

# Fully Automatic Caking Index Tester Bituminous Coal Coking Property Analyzer

Item Number: KT-TE42



## Introduction

This automatic caking index tester performs standardized coal sample stirring static briquette pressing and mechanical drum abrasion testing to accurately evaluate bituminous coking properties and determine precise G index values for quality control in metallurgical research and industrial laboratory operations

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| Application                                     | Description                                                                                                                                                                 | Key Benefit                                                                                                                                         |
|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Coking Plant Coal Blending Optimization         | Evaluates the caking power and plastic layer behavior of varying bituminous coal supplies to formulate optimal coal blending ratios for slot-type recovery coke ovens.      | Lowers raw material procurement costs by maximizing the proportion of non-coking or weakly caking coals while maintaining target coke strength.     |
| Blast Furnace Metallurgical Quality Control     | Conducts incoming inspection of merchant metallurgical coals and pulverization feedstocks to predict drum strength indices (DI) and post-reaction strength (CSR).           | Prevents substandard carbon charge from entering coking batteries, minimizing oven degradation and stabilizing blast furnace gas permeability.      |
| Coal Preparation and Washing Facilities         | Assesses the agglutinating characteristics of washed clean coal, middlings, and flotation concentrates across different production seams and wash cycles.                   | Verifies product rank consistency before shipping, ensuring coal shipments comply with commercial contracts and metallurgical buyer specifications. |
| Mining Exploration and Geological Coal Ranking  | Classifies newly drilled coal core samples according to standard caking property indices, facilitating precise geological seam profiling and commercial resource valuation. | Yields reproducible caking metrics from small exploration core samples without requiring pilot-scale carbonization infrastructure.                  |
| Fuel and Combustion Research Institutes         | Investigates coal carbonization kinetics, thermal softening ranges, and plastic mass agglomeration phenomena in academic and applied fuel science laboratories.             | Provides standardized, repeatable baseline metrics conforming to national standards for research on synthetic fuels and modified cokes.             |
| Third-Party Inspection and Testing Laboratories | Delivers rapid, certified coal testing services for international commodity trading, customs clearance inspections, and quality dispute resolutions.                        | High-throughput dual-crucible architecture speeds up analytical turnarounds while fulfilling strict regulatory verification criteria.               |

| Parameter                      | Technical Specification (KT-TE42)                                                        |
|--------------------------------|------------------------------------------------------------------------------------------|
| Product Item Number            | KT-TE42                                                                                  |
| Applicable Testing Standards   | GB/T 5447-1997 (Determination of Caking Index of Bituminous Coal), Roga Index Guidelines |
| Operational Modes              | Fully Automated Stirring, Static Pressing, Drum Tumbling, and Abrasion Testing           |
| Testing Capacity               | 2 Samples Simultaneously                                                                 |
| Drum Rotational Speed          | 50 ± 2 r/min                                                                             |
| Drum Total Revolutions         | 250 r (Automated Revolution Cut-Off)                                                     |
| Crucible Inclination Angle     | 45° (Tilted Stage) / 0° (Vertical Stage)                                                 |
| Crucible Rotational Speed      | 15 r/min                                                                                 |
| Stirring Wire Rotational Speed | 150 r/min (Counter-Directional Rotation)                                                 |

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|------------------------------------------|---------------------------------------------------------------------------------------|
| Tilted Mixing Stage Duration             | 1 min 45 s (105 seconds)                                                              |
| Vertical Mixing Stage Duration           | 15 s                                                                                  |
| Static Compaction Applied Load           | 6 kg Standardized Static Deadweight / Calibrated Force                                |
| Static Compaction Dwell Time             | 30 seconds                                                                            |
| Post-Abrasion Measurement Size Threshold | > 1 mm Coke Lump Separation for G-Value Derivation                                    |
| User Interface & Display                 | Industrial Touchscreen with Real-Time Dynamic Simulation, Speed, and Cycle Indicators |
| External Dimensions (W × D × H)          | 400 mm × 455 mm × 340 mm                                                              |
| Power Supply Requirements                | AC 220V ± 10%, 50 Hz                                                                  |
| Rated Power Consumption                  | 54 W                                                                                  |
| Chassis Construction                     | Heavy-Gauge Coated Steel with Integrated Electromechanical Safety Housing             |