automatic lime powder sample preparation system for factory

Lime powder automatic sampling system is designed to replace the traditional manual sampling process, to realize the automatic processing of lime powder samples from feeding, weighing, reduction, crushing, bottling, cleaning and other processes.

Lime Powder Automatic Sampling System

The Lime Powder Automatic Sampling System is engineered to dramatically improve sample representativeness and sampling efficiency, minimize manual intervention, and enhance the accuracy and consistency of laboratory analytical data. Ideal for metallurgical, building materials, environmental, research, and mining industries, this advanced system delivers precision, reliability, and operational stability for lime powder sample preparation.

Features

1. **Fully automated processing:** Unattended operation from sample input through quantitative reduction, grinding, and sieving, effectively controlling human error.
2. **High-precision reduction control:** Dual strategy of fixed-mass and fixed-ratio reduction ensures sample representativeness and accuracy, with error rates below 1%.

3. **Excellent crushing and sieving:** Chemical analysis samples are stably controlled at ≤0.125mm with a sieving rate over 95%—far superior to manual methods.
4. **Intelligent interactive interface:** Industrial touch screen and PLC intelligent control system for easy operation, real-time parameter adjustment, and process recording.
5. **Automatic cleaning mechanism:** Gas-blow cleaning after each sample preparation eliminates cross contamination and reduces manual maintenance.
6. **Low pollution and labor intensity:** Enclosed structure minimizes dust diffusion and improves operator health and site environment.

Core Advantages

1. Strong sample representativeness: Scientific reduction methodology ensures authentic, representative samples.
2. Labor cost savings: Replaces heavy manual work and lessens laboratory personnel workload.
3. High data reliability: Automated sampling reduces human interference for stable, repeatable analytical data.
4. High operational stability: Industrial hardware enables stable, long-term, high-intensity operation.
5. Low sample loss: Process loss rate controlled within 1%, saving valuable sample material.

Working Principle

1. **Automatic weighing:** Incoming samples are precisely weighed by an electronic scale; the system calculates reduction ratio.
2. **Fixed mass reduction:** Uniform initial sub-sampling ensures consistent portion count.
3. **Fixed ratio reduction:** Further refinement generates analytical, backup, and other samples per set ratios.
4. **On-line crushing and sieving:** Samples are automatically processed to ≤0.125mm particle size.
5. **Sample output and bottling:** Classified samples are output to dedicated bottles for lab testing.
6. **System cleaning:** Automatic cleaning program removes residual dust and sample after each batch.

Application Areas

1. Metallurgical industry: Desulfurization agent, lime powder raw material inspection in steel and aluminum plants.
2. Building materials industry: Automated sample preparation for cement, lime, and raw material analysis.
3. Environmental protection testing: Standardized dust sample processing for accurate environmental monitoring.
4. Scientific research laboratories: Reliable sample preparation for improved experimental accuracy.
5. Mining beneficiation plants: Automatic pre-processing for ore or mineral powder analysis.

System Components

1. Automatic feeding bin
2. Double-stage elevator
3. Electronic feeder
4. Primary sampling tank
5. Sample commutator and collection barrel
6. Precision 10kg storage bin
7. High-precision conical rotary miniaturizer
8. Quantitative feeder
9. Benchtop high-speed powder making machine
10. Air compressor and storage tank for pneumatic control and cleaning

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Model	**customizable**
Feed size	less than 5mm
Feed weight	20 to 300kg
Sample Preparation	2 copies of 2kg backup sample, 1 copy of 1kg backup sample
Total power	10kw
Sample preparation efficiency	400kg per hour
Take up the floor area	18 square meter
Note	Manual loading and weight input. automatic sample loading