

Automated Coke Ball Preparation System For Metallurgical Testing And Thermal Reactivity Analysis

Item Number: KT-ZQT



Introduction

Streamline metallurgical sample prep with this automated coke ball preparation system featuring integrated cutting, grinding, and dust extraction to deliver uniform 23 to 25 mm spherical specimens for highly repeatable thermal reactivity and strength testing.

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Application	Description	Key Benefit
Coke Reactivity Index (CRI) Testing	Preparing standardized spherical coke specimens to evaluate high-temperature gasification reactivity against carbon dioxide atmospheres.	Eliminates geometric variance to isolate true chemical reactivity kinetics without edge-effect anomalies.
Coke Strength After Reaction (CSR) Evaluation	Fabricating uniform spherical charges for post-reaction mechanical tumbling and abrasion resistance assessments.	Guarantees identical starting geometries, ensuring dependable correlation with blast furnace degradation profiles.
Blast Furnace Feed Quality Benchmarking	Routine screening and verification of delivered metallurgical coke consignments across ironmaking facilities.	Accelerates sample turnaround times while ensuring representative multi-point quality sampling across bulk shipments.
Metallurgical Coal Blending Optimization	Evaluating the hot strength and structural integrity of carbonized cokes produced from experimental coal blend formulations in pilot ovens.	Conserves scarce pilot-oven test coke through high-yield specimen processing from smaller sample batches.
Academic and Pyrometallurgical Research	Generating identical spherical carbon bodies for kinetic rate modeling, optical microscopy, and gas-solid reaction studies.	Delivers isotropic, geometrically uniform test bodies that conform precisely to mathematical diffusion boundary models.
Third-Party Quality Inspection Labs	High-throughput commercial sample preparation for certified compliance reporting and cross-vendor validation.	Eliminates human sample-shaping bias, ensuring defensible and audit-proof inter-laboratory reproducibility.

System Component	Parameter	KT-ZQT Specification
Complete System	System Configuration	Integrated Crushing-Shaping-Screening Unit, Ball Grinder, Dust Collector
Complete System	Target Sample Geometry	True Spherical Specimen (No Sharp Edges)
Complete System	Final Specimen Output Size	23 mm – 25 mm
Complete System	Operating Voltage / Frequency	AC 380V $\pm$ 10%, 50 Hz, 3-Phase
Crushing & Shaping Unit	Feed Particle Size Limit	< 100 mm
Crushing & Shaping Unit	Discharge Sizing Fraction	$\geq$ 23 mm (Polyhedral Precursors)
Crushing & Shaping Unit	Drive Motor Power Rating	5.5 kW
Crushing & Shaping Unit	Operating Principle	Mechanical Cutting, Impact Shaping, Integrated Sizing Screen
Ball Grinding Unit	Maximum Batch Loading Mass	< 5,000 g
Ball Grinding Unit	Feed Intermediate Particle Size	$\geq$ 23 mm
Ball Grinding Unit	Grinding Output Morphology	Spherical (23 mm – 25 mm)
Ball Grinding Unit	Drive Motor Power Rating	3.3 kW

System Component	Parameter	KT-ZQT Specification
Ball Grinding Unit	Finishing Chamber Principle	Multi-Axis Tumbling and Peripheral Edge Grinding
Environmental System	Dust Extraction Compatibility	Integrated Industrial Dust Collection Flanges & Ducts