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KINTEK SOLUTION

COMPANY PROFILE

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KinTek Group Limited is one technology orientated organization, team members are devoted to probing the most efficient and reliable technology and innovations in the scientific researching equipment, fields like biochemical reacting, new materials researching, heat treatment, vacuum creating, refrigerating, as well as pharmaceutical and petroleum extracting equipment.



Stainless Steel Cross Sample Divider Coning And Quartering Tool For Laboratory Sampling

Item Number: KT-FB



Introduction

Engineered to GB/T 474 standards, this stainless steel cross sample divider ensures contamination-free coning and quartering for coal, ores, and soil. Accelerate laboratory reduction with precision orthogonal quadrant splitting, ergonomic handling, and rugged industrial-grade durability for exact analytical testing.

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Application	Description	Key Benefit
Coal Preparation and Petrochemical Assays	Partitioning raw coal, pulverized coal, washed coal, and industrial coke samples prior to proximate analysis, sulfur content testing, and bomb calorimetry.	Meets mandatory GB/T 474 preparation protocols while eliminating moisture loss and particulate segregation during splitting.
Mining and Geological Exploration	Manual splitting of crushed metallic and non-metallic ores, drill core cuttings, and exploration geological bulk samples.	Heavy-gauge stainless steel resists abrasive rock wear and eliminates trace metal contamination before spectroscopic analysis.
Soil Science and Environmental Remediation	Sub-sampling of agricultural soils, contaminated site bore samples, marine sediment cores, and industrial sludge.	Chemical passivity prevents leaching or chemical reactions, preserving true organic and inorganic baseline compositions.
Metallurgy and Foundry Quality Control	Division of sinter cakes, pelletized iron ores, furnace slag, fluxing agents, and ferroalloy granular materials.	Robust mechanical rigidity penetrates dense, heavy mineral aggregates cleanly without blade distortion or twisting.
Construction Aggregates and Cement Processing	Quartering crushed limestone, clinker, concrete aggregates, gypsum, and raw meal powders in building material testing labs.	Slices cleanly through mixed coarse and fine aggregates without inducing density-driven particle migration.
Solid Waste and Biomass Fuel Characterization	Homogenizing and reducing municipal solid waste fuel fractions, wood pellets, agricultural biomass, and shredded refuse.	Spacious quadrant layout isolates fibrous and irregular particle matrices without clogging or snagging along blade junctions.

Specification Parameter	KT-FB-400	KT-FB-500	KT-FB-600	KT-FB-800
Product Item Number	KT-FB-400	KT-FB-500	KT-FB-600	KT-FB-800
Nominal Diameter (mm)	400	500	600	800
Recommended Sample Mass Range (kg)	2 to 10	8 to 25	20 to 50	45 to 120
Design Standard	GB/T 474	GB/T 474	GB/T 474	GB/T 474
Structural Material	High-Grade Stainless Steel	High-Grade Stainless Steel	High-Grade Stainless Steel	High-Grade Stainless Steel
Cross Blade Angle	90° Perpendicular	90° Perpendicular	90° Perpendicular	90° Perpendicular
Handle Architecture	Reinforced Center T-Bar	Reinforced Center T-Bar	Reinforced Center T-Bar	Reinforced Center T-Bar
Operating Mode	Manual Downward Press	Manual Downward Press	Manual Downward Press	Manual Downward Press
Primary Function	Coning & Quartering / 9-Point	Coning & Quartering / 9-Point	Coning & Quartering / 9-Point	Coning & Quartering / 9-Point
Surface Finish	Polished / Anti-Adhesion	Polished / Anti-Adhesion	Polished / Anti-Adhesion	Polished / Anti-Adhesion

Specification Parameter	KT-FB-400	KT-FB-500	KT-FB-600	KT-FB-800
Applicable Material Types	Solid particulates, coal, ores, soil, clinker, biomass granules			

Process Step	Operational Requirement	Methodological Objective
Step 1: Coning & Mixing	Shovel material into a symmetrical conical pile, repeating three times to achieve homogeneous distribution.	Ensure localized mineral fractions and particle size distributions are thoroughly mixed radially.
Step 2: Bed Flattening	Gently flatten the top of the conical heap radially outward to form a uniform circular cake of consistent thickness.	Establish an even bed height to maintain equal volume across all four geometric quadrants.
Step 3: Vertical Penetration	Align the center of the cross divider over the geometric apex of the cake and press the blades vertically down to the base.	Isolate four distinct 90-degree sectors without causing lateral particle scatter or shearing.
Step 4: Quadrant Reduction	Discard two diagonally opposing quadrant sectors; retain and combine the remaining two sectors for subsequent processing.	Reduces total sample mass by 50% while strictly preserving original grain size distribution and chemical profile.
Step 5: Auxiliary 9-Point Sampling	Use the orthogonal blade edges as coordinate references to locate and extract 9 equal sample increments across the bed.	Satisfies specialized secondary sampling requirements with standardized geometric point extraction.

Sealed Sample Preparation Pulverizer Zirconia Grinding Bowl Laboratory Grinding Mill

Item Number: KT-LB



Introduction

This sealed sample preparation pulverizer with a pure zirconia grinding bowl rapidly crushes tough geological ores coal and minerals to fine mesh powder preventing heavy metal contamination during demanding laboratory testing across industrial analysis facilities and quality control

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Application	Description	Key Benefit
Mining and Mineral Exploration	Rapid pulverization of drill cores, quartz veins, hard rock ores, and tailings prior to fire assay or XRF elemental analysis.	Prevents metallic tool contamination while delivering uniform 200-mesh fineness for reliable grade determination.
Coal and Coking Quality Testing	Comminution of raw coal, washed coal, anthracite, gangue, and metallurgical coke according to standard assay protocols.	Fully complies with GB474-1996 sample preparation requirements with zero moisture or volatile loss due to sealed milling.
Metallurgical Slag and Alloy Refining	Fine crushing of furnace slag, sinter, limestone flux, and non-ferrous smelting intermediates for process control assays.	Withstands abrasive mineral hardness up to 800 kg/cm² compressive strength with negligible bowl wear.
Geochemical Trace Element Surveying	Ultra-fine grinding of soil, sediment, and geological specimens requiring ultra-trace ICP-MS and AAS elemental quantification.	High-purity zirconia grinding medium prevents ppm-level background spikes of Fe, Ni, Cr, and Co.
Advanced Technical Ceramics	Preparation of precursor oxide powders, electronic substrate materials, and structural ceramic batches.	Eliminates cross-phase impurities and produces tightly distributed micro-particle profiles without silica contamination.
Chemical and Pharmaceutical R&D	Homogenization and particle reduction of dry chemical intermediates, active catalysts, and crystalline compounds.	Chemically inert contact surfaces prevent vessel-reagent reactions, ensuring pristine analytical repeatability.

Model Identifier	Sample Stations (Pots)	Maximum Feed Particle Size (mm)	Load Capacity per Station (g)	Pulverizing Duration (min)	Discharge Fineness (Mesh)	Motor Power (kW)
KT-LB-100-1	1	< 13	100 × 1	< 2	120-200	1.1
KT-LB-100-2	2	< 13	100 × 2	< 2	120-200	1.1
KT-LB-100-3	3	< 13	100 × 3	< 2	120-200	1.5
KT-LB-100-4	4	< 13	100 × 4	< 3	120-200	1.5
KT-LB-100-5	5	< 13	100 × 5	< 3	120-200	1.5
KT-LB-100-7	7	< 13	100 × 7	< 3	120-200	1.5
KT-LB-200-1	1	< 20	200 × 1	< 3	120-200	1.5
KT-LB-200-2	2	< 20	200 × 2	< 3	120-200	1.5
KT-LB-200-3	3	< 20	200 × 3	< 3	120-200	1.5
KT-LB-200-4	4	< 20	200 × 4	< 3	120-200	1.5
KT-LB-400-1	1	< 26	400 × 1	< 3	120-200	1.5
KT-LB-400-2	2	< 26	400 × 2	< 3	120-200	1.5

Model Identifier	Sample Stations (Pots)	Maximum Feed Particle Size (mm)	Load Capacity per Station (g)	Pulverizing Duration (min)	Discharge Fineness (Mesh)	Motor Power (kW)
KT-LB-400-3	3	< 26	400 × 3	< 3	120-200	1.5
KT-LB-400-4	4	< 26	400 × 4	< 3	120-200	1.5
KT-LB-500-1	1	< 26	500 × 1	< 3	120-200	1.5
KT-LB-1000-1	1	< 26	1000 × 1	< 3	120-200	1.5
KT-LB-100/200-I	Dual Mixed Station	< 13 / < 12	100 / 200	< 2	120-200	1.5
KT-LB-300/400-II	Dual Mixed Station	< 23 / < 26	300 / 400	< 2	120-200	1.5

Engineering Parameter	Technical Specification
Grinding Media and Vessel Material	High-Purity Yttria-Stabilized Zirconia (ZrO2) with matching puck and ring
Media Abrasion Level	Ultra-low ppm-level loss, zero heavy metal / glass matrix contamination
Permissible Material Compressive Strength	< 800 kg/cm ²
Dynamic Milling Mode	High-speed orbital vibratory impact and frictional shear comminution
Sample Preparation Compliance	Exceeds national standard GB474-1996 preparation specifications
Enclosure Architecture	Heavy-gauge cold-rolled steel plate, anti-vibration sealed shell with powder finish
Machine Base Construction	High-density cast iron dampening platform with low-center-of-mass design
Primary Vibration Isolation	Multi-point high-strength, high-elasticity alloy spring suspension
Secondary Vibration Absorption	Industrial-grade molded dampening rubber base pads (dual-action vibration reduction)
Power Transmission Assembly	Heavy-duty electric motor with shielded eccentric counterweight and enclosed pin sleeve
Clamping System	High-pressure vertical quick-action mechanical lock with ergonomic handle
Control System Options	Standard manual operation or automated digital timer control (denoted by -A suffix)

Programmable Computer Temperature Controller Pid Furnace Regulator For Industrial Laboratory Thermal Analysis

Item Number: KT-KW



Introduction

This programmable computer temperature controller delivers precise PID regulation for high temperature furnaces featuring nine programmable segments dedicated coal analysis routines automated power shutdown ambient tracking compensation and reliable diagnostic monitoring across demanding industrial quality control testing laboratory environments.

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Application	Description	Key Benefit
Coal & Coke Proximate Analysis	Automates rapid and slow ashing routines alongside volatile matter determination in solid fuel testing facilities.	Conforms precisely to standard analytical protocols while eliminating manual ramp monitoring and calculation errors.
Caking & Roga Index Testing	Regulates exact thermal curves required for testing the agglutinating and caking properties of metallurgical coking coals.	Delivers uniform heating rates and timely audio prompts for sample manipulation, maximizing index accuracy.
Laboratory Muffle Furnace Automation	Acts as the primary programmable interface for high-temperature muffle and chamber furnaces up to 1600°C.	Enhances basic heating chambers with multi-segment programming, precise PID stability, and digital timer control.
Technical Ceramic Sintering	Controls multi-stage thermal ramping, dwelling, and controlled cooling recipes for ceramic and powder metallurgy compacts.	Nine programmable segments allow precise binder burnout and peak-temperature sintering without thermal shock cracking.
High-Temperature Tube Furnace Control	Directs thermal gradients and process dwell periods in quartz or alumina tube furnaces under air or static atmospheres.	High-resolution 1°C PID regulation protects process tubes and sample boats from thermal overshooting.
Mineral Calcination & Loss on Ignition	Drives roasting, calcination, and gravimetric loss on ignition testing for geological core samples and cement raw meals.	Automated power cutoff at process termination prevents over-calcination and simplifies mass balance workflows.

Specification Parameter	Technical Detail / Rated Value
Product Item Number	KT-KW
Controller Architecture	Microprocessor-Based Programmable Computer PID Regulator
Operating Temperature Range	0°C to 1600°C
Temperature Resolution	1°C
Maximum Load Power	≤ 5 kW
Programmable Segment Capacity	9 User-Configurable Segments (Ramp, Soak, Dwell)
Controllable Timing Range	Up to 9999 minutes (or 99 minutes 59 seconds mode)
Timing Resolution	1 minute (or 1 second in high-precision mode)
Standard Pre-Set Analysis Modes	Quick Ash, Slow Ash, Volatile Matter, Roga Index, Caking Index
Audio Notification System	Melodic chime alert for sample loading, retrieval, and status changes
Process Completion Safety	Automatic electric furnace heating power shutoff upon cycle completion

Specification Parameter	Technical Detail / Rated Value
Ambient Temperature Handling	Real-time automatic tracking and cold-junction compensation
System Diagnostics & Utilities	Built-in self-diagnosis, simulation verification, parameter query, power-off memory
Operating Power Supply	AC 220V $\pm$ 20V, 50 Hz
Physical Dimensions (W $\times$ D $\times$ H)	260 mm $\times$ 280 mm $\times$ 120 mm
Compatible Heating Equipment	Muffle furnaces, tube furnaces, chamber kilns, industrial analytical ovens

Caking Index Determination Apparatus Spare Parts And Consumables For Coal Quality Testing

Item Number: KT-ZJ



Introduction

Equip your coal laboratory with certified caking index determination apparatus spare parts including standard anthracite static loading units nickel chromium weights porcelain crucibles stands and stirring wires engineered to deliver exceptional accuracy operational durability and complete testing compliance.

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Application	Description	Key Benefit
Coking Coal Blending and Optimization	Testing raw and washed coking coal samples to determine plastic layer development and agglomeration properties prior to oven charging.	Ensures optimal coal blend recipes, reducing reliance on expensive prime coking coals while protecting coke battery wall stability.
Blast Furnace Coke Quality Assurance	Routine quality screening of metallurgical coal feedstocks to evaluate post-carbonization mechanical strength and lump cohesion.	Accurately predicts drum strength indices (M40/M10) and coke strength after reaction (CSR), preventing furnace permeability loss.
Commercial Coal Cargo Arbitration and Trade	Performing independent third-party laboratory verification of contractually specified caking parameters for export and domestic coal shipments.	Provides verifiable analytical precision matching national standards, preventing settlement disputes between suppliers and buyers.
Geological Seam Exploration and Core Profiling	Analyzing drill core samples from newly explored coal basins to map spatial variations in coal rank, adhesiveness, and industrial utility.	Delivers reliable caking index classification from limited core sample masses, accelerating mine feasibility and resource valuation.
Coal Washing and Preparation Plant Monitoring	Monitoring clean coal fractions, middlings, and flotation products to evaluate the efficiency of beneficiation circuits on coking potential.	Verifies that cleaning processes do not selectively wash out reactive petrographic components responsible for thermoplastic bonding.
Research on Carbonization Kinetics and Additives	Investigating the influence of biomass blends, petroleum coke additives, or pitch binders on the agglutinating behavior of secondary coals.	Maintains rigorous baseline testing repeatability, enabling researchers to isolate subtle thermo-chemical kinetic interactions.

Component Description	Model Identifier	Material Specification	Primary Dimensional Attributes	Governing Standard
Complete Caking Index Spare Parts Suite	KT-ZJ	Multi-Component Assembly	Full Analytical Suite Configuration	GB/T 5447, GB/T 14181-2010
Standard Anthracite Reference Material	KT-ZJ-AC	Ningxia Rujigou No. 2-1 Lower Seam	Net Weight: 1 kg Hermetic Pack	GB/T 14181-2010
Static Pressure Loading Device	KT-ZJ-SP	Fabricated Carbon Steel with Guide Shaft	220 mm × 220 mm × 420 mm	GB/T 5447
Nickel-Chromium Compacting Weight Block	KT-ZJ-PB	Heat-Resistant Nickel-Chromium Steel	Outer Ø31 mm × H21 mm; Center Hole Ø10 mm × D15 mm	GB/T 5447
Porcelain Crucible and Cover Set	KT-ZJ-CR	High-Density Refractory Porcelain	Top Ø40 mm, Base Ø20 mm, Height 40 mm, Capacity 30 mL	GB/T 5447
Four-Aperture Wire Crucible Stand	KT-ZJ-CS	Heavy-Gauge Nickel-Chromium Wire (Ø3-4 mm)	110 mm × 110 mm × 60 mm; Aperture ID Ø42 mm	GB/T 5447
Hard Metal Stirring Wire Tool	KT-ZJ-SW	Rigid High-Tensile Drawn Metal Wire	Total Length 110 mm; Loop Ø8 mm; Handle 25 mm × 5 mm	GB/T 5447

Parameter Group	Technical Property	Nominal Specification	Permissible Tolerance / Operational Criteria
Standard Anthracite Reference	Mine Origin and Geological Horizon	Ningxia Rujigou Coal Mine (Xigou Pingjiong)	Both sides of No. 2-1 coal seam, lower slice
Standard Anthracite Reference	Packaging Net Weight	1 kg	Moisture-proof sealed container
Standard Anthracite Reference	Standard Certification	GB/T 14181-2010	Certified ash yield and volatile matter baseline
Static Consolidation Presser	Nominal Compaction Force	6.5 kg	Calibrated vertical dead-weight application
Static Consolidation Presser	Frame Footprint Dimensions	220 mm (W) × 220 mm (L) × 420 mm (H)	Precision upright dual-post alignment
Static Consolidation Presser	Total Device Weight	12.5 kg	Weighted anti-tipping cast-iron base
Ni-Cr Compacting Weight	Material Composition	Nickel-Chromium Alloy Steel	High-temperature oxidation resistant formulation
Ni-Cr Compacting Weight	Outer Cylinder Diameter	Ø31 mm	±0.2 mm ground cylindrical tolerance
Ni-Cr Compacting Weight	Total Block Height	21 mm	±0.2 mm vertical profile
Ni-Cr Compacting Weight	Concentric Relief Hole Diameter	Ø10 mm	Centered axial aperture
Ni-Cr Compacting Weight	Relief Hole Internal Depth	15 mm	Standard volatile expansion cavity
Ni-Cr Compacting Weight	Calibrated Mass Range	110 g to 115 g	Strict gravimetric verification per piece
Crucible and Lid Assembly	Internal Working Volume	30 mL	Sized for standard 1:5 coal-anthracite blend
Crucible and Lid Assembly	Top Rim Outer Diameter	Ø40 mm	Precision tapered mouth with recessed rim
Crucible and Lid Assembly	Base Outer Diameter	Ø20 mm	Flat ground base for stable positioning
Crucible and Lid Assembly	Total Crucible Height	40 mm	Standard vertical clearance profile
Crucible and Lid Assembly	Thermal Shock Limit	850°C ± 10°C	Rapid furnace transfer with zero structural spalling
Wire Crucible Stand	Frame Material	Nickel-Chromium Heat-Resistant Wire	Wire diameter: Ø3.0 mm to Ø4.0 mm
Wire Crucible Stand	Holding Capacity	4 Crucibles	Symmetrical 2 × 2 cell arrangement
Wire Crucible Stand	Cell Ring Internal Diameter	Ø42 mm	Smooth drop-in fit for Ø40 mm crucibles
Wire Crucible Stand	Overall External Dimensions	110 mm (W) × 110 mm (L) × 60 mm (H)	Engineered for standard laboratory muffle furnaces
Metal Stirring Wire Tool	Construction Material	Rigid Hard Drawn Metal Wire	High flexural rigidity, non-shedding
Metal Stirring Wire Tool	Core Wire Diameter	Ø1.0 mm to Ø1.5 mm	Prevents bending during sample blending
Metal Stirring Wire Tool	Total Overall Length	110 mm	Provides ample clearance above 40 mm crucible walls
Metal Stirring Wire Tool	Circular Loop Diameter	Ø8 mm	Formed closed circular mixing end
Metal Stirring Wire Tool	Handle Plate Dimensions	25 mm Length × 5 mm Width	Flattened grip for ergonomic control

Ash Fusion Tester Accessories And Coal Ash Fusibility Determination Consumables

Item Number: KT-GT



Introduction

Discover precision ash fusion tester accessories including silicon carbide heating elements corundum combustion boats standardized cone molds and refractory support plates engineered for accurate coal ash fusibility determination in thermal energy metallurgy and industrial laboratory testing applications.

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Application	Description	Key Benefit
Coal-Fired Power Plant Fuel Testing	Routine analysis of pulverized coal ash fusibility to evaluate potential slagging and boiler tube fouling propensities.	Prevents boiler clinkering by delivering reproducible softening and fluid temperature data under simulated furnace atmospheres.
Commercial Coal Quality Inspection	Independent certification and quality grading of domestic and export coal shipments according to standardized thermal parameters.	High geometric consistency of molded cones ensures strict compliance with ISO, ASTM, and GB/T procedural requirements.
Gasification Feedstock Characterization	High-temperature mineral evaluation of entrained-flow and fixed-bed coal gasifier feedstocks under strict reducing atmospheres.	Corundum support trays resist harsh syngas reduction and molten slag penetration, safeguarding optical clarity during fluid phase tracking.
Metallurgical Coke and Sinter Assessment	Evaluating ash melting dynamics of coking blends and blast furnace pulverized coal injections to optimize tuyere combustion.	Minimizes molten iron oxide penetration into the refractory substrate, extending corundum boat service life during aggressive melting cycles.
Biomass and Co-Firing Ash Dynamics	Analyzing dynamic melting characteristics of blended biomass fuels featuring high potassium, phosphorus, and sodium concentrations.	Dense refractory alumina surfaces resist reactive alkali silicate glass corrosion that typically destroys standard laboratory ceramics.
Boiler Slagging and Fouling R&D	Advanced university and institutional research into synthetic mineral transformations, ash viscosity, and phase transition behavior.	Symmetrical silicon carbide heating profile provides a stable, gradient-free thermal zone across the entire observation window.
Waste-to-Energy Incineration Profiling	Assessing thermal fusion characteristics of municipal solid waste and hazardous residue ash to optimize furnace grates and slag taps.	Chemically stable materials prevent unwanted eutectic interactions between specialized waste minerals and analytical hardware.
Industrial Boiler Combustion Optimization	Evaluating coal blending ratios for industrial steam generation to ensure operating temperatures remain safely below ash deformation points.	Rapid component swap-out and dependable thermal endurance maximize daily laboratory sample throughput without baseline drift.

Product Item Number	Component Description	Primary Material	Critical Dimensions	Functional Specification
KT-GT-SIC	Ash Fusion Silicon Carbide Tube	Dense Reaction-Bonded SiC	ID 70 mm, OD 80 mm, Length 500 mm	Primary electrothermal heating zone, uniform radiation field
KT-GT-CB	Ash Determination Corundum Boat	High-Purity Recrystallized Alumina (Al ₂ O ₃)	300 mm (L) × 40 mm (W) × 18 mm (H)	Thermal container with 22 mm center groove for tray location
KT-GT-CM	Coal Ash Cone Preparation Mold	High-Strength Tool Alloy / Precision Polymer	Produces 7 mm base × 20 mm height cones	Standardized triangular pyramid cone geometry formatting
KT-GT-ST	Ash Cone Support Tray / Plate	Dense Sintered Alumina Refractory	40 mm (L) × 20 mm (W) × 5 mm (Thickness)	High-flatness substrate for direct ash cone placement and observation

Audibert Arnu Dilatometer Expansion Tube And Expansion Rod Assembly For Bituminous Coal Testing

Item Number: KT-PZG



Introduction

Engineered for high precision coal plasticity characterization this heat resistant stainless steel Audibert Arnu dilatometer retort tube and expansion rod assembly delivers superior thermal stability leak tight threaded sealing and minimal internal friction up to six hundred degrees Celsius

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Application	Description	Key Benefit
Metallurgical Coke Oven Feed Optimization	Used to analyze the maximum contraction and dilation percentages of metallurgical coal blends prior to carbonization charging.	Prevents excessive wall pressure in coke batteries and ensures consistent mechanical strength of produced blast furnace coke.
Commercial Coal Classification & Grading	Evaluates raw and washed bituminous coals against standardized coal-ranking metrics such as the Audibert-Arnu dilation index.	Delivers certified coal quality parameters required for export documentation, international trade contracts, and pricing verification.
Carbonization and Coal Science Research	Investigates thermoplastic behavior, fluid phase transitions, and thermal decomposition of synthetic or modified coal pellets.	Supplies reproducible linear displacement data to determine precise softening points and active plastic range temperatures.
Blast Furnace PCI and Sinter Fuel Assessment	Quantifies the swelling propensity of coals utilized in pulverized coal injection (PCI) or auxiliary heating systems.	Identifies potential blockage risks and gas channel disruption within fuel injection pathways and burner assemblies.
Coking Additive and Binder Evaluation	Measures changes in coal plasticity and swelling characteristics when blending pitch binders, petcoke, or polymer modifiers.	Allows accurate benchmarking of additive efficiency in upgrading lower-tier non-coking or semi-coking coals to metallurgical grade.
Laboratory Quality Assurance and Round-Robin Audits	Acts as the reference containment cell during inter-laboratory correlation programs and equipment calibration routines.	Eliminates tooling-derived measurement bias, confirming that dilatometer displacement readouts conform precisely to standard benchmarks.

Specification Parameter	Standard Retort Tube Configuration	Standard Expansion Rod Configuration
Product Identifier	KT-PZG Retort Tube	KT-PZG Expansion Rod
Primary Function	Coal sample containment & thermal reaction vessel	Linear displacement transmission to transducer
Nominal Internal Diameter	15.0 mm (precision honed)	N/A (matched clearance for 15.0 mm ID bore)
Overall Length	Approximately 350 mm	Matched standard length for dilatometer crosshead
Maximum Working Temperature	600°C continuous	600°C continuous
Construction Material	High-temperature oxidation-resistant stainless steel	High-temperature oxidation-resistant stainless steel
Internal Surface Finish	Super-finish / mirror polished (<0.4 µm Ra)	Ground and polished outer guide surfaces
Sealing Mechanism	Detachable threaded bottom plug with gas-tight seat	Flat bottom contact face for coal pencil interface
Gas Leakage Prevention	Threaded mechanical barrier preventing fluid/gas egress	N/A
Standard Compliance	Audibert-Arnu dilatometer standard methods	Audibert-Arnu dilatometer standard methods
Heating Atmosphere	Inert gas purged / ambient volatile atmosphere	Inert gas purged / ambient volatile atmosphere
Cleaning Compatibility	Mechanical scraper, ultrasonic bath, organic solvents	Ultrasonic bath, non-abrasive mechanical wipe

Ash And Volatile Matter Crucibles And Crucible Racks For Laboratory Proximate Analysis

Item Number: KT-GG

Introduction

Designed for rigorous proximate fuel testing, this laboratory suite integrates high temperature volatile matter crucibles, resilient nickel chromium racks, muffle furnace ash dishes, and precision weighing bottles to deliver unmatched gravimetric accuracy, superior thermal endurance, and dependable operational performance.

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Application	Description	Key Benefit
Proximate Coal Analysis	Quantitative determination of moisture, volatile matter, ash yield, and fixed carbon in thermal and metallurgical coal batches according to ISO, ASTM, and GB standard protocols.	Guarantees compliance with international trade specifications while preventing sample oxidation or mass measurement errors.
Metallurgical Coke Testing	Evaluation of thermal stability, volatile gas content, and residual ash in blast furnace coke and foundry carbon additives under high-heat conditions.	Resists structural distortion and chemical fluxing at 1200°C, maintaining sample purity during high-temperature carbon testing.
Biomass & Biofuel Characterization	Ash content verification and volatile combustion indexing of wood pellets, agricultural residues, and refuse-derived fuels (RDF).	Optimized shallow dish profile ensures rapid oxygen diffusion, resulting in complete organic burnout without sample unburnt carbon loss.
Power Plant Fuel Quality Auditing	High-throughput proximate screening of pulverized coal feedstocks to calculate gross calorific values, boiler efficiency, and slagging potential.	Standardized six-place batch handling accelerates testing turnover, reducing furnace door open duration and lowering energy consumption.
Cement Kiln Raw Material Assaying	Loss-on-ignition (LOI) testing and decarbonation profiling of limestone, clay, raw meal mixtures, and alternative kiln fuels.	Chemically inert ceramic surfaces prevent cross-reaction with alkaline earth metals and basic mineral oxides at peak furnace temperatures.
Geological & Mineral Ore Assaying	Volatilization studies, roasting loss measurements, and ash constituent determination across mineral ores, metallurgical fluxes, and mineral concentrates.	Exceptional dimensional stability and tight tare tolerances ensure sub-milligram balance reproducibility across repeated roasting cycles.
Environmental Sludge & Waste Incineration	High-temperature gravimetric residue quantification for dewatered municipal sludge, industrial filter cakes, and hazardous incinerator fly ash.	High-durability nickel-chromium alloy racks withstand acidic and sulfurous combustion vapors without degrading or shedding particulate matter.

Parameter	KT-GG-VMC (Volatile Crucible)	KT-GG-VMR (Volatile Rack)	KT-GG-AD (Ash Dish / Boat)	KT-GG-ADR (Ash Dish Rack)	KT-GG-WB40 (Analytical Bottle)	KT-GG-WB70 (Total Moisture Bottle)
Component Type	Volatile Matter Crucible with Lid	Six-Hole Crucible Handling Rack	Rectangular Muffle Ashing Dish	Six-Hole Ash Dish Handling Rack	Analytical Moisture Weighing Bottle	Total Moisture Weighing Bottle
Primary Material	Refractory Technical Ceramic	Nickel-Chromium (Ni-Cr) Alloy Wire	Refractory Technical Ceramic	Nickel-Chromium (Ni-Cr) Alloy Wire	Ground-Stopper Borosilicate Glass	Ground-Stopper Borosilicate Glass
Maximum Working Temperature	~1200°C	~1200°C	~1200°C	~1200°C	150°C (Drying Oven)	150°C (Drying Oven)
Top Dimensions	Outer Diameter: 33 mm	Length: 128 mm	Opening Length: 55 mm	Length: 135 mm	Outer Diameter: 40 mm	Outer Diameter: 70 mm

Parameter	KT-GG-VMC (Volatile Crucible)	KT-GG-VMR (Volatile Rack)	KT-GG-AD (Ash Dish / Boat)	KT-GG-ADR (AshDish Rack)	KT-GG-WB40 (Analytical Bottle)	KT-GG-WB70 (Total Moisture Bottle)
Bottom Dimensions	Outer Diameter: 18 mm	Width: 90 mm	Bottom Length: 45 mm	Width: 110 mm	Flat Ground Base	Flat Ground Base
Width / Aperture	Circular Geometry	6 Standard Crucible Apertures	Width: 22 mm	6 Dish Positioning Bays	Circular Geometry	Circular Geometry
Height	40 mm	50 mm	14 mm	50 mm	Height: 25 mm	Height: 35 mm
Nominal Capacity / Mass Range	20 ml Volumetric Capacity	Holds 6 × KT-GG-VMC	Thin-Layer Ashing Volume	Holds 6 × KT-GG-AD	Specimen Mass: 0.9 g to 1.1 g	Specimen Mass: 10 g to 12 g
Atmosphere Suitability	Inert Pyrolysis / Neutral	Oxidizing / Neutral / Inert	Oxidizing Combustion	Oxidizing / Neutral / Inert	Ambient / Desiccator / Air Oven	Ambient / Desiccator / Air Oven
Applicable Test Metric	Volatile Matter (VM)	Batch Volatile Manipulation	Ash Yield (A) / Loss-on-Ignition	Batch Ashing Manipulation	Analytical Moisture (Mad)	Total Moisture (Mt)

Engineering Feature	Specification Detail
Nickel-Chromium Wire Alloy Grade	High-temperature Ni-Cr resistance wire engineered for thermal deformation resistance and anti-scaling performance
Ceramic Thermal Shock Tolerance	Survives rapid ambient-to-1200°C insertion and rapid extraction without micro-fracturing or wall delamination
Chemical Compatibility	Inert toward volatile sulfur compounds, carbonaceous volatiles, silicate slags, and ambient atmospheric moisture
Batch Alignment Accuracy	Symmetrical aperture spacing ensures identical gas flow dynamics and furnace radiation access for all 6 positions
Tare Weight Reproducibility	Low-porosity vitrified ceramic and borosilicate glass surfaces prevent moisture absorption, ensuring constant baseline tare mass

Laboratory Rod Mill Roller Grinding Jar For Precise Comminution

Item Number: KT-MG1



Introduction

This laboratory rod mill roller grinding jar uses steel rods for line contact comminution. Designed for wet and dry processing across batch and circulating operations, it delivers narrow particle distributions without excessive over grinding.

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Application	Description	Key Benefit
Mineral Processing & Flotation Feed Preparation	Pulverizes raw mineral ores, core samples, and metallurgical tailings to precise particle liberation thresholds prior to bench-scale froth flotation and hydrometallurgical leaching trials.	Prevents the over-grinding of brittle valuable minerals, drastically reducing slime losses and maximizing flotation recovery rates.
Advanced Technical Ceramics & Electronic Substrates	Homogenizes and refines hard ceramic compounds including alumina, zirconia, silicon carbide, and electronic titanates in wet solvent suspensions.	Ensures a strictly controlled, narrow particle size distribution, promoting maximum green-body packing density and defect-free sintering.
Battery Active Materials & Solid Electrolyte Synthesis	Processes lithium precursor salts, cathode formulations, solid-state electrolyte powders, and conductive carbon additives under dry inert or wet milling regimes.	Minimizes structural lattice degradation, prevents metallic iron shedding, and delivers uniform particle sphericity for enhanced electrochemical kinetics.
Industrial Glass, Frits & Vitreous Enamel Formulation	Comminutes specialty glass cullet, ceramic frits, and vitreous enamel fluxes into stable, uniform aqueous slips for industrial glaze and surface coating applications.	Eliminates unground oversized grains while controlling suspension rheology without unwanted fine agglomeration.
Geochemical Assay & Core Sample Analysis	Grinds hard geological exploration samples, exploratory rock chips, and drill cores into sub-sieve analytical powders required for XRF, XRD, and ICP-OES spectroscopy.	Guarantees complete analytical sample representativeness with zero volatile loss or cross-sample contamination during processing.
Specialty Chemical Synthesis & Catalyst Carrier Milling	Disperses heterogeneous catalytic precursors, inorganic pigments, and polymer chemical additives within batch or recirculating fluid carriers.	Provides high-energy line-contact shear that increases specific surface area uniformly while maintaining precise process temperature stability.

Parameter Group	Specification Attribute	Value / Standard Configuration (KT-MG1 Series)
Core System Classification	Equipment Identifier	KT-MG1
Core System Classification	Vessel Architecture	Sealed Cylindrical Rod Mill Drum / Roller Jar
Comminution Mechanism	Primary Grinding Dynamics	Linear Impact & Line-Contact Shear / Attrition
Comminution Mechanism	Internal Media Geometry	Calibrated Cylindrical Hardened Steel Rods
Operational Flexibility	Processing Atmospheres	Dry Powder Grinding & Wet Slurry Milling
Operational Flexibility	Process Flow Modes	Intermittent Batch Mode & Continuous Circulating Mode
Roller Compatibility	Drive Roller Length Requirement	Compatible with Standard 24-inch (610 mm) Roller Benches
Roller Compatibility	Roller Spacing Accommodation	Adjustable 2-Roll and 3-Roll Industrial Lab Drives
Metallurgy & Fabrication	Drum Wall Construction	High-Strength Hardened Alloy Steel (Mirror-Polished Interior)
Metallurgy & Fabrication	Media Metallurgy	Through-Hardened Wear-Resistant Carbon/Chrome Steel

Parameter Group	Specification Attribute	Value / Standard Configuration (KT-MG1 Series)
Sealing & Containment	Closure Interface	High-Torque Quick-Clamping Flange with O-Ring Gasket
Sealing & Containment	Gasket Compatibility	High-Durometer Viton / Nitrile / PTFE Chemical Elastomers
Processing Feed Specs	Maximum Recommended Feed Size	< 5.0 mm (Heterogeneous Granular Feed)
Final Granularity Control	Target Discharge Distribution	Down to < 45 µm (325 Mesh, Matrix & Feed Dependent)

Variant Model Code	Working Volume	Internal Diameter	Internal Length	Media Charge Weight	Operating Mode
KT-MG1-1000	1.0 Liter	100 mm	130 mm	2.5 kg	Intermittent Batch
KT-MG1-2000	2.0 Liters	125 mm	165 mm	5.0 kg	Intermittent Batch
KT-MG1-5000	5.0 Liters	180 mm	200 mm	12.0 kg	Intermittent Batch
KT-MG1-1000C	1.0 Liter	100 mm	130 mm	2.5 kg	Continuous Circulating
KT-MG1-5000C	5.0 Liters	180 mm	200 mm	12.0 kg	Continuous Circulating

Media Charge Property	Graduated Ratio	Diameter Range	Length Tolerance
Coarse Impact Rods	25% Total Mass	Ø 20.0 mm	Vessel Length - 5.0 mm (±0.5 mm)
Intermediate Reduction Rods	40% Total Mass	Ø 15.0 mm	Vessel Length - 5.0 mm (±0.5 mm)
Fine Attrition Rods	35% Total Mass	Ø 10.0 mm	Vessel Length - 5.0 mm (±0.5 mm)

Coal Hardgrove Grindability Index Standard Reference Material Set For Calibration

Item Number: KT-HS



Introduction

Calibrate Hardgrove machines with this certified coal reference material set. Featuring four hardness grades from 40 to 110 HGI, it ensures precise calibration curves, full traceability, and strict compliance with testing standards.

[Learn More](#)

Application	Description	Key Benefit
Coal-Fired Thermal Power Utilities	Periodic calibration of laboratory grindability analyzers to forecast power station pulverizer performance, mill wear rates, and specific electricity consumption.	Prevents boiler mill derating and optimizes auxiliary power usage by ensuring accurate fuel grindability forecasting.
Commercial Commodity Inspection	Generating legally compliant calibration curves for third-party testing laboratories engaged in coal valuation, tariff assignment, and cargo settlement.	Eliminates commercial disputes and financial liability by providing undeniable metrological traceability to national standards.
Metallurgical Coke Manufacturing	Classifying coking coals and pulverized coal injection (PCI) grades according to their mechanical pulverization resistance prior to blast furnace charging.	Enhances blast furnace injection stability, maintains optimal permeability, and prevents premature milling equipment damage.
Cement Clinker Production	Calibrating grindability apparatus to evaluate raw fuel hardness for vertical roller mills and ball mills within cement kiln firing systems.	Lowers energy consumption per ton of clinker and minimizes pulverizer maintenance shutdowns through precise grinding optimization.
Hardgrove Machine Mechanical Validation	Diagnostic testing to verify machine tolerances, including the 29.0 kg vertical load, spindle revolution count, and race ring ball contact uniformity.	Identifies mechanical wear or structural deflection early, preventing systematic laboratory measurement errors.
Synthetic Fuels and Gasification Feedstock Analysis	Evaluating the ease of grinding for prospective gasifier feedstocks to guarantee proper particle size distribution in gasification burners.	Ensures steady syngas conversion rates and prevents unburned carbon loss or nozzle plugging caused by improper fuel fineness.
Proficiency Testing and Laboratory Accreditation	Serving as blind reference standards for internal quality control, inter-laboratory comparisons, and ISO/IEC 17025 technical audits.	Validates laboratory operator competency, sieving consistency, and repeatability under accredited quality management systems.

Specification Parameter	System Value / Standard Detail
Product Item Number	KT-HS
Standard Compliance	GB/T 2565 (Determination of Grindability Index of Coal - Hardgrove Machine Method)
Primary Function	Calibration and validation of Hardgrove Grindability Index (HGI) instruments
Metrological Functionality	Construction of four-point linear regression calibration curve and result traceability
Complete Set Configuration	4 bottles per set (1 bottle per hardness level)
Unit Bottle Weight	250 g ± 1 g per bottle
Total Set Net Weight	1,000 g (4 × 250 g)
Packaging Material	High-barrier airtight polymer bottles with hermetic inner tamper-evident seals
Grinding Equipment Compatibility	Standard Hardgrove Grindability Index testing apparatus

Specification Parameter	System Value / Standard Detail
Nominal Grinding Load Requirement	29.0 ± 0.2 kg (64.0 ± 0.5 lbs) vertical force
Prescribed Instrument Revolutions	60 ± 0.25 revolutions
Analytical Sieving Specification	Certified 0.075 mm (200 mesh) analytical test sieve
Recommended Storage Environment	Cool, dry, dark environment; ambient temperature 15°C to 28°C; relative humidity < 60%

Item Number Variant	Reference Standard Code	Nominal Certified HGI Value	Material Hardness Classification	Package Volume
KT-HS-40	GBW12005	~40 HGI	High Hardness (Difficult to Grind)	250 g
KT-HS-60	GBW12006	~60 HGI	Medium-High Hardness (Moderately Hard)	250 g
KT-HS-80	GBW12007	~80 HGI	Medium-Low Hardness (Easy to Grind)	250 g
KT-HS-110	GBW12008	~110 HGI	Low Hardness (Very Easy to Grind / Friable)	250 g

Coal Float And Sink Test Recovery Apparatus Heavy Liquid
Bucket Mesh Bottom Bucket Hydrometer Skimmer Slime Bucket

Item Number: KT-DT



Introduction

Engineered for standardized coal float and sink analysis, this heavy liquid vessel, mesh bottom bucket, precision hydrometer, skimmer spoon, and slime bucket assembly delivers exceptional corrosion resistance, precise density separation, and reliable sample recovery across demanding metallurgical testing laboratories.

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Application	Description	Key Benefit
Standard Coal Washability Analysis	Generating fractional yield-density-ash curves across fractional cuts from 1.30 to 2.00 specific gravity in accordance with ASTM D4371 and ISO 7936 standards.	Delivers standardized gravimetric data for determining theoretical coal cleanability, plant yield potential, and optimal separation densities.
Coal Preparation Plant Optimization	Monitoring clean coal recovery efficiency and partitioning cut-points in commercial dense-medium cyclones, dynamic baths, and water-only spirals.	Pinpoints near-gravity material misplacement to optimize plant operating set-points, minimize coal losses, and improve product consistency.
Commercial Quality Verification and Assay	Conducting independent referee testing and contractual verification of ash, sulfur, and yield specifications for domestic and international coal shipments.	Provides certified, repeatable partition results that prevent commercial settlement disputes and verify specification compliance.
Slime and Ultrafine Liberation Auditing	Evaluating wet-sieved sub-millimeter fractions and flotation tailings to determine the economic viability of ultrafine gravity beneficiation circuits.	Maximizes fine carbon recovery while identifying the liberation characteristics of intergrown mineral matter and discard tailings.
Greenfield Core Sample Metallurgical Evaluation	Processing exploration drill cores and bulk sample composites during bankable feasibility studies for proposed mine developments.	Establishes baseline washability characteristics to guide downstream coal preparation plant design and economic modeling.
Mineral Dense Medium Laboratory Fractionation	Separating industrial minerals, aggregates, and light ore fractions using organic and inorganic heavy liquids under controlled conditions.	Enables precise density profiling of non-coal industrial minerals requiring clean sink-float characterization without cross-contamination.

Component Identifier	Description	Key Dimensions & Physical Parameters	Mesh / Sieve Aperture	Material of Construction
KT-DT-NB	Mesh-Bottom Bucket ()	Cylindrical vessel; Diameter 40 mm smaller than KT-DT-HL; Height 50 mm taller than heavy liquid working level; Upper rigid lifting bail	0.5 mm square woven metallic wire mesh	Austenitic Stainless Steel Sheet (AISI 304/316)
KT-DT-HL	Heavy Liquid Bucket ()	Outer holding vessel dimensioned to receive KT-DT-NB; Dual reinforced side handles; Welded bottom rim	Non-perforated solid base and sidewall	Heavy-Gauge Austenitic Stainless Steel (AISI 304/316)
KT-DT-SK	Skimmer Spoon / Scoop ()	Total length: 470 mm; Handle length: 270 mm; Circular scoop diameter: 200 mm; Shallow dish profile	0.5 mm square woven metallic wire mesh	Austenitic Stainless Steel Frame and Wire Mesh
KT-DT-HM	Precision Hydrometer ()	Specific gravity measuring range: 1.200 to 2.000 g/cm³; Sub-divisions: 0.001 to 0.002 g/cm³; Calibrated at 20°C standard reference	N/A (Solid sealed glass body)	Annealed Laboratory Glassware with Ballast and Paper Scale
KT-DT-SB	Coal Slime Bucket ()	High-volume sedimentation vessel; Reinforced upper rim and dual side handles; Optimized for slurry settling	Solid containment wall and base	Heavy-Gauge Austenitic Stainless Steel (AISI 304/316)
KT-DT-SET	Complete Float-Sink Recovery Assembly	Integrated 5-piece testing assembly comprising KT-DT-NB, KT-DT-HL, KT-DT-SK, KT-DT-HM, and KT-DT-SB	0.5 mm square woven metallic mesh on drainage surfaces	Corrosion-Resistant Stainless Steel and Laboratory Glass

Parameter	Engineering Standard / Test Condition	Technical Specification
Model Item Series	Laboratory Float-Sink Testing System	KT-DT
Sieve Aperture Specification	Mesh bottom and skimmer scoop	0.5 mm square aperture
Wire Mesh Weave Standard	Metallic wire cloth standard	Square weave high-tensile stainless steel wire
Dimensional Clearance (Diameter)	Mesh bucket vs. heavy liquid bucket	40 mm clearance differential
Dimensional Clearance (Height)	Mesh bucket vs. heavy liquid surface	50 mm elevation above working liquid level
Skimmer Spoon Total Length	Overall structural dimension	470 mm
Skimmer Spoon Handle Length	Ergonomic reach handle	270 mm
Skimmer Spoon Head Diameter	Circular skimming head	200 mm
Compatible Dense Liquids	Chemical resistance profile	Zinc Chloride (ZnCl ₂) solutions, Bromoform, Tetrabromoethane, Perchloroethylene
Operating Temperature Range	Standard testing environment	10°C to 45°C ambient
Seam and Joint Treatment	Weld finishing and surface hygiene	Smooth-ground, deburred, and acid-passivated welds
Testing Standards Compliance	International and national test methods	ASTM D4371, ISO 7936, GB/T 478

Coal Plastometer Accessories Testing Coal Cup And Asbestos Insulation Pad Set

Item Number: KT-MBD



Introduction

Standardized plastometer accessories featuring durable heat resistant coal cups and specialized asbestos insulation pads provide exceptional thermal stability and dimensional accuracy for measuring coal plastic layer thickness and expansion curves during coking quality control testing.

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Application	Description	Key Benefit
Metallurgical Coking Coal Blend Optimization	Determining the plastic layer maximum thickness (\$Y\$ value) and final contraction (\$X\$ value) for binary and multi-component coking coal blends prior to commercial oven charging.	Enables precise blending calculations that optimize coke mechanical strength (\$M40\$/\$M10\$) while significantly reducing raw coking coal procurement costs.
Raw Coal Rank and Caking Property Classification	Evaluating raw, washed, and commercial bituminous coals across mining extraction sites and preparation plants to determine exact coal rank and caking indexes.	Delivers rapid, definitive categorization of metallurgical coal quality for commercial contract pricing, seam valuation, and processing control.
Coke Oven Wall Pressure and Swelling Risk Assessment	Monitoring volumetric expansion curves and gas entrapment dynamics within the coal mass during the plastic softening phase (350°C to 550°C).	Identifies dangerously expanding or low-shrinkage coal charges, protecting commercial refractory battery walls from catastrophic lateral cracking and operational failure.
Plastic Fluidity and Pyrolysis Kinetic Research	Academic and industrial pilot studies characterizing transient coal viscosity, softening intervals, and tar formation kinetics under controlled mechanical pressure.	Provides highly reproducible thermal boundaries that allow researchers to isolate kinetic variables and evaluate the effects of novel additives or bio-carbon substitutes.
Independent Commercial Cargo Quality Certification	Third-party inspection and certification of export/import coking coal shipments at marine terminals, border ports, and transfer depots.	Guarantees legally defensible, standard-compliant analytical data that reduces dispute risks between international coal suppliers and steel producers.
Chemical Byproduct Recovery and Volatile Evolution Profiling	Assessing the permeability and cracking behavior of semi-coke structures to model volatile evolution rates and coal tar condensation characteristics.	Facilitates accurate forecasting of coke oven gas yield, light oil recovery ratios, and chemical byproduct plant thermal efficiencies.

Specification Parameter	Value / Characteristic (Model: KT-MBD)
Base Assembly Identifier	KT-MBD Plastometer Testing System Accessories
Primary Cup Component Item Code	KT-MBD-CUP (Coal Testing Crucible / Retort)
Insulation Pad Component Item Code	KT-MBD-PAD (Asbestos Cushion Set)
Cup Material Composition	Refractory structural alloy / Low-alloy high-temperature carbon steel
Asbestos Cushion Material Grade	High-purity die-cut chrysotile asbestos insulation sheet
Maximum Operational Temperature	800°C (continuous test envelope)
Continuous Heating Rate Capability	3.0°C/min (standard linear plastometer rate from 250°C to 730°C)
Applied Test Pressure Rating	9.8 N/cm² (0.1 MPa vertical load via standard pressure rod)
Cup Internal Diameter	59.0 mm (±0.2 mm tolerance)
Cup External Diameter	70.0 mm (±0.3 mm tolerance)

Specification Parameter	Value / Characteristic (Model: KT-MBD)
Cup Internal Working Depth	110.0 mm (± 0.5 mm tolerance)
Cup Base Plate Thickness	10.0 mm (precision-planed flat base)
Asbestos Cushion Outer Diameter	59.0 mm (matching internal bore clearance)
Asbestos Cushion Thickness	0.5 mm to 1.0 mm per disc layer (standard multi-disc configuration)
Thermocouple Probe Clearance Port	Bottom center access hole, calibrated for standard sheath thermocouples
Needle Penetration Orifice Alignment	Integrated upper clearance guide for plastic layer detection probe
Surface Hardness (Cup Body)	≥ 220 HBW (thermal fatigue and abrasion resistant)
Internal Wall Surface Finish	$R_a \leq 0.8 \mu\text{m}$ (fine-machined bore for reduced coke sticking)
Standard Test Protocol Compatibility	GB/T 479, ISO equivalent Sapozhnikov plastometer methodologies
Target Measurands	Maximum plastic layer thickness (\$Y\$), contraction (\$X\$), volume curve

Sealed Sample Preparation Pulverizer Grinding Bowl Set

Zirconia Tungsten Carbide Chrome Steel High Manganese Steel

Stainless Steel Agate

Item Number: KT-JLB



Introduction

Engineered for analytical pulverizers, these sealed grinding bowls in tungsten carbide, zirconia, agate, and alloy steels ensure rapid particle reduction to 200 mesh while eliminating contamination across demanding mining, metallurgy, geological exploration, ceramics, and chemical quality control laboratories worldwide.

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Application	Description	Key Benefit
Geological & Mineral Exploration	Pulverization of hard granites, core drills, quartzites, and mineral ores prior to fire assay or ICP-OES geochemical characterization.	High-abrasion resistance prevents structural wear when processing hard minerals up to Mohs hardness 8.5–9.0.
Metallurgy & Ferrous Metal QA	Rapid comminution of iron ores, blast furnace slags, sinters, and ferroalloys to establish chemical and physical consistency.	Rapid throughput achieves 200-mesh homogeneity in under 2 minutes, accelerating smelter furnace feed verification.
Cement, Clinker & Aggregate Testing	Grinding raw limestone, raw meal, cement clinker, and gypsum to monitor kiln combustion kinetics and calcination quality.	Hardened alloy configurations withstand heavy frictional abrasion without spalling or micro-cracking.
Advanced Ceramics & Electronic Oxides	Ultra-pure processing of dielectric powders, titanates, alumina, and rare earth precursors requiring strict absence of metallic contamination.	Chemically inert zirconia and agate configurations eliminate transition metal contamination down to sub-ppm levels.
Coal, Coke & Petrochemical Residue	Fine milling of solid fossil fuels, fly ash, and petroleum coke for calorific value measurement and proximate ash determination.	Airtight hermetic sealing preserves volatile matter and prevents fine coal dust dispersal into laboratory air.
Environmental Soil & Waste Analysis	Comminution of dried agricultural soils, contaminated sediment cores, and industrial solid waste for heavy metal trace analysis.	Non-porous interior surfaces prevent analyte carryover and facilitate complete sample recovery for trace detection.

Model Designation	Nominal Batch Capacity	Base Outer Diameter (mm)	Total Height (mm)	Compatible Materials	Target Output Fineness
KT-JLB-100	100 g	152 mm	72 mm	Tungsten Carbide, High Manganese Steel, Chrome Steel, Stainless Steel, Zirconia, Agate	200 mesh (≤74 μm)
KT-JLB-150	150 g	156 mm	82 mm	Tungsten Carbide, High Manganese Steel, Chrome Steel, Stainless Steel, Zirconia, Agate	200 mesh (≤74 μm)
KT-JLB-200	200 g	182 mm	85 mm	Tungsten Carbide, High Manganese Steel, Chrome Steel, Stainless Steel, Zirconia, Agate	200 mesh (≤74 μm)
KT-JLB-400	400 g	210 mm	95 mm	Tungsten Carbide, High Manganese Steel, Chrome Steel, Stainless Steel, Zirconia, Agate	200 mesh (≤74 μm)
KT-JLB-1000	1000 g	256 mm	110 mm	Tungsten Carbide, High Manganese Steel, Chrome Steel, Stainless Steel	200 mesh (≤74 μm)

Material Type	Mohs Hardness	Typical Density (g/cm³)	Elemental Composition Profile	Recommended Sample Types
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Tungsten Carbide	8.5 – 9.0	14.5 – 14.9	WC + Co binder	Extremely hard materials, cemented carbides, ferrosilicon, ores, abrasives
High Manganese Steel	5.5 – 6.5	7.8 – 7.9	Fe, Mn (11-14%), C	General mining minerals, standard rocks, coal, industrial slag, construction aggregate
Chrome Steel	6.0 – 7.0	7.7 – 7.8	Fe, Cr (12-18%), C	Hard minerals, abrasive geological rock cores, ceramics, general metallurgy
Stainless Steel	5.5 – 6.0	7.9 – 8.0	Fe, Cr (18%), Ni (8-10%)	Corrosive chemicals, food-grade materials, plant tissue, mid-hardness minerals
Zirconia (YSZ)	8.0 – 8.5	5.9 – 6.0	ZrO ₂ + Y ₂ O ₃	High-purity electronic ceramics, pharmaceutical formulations, trace iron-free assays
Natural Agate	6.5 – 7.0	2.6 – 2.7	SiO ₂ (>99.5%)	Soil trace analysis, environmental sludge, soft-to-medium hardness biologicals



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