

Bituminous Coal Caking Index Tester And Automatic Static Press System

Item Number: KT-TE61



Introduction

Engineered for standardized coal testing laboratories, this integrated caking index tester and automatic static press reliably evaluates metallurgical coal coking potential, delivering smooth vibration damped rotational performance, digital cycle tracking, automated buzzer completion alerts, and exceptional benchtop operational efficiency.

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Application	Description	Key Benefit
Metallurgical Coking Coal Evaluation	Testing laboratories in integrated steel mills and merchant coke manufacturing plants use this system to determine the caking index (G-value) of incoming bituminous coals. By mixing pulverized coal samples with standard anthracite and subjecting them to automated compression and standardized tumbling, the equipment measures the coal's ability to form a coherent, fused semi-coke mass.	Provides direct insight into coal plastic layer formation, enabling coking facilities to prevent furnace wall expansion damage and ensure superior cold mechanical strength in metallurgical coke.
Commercial Coal Blending and Grade Optimization	Commercial coal preparation facilities and thermal-metallurgical blending terminals employ the unit to evaluate multi-source coal blends. Operators test varied proportions of high-volatile, medium-volatile, and low-volatile coking coals to identify optimal plastic property synergies between diverse feedstocks.	Maximizes the utilization of cost-effective, weakly caking coals while maintaining target G-index specifications, significantly lowering overall raw material costs without compromising coke quality.
Inbound Feedstock QA/QC at Byproduct Coke Plants	Receiving docks and laboratory inspection bays utilize the apparatus to screen inbound coal trainloads, barge shipments, and truck convoys against purchasing contract specifications. Technicians run rapid Roga and G-index assays to detect oxidized, weathered, or out-of-spec coal shipments before offloading to storage silos.	Protects bulk coal stockyards from contaminated or deteriorated feedstocks that could undermine carbonization battery stability and degrade coal byproduct yields.
Third-Party Coal Inspection and Trade Valuation	Independent testing agencies and commercial assayers use the instrument for official compliance verification during international coal trade transactions. The standardized mechanical abrasion and static pressure cycle deliver reproducible G-index data referenced in export contracts and customs documentation.	Eliminates contractual disputes between coal exporters and metallurgical buyers through strictly repeatable, standard-compliant physical characterization.
Froth Flotation and Clean Coal Washability Profiling	Coal preparation plants assess the caking performance of various clean coal clean-cut fractions and flotation concentrates. By monitoring how froth flotation reagents and ash-reduction processes impact the caking index, engineers optimize preparation circuits to concentrate vitrinite-rich fractions.	Validates that deep ash reduction processing retains essential coal macerals and thermoplastic properties, maximizing clean coal market value.
Coal Geology and Seam Exploration	Mining companies, geological survey bureaus, and exploratory drill core laboratories analyze borehole coal core samples to map the lateral and vertical distribution of coking characteristics across virgin coal seams.	Establishes accurate coking reserve classifications and mining sequences based on empirical agglutinating metrics, guiding mine development capital investments.
Academic and Industrial Carbonization Research	University metallurgical engineering departments and energy research institutes investigate coal pyrolysis dynamics, preheating treatments, and the influence of coal tar pitch additives on poorly caking coals using standardized tumbling assays.	Delivers baseline empirical data on thermoplastic behavior, facilitating the development of advanced metallurgical additives and next-generation coke-making technologies.

Technical Parameter	Specification Value
Product Item Number	KT-TE61

Equipment Configuration Integrated Two-in-One Caking Index Drum Tester & Automatic Static Press

Technical Parameter	Specification Value
Primary Industry Standard	GB/T 5447-1997 (Determination of Caking Index of Bituminous Coal)
Target Test Indices	Caking Index (G-index / G-value), Roga Index (RI)
Drum Rotational Speed	50 ± 2 r/min
Preset Revolution Count	250 revolutions
Revolution Display Method	Digital LED tube display
Cycle Termination Signal	Audible buzzer alert
Mechanical Drive Characteristics	Low vibration, low acoustic noise, smooth balanced rotation
Host Overall Dimensions (W × D × H)	430 mm × 270 mm × 280 mm
Host Net Weight	Approximately 26 kg
Operating Power Supply	220 V ± 10%, 50 Hz
Power Consumption	Approximately 42 W
Target Sample Matrix	Bituminous coal, coking blend coal, anthracite-diluted briquettes

Operational Stage	Standardized Requirement	Functional Objective
Briquette Compaction	Automated vertical static pressing	Produces uniform briquette consolidation with standardized anthracite diluent to avoid density variations.
Pyrolysis Stage	Downstream rapid carbonization at 850°C	Thermally transforms coal vitrinite into a bonded semi-coke mass for subsequent mechanical evaluation.
Tumbling Wear Cycle 1	250 revolutions at 50 ± 2 r/min	Exerts standardized impact and abrasion stress on the post-carbonization semi-coke residue.
Tumbling Wear Cycle 2	250 revolutions at 50 ± 2 r/min	Performs secondary abrasion stress following 1 mm screen separation to establish the final G-index.

Facility Requirement	Operational Parameter	Specification Detail
Electrical Supply	Voltage & Frequency	Single-phase 220 V ± 10%, 50 Hz AC line
Electrical Rating	Total Power Draw	Approximately 42 W nominal continuous draw
Ambient Environment	Working Temperature	10°C to 35°C ambient laboratory conditions
Relative Humidity	Environmental Moisture	< 85% RH non-condensing atmosphere
Benchtop Mounting	Load Capacity & Flatness	Rigid, vibration-free laboratory bench rated for ≥ 40 kg