestone, and alternative fuels utilized in cement kilns.	Prevents ring formation in rotary kilns and ensures finalized structural binders satisfy international mechanical standards.
Environmental & Ash Residue Verification	Precise tracing of residual sulfur content in bottom ash, fly ash, and industrial flue scrub sludges.	Verifies desulfurization performance and validates waste byproduct safety for downstream reclamation.
Petrochemical Catalyst & Slag Analysis	Detection of bound sulfur species in spent catalysts, refinery solid residues, and synthetic carbonaceous additives.	Informs catalyst regeneration cycles and safeguards downstream chemical processing systems against poisoning.

Specification Parameter	Technical Detail / Value
Product Item Number	KT-TE11
Analytical Standard Compliance	GB/T 214-2007 (High-Temperature Combustion Neutralization Method)
Furnace Operating Temperature	Continuous working: 1200°C; Short-term maximum: up to 1500°C
Constant Temperature Zone Length	80 mm
Thermal Gradient within Constant Zone	$\Delta T < 10^{\circ}\text{C}$
Ramp-Up Heating Velocity	20°C to 25°C / min (Reaches 1200°C within 60 minutes)
Heating Element Type & Geometry	Double-threaded silicon carbide tube ($\Phi 70/60 \times 250/100/30$ mm)
Reaction Combustion Tube Material & Dimensions	High-purity corundum stepped/reducing tube ($\Phi 22/18 \times 760$ mm / $\Phi 10/\Phi 6$ mm)
Operating Sample Capacity	Dual-tube configuration (2 simultaneous single-sample tests)
Temperature Controller Architecture	Silicon-Controlled Rectifier (SCR) proportional controller
Controller Measurement & Regulation Range	0°C to 1600°C
Gas Circuit Assembly	Integrated gas purification, oxygen flow metering, and absorption system

Specification Parameter	Technical Detail / Value
Quantitative Detection Mechanism	Combustion oxidation to SO ₂ , H ₂ O ₂ oxidation to H ₂ SO ₄ , standard NaOH titration
Power Rating	Approximately 4.0 kW
Electrical Power Requirements	AC 220V ± 10%, 50 Hz

Intelligent Integrated Sulfur Analyzer Automatic Coulometric Determinator For Coal And Combustible Materials

Item Number: KT-TE13

Introduction

Discover our intelligent integrated sulfur analyzer featuring automated coulometric titration high precision silicon carbide heating and rapid endpoint determination delivering compliant total sulfur testing for coal coke and petrochemical laboratories worldwide.

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Application	Description	Key Benefit
Coal-Fired Power Generation	Routine verification of incoming steam coal, pulverized fuel blends, and boiler combustion feedstocks to verify sulfur specifications.	Prevents boiler tube corrosion, optimizes flue gas desulfurization (FGD) reagent consumption, and ensures strict sulfur dioxide emission compliance.
Commercial Coal Washing & Mining	Rapid screening of raw run-of-mine coal, washed clean coal fractions, tailings, and coal gangue across mine-site laboratory trailers.	Accelerates commercial grade classification and payment settlement disputes with real-time, highly repeatable dry-basis sulfur figures.
Metallurgical Coke & Steelmaking	Quality assurance of blast furnace metallurgical coke, needle coke, petroleum coke additives, and pulverized coal injection (PCI) grades.	Protects blast furnace refractory lining integrity and prevents harmful sulfur migration into molten pig iron and premium alloy steels.
Chemical & Petrochemical Refining	Quantification of total sulfur in petcoke byproducts, heavy hydrocarbon residues, catalysts, and synthetic carbon materials.	Delivers reliable elemental tracking to prevent downstream catalyst poisoning and ensure commercial byproduct marketability.
Environmental & Commercial Testing Labs	High-throughput commercial inspection of mixed solid combustibles, refuse-derived fuels (RDF), and standard analytical calibration check samples.	Drastically decreases cost-per-test through automated 3-to-9-minute turnaround and automated dry-basis reporting conforming to GB/T 214-2007.
Industrial Cement Clinker Manufacture	Analysis of high-sulfur alternative fuels, scrap tires, and raw meal limestone kiln feeds utilized in high-temperature rotary kilns.	Avoids excessive sulfur-to-alkali imbalances, preventing unwanted kiln ring formation and maintaining stable clinker burnability.

Technical Parameter	Specification / Metric Value (KT-TE13)
Product Item Number	KT-TE13
Measurement Principle	High-Temperature Combustion Coulometric Titration
Applicable Standard	GB/T 214-2007 (Determination of Total Sulfur in Coal)
Sulfur Measuring Range	0.00001% to 99.99% (0 - 99.99%)
Measurement Resolution	0.00001 (1/100,000 / 0.001%)
Sample Combustion Analysis Time	3 to 9 minutes per determination (intelligent automated endpoint return)
Furnace Operating Temperature	1150°C ± 5°C (user-adjustable to target thermal profiles)
Temperature Measurement Accuracy	Grade 0.5 (±0.5% full scale)
Heating Element Type	Premium Silicon Carbide (SiC) Tube
High-Temperature Constant Zone Length	≥ 90 mm
Heating Ramp Rate	25°C to 30°C/min (attains 1200°C in approximately 35 minutes)
Thermal Warm-up to Stable Operational State	≤ 1 minute from power initialization (once at operating temperature)

Technical Parameter	Specification / Metric Value (KT-TE13)
Electrolytic Cell Volume	450 mL
Electrode Construction	High-Purity Platinum (Pt) Metal Electrodes
Carrier Gas Flow Rate	1000 mL/min
Interface & Display	Integrated LCD Display with Dedicated Parameter Keyboard
Data Storage Capacity	Power-off memory retaining the latest 30 historical records
Calculation Functions	Automated dry-basis total sulfur conversion based on manual moisture input
Reporting	Built-in thermal micro-printer for automated parameter and result output
Electrical Power Supply	220V $\pm$ 20%, 50 Hz
Total System Power Consumption	$\leq$ 2.2 kW

Integrated Microcomputer Sulfur Analyzer Automated Coulometric Total Sulfur Determinator

Item Number: KT-DL

Introduction

Engineered for rapid total sulfur determination, this integrated microcomputer sulfur analyzer unites automated coulometric titration, dual stage combustion, and precise PID thermal control. The system delivers fast, repeatable analysis for coal testing, metallurgical quality control, and geological research laboratories.

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Application	Description	Key Benefit
Coal Mining and Coal Washing	Quantitative screening of total sulfur in raw run-of-mine coal, washed clean coal, and middlings to verify commercial grade and washability efficiency.	Delivers ASTM/GB-compliant data within 8 minutes, allowing on-the-fly sorting and immediate quality certification prior to transport.
Thermal Power Utilities	Monitoring total sulfur concentrations in pulverized coal feeds, boiler fuels, and residual fly ash for emissions monitoring and flue gas desulfurization (FGD) control.	Prevents boiler tube corrosion and ensures strict compliance with environmental sulfur dioxide emissions regulations through rapid fuel batch verification.
Metallurgical Coke and Steelmaking	Determining sulfur trace levels and concentrations across coking coal blends, metallurgical coke, iron ore pellets, sintered ores, and finished steel products.	Prevents hot-shortness and structural embrittlement in steel alloys by ensuring rigorous quality control over carbonaceous and mineral inputs.
Geological Exploration and Core Analysis	High-throughput elemental sulfur evaluation of drill cores, sedimentary strata, sulfide ores, and geochemical prospecting samples.	High baseline sensitivity down to low fractional percentages enables precise geological boundary mapping and mineral reserve grading.
Cement and Lime Manufacturing	Measuring combustible sulfur in alternative fuels, raw meal mixes, limestone, and kiln dust to balance clinker sulfur-to-alkali ratios.	Prevents unwanted preheater ring formations, stabilizes kiln operation, and ensures consistent physical performance of final cement products.
Commercial Testing and Inspection Bureaus	Third-party quality verification and analytical certification of bulk mineral commodities, coal stockpiles, and solid fuels.	Automated coulometric endpoint detection eliminates operator subjectivity and manual titration bias, providing legally defensible test reports.

Specification Category	Parameter	Standard Value / Operational Range
Model Designation	Equipment Code	KT-DL
Analytical Range	Sulfur Determination Range	0.00% to 30.00% Total Sulfur
Analysis Duration	Total Per-Sample Cycle Time	Approximately 8 min (Preheating dwell: 45 s at 700°C; Combustion dwell: 4 to 7 min at 1050°C)
Analytical Method	Titration Principle	Automated Coulometric Titration (Compliant with GB/T 214-2007 and GB/T 214-1996)
Combustion System	Heating Element	Silicon Carbide (SiC) Heating Rod (Nominal Resistance: 10 Ω)
Combustion System	High-Temperature Zone Length	≥ 90 mm
Combustion System	Operating Furnace Temperature	1050°C ± 5°C (Fully adjustable up to 1100°C)
Combustion System	Temperature Control Precision	Grade 1.0 (0°C to 1100°C span)
Temperature Measurement	Thermocouple Sensor	External S-Type (WRP) Platinum-Rhodium 10 - Platinum (Pt-Rh10/Pt)
Thermal Dynamics	Heating Ramp Rate	25°C to 30°C / min (Reaches 1050°C operating state in ≤ 30 min)
System Readiness	Thermal & Chemical Stabilization	5 to 8 min from initial startup

Specification Category	Parameter	Standard Value / Operational Range
Electrolytic Vessel	Cell Working Volume	400 mL Borosilicate Chamber
Electrolytic Electrodes	Electrolytic Platinum Electrode	1.0 cm × 1.5 cm Platinum Foil Surface
Electrolytic Electrodes	Indicating Platinum Electrode	0.5 cm × 1.0 cm Platinum Foil Surface
Automation & Drive	Sample Boat Positioning	Motorized Carriage with Electronic Switch Limit Detection
Control & Readout	Human-Machine Interface	Built-in Industrial Microcomputer, Color Display, PC Membrane Keypad
Data Output	Printout Capability	Integrated Micro-Printer for Automatic Test Result Reports
Electrical Standards	Electrical Equipment Compliance	Designed in strict adherence to GB 4793.1-1995 Laboratory Safety Requirements
Electrical Requirements	Power Supply Voltage	220 V AC ± 20%, 50 Hz
Electrical Requirements	Maximum Power Consumption	≤ 2000 W (Peak heating phase)

Coke Reactivity And Post Reaction Strength Tester Type I Tumbler Drum

Item Number: KT-TE40



Introduction

Engineered for GB/T 4000 compliance, this high precision Type I coke reactivity and post reaction strength tumbler drum features wear resistant Q345 alloy steel construction, direct drive transmission, automated 600 revolution cycle control, and modular architecture for metallurgical laboratory analysis.

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Application	Description	Key Benefit
Blast Furnace Coke Quality Control	Routine tumbling of reacted coke charges post-CO2 exposure to establish the CSR index for commercial ironmaking.	Prevents blast furnace permeability loss and raceway blockages by rejecting substandard coke batches.
Coal Blending and Coking Optimization	Comparative evaluation of coke batches produced from experimental coking blends and varying carbonization parameters.	Lowers raw material procurement costs by identifying optimal, cost-effective coal blending ratios.
Commercial Commodity Inspection	Independent verification of metallurgical coke compliance against contractual and national purchasing criteria.	Provides legally defensible, standard-compliant test data for international bulk trade arbitration.
Bio-Coke and Composite Fuel Evaluation	Mechanical testing of experimental bio-carbon composites and alternative carbonaceous reducing agents after thermal reaction.	Quantifies the mechanical viability of low-emission green coke alternatives before pilot plant deployment.
Refractory and Furnace Shaft Modeling	Simulation of coke particle size degradation and fine generation under mechanical attrition inside the blast furnace stack.	Supplies precise empirical input data for computational fluid dynamics and shaft pressure-drop models.
Academic Metallurgical Research	Fundamental investigation into high-temperature gasification kinetics and subsequent mechanical fracture mechanisms.	Delivers highly repeatable experimental baseline conditions for coal chemistry and pyrometallurgy studies.

Specification Parameter	Technical Data and Configuration
Equipment Model Number	KT-TE40
Governing Test Standard	GB/T 4000-2008 (Coke Reactivity and Post-Reaction Strength Test Method)
Drum Outer Diameter	Φ140 mm
Drum Cylinder Wall Thickness	5 mm (Integral structural wall)
Internal Usable Length	700 mm
Cylinder Construction Material	Q345 (16Mn high-strength, wear-resistant alloy steel)
Exterior Surface Finish	Full mirror hard chrome electroplating
Drivetrain Configuration	Direct-drive geared motor coupling
Drum Operating Rotational Speed	20 ± 0.5 r/min
Cycle Revolution Setting	600 revolutions (Automatic cutoff)
Standard Cycle Duration	30 ± 1 min
Drum Closure Mechanism	Ergonomic quick-thread screw-tightened lid assembly
Drum Positioning Freedom	360° fully adjustable in horizontal orientation

Specification Parameter	Technical Data and Configuration
Construction Architecture	Modular three-part system (Drum body, digital controller, support base)
Installation Modes	Integrated tabletop mounting or decoupled remote installation
Operating Power Supply Options	AC 380V $\pm$ 10%, 50Hz (3-Phase 4-Wire or 5-Wire) / AC 110V $\pm$ 10%, 60Hz (3-Phase 4-Wire or 5-Wire)
Maximum Rated Power Output	0.22 kW
Controller Standby Power	< 2 W (Maximum)
Terminal Electrical Connection	Universal interface compatible with round multicore cables or solid wiring
Physical Dimensions (W $\times$ D $\times$ H)	500 mm $\times$ 220 mm $\times$ 1380 mm
Total Equipment Weight	Approximately 42 kg

Fully Automatic Caking Index Tester Bituminous Coal Coking Property Analyzer

Item Number: KT-TE42



Introduction

This automatic caking index tester performs standardized coal sample stirring static briquette pressing and mechanical drum abrasion testing to accurately evaluate bituminous coking properties and determine precise G index values for quality control in metallurgical research and industrial laboratory operations

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Application	Description	Key Benefit
Coking Plant Coal Blending Optimization	Evaluates the caking power and plastic layer behavior of varying bituminous coal supplies to formulate optimal coal blending ratios for slot-type recovery coke ovens.	Lowers raw material procurement costs by maximizing the proportion of non-coking or weakly caking coals while maintaining target coke strength.
Blast Furnace Metallurgical Quality Control	Conducts incoming inspection of merchant metallurgical coals and pulverization feedstocks to predict drum strength indices (DI) and post-reaction strength (CSR).	Prevents substandard carbon charge from entering coking batteries, minimizing oven degradation and stabilizing blast furnace gas permeability.
Coal Preparation and Washing Facilities	Assesses the agglutinating characteristics of washed clean coal, middlings, and flotation concentrates across different production seams and wash cycles.	Verifies product rank consistency before shipping, ensuring coal shipments comply with commercial contracts and metallurgical buyer specifications.
Mining Exploration and Geological Coal Ranking	Classifies newly drilled coal core samples according to standard caking property indices, facilitating precise geological seam profiling and commercial resource valuation.	Yields reproducible caking metrics from small exploration core samples without requiring pilot-scale carbonization infrastructure.
Fuel and Combustion Research Institutes	Investigates coal carbonization kinetics, thermal softening ranges, and plastic mass agglomeration phenomena in academic and applied fuel science laboratories.	Provides standardized, repeatable baseline metrics conforming to national standards for research on synthetic fuels and modified cokes.
Third-Party Inspection and Testing Laboratories	Delivers rapid, certified coal testing services for international commodity trading, customs clearance inspections, and quality dispute resolutions.	High-throughput dual-crucible architecture speeds up analytical turnarounds while fulfilling strict regulatory verification criteria.

Parameter	Technical Specification (KT-TE42)
Product Item Number	KT-TE42
Applicable Testing Standards	GB/T 5447-1997 (Determination of Caking Index of Bituminous Coal), Roga Index Guidelines
Operational Modes	Fully Automated Stirring, Static Pressing, Drum Tumbling, and Abrasion Testing
Testing Capacity	2 Samples Simultaneously
Drum Rotational Speed	50 ± 2 r/min
Drum Total Revolutions	250 r (Automated Revolution Cut-Off)
Crucible Inclination Angle	45° (Tilted Stage) / 0° (Vertical Stage)
Crucible Rotational Speed	15 r/min
Stirring Wire Rotational Speed	150 r/min (Counter-Directional Rotation)

Parameter	Technical Specification (KT-TE42)
Tilted Mixing Stage Duration	1 min 45 s (105 seconds)
Vertical Mixing Stage Duration	15 s
Static Compaction Applied Load	6 kg Standardized Static Deadweight / Calibrated Force
Static Compaction Dwell Time	30 seconds
Post-Abrasion Measurement Size Threshold	> 1 mm Coke Lump Separation for G-Value Derivation
User Interface & Display	Industrial Touchscreen with Real-Time Dynamic Simulation, Speed, and Cycle Indicators
External Dimensions (W × D × H)	400 mm × 455 mm × 340 mm
Power Supply Requirements	AC 220V ± 10%, 50 Hz
Rated Power Consumption	54 W
Chassis Construction	Heavy-Gauge Coated Steel with Integrated Electromechanical Safety Housing



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