

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.

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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	$\pm 1^{\circ}\text{C}$

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	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