

fully automatic sample preparation system for coal mining

Automatic sample preparation system is a highly integrated intelligent equipment, which can automatically complete the whole process operation from sample receiving, weighing, reading information, sample preparation, sample bottling, sealing to IC card writing code.

Fully Automatic Sample Preparation System

The Fully Automatic Sample Preparation System is designed to support both online and offline operation, providing efficient, accurate, and safe sample management for a wide range of industries. This system is ideal for scientific research, quality inspection, environmental protection, mineral processing, chemical industry, and pharmaceuticals—especially in settings requiring large-scale sample preparation and comprehensive information management.

Main Features

1. **IC card secondary encryption and card writing:** Automatically encrypts and writes sample information to both bottles and IC cards after bottling, ensuring data security and accuracy. Both bottle and IC card are reusable, reducing operating costs.



2. **Discarded sample staging and recycling system:** Dedicated staging device automatically collects and recycles discarded samples, preventing environmental pollution and cross-contamination.
3. **Intelligent control system:** Upper industrial computer integrates with Siemens PLC1200 and touch screen operation for real-time monitoring and stable, orderly sample preparation.
4. **Remote communication interface:** Seamless integration with customer management systems and remote maintenance/troubleshooting, reducing on-site service costs.

Advantages

1. **Full-process automation:** Minimizes manual intervention, reduces human error, and improves sample processing efficiency.
2. **Informationized management:** Real-time sample tracking and secure data management via IC card system, enabling easy quality control and traceability.
3. **Environmental protection design:** Effective sample disposal system prevents dust and waste leakage, meeting environmental requirements.
4. **Multi-mode compatibility:** Supports both online (networked production) and offline (standalone) operation for flexible adaptation to diverse environments.

Working Principle

Samples are delivered to the weighing area via mechanical transmission, where a high-precision electronic scale performs automatic weighing. The system reads the sample's IC card to verify identity. The sample undergoes crushing, mixing, and splitting to achieve analytical-grade uniformity, then is sealed in a bottle with encrypted IC card information binding. Discarded samples are automatically transported to a temporary storage device for later recycling. The entire process is governed by the upper computer and PLC, with a touch screen interface for intuitive operation and real-time status monitoring.

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Model	customizable
Feed size	less than 100mm
Feed weight	20 to 100kg
Final Sample	13 or 6mm moisture sample, 3mm stock sample, 0.2mm analytical sample
Total power	less than 40kw
Sample preparation efficiency	4 to 8 per hour

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Model	customizable
Take up the floor area	50 square meter