

Davis Tube Magnetic Separator Davis Analysis Tube For Mineral Separation

Item Number: KT-CX



Introduction

Engineered for precise ferromagnetic ore analysis this integrated Davis tube magnetic separator delivers continuous magnetic field control up to 3000 mT automated oscillation mechanics and factory calibrated reliability to provide accurate quantitative mineral separation for metallurgical and coal laboratories

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Application	Description	Key Benefit
Coal Preparation Magnetite Powder Assay	Quantitative determination of magnetic content and purity in magnetite powders used as dense medium suspension agents in coal washing plants.	Guarantees operational stability in heavy media cyclones, minimizes magnetite consumption, and verifies compliance with GB/T 18711-2002 standards.
Iron Ore Beneficiation Feasibility Studies	Bench-scale separation of crude taconite, magnetite, and hematite ores across controlled magnetic field strengths to simulate industrial beneficiation.	Generates reliable grade-recovery curves, establishing precise cut-off grades and magnetic field parameters prior to commercial plant commissioning.
Geological Exploration and Core Sample Assay	Laboratory-scale isolation of naturally occurring ferromagnetic minerals, including magnetite and pyrrhotite, from drill core samples and exploration sediments.	Yields high-purity magnetic concentrates for mineralogical characterization via X-ray fluorescence, X-ray diffraction, and optical microscopy.
Metallurgical Slag and Tailings Reclamation	Recovery testing on steelmaking slag, foundry sands, and historical mineral processing tailings to extract residual ferromagnetic values.	Quantifies recoverable metal fractions to assess the economic feasibility of secondary resource reclamation while minimizing disposal volume.
Reduction Roasting Transformation Assessment	Efficiency testing of magnetic reduction roasting processes designed to convert weakly magnetic hematite, limonite, or siderite into strongly magnetic phases.	Provides accurate phase-transition metrics by quantifying changes in magnetic yield under standardized magnetic separation intensities.
Advanced Powder Metallurgy Quality Assurance	Purity testing and non-magnetic inclusion detection in atomized iron powders, soft magnetic composites, and synthesized ferrite feedstocks.	Prevents contamination and porosity in sintered components by detecting trace silica and non-metallic inclusions in incoming metal powder lots.

Parameter Classification	Technical Attribute	Specification (KT-CX)
Model Identification	Item Number	KT-CX
Magnetic Subsystem	Working Magnetic Field Range	0 to 3000 mT (0 to 3.0 Tesla), Steplessly Adjustable
Magnetic Subsystem	Magnetic Pole Clearance Gap	52 mm
Magnetic Subsystem	Magnetic Field Stability	Regulated solid-state excitation circuit preventing thermal drift
Magnetic Subsystem	Field Configuration	Dual-pole concentrated flux focused on separation tube axis
Mechanical Drive	Reciprocating Motion Stroke	40 mm linear displacement
Mechanical Drive	Reciprocating Frequency	70 cycles/min (strokes/min)
Mechanical Drive	Operating Tube Angle	45° inclined orientation
Mechanical Drive	Drive System	Heavy-duty industrial gear motor with eccentric linkage

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Separation Tube Assembly	Tube Material	Optical-grade borosilicate glass, chemical and abrasion resistant
Fluidics and Wash System	Integrated Water Reservoir	Onboard clean water storage tank with internal flow manifold
Fluidics and Wash System	Discharge Control	Precision drain valve and dual-fraction collection channels
Structural Enclosure	Machine Chassis	Integrated mobile cart structure with heavy-duty locking swivel casters
Structural Enclosure	Accessory Storage	Built-in lower storage cabinet for glassware and maintenance accessories
Standard Compliance	Regulatory Testing Benchmark	GB/T 18711-2002 (Test Method for Magnetite Powder for Coal Preparation)
Quality and Calibration	Pre-Shipment Calibration	100% factory pre-calibrated magnetic field intensity and stroke dynamics
Electrical Requirements	Input Voltage / Power Supply	380 V / 220 V AC selectable (50 Hz / 60 Hz)
Physical Characteristics	Total Equipment Weight	220 kg