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	Ra ≤ 0.8 μm (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