

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.

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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