Rapid Automatic Hydrogen Analyzer Carbon And Hydrogen Determination System

Item Number: KT-TE58

Introduction

Maximize laboratory throughput with this rapid automatic hydrogen analyzer engineered for coal and solid fuels featuring high precision coulometric titration automated microcomputer data correction compliance with established testing standards and reliable carbon determination delivering certified analytical repeatability within thirteen operational minutes

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Application	Description	Key Benefit
Coal Mining & Fuel Washing	Quantitative hydrogen and carbon analysis of raw coal, washed coal, middlings, and slime to determine elemental composition and fuel grades.	Rapid 10–13 minute determination accelerates product grading, washing optimization, and commercial batch dispatching.
Thermal Power Utilities	Routine elemental fuel screening to calculate net calorific values, combustion excess air ratios, and boiler heat loss indices.	High reproducibility (<0.15% H variance) ensures precise thermal efficiency calculations and compliance reporting.
Metallurgical & Coking Operations	Monitoring hydrogen content in metallurgical coke, pulverized injection coal (PCI), and petroleum coke blends used in blast furnace operations.	Low-drift linearity (±0.1%) guarantees tight quality control, preventing hydrogen embrittlement and blast furnace thermal instability.
Geological & Mineral Exploration	Characterization of organic matter in sedimentary rocks, shale, synthetic graphite, and drill-core specimens.	Broad measuring range (0–20% H; 1–99% C) accommodates diverse matrix densities and trace-to-major elemental concentrations.
Chemical & Synthetic Fuels Synthesis	Process evaluation for coal-to-liquids (CTL), coal gasification, biomass co-firing feedstocks, and solid hydrocarbon derivatives.	Dual determination capability allows simultaneous evaluation of carbon utilization rates and hydrogen-to-carbon (H/C) ratios.
Commercial Third-Party Testing Laboratories	High-throughput standardized testing for commercial fuel inspection, export certification, and contractual arbitration.	Full compliance with standard laboratory procedures and automatic reporting reduces auditing overhead and human error.

Specification Parameter	Value / Operational Characteristic
Product Item Number	KT-TE58
Hydrogen (H) Measurement Range	0.00% to 20.00%
Carbon (C) Measurement Range	1.00% to 99.00% (Gravimetric absorption method)
Permissible Analysis Error (Repeatability)	Hydrogen: < 0.15% (Same laboratory limit) Carbon: < 0.50%
Analytical Test Duration	Approximately 10 to 13 minutes per sample
Programmed Staging Sequence	Dwell at 300°C for 30 seconds; dwell at 500°C for 2 minutes; secondary dwell at 300°C for 30 seconds
Furnace Operating Temperatures	Primary Stage: 800°C ± 10°C Secondary Stage: 300°C ± 10°C
Furnace Heating Rate	20°C/min (Ambient to 800°C within 40 minutes)
Coulometric Integrator Stability	Linearity deviation within ±0.1%
Electrolysis Voltage	Coating Voltage: 10 V Working Electrolysis Voltage: 24 V

Specification Parameter	Value / Operational Characteristic
Electrolysis Current Characteristics	Initial/Active Electrolysis Current: > 500 mA Titration End-Point Current: < 60 mA
Compliant Industry Standard	GB476-91 (Determination of Carbon and Hydrogen in Coal)
Sample Requirements	Air-dried analytical coal sample, particle size < 0.2 mm
Recommended Sample Mass	65 mg to 75 mg
Data Input & Readout	Tactile membrane keypad, multi-parameter digital display (mg H, wt% H), integrated thermal/matrix printer
Power Supply Requirements	220V ± 10% AC, 50 Hz
Ambient Operating Temperature	5°C to 40°C
Operating Relative Humidity	< 70% RH (Non-condensing)
Environmental Placement Criteria	Stable benchtop free from pronounced mechanical vibration and strong electromagnetic field interference
Physical Dimensions (W × D × H)	1400 mm × 430 mm × 435 mm
Structural Configuration	Integrated single-chassis housing with enhanced multi-layer thermal insulation