



UNIVERSE BLAINE'S AIR PERMEABILITY APPARATUS AZA0787

The AZA0787 Blaine's Air Permeability Apparatus is a precision laboratory instrument used to determine the specific surface area (fineness) of cement and other powdered materials by measuring air permeability through a compacted sample bed. This apparatus is widely used in cement plants, research laboratories, and quality control facilities to ensure consistency in cement properties such as hydration rate, setting time, and strength development.



Key Features

- Accurate determination of cement fineness (specific surface area)
- Complies with international testing standards
- High-precision manometer for pressure measurement
- Durable borosilicate glass and powder-coated metal construction
- Stable and repeatable test results
- Easy-to-use and maintain laboratory setup
- Suitable for cement and similar fine powders

Applications

- Cement manufacturing plants (quality control)
- Construction material testing laboratories
- Academic and research institutions
- Third-party inspection and certification agencies
- Comparative analysis of different cement grades



Working Principle

The apparatus operates on the air permeability principle, where air is passed through a compacted bed of cement powder at a controlled porosity. The resistance to airflow is measured using a manometer.

- Finer particles → higher resistance to airflow
- Coarser particles → lower resistance

The measured values are used to calculate the specific surface area (cm^2/g) using the Blaine method.

Components

- Permeability cell (cement bed holder)
- Manometer (U-tube or inclined, with indicating fluid)
- Plunger (for uniform compaction)
- Reference powder (for calibration)
- Filter paper discs
- Stopwatch / timer
- Air source (hand pump or external vacuum)

Standards & Compliance

- IS 4031 (Part 2):1988 – Determination of fineness by air permeability
- ASTM C204 – Standard test method for fineness of hydraulic cement



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TECHNICAL SPECIFICATION

Parameter	Specification
Model	AZA0787
Test Method	Air permeability (Blaine method)
Specific Surface Range	1000 – 5000 cm ² /g
Manometer Type	U-tube / inclined with indicating fluid
Cell Volume	20 – 25 cm ³ (typical)
Sample Mass	2 – 5 g (depending on material)
Air Source	Hand pump / external vacuum
Construction Material	Borosilicate glass + powder-coated base
Accessories Included	Filter papers, plunger, timer, reference powder

Performance & Benefits

- High Accuracy: Reliable measurement of cement fineness
- Repeatability: Consistent results for quality assurance
- Process Optimization: Helps control cement grinding efficiency
- Versatility: Can be used for fly ash, pozzolana, and similar powders
- Non-destructive Testing: Sample remains usable



Operating Capability

- Suitable for routine laboratory and industrial testing
- Supports calibration using certified reference materials
- Enables comparison across different cement types and batches

Safety & Handling

- Stable base design to prevent tipping
- Clear glass components for visual monitoring
- Easy cleaning and maintenance
- Safe handling of manometer fluid required

