Coke Reactivity Index And Coke Strength After Reaction Cri Csr Tester

Item Number: KT-JT

Introduction

Engineered for precise CRI and CSR determination under GB/T4000-2008 standards, this robust high-temperature testing apparatus features dual PID thermal regulation, automated gas switching, and a heavy-duty tumbling drum to deliver accurate, reproducible industrial metallurgical coke quality assessments.

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Application	Description	Key Benefit
Blast Furnace Coke Quality Assurance	Routine screening of metallurgical coke batches prior to blast furnace charging in steelmaking complexes.	Prevents blast furnace operational disruptions by ensuring coke maintains adequate mechanical strength under thermo-chemical stress.
Coal Blending & Coking Optimization	Evaluation of trial coke specimens derived from experimental coal blending ratios in commercial coking facilities.	Lowers raw material procurement costs by enabling substitution of premium coals while keeping CRI/CSR within process specifications.
Metallurgical Research & Development	High-temperature gasification research examining coke microstructural degradation, alkali catalyst effects, and pore structure evolution.	Provides high-resolution temperature curves and accurate mass-loss kinetics required for advanced academic and industrial research.
Third-Party Inspection & Compliance	Commercial testing and quality validation of export or merchant coke consignments against regional and international trade metrics.	Delivers indisputable, repeatable test reports compliant with GB/T 4000-2008 for contract verification and dispute resolution.
Foundry & Non-Ferrous Smelting Control	Determining fuel degradation and structural integrity for specialized cupola furnaces and non-ferrous reduction operations.	Optimizes foundry cupola melt rates and reduces fuel bed collapse through verified high-strength carbonaceous reductants.
Refractory & Material Gasification Studies	Assessing carbon-bearing refractory bricks and synthetic carbon blocks under elevated CO2 environments and high heat.	Quantifies carbon loss and mechanical erosion kinetics under severe thermo-chemical degradation conditions.

Subsystem	Parameter	Specification (KT-JT)
System Identification	Model Identifier	KT-JT
Standard Compliance	Applicable Standard	GB/T 4000-2008
Thermal Performance	Temperature Range	Ambient to 1100°C (Standard Test Profile)
	Maximum Furnace Temperature	1250°C
	Isothermal Stage	1100°C held continuously for 2 hours
	Temperature Control Accuracy	±2°C at 1100°C isothermal plateau
	Power Consumption (Peak)	17 kW maximum
	Holding Power Consumption	4 to 7 kW at steady 1100°C state
Furnace Heating Element	Heating Element Type	Silicon Carbide (SiC) Heating Rods
	Element Geometry	Diameter: Ø18 mm; Active Heating Length: 400 mm
Furnace Core & Chamber	High-Alumina Outer Sleeve	ID: 140 mm; OD: 160 mm; Length: 640 mm
	Reaction Chamber Cylinder	ID: 80 mm; Total Height: 500 mm

Subsystem	Parameter	Specification (KT-JT)
	Temperature Sensing Probe	Outer Sheath: Ø8 mm; Core Wire: Ø0.5 mm × 650 mm
Atmosphere & Flow Control	Carbon Dioxide (CO_2) Flow	5.0 L/min
	Nitrogen (N_2) Flow	0.8 to 2.0 L/min
	Gas Switching Response Rate	0.1 s independent rapid switching
	Gas Piping Pressure Rating	1.5 MPa maximum working pressure
	Gas Pre-Conditioning	Dedicated electrically heated CO_2 pressure regulator
Gas Conditioning Station	Buffer Vessel Capacity	6000 mL with dedicated retention clamp
	Gas Washing Bottle	500 mL capacity
	Drying Tower	500 mL capacity
Post-Reaction Drum (Type I)	Drum Construction	Monolithic Stainless Steel Pipe (Ø140 × 700 mm)
	Drum Rotation Velocity	20 ± 1 r/min
	Drive System	Integrated electric motor, reducer gearbox, and rigid chassis
	Rotation Counter & Control	Automated revolution count prediction, real-time digital readout, and non-volatile memory
Control & Computing	Control Architecture	Dual microcomputer and manual hardware override with air-cooled instrumentation bay
	Temperature Algorithms	Segmented PID parameters targeting thermal lag; dynamic online auto-tuning
	Hardware Fail-Safe	Auto-completion of test profile even upon supervisory computer disconnection
	Data Management	Real-time dual-color graphing, BMP curve capture, historical overlays, and full database export
	Network Interface	TCP/IP compatible via 2×0.52 mm shielded twisted-pair cable