

Intelligent Dust Extraction System For Sample Preparation Laboratories

Item Number: KT-CC1



Introduction

Engineered for analytical sample preparation laboratories, this intelligent dust extraction system captures particulate matter down to 0.5 microns with 99.97% efficiency. Featuring automated pulse-jet cleaning and PTFE membrane cartridges, it maintains compliant air quality across demanding sample processing operations.

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Application	Description	Key Benefit
Geological & Ore Sample Preparation	Centralized particulate containment during high-throughput primary jaw crushing, cone reduction, and pulverizing of mineral ores.	Prevents toxic heavy metal inhalation and cross-batch contamination between high-grade assay samples.
Coal & Coke Petrographic Analysis	Continuous dust extraction during mechanical breaking, rotary splitting, screening, and milling of coal samples.	Suppresses combustible coal dust concentrations and guarantees strict environmental health compliance in fuel labs.
Metallurgical Slag & Alloy Milling	Capture of dense, abrasive airborne dust during high-energy vibratory disc milling and planetary ball milling cycles.	Traps highly abrasive sub-micron metallic fines (>90% at source) to prevent equipment motor abrasion and ambient settling.
Cement, Clinker & Aggregate Testing	Dust mitigation across bulk aggregate screening, dynamic sieve shaking, and fine clinker grinding stations.	Eliminates hazardous crystalline silica inhalation risks while preserving high visibility across sample reduction zones.
Advanced Ceramics & Refractory Processing	Filtration of ultra-fine oxide and carbide powders during blending, mechanical compaction, and sample trimming.	Achieves 99.97% particulate retention down to 0.5 μm , protecting cleanroom-adjacent laboratory environments.
Battery Material & Cathode Powder Preparation	Enclosed extraction for active chemical compounds, precursor milling, and transfer station ventilation.	Ensures exhaust particulate concentration remains below 5 mg/m^3 while safeguarding operators from hazardous precursors.
Automated Soil & Environmental Waste Testing	Extraction across multi-stage drying, sieving, and homogenization stations for environmental survey samples.	Maintains clean, certified background air quality to avoid cross-sample analytical interference.

Parameter	Specification (KT-CC1)
Product Model	KT-CC1
Rated Motor Power	7.5 kW
Air Handling Capacity	7500 m^3/h
Total Static Pressure	2500 Pa
Filtration Efficiency	$\geq 99.97\%$ (particles $\geq 0.5 \mu\text{m}$)
Emission Concentration	$\leq 5 \text{ mg}/\text{m}^3$
Primary Source Dust Capture Rate	$\geq 90\%$ (crushing and pulverizing stations)
Filter Element Construction	Low-resistance PTFE-laminated vertical filter cartridge
Filter Cleaning Mechanism	Automated microcomputer pulse-jet reverse air cleaning
Main Suction Inlet Dimension	$\phi 300 \text{ mm}$ (variable-diameter / reducing manifold)

Parameter	Specification (KT-CC1)
Capture Hood Construction	High-grade stainless steel
System Ducting Material	Heavy-duty rigid PVC
Blower Configuration	Enclosed centrifugal fan (no exposed mechanical drive)
Collector Exterior Dimensions (W × D × H)	1000 mm × 1200 mm × 2250 mm
Operational Compatibility	Continuous inline industrial sample preparation suites